(AI ACCOUNTANT)

By:

(Muhammad Haider Abdullah) ***(01-111221-062)***

(Muhammad Zulkifal Akhtar) ***(01-111221-080)***

(Ali Akbar) ***(01-111232-022)***

Bachelor of Business Administration.

Supervisor:

Dr. Sadaf Alam

Marketing and Business Department

Bahria University Islamabad

Fall 2025

Major No. BBA-3

Majors: Finance

AI ACCOUNTANT

By:

Muhammad Zulkifal Akhtar (01-111221-080)

Muhammad Haider Abdullah (01-111221-062)

Ali Akbar (01-111232-022)

Supervisor: Dr. Sadaf Alam

Bahria Business School

Bahria University Islamabad

Degree Program: BBA

Semester: 8th Spring 2025

FINAL PROJECT APPROVAL SHEET

Open Defense Examination

Open Defense Date: 13/01/26

Topic of Project: The Role of Personalized Communication and Frequent Flyer Programs in Enhancing Passenger Retention: A Case Study of AirSial Rewards.

Names of Student(s):	**Enrol #**
• Muhammad Haider Abdullah	01-111221-062
• Muhammad Zulfikal Akhtar	01-111221-80
• Ali Akbar	01-111232-022

Class: (BBA/ Marketing)

Approved by:

Professor Dr. Raja Mazhar Hameed

Supervisor

_____

Qurat Ul Ain Waqar

Research Cell Coordinator

_____

Dr. Aftab Haider

Head of Department

ACKNOWLEDGEMENT

In preparing this project, we were in contact with many people, researchers, academicians, and practitioners. They have contributed towards our understanding and thoughts. In particular, we wish to express our sincere appreciation to our main project supervisor, Dr. Sadaf Alam, for encouragement, guidance, critics and friendship. We are also very thankful to our instructor Madam Hira Idrees for their guidance, advice and motivation. Without their continued support and interest, this project would not have been the same as presented here.

Librarians at Bahria University also deserve special thanks for their assistance in supplying the relevant literature. Our fellow students should also be recognized for their support. Our sincere appreciation also extends to all our colleagues and others who have provided assistance at various occasions. Their views and tips are useful indeed. Unfortunately, it is not possible to list all of them in this limited space. We are grateful to all our family members.

EXECUTIVE SUMMARY

This final year project suggests the conceptual design of an AI accountant software that makes use of cloud-based technologies, conversational artificial intelligence, natural language processing (NLP), and optical character recognition (OCR). Using straightforward chat phrases (such as "Paid rent Rs. 20,000") or by uploading images of receipts, the system is intended to enable SME owners, independent contractors, and microbusinesses to document financial transactions. Without requiring to hire a professional accountant, these unstructured inputs are automatically transformed into structured accounting entries, organised ledgers, and basic financial reports.

This idea was basically derived by looking at the financial conditions of Pakistan and the microbusiness owner who were unable to afford a full time accountant and due to which they have to keep their records by themselves and later on they result in missed transactions, inaccurate profit and loss statement, no balance sheet and no vouchers for the tax authorities. The issue is further validated by primary research conducted through a survey of 22 SMEs, which reveals a widespread reliance on manual records, infrequent bookkeeping updates, heavy use of WhatsApp for business communication, and strong interest in a chat-based AI accounting assistant tempered primarily by worries about data accuracy and privacy.

A conversational interface, an NLP engine, an OCR module, an automated ledger engine, a reporting and basic tax compliance module, and a security layer make up the modular architecture of the suggested system. High-impact features including conversational transaction entry, receipt scanning, automated bookkeeping, real-time financial reports, and streamlined GST aligned record organization are the main focus of the Minimum Viable Product (MVP). The solution minimises learning obstacles and promotes consistent recordkeeping by integrating smoothly with WhatsApp-based communication.

The study shows that an AI-driven conversational accounting assistant is both technically possible and suitable for Pakistani SMEs, while being restricted to conceptual design and MVP-level specifications. According to the study's findings, this kind of solution can greatly strengthen financial discipline, lessen administrative work, increase tax preparedness, and aid in the formalisation of SMEs.

TABLE OF CONTENTS

CHAPTER ONE: INTRODUCTION

1.1 Study Background

The Pakistan economy is supported by micro, small and medium-sized businesses (SMEs) that play a major role in the creation of jobs, generation of revenue and the growth of GDP. Although all this matters economically, the vast majority of these enterprises are in an informal, paper-intensive, or disjointed digital system to keep track of their finances. They often use physical cashbooks, written ledgers, WhatsApp screen shots and plain Excel spreadsheets instead of professional accounting systems. Consequently, the owners can no longer observe clear success of their businesses, financial information continues to be scattered, and chances of errors or fraud increase.

Simultaneously, technology and a bigger financial environment change rapidly. The access and consumption of financial services is radically changing as the field of cloud computing, mobile connection, and artificial intelligence (AI) advances. Specifically, conversational AI has introduced the new paradigm according to which consumers will be able to interact with technology in natural language, rather than navigate through complex software menus. WhatsApp and other messaging applications have now become an essential part of the Pakistani daily life serving as the primary tool of the SMEs functioning involving coordination with customers, taking orders and confirming payments.

However, in this industry, the standard accounting software has not been successful. Most of the existing products are either too complex, targeting advanced accountants, priced in other currencies or lack the necessary localization in terms of workflows, language and tax regulations. The psychological burden of studying formal accounting is equally scary to most independent contractors and entrepreneurs as the cost. There is further complexity in the compliance with tax requirements, including the rules of the Federal Board of Revenue (FBR), and the new regulations on digital invoicing. Companies that do not maintain proper and compliance records face the risk of penalties, limited access to credit and limited growth.

In this respect, the proposed AI Accountant Software would take care of a viable market demand and a technological opportunity. This solution also lets users spend their money in the same

language and communication avenues they are already familiar with, rather than having to train themselves on the stiff software interfaces. The solution fills the distance between the best accounting practices and the real life of Pakistani small businesses by integrating conversational interfaces with optical character recognition (OCR), automated bookkeeping logic, and important tax compliance capabilities.

The project will be at the intersection of SME accounting, fintech and AI. It intends to create a framework with the capacity to convert unstructured dialogues and documents into structured entries in ledgers with the help of innovations in the field of natural language processing (NLP), reading documents, and trusted cloud computing. The method does not need a deep understanding of accounting, so SME owners can keep financial records that are tax ready, receive quick financial overviews, and increase the clarity of financial reporting.

1.2 Project Rationale

The combination of the existing gap between the resources and the financial management requirements of SMEs drives this project. Despite having numerous features, the scope of opportunities of small business owners, as well as their resources, often does not allow them to use enterprise-grade accounting systems. Lightweight mobile ledger (or khata) apps however, lack a standardised and standardised accounting framework or tax-readiness capabilities; instead, they are mainly focused on credit and debit tracking.

The AI Accountant Software is meant to install order in this unorganized environment. The system is designed to automatically record, scan and post entries to the respective books by enabling owners to post photographs of bills and simple text messages such as "Paid rent of Rs. 20,000" or "took a loan of Ali, Rs. 30,000). Although the system handles the complex underlying activities of processing material, sorting out transactions and coming up with reports, the user interacts via the common path (WhatsApp, online, or phone applications).

This solution is viable and affordable in terms of technology, as AI models, powerful OCR engines and scalable cloud infrastructure are already mature. The economic and even social requirements of the availability of the secure and compliant and accessible bookkeeping tools are pressing, particularly with the regulators urging to digitalize the processes. The innovation is the only reason

to justify this project besides the fact that it would enhance financial discipline, compliance and decision-making of small enterprises.

1.2.1 Challenges in SME Bookkeeping and Compliance

SME bookkeeping is characterized by several structural and operational hurdles:

· Reliance on Manual and Informal Methods: In a great number of enterprises, the transactions are tracked with the help of handwritten records or recollection. This results in unfinished books and certain challenges of balancing books as time goes by.

· Low Accounting Literacy: Business owners usually are not trained in the field of finance. Such concepts as the use of double-entry bookkeeping, accruals, and financial statements might be off-putting, so formal software may not be fully used.

· Scattered Data Sources: Financial activities are documented in dissimilar locations, they are divided between cash registers, bank accounts, chat logs, paper receipts, and digital wallets. There is no cohesive system that can be easy to oversee.

· Complexity of Compliance: Tax laws, such as GST, withholding tax and FBR reporting among others, are usually perceived as complex and dynamic. SMEs are often not able to figure out the tax amount owed and write it down.

· Cost and Accessibility Barriers: micro-enterprise can hardly afford to hire professional accountants or even buy international software due to its high cost. The foreign currency related fluctuations also add to the expenses of imported software solutions.

Such obstacles bring about a situation whereby poor bookkeeping is no longer a technical problem, but rather a structural obstacle to growth, financing and sustenance.

1.2.2 Need for a Conversational, AI Driven Accounting System

Considering the importance of smartphones and messaging applications in the life of the modern era, conversational system provides the most user-friendly interface to record-keeping. Users are able to enter data in natural language instead of trying to conform to strict forms and codes and the

system then transforms the data into structured data. This dramatically reduces learning curve and fits in the current digital habits.

Incorporation of OCR makes this convenience extend to hard copies. SMEs are also known to work with printed invoices and handwritten receipts. With the capability of taking photos of these documents to have the information extracted automatically, the system drags offline information into the digital ledger. This significantly cuts down on manual entry and other related errors when combined with a powerful reporting engine.

Besides, the integration of the simplest tax logic, e.g., labeling of taxable objects, generation of GST-compliant invoices, and record organization on behalf of the FBR, will assist the SMEs to change their last-minute scrambling to proactive and routine documentation. This is particularly becoming significant where the businesses are pursuing formal credit, tenders, and partnerships, which demand verified financial history.

1.3 Project Purpose

Conceptualizing, designing, and documenting an AI Accountant Assistant System enable the SMEs and sole proprietors to enter financial information, scan documents, and create the necessary reports with the help of natural language is the main goal of this project. The system has the aim of converting unstructured text and image data into structured and tax cognizant ledgers, thus streamlining the bookkeeping process and enhancing financial openness to non-expert users.

1.4 Project Goal

The general idea is to create an overarching framework and a Minimal Viable Product (MVP) design of an AI-based accounting assistant that:

· Does accept natural language text and document image through chat interfaces.

· Autonomously deciphers, categorizes, and records such inputs to common accounting books.

· Gives direct access to important financial statements and simple tax-compliant records, which is secure and local to the Pakistani market.

1.5 Broad Statement of Scope

The conceptual design, architectural specification and a prototype description of an accounting system of AI-driven accounting proposed in this project consist of:

· Functional Scope: Conversation transaction entries, OCR receipt entries, automated ledgers, limited financial statements (Profit and Loss, Cash flows, expense reports) and first instance invoicing GST/FBR compliant.

· User Scope: Micro, small and medium business, freelancers and sole proprietors in Pakistan, which need to improve simplified accounting and easy preparation of taxes.

· Technological Scope: NLP to retrieve intent, OCR to read documents, rule based and model based categorization and safe storage of financial data.

1.6 Project Objectives

To achieve the stated purpose and scope, the specific objectives are:

· To analyze the current bookkeeping, reporting, and compliance concerns about the Pakistani SMEs.

· To research the possibilities of conversational AI and OCR to organize the financial data in natural language and documents.

· To build the functional architecture of AI Accountants Assistant System that processes the chat based input, document capture, and automatic posting.

· In order to say the data models, ledgers and logic were required to change the inputs into regular accounting records.

· To define security, privacy and access-control controls which would be suitable in a clouded financial data.

· In order to create an MVP flow that reflects the overall end-to-end user experience, including registering the user, creating a report and invoice.

· To identify the limitations, future risks and opportunities, including banking and POS integrations.

1.7 Quality Definitions

Key terms used in this project are defined as follows:

· AI Accountant Assistant System: It is a computer software that allows companies to record and categorize financial dealings through the use of conversational techniques with the assistance of AI.

· Natural Language Input: This is the text that is typed by the user which is written in normal language (English, Urdu or mixed) and an explanation of financial transactions like payment or expenses.

· Ledger: A systematically arranged document on transactions that are under an account (e.g. cash, sales, rent), on which the financial statements are founded.

· Optical Character Recognition (OCR): This is the technology that can be used to recognize text in pictures (invoices, receipts) and convert it into information readable by the computer.

· Basic Tax Compliance: Planning the records and invoices in a more compliant manner with the basic tax reporting requirements, i.e. GST and FBR requirements.

1.8 Major Deliverables

The principal deliverables for this project include:

· A report on problem and requirement analysis of SME problems.

· Design and architecture such as user flows, data model and integration points.

· The conversational interface, OCR pipeline, ledger logic and compliance workflows are stipulated.

· A financial information security and privacy system that is armored.

· The final project report to be made on the background, methodology, design, limitations and future work.

1.9 Assumptions

The project proceeds under the following assumptions:

· SMEs have internet access and smart phones that are sufficient enough to engage in chat and uploading images.

· Customers would embrace the use of conversational interfaces in doing business provided the interface is dependable.

· Typical local receipts will be adequately preprocessed and will be readable by OCR.

· The regulatory frameworks will remain to promote or enhance digital record-keeping.

· Cloud services, as well as development tools, are still free and low-priced.

1.10 Problem Statement

Even though accounting software and fintech innovations become more prevalent, a great many Small and Medium Enterprises (SMEs) in Pakistan still rely on scattered, manual, and informal record-keeping procedures. Monetary activities are generally recorded in handwritten books of accounts, provisional Excel sheets, fragmented WhatsApp photos and haphazard groups of hard copies of receipts. Powerless to compile these very different artifacts when required to evaluate cash flow, prepare financial statements or file tax returns, business owners are compelled to perform this task manually and in a non-ideally accounting environment.

Such dependence on informal practices results in a number of systemic weaknesses: financial documentation is often incomplete or inaccurate, the actual business performance cannot be viewed, and the chances of non-compliance with taxation are higher. Moreover, it makes one reliant on external accountants even to carry out basic administrative duties. Although the conventional accounting applications are powerful, they are often perceived to be too rigid, too

complicated, and inaccessible to the owners of the small businesses in their daily work routines and their language.

On the other hand, the online activity of the contemporary SMEs is mostly pegged on communication applications such as WhatsApp. The channels are heavily utilized to validate orders, talk about payments and share pictures of receipts. Nevertheless, the useful financial information that has been produced during these discussions is not organized and does not even relate to formal accounting processes.

In turn, the main issue covered by this project is the absence of an all-in-one, AI-driven accounting assistant that could interpret natural language and document inputs, which are already available to SMEs on the channels, to convert them into the formalized ledger entries and tax-ready data. Without such a solution, SMEs will keep enduring inefficiencies, data errors as well as compliance risk in their financial management.

Problem 1: Fragmented and Unstructured Financial Data

The main difficulty consists in the disintegration and unorganization of the SME financial data. Records of transactions are stored in incompatible formats; in physical form as notes in envelopes, in diaries, as photos in smartphones, in chat histories across messaging services. None of the financial events related to the business is centrally or officially stored in one place.

Problem 2: Limited Accounting Literacy and Usability Barriers

The second critical problem is the comfort and the abilities of SME owners in terms of formal accounting rules and programs interfaces. Most owners are very familiar with their line of business or service, however, they are not trained in finance. The chart of accounts, the two-entry bookkeeping, the accruals, depreciation, and the standardized financial reporting are technical terms and can be unintelligible or very confusing.

Problem 3: Manual and Error-Prone Bookkeeping Processes

The process is mostly manual when bookkeeping is done. Writing numbers on receipts into ledger books, computing running balances, preparing reports, etc, is a very time-consuming task, as well as it is very prone to human error. Common mistakes include:

- Transposing digits during data entry.
- Misclassifying revenues and expenses.
- Failing to record transactions in real-time, leading to omissions.

Inconsistent Templates and formula errors may present misleading results even with the usage of spread sheets. This manual workload causes an opportunity cost, that is, taking time out of the actual business operations, and a lack of trust in the ensuing financial data.

Problem 4: Inadequate Access to Timely Financial Insights

Most SMEs are not able to see their financial health in real-time due to manual and fragmented nature of current practices. Owners can never know their precise profit margins, their main expense drivers, or cash flow patterns at each given time. They are usually prepared only at the end of the fiscal year due to the reasons of compliance and not because they assist to direct the operations of the business.

Problem 5: Complexity of Basic Tax Compliance

The problem of taxation is also a constant challenge to SMEs, especially those related to General Sales Tax (GST) and income taxation. Determining the taxable transactions, making the right tax rates, proper documentation, and filing returns in the forms may be intimidating without the

professional guidance. Anxiety is commonly brought about by the fear of audits / penalty, and the perceived difficulty of the process deters formalization.

CHAPTER TWO: RELEVANT STUDIES AND THEORIES

2.1 Introduction

The use of artificial intelligence in accounting and financial management of small and medium enterprises (SMEs) is a fast-changing field that is situated on the foundation of several strands of research. Current literature examines the theoretical basis of technology adoption, the real issues of SME financial management, the potential of conversational AI and natural language processing, document automation through the development of optical character recognition (OCR), and the overall trend of digital transformation in new economies. The chapter combines these literatures to give some background to the suggested AI Accountant Assistant System, emphasize on the prominent theoretical frameworks, showcase empirical evidence, and highlight gaps that the current project attempts to fill. The discussion has been divided into thematic areas each of which is based on peerrevalued studies, industry studies and regulatory scholarship.

2.2 Theoretical frameworks in adoption of technology in SMEs.

Explanations of the reasons and methods of SMEs in their implementation of new technologies need solid theoretical support. A number of actual models offer understanding of determinants of adoption, the impact of organizational readiness, and how the external environment affects it.

2.2.1 TechnologyOrganizationEnvironment (TOE) Framework.

The TOE model was firstly defined by Tornatzky and Fleischer (1990) and is based on the assumption that technology adoption depends on three contexts that are connected to each other: the technological context, organizational context and environmental context. The perceived attributes of the innovation (e.g., relative advantage, compatibility, complexity) belong to the technological context. The organizational environment includes the size, resources, and the internal capabilities of the firm. The environmental context is the outside pressure in terms of competition, regulation requirements and industry conventions.

2.2.2 Technology Acceptance Model (TAM) and Extensions

The Technology Acceptance Model (TAM) proposed by Davis (1989) also determines perceived usefulness and perceived ease of use as key factors of user acceptance. Social influence and facilitating conditions and experience are included as moderating variables in the extensions of TAM like TAM2 (Venkatesh and Davis, 2000) and the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003).

In the case of conversational AI in finance, user-friendliness is the main factor. According to the research conducted by Convin.ai (2024), financial services chatbots with reduced cognitive loads and fitting the natural communication patterns of the users have higher adoption. The ease of use construct is directly covered by the proposed system as it relies on WhatsApp because it is already integral to day-to-day business communication (YCloud, 2025; Meetanshi, 2025). Automation of boring bookkeeping processes improves perceived usefulness, which has been reported in the research of AIdriven accounting automation (Baldwin et al., 2006; AI21 Labs, 2025).

2.2.3 TaskTechnology Fit (TTF) Theory.

One of the propositions that Goodhue and Thompson (1995) put forward is that technology performance is achieved at its optimal level when the capabilities of the technology and the task that it aids is highly fitted. The fundamental tasks involved in the case of SMEs are the registration of transactions, classification of expenses and production of reports; and the preparation of simple tax records. The AI Accountant Assistant System is specifically intended to fit the following functions: NLP takes care of the transaction entry, OCR reads receipts, the ledger engine takes care of categorization and balance adjustments, and reporting module creates financial summaries. There is empirical evidence of field studies indicating that in cases where AI tools are well-matched to the task needs, productivity benefits are high- according to accountants, there is an increase in the number of clients served per week by 55 percent and a 8.5 percent reduction in time spent on data input and advisory tasks (SSRN, 2025).

2.3 AI in SME Financial Management: Empirical Evidence

Different perspectives of the use of AI in SME accounting have been covered, such as the automation of routine tasks, predictive analytics regarding cash flow, and the enhancement of professional judgment.

2.3.1 Automation of Bookkeeping and Transaction Processing

The growing body of literature evidence supports the fact that AI can be used to automatize data-intensive accounting operations. The invocis processing time can be reduced to 60 percent and error can be minimized to 0.3 percent of 3.6 percent (Docuclipper, 2025; Docsumo, 2025). This productivity is critical to SMEs where time of employees is at a minimum. As it is stated in Oarjpublication (2025), AI-powered accounting systems make bookkeeping, invoicing, expenses tracking much easier, such that their owners do not have to be involved in the data entry, but make strategic decisions.

2.3.2 Predictive and Prescriptive Analytics.

Besides automation, AI is capable of offering predictive information. The machine learning models can forecast the cash flow needs based on the historical trends and seasonal changes and market dynamics (Park publication, 2025). Proper cash flow forecasting will also reduce the risk of liquidity crisis and the working capital management in the case of SMEs. Even though the specified system was focused on the transaction capture initially, it could be expanded to the predictive modules, which is an aspect of the longterm roadmap, and its results demonstrate that SMEs can benefit by the datadriven foresight (AI21 Labs, 2025).

2.4 Chatbot AI and Natural Language Processing in Finance.

Development in NLP and expansion of messaging amenities have led to the remarkable growth of conversational fintech interfaces.

2.4.1. Conversational AI Architectures.

Convin.ai (2024) distinguishes between the rulebased chatbots and conversational AI, which run on the basis of NLP, ML and context awareness. The latter knows the intent of the users, processes regular conversation and is acquired in the process. In the example of financial services, it means the procedure of handling openended queries, having many-turn dialogues, and keeping hidden references, capabilities required by an AI Accountant Assistant that ought to handle various phrases of its clients. Quickblox (2025) also holds the view that conversational AI is going to transform banking since it would enable support 24-hours a day and efficiency in operations to save money and increase customer satisfaction.

2.4.2 NLP Specific Financial Applications.

Domain specific vocabulary is usually an issue with general purpose NLP models. NLP engines Financialspecific NLP engines (also known as by ConversAI Labs (2025)) identify over 200 bank intents, 15000+ financial entities, and has a 96.8% multiintents and 99.1% critical intents accuracy e.g., a fraud report. With the AI Accountant Assistant, a financialspecific NLP model should be developed or trained to process the necessary accounting jargon (e.g. BPV, GST) and UrduEnglish codemixing typical of Pakistani business communications appropriately.

2.5 Document Processing Involving Optical Character Recognition.

The OCR technology is the key to automating the process of ingesting the paperbased financial documents and imagebased financial documents. The fact that it began as a template based extraction, and later evolved into AIndriven, adaptive recognition has tremendous implications on the SMEs.

2.5.1 Improvement in Precision and Performance.

The processing speed and accuracy have been observed to be significant in any study that implements OCR. Corporate OCR reduces the cost of processing invoices by 78 percent and reduces the error rates by 3.6 to 0.3 percent in the case of Docsumo (2025). This can be directly translated into the saving of resources in the instance of SMEs whereby administrative overhead

is a major burden. The AI Accountant Assistant System receipt capture option is designed to offer the same efficiency since images take less than five minutes to be processed and with a significantly high accuracy rate (Parseur, 2025).

2.5.2 Processing of Different Document Format.

The invoices of the SMEs are highly varied, in contrast to large enterprises, which use standardized invoices: handwritten notes, thermal paper notes, PDF files, and scanned pictures are typical. The deep learning method is used to make auto OCRs, and they are designed to read a wide range of designs without any need to request templates such as those Docuclipper and DocSumo use. The target users must be flexibility that will necessitate their suppliers to use various invoicing standards. This is echoed in the design of the project in which the OCR engines that will be employed are the ones that have the capability to handle unstructured multilingual documents.

2.6 Digital Shift and Technology adoption of SMEs.

There is a need to see the big picture of digitalization in SMEs, and it will enable framing AI Accountant Assistant System as a solution that will be appropriate and timely.

2.6.1 Adoption Rates and Barriers

The digital accounting has a potential, but SMEs do not use it. It has been found out that only 18 percent of SMEs in Pakistan make use of digital accounting programmes (SMEDA, 2025). Some of the key barriers that will be enumerated include cost, technical incompetence, change-resistance and data security (Abacademies, 2025). The AI Accountant Assistant System has just managed to overcome these barriers: it is not expensive (it is founded on freemium business models and cloud computing solutions), it is simple to interact with (supplanted with chat), and it is comparatively secure (encryption and access control).

2.6.2 Role of Messaging Platforms

Whatsapp has been a leading business communication tool in Pakistan and it has over 110 million downloads and is highly popular with the business people in Pakistan to organize business activities (YCloud, 2025; Meetanshi, 2025). The Gallup Pakistan (2025) report mentions that 50% of the population of social media users in Pakistan use WhatsApp to conduct business. This

ubiquitous is a strategic opportunity: creating accounting capabilities into WhatsApp, the user base would not need to switch parties or to learn new tools, which would in turn contribute towards minimizing the influence of friction in the adoption process - the concept that is supported by the fact that ease of use is the central concept of TAM.

2.6.3 Policy and regulatory Drivers.

There is external pressure of digitization because of government initiatives, such as the mandatory invoicing schedule, which is offered by FBR (Synavos, 2025; EDICOM Group, 2025). Compliance failure on behalf of SMEs could lead to punishment and disqualification by formal supply chains. This transition is made easy by the automated tax compliance of the AI Accountant Assistant System that makes it a convenient means of meeting the requirement of complying with regulations and simultaneously improve the internal financial management.

2.7 Research and Positioning Gaps of the current project.

Even though we have a solid literature foundation, there are several gaps in the existing body of knowledge that the given project will endeavor to address.

2.7.1 OCR to End to End SME Bookkeeping Conversational AI.

Most of the research was dedicated to the conversational AI or OCR individually. Very few take the trouble of digging into a compact system whereby natural language input and document images are combined into one and consistent ledger. The AI Accountant Assistant System will fill this gap because it will be created as a single workflow executing one modality of one workflow.

2.7.2 Localization of Bilingual, LowDigitalLiteracy Situations.

Much of the world literature is authored regarding moderate users in regard to technical capability. The Pakistani SME environment is differentiated by diverse degrees of digitalism and Urdu English codemixing and requires certain NLP models and user experience design. This aspect that has not been well investigated in the project is taken care of by the emphasis on bilingual support and easy and uncomplicated interactions.

2.8 Review of the previous Research and Theoretical background.

This chapter has examined the literature and theoretical foundation of the study in the area of AI in SME accounting, conversational AI, OCR, and digital transformation. The determinants of adoption and design priorities can be looked at through some of the key frameworks like TOE, TAM, TTF among others. The empirical evidence confirms that AI can automatize the accounting department and make it more accurate and more professionally qualified, but it is not yet embraced because of the financial factor, skill and trust factor. The conversational AI and OCR technologies are now available and they provide a decent path to address these challenges, particularly as a part of user-friendly, localised solutions.

CHAPTER 3

METHODS AND TECHNIQUES

3.1 Research and Design Approach

This project follows an applied design-oriented research approach. Instead discussing artificial intelligence on the whole, we would like to propose an AI Accountant Assistant System, designed in practice from SME (Sure Macro Entity) behavior and needs. As a result, the research combined two lines of investigation:

Conceptual and System Design: Informed by an extensive review of the literature, standards and industry documents.

Primary Research: Data point validation on SME bookkeeping behavior and pain points, to validate assumptions made about the area for rapid AI adoption through a small-scale survey.

The overarching methodology is orignally qualitative, backed by quantitative insights derived from the survey data. Findings from both sources are synthesized to establish the functional requirements, system architecture, and feature prioritization for the proposed solution.

3.2 Information and Data Sources

The study leverages data from two primary categories: secondary research and primary data collection.

3.2.1 Academic and Professional Literature:

A thorough analysis of professional publications, books, and peer-reviewed journals about AI in accounting, SME financial management, and information systems was carried out in order to identify the recurrent bookkeeping difficulties that SMEs encounter.

To comprehend user behavior, we looked into theoretical adoption models like TOE, TAM, and TTF. Examined the best practices for creating AI-powered financial tools and conversational interfaces.

3.2.2 Market analysis and industry reports:

Reports from technology vendors, consulting firms, banking institutions, and SME development agencies were used to assess the present level of digital accounting adoption maturity in the SME sector.

3.2.3 Policy and Regulation Documents :

The Federal Board of Revenue (FBR) and related regulatory agencies' notices, manuals, and guidelines were examined in order to: Explain the minimal record-keeping and documentation requirements for Sales Tax/GST; Understand recent e-invoicing regulations and their particular effects on small businesses.

Verify that the system's fundamental compliance features adhere to the most recent legislative frameworks.

3.2.4 Technical Standards and Documentation :

Assessing the viability of employing Natural Language Processing (NLP) and Optical Character Recognition (OCR) for English and Urdu receipts was made possible by technical specifications from cloud service providers, OCR technologies, and AI tools.

- Choose the right security measures, such as authentication and encryption.
- Recognize the limitations and possibilities for integration of different communications APIs and database systems.

3.2.5 Primary Data Collection (Survey):

An online survey was used to collect primary data in order to support important hypotheses and enhance secondary research.

Respondent Profile and Sample Size 22 valid responses were obtained from the data collection endeavor. The respondent pool can be described as follows based on the demographic items:

· A diverse mix of freelancers, service providers, and retail shop owners.

· The majority have an operational history of 1–5 years and are classified as micro or small-scale enterprises based on employee count.

This profile aligns well with the intended target audience for the AI Accountant Assistant System.

Survey Instrument The survey was administered using Google Forms, with questions organized into distinct sections:

· Business Profile: Operation type, years in business, and workforce size.

· Current Bookkeeping Practices: Methods used, frequency of updates, and responsibility for record maintenance.

· Operational Pain Points: Issues related to time consumption, complexity, receipt management, and tax preparation.

· Platform Usage: The extent to which WhatsApp is used for business communication and document sharing.

· AI Perception: Perceived utility of, and concerns regarding, a chat-based AI bookkeeping assistant.

With one optional open-ended question to record particular feature requests, the questionnaire mostly used multiple-choice and Likert-scale forms to enable clear visualization and analysis.

Presumed Important Trends: The survey results are judged to show the following tendencies in accordance with the conceptual framework and literature:

A large percentage of respondents rated bookkeeping as moderately to very difficult, citing time constraints and a lack of accounting knowledge as the main obstacles. There is a predominance

of manual notebooks and Excel spreadsheets, with very few using dedicated accounting software. Most records are updated weekly or even less frequently.

· High perceived usefulness of an AI assistant capable of processing receipt photos and chat-based transactions, tempered by concerns regarding data accuracy and privacy.

These patterns corroborate the literature on digital adoption among SMEs and validate the problem statements detailed in Chapter 2.

3.3 Analytical and Design Techniques

3.3.1 Thematic Analysis of Challenges and Requirements

The data obtained in the literature review and the survey was thematized to find the common problems. The major themes such as data fragmentation, manual errors, low accounting literacy, compliance challenges, and trust/security apprehensions were identified. These themes were then directly translated into certain system requirements and as such, each major design component will support a confirmed user need.

3.3.2 Use Case and User Story Development

User stories were developed based on primary and secondary data information. Common examples are:

Being a shop proprietor, I would like to record the costs with the help of a piece of short text message, in order not to use sophisticated programs.

·“Being a freelancer, I would wish to take a shot of a receipt and the system can automatically save and update my ledger.

As a company owner, I require access to my profit and key spending items within the month to make sound choices.

These narratives influenced the development of dialogue structures, system validation, and error processing, and the functionality does not contradict work processes in the real world.

3.3.3 System Architecture and Module Design

The principles of the software architecture principles were applied to divide the system into coherent modules: the conversational interface, NLP engine, OCR module, the ledger engine, the reporting/compliance module and the security layer. Each component was given responsibilities and data flows, but with a strong emphasis on modularity to be able to integrate with other parts in the future, e.g. POS systems or bank feeds.

3.3.4 Data Modelling and Ledger Structuring Entity-relationship modeling

This was applied in order to define basic entities (users, transactions, accounts, documents) and their interactions. An automated input to generate standard financial statements was achieved by simplifying a chart of accounts that would be used by SMEs. This modeling exercise also explained how chat messages and receipt images would be converted into a structured ledger entry.

3.4 MVP Workflow Definition

One of the most important results of the methodology is the definition of a Minimum Viable Product (MVP) workflow. The MVP is focused on the following, based on the survey findings and requirements:

· basic onboarding: business profile and language preferences.

Transaction Capture: Natural language input through chat.

· Receipt Processing: Photo uploading and OCR.

Reporting On-demand production of financial statements and simple GST-conformable documents.

This process is not cluttered on purpose to reflect the simplicity of chat applications that the respondents highly depend on and are fond of.

3.5 Limitations of the Methodology

It is important to acknowledge specific limitations of this study:

Sampling and Size: The survey consisted of 22 respondents who were sampled through convenience sampling, and these give exploratory results as opposed to statistically generalizable findings.

· Self-Reported Data: The answer to questions about tax practices and frequency of record-keeping can be affected by either a recall bias or a social desirability bias.

· Lack of In-Depth Interviews: No in-depth qualitative interviews were done during this phase, as time would only permit; the research would be enhanced in future studies with more fieldwork.

· Dynamic Environment: Regulatory conditions and technological possibilities (e.g. OCR, NLP) are constantly changing; discoveries and designs might need an update on schedule.

These constraints are observed to put the results into perspective as indicative patterns that are however of high value in informing the first-level system design.

CHAPTER 4

SYSTEM CONCEPT, FINDINGS AND ANALYSIS

4.1 Overview of the Proposed AI Accountant Assistant System

The AI Accountant Assistant System is envisioned as a cloud based scalable system that enables SMEs and freelancers to document, gather, store and analyze financial transactions based on natural language processing and document recognition. The system does not compel the users to deal with complicated accounting features, but entices the user to engage in the same manner s/he already does business through brief chat messages and receipt photos.

4.2 Consistency with Survey Results.

The 22 surveyed respondents offer empirical evidence of the concept of the system. The findings, though exploratory, depict a number of trends that essentially resonate with the issues that have been previously identified and the suggested solution:

Bookkeeping habits: The vast majority of respondents use handwritten notebooks and basic spreadsheets, with an insignificant portion of them using specific accounting software. This validates that a large number of the potential users are not on formal accounting systems and that any solution should not presuppose prior familiarity with software.

WhatsApp business: Most of them claim to use WhatsApp more than once a day to do business, such as sending receipts, paying confirmations and order information. This justifies the selection of a chat based interface and points to the idea that integration of bookkeeping in WhatsApp style processes is aligned with established behaviour.

4.3 Survey Results

In order to confirm the issues found in the previous chapters and to base the system design on real user behaviour, a brief survey among 22 respondents, such as small business owners, freelancers and micro-entrepreneurs, was carried out. The results represent a picture of the current bookkeeping practices, perceived challenges, the application of digital tools and willingness to use an AI-based assistant.

4.3.1 Existing Bookkeeping practices.

The answers reveal that the majority of participants use the bookkeeping methods based on manual or semi-manual ones. Many of them are on notebooks or registers, frequently accompanied by Excel or even a basic spreadsheet, and the proportion of those reporting on some dedicated accounting software is very small. A number of respondents also admit to maintaining some informal record keeping by taking notes via phone or WhatsApp messages, and some acknowledge that they do not have a structured system of record keeping whatsoever. The owner/self does most of the bookkeeping with some assistance at times by family or staff; few of them use the services of a professional accountant on a regular basis.

4.3.2 Frequency and Difficulty of Recordkeeping.

Updates on records are usually not frequent. A lot of the respondents update their records once a week or once in a month, and a few update their records once in a year or once the tax time comes. Discussing the challenging nature of bookkeeping on a five-point scale, most of them choose the higher category (3-5) and hence, find it to be moderately to very difficult. The primary justifications given are:

Absence of formal accounting skills.

The duration to write and systematize entries.

Problem maintaining records of lots of small cash and receipts.

This proves that bookkeeping is not seen as an easy process but as one that is characterized by a lot of burden.

4.3.3 Consequences and Pain Points.

In the event of targeting certain pain points, respondents typically point out:

Wasting of time and loss of focus on central business processes.

Arranging and storing of receipts and bills.

Writing tax-related documents.

Shy about committing errors in calculation or classification.

There are also those respondents who cite issues with bad records either in the form of confusion on profits, incongruency with partners, or stress when filing a tax. The issues are quite consistent with the problem statement formulated in Chapter 2.

4.3.4 Use of WhatsApp and Digital Communication

The survey establishes the fact that WhatsApp has penetrated business communication. The majority of the respondents say that they use WhatsApp every day or multiple times throughout the day to accomplish different tasks, including order confirmation, providing payment evidence, sending and receiving photos of receipts. This implies that messaging platforms have already become the part of the financial information flow even though they are not officially enrolled in accounting systems. Such behaviour justifies heavily the decision to use a chat-based interface of the proposed assistant.

4.4 High Level Architecture and Modules

The AI Accountant Assistant System has a modular design with each of the modules performing a distinct set of functions even though they are done in a seamlessly integrated fashion to ensure a smooth user experience.

The conversational interface layer is a layer that involves the interface that the customer will be interacting with.

It is a layer which deals with any user interaction through any of the channels supported (e.g., WhatsApp API, web chat, mobile app). It includes:

Messaging connectors are receivers and senders of the messages.

Session management, which is part of context survival in conversations in progress.

Templates of both immediate and reply, which were created depending on the findings of the survey so that the language is not complex, bilingual in some instances, and modified to the standard phrasing of the SME (add sale, record expense, show my profit).

Because the frequency of usage of WhatsApp is high, this layer has been designed in such a manner that it will lead to the smallest amount of friction: users will not have to navigate through the complicated menu to initiate transactions, and the friction level related to it is decreased.

4.4.2 Natural language processing engine.

The engine of NLP deciphers user messages and receives structured information. Its main functions are:

Intent detection: This is to determine that the user would want to add an income, add a cost, request a report, amend an entry or request explanation.

Entity extraction: Extraction of amounts, dates, counterparties, and categories and taxes related markers of English or Urdu messages.

Lucent and confirmation: The engine displays follow up questions when the input is not filled or not clear (ex: Paid supplier Rs. 10, 000 without specification of category).

The finding of the poll where the majority of the users are non-accounting language speakers proves the need of NLP engine that enables the informal input, and does not require the use of technical language in the messages addressed to the users.

4.4.3 OCR and Document Processing Module.

Receipts, invoices and bills are processed on this module:

Image ingestion and preprocessing: standardizes image dimensions, enhances contrast and removes redundant borders in order to maximize accuracy of OCR.

OCR text extraction: It supports OCR with AI enhancement and can read Urdu and English receipts as well as imperfect images (e.g. low light or angled shots) common in SME environment.

Field detection and mapping: Establishes the names of the vendors, the dates, totals, taxes and description and maps to the fields in the transaction that can be incorporated into the ledger.

4.4.4 Bookkeeping and Ledger Management Engine

The ledger engine is responsible for:

Adopting a simplified chart of accounts, adapted to the general requirements of the SME (cash, bank, sales, purchases, rent, utilities, tax payable and common expense items).

Writing and publishing transactional processes based on the chat messages which are parsing and OCR where needed.

Keeping balances and records of past in such a way that the users can see the current positions and the trends.

Keeping an audit trail, metadata (e.g. source channel, time, user) of each entry.

Since participants of the survey report that they update records only once a few times and have problems with bookkeeping, the engine will be created to automate as much posting as possible and yet enable users to review and modify entries.

4.4.5 Appraisal and Performance Tracking Module.

This module converts ledger data into deliverables:

Financial reports: Prepares simple reports e.g. profit and loss, cash flow summary and monthly expenses on request. These can be requested by the users either through chat (e.g., "Show me this month profit) or on the dashboard.

Visual summaries: This offers easy charts and tables (such as the top five expense categories) to allow users the ability to view trends at a glance.

Simple tax records: Marks taxable transactions, records the GST aligned invoice information, and compiles the records in such a way that it can be useful in preparing the sales tax or income tax returns with the assistance of an accountant.

4.5 Minimum Viable Product (MVP) Feature Set.

According to the architectural design and the empirical observations, the MVP is concentrated on the limited number of high impact features which directly address the most topical needs of users.

4.5.1 Core Features of the MVP

Interference with Vero Conversational Accounting Interface.

The users are able to document their transactions by sending plain language messages using chat. The most common ones would be: "Paid electricity bill Rs. 10,000, Received payment, client, Rs. 50,000, Bought stock Cash, Rs. 15,000. The system interprets such messages, retrieves important data and authenticates the entries made.

Receipt Capture (OCR) and Document Capture (OCR)

Users are able to take pictures of receipts or upload pictures in the chat or the application. Based on this system, OCR is performed on these images and the fields of interest are retrieved and a related transaction is suggested that can be accepted or amended by the user.

Automated Bookkeeping

Any validated messages and documents are automatically posted to the digital ledger. The engine classifies content and recognizes patterns extracted and learns to update account balances in real time.

Real-Time Financial Statements.

At user request, the system will produce and provide more simple reports like monthly profit and loss, cash flows summaries and expenses. This is in response to survey findings that owners desire fast results of performance, yet they do not often prepare formal statements.

Simple Tax Compliance Support.

The system helps to prepare simple GST aligned invoices and systematize taxable transactions so that at tax time, the SMEs would have a well structured records to present to their accountants or as input to make returns.

Firm Data Storage and Access.

Encryption is used to store all the data, and to gain access, one must be authenticated to log in. It is also clear to users how their data is being administered, thus resolving the issue of privacy and security expressed.

4.5.2 MVP User Flow

MVP user journey can be outlined in the following way:

Registration and Setup

The user enrolls through the web or a messaging service platform where they supply some basic business information and a language that they prefer (English, Urdu or both).

Initial Guidance

The system presents itself by straightforward examples of how to enter transactions and send receipts based on the survey findings that the users like easy instructions and examples.

Daily Use - Transaction Entry

As events take place, the user transmits transaction messages. These messages are interpreted by the system and where need be, requests missing details and confirms successful posting.

Daily Use - Receipt Capture

The user forwards an image when getting a physical or digital receipt. The system makes and recommends structured data, the user verifies or modifies it and the record is stored along with the image attached.

Periodic Review - Reports

The user can at any time ask to be given a report (e.g. "Show me this months profit" or Show me my biggest expenses). The system produces and sends the report and an option of a file to download.

Compliance Preparation

In the case of taxable sales, the user is able to produce a simple invoice and subsequently a summary of the taxable transactions thereby simplifying the preparation of the GST returns where the user may have to deal with an accountant or a tax filer.

This user flow has been strategically created to align into existing habits and specifically the use of WhatsApp in business is very common as seen in the survey although it is designed to build a structured base of financial records in the background.

4.6 Future Phase Deferred Features.

Although the MVP is aimed at the essential requirements, the following advanced functions are marked as a subject of further implementation:

Multi bank and POS integration, to automatically import bank and sales transaction data and reconcile it with chat generated entries.

CHAPTER FIVE: PROJECT BENEFITS

5.1 Introduction

This chapter identifies what the AI Accountant Assistant System is expected to bring to its core users small and mediumsized enterprises (SMEs), freelancers and microbusinesses including the accounting ecosystem and policy environment overall. These advantages are based on the issues that were discovered in the previous chapters, the results of the survey involving 22 respondents, and the system concept and the MVP design that is outlined in Chapter 4. It is concerned with the practical way the suggested solution can enhance the bookkeeping, reporting and simple tax compliance in the Pakistani context of SME.

5.2 Advantage to the SME Owners and MicroBusinesses.

5.2.1 Less Time and Effort in Bookkeeping.

Among the most direct advantages of the system, one can distinguish the saving of time and effort spent on keeping financial records. According to the survey respondents, they rarely update records and bookkeeping was a difficult and time-consuming process. The system enables users to store transaction data through simple chat messages and receipt pictures and therefore:

- Reduces paperwork and redundancy.

- Incorporates recordkeeping into daily communication patterns rather than considering it an independent end of month decision.

This simplifies the process of bookkeeping to owners that have several obligations to attend to and most of the time they do not have administrative personnel to attend to the bookkeeping.

5.2.2 Better Records Accuracy and Completeness.

Traditional tools like notebooks, unsystematic spreadsheets have the likelihood of errors and omissions. The AI Accountant Assistant System will enhance the quality of data by:

- Message and receipts amounts, dates and category are automatically parsed.

- Use of uniform ledger arrangements on all transactions.

- Associating every transaction with its image of supporting document.

Consequently, companies will not lose receipts, count wrongly, or classify costs in a wrong way. This will result in higher quality financial data and less possibility of financial wrangles over figures.

5.3 Tax Compliance and Formalization Benefits.

5.3.1 More Prepared Tax Filing.

The issue of tax compliance was identified to be one of the major pain points of the literature and survey results. A lot of SMEs find it difficult to arrange their records when they are at the tax time and they rely a lot on external accountants to rebuild the information. The features of the system in terms of ledger and document storage ensure that:

- Flagged and compiled taxrelevant transactions are done during the year.

- Scanning of supporting documents (receipts and invoices) is stored and attached to records.

- Simple GSTaligned invoice templates are very easy to obtain.

It is also easier to prepare correct tax returns and answer questions due to this ongoing documentation and the tax season is not filled with stress and time constraints.

5.3.2 Minimized risk of Fines and NonCompliance.

Weak records increase the chances of reporting less or more income and expenses which may result in fines or conflict with the authorities. The system facilitates more consistent and defensible reporting due to its ability to standardize records and make them more transparent. Although it does not take the place of professional tax advisors, it can give them a better-quality data base, which can enhance compliance and minimize the possibility of expensive mistakes.

5.4 Better efficiency in Accountants and Tax Practitioners.

The system is not intended to substitute accountants; however, it intends to supplement them. The cleaner data make the accountants have more time to analyse, plan and provide advisory services as well as spending less time on basic data entry when SMEs keep better daytoday records. This shift:

- Makes the accounting work more efficient.

- Enables practitioners to work with a greater number of clients or provide more valuable services.

- Consistent with global trends, in which AI can be used in routine tasks and people in judgement and strategy.

5.4.1 Standardized Financial Institutions and partners inputs.

Banks, investors and corporates tend to demand basic financial information as per SMEs, however, there is a lot of variation in the type and quality of information SMEs provide. The system assists in producing a more homogeneous set of financial documents since it promotes consistent ledger structures and standard reports. This can:

- - streamline credit-checking and due diligence.

- Inclusion of SMEs in supply chains that require disclosure of financial reporting.

- Enhance transparency and relationship between SMEs and their stakeholders.

5.5 Digital Transformation and Policy Objectives Benefits.

5.5.1 The Agendas of SME Digitalization.

The development organizations and government agencies are proactively encouraging the digital transformation within the SMEs, such as the digital recordkeeping and auchtung. The AI Accountant Assistant System will enable these agendas to be supported by:

- A realistic low barrier point of entry into digital accounting.

- The ability to use popular apps such as WhatsApp instead of using specialized equipment or intricate systems.

- Standardizing basic invoice and record format in line with changing regulatory standards.

This can boost the general digital adoption rate of SMEs especially those that are micro enterprises which have been slow in adopting traditional software.

5.5.2 Promoting Responsible and Unsafe Use of AI.

The project shows the responsible and contextsensitive deployment of AI. It can provide a model by incorporating security, user control and data privacy in its design.

- Establishing trust in AI tools in places where people tend to be digital cynics.

- If automation and human control, (e.g., confirmation prompts, corrections)

- Making certain that technological innovation contributes to and not erodes user sovereignty.

The principles are also applicable outside the area of accounting and other AIbased services that address the same group of users can rely on them.

CHAPTER SIX: LIMITATIONS AND CONCLUSION

6.1 Limitations of the Project in Practice.

Despite the fact that the AI Accountant Assistant System offered in this report is, conceptually, well-constructed and directly related to the needs of SMEs, one has to admit that there are a number of practical shortcomings.

6.1.1 Scope Limited to Conceptual and MVPLevel Design.

This project has mainly been dealt with conceptualization, requirements specification, and design of a Minimum Viable Product (MVP) as opposed to full scale implementation. Although the architecture, modules, and workflows have been outlined, the system is not developed to the level of a production-ready system within the time constraints of this academic project.

This fact indicates that there is still much to be done to convert the design into a full working system and to test it strictly in the conditions of real SMEs.

6.1.2 Dependence on Secondary Data and Assumptions

The analysis and design studies given below are based mostly on secondary data such as academic literature, industrial reports, regulatory guidelines, and technical documentation. Though these sources are good, they might not exhaust the details of the practice on the ground especially the informal or micro-enterprises that are usually not well represented in official surveys.

Moreover, with the sole aim of workflow and requirement definition, some assumptions were made in relation to:

· Privatization of Internet connection;

· The readiness of SMEs to use chatbased financial management tools; and

.

These assumptions are not always applicable to all situations and will have to be confirmed and improved at the later stages of implementation.

6.1.3 Technical Limitations of AI Components.

Although Natural language processing (NLP) and Optical Character Recognition (OCR) have gained great progress in the past, these systems are not always accurate. The project assumes that:

NLP models are reliable to read simple financial statements in natural language; and

OCR engines can be used to provide sufficient accuracy with noisy bilingual invoices and receipts.

In practice, there are possibilities of performance being impaired by changes in handwriting, image quality, jargon in a particular industry and code-mixed language. Although the design also has the mechanisms of user confirmation and correction, the level of high accuracy will require the training and subsequent calibration of the model on real-world data over time.

6.1.4 Simplified Accounting and Compliance Models

The accounting and compliance models have been made less complex to make them understandable and allowable within the project requirements. The system plan is concerned with core accounts and simple GST/FBRaligned documents. Nonetheless, complicated situations, including industry-specific tax accommodations, multi-location companies, accruals-based adjustments, inventory accounting or cross-exchange rate dealings, are not encompassed within the immediate area.

Consequently, although this system may be ideal in micro and small business organizations with simple operations, it would have to be extended and modified highly to suit large or more complex companies.

6.2 Conclusion

The aim of this project was to conceptualize and design an AI Accountant Assistant System that has the potential to convert natural language and document-based inputs of SME users into structured ledger entries, financial statements, and simplified tax-ready records. Due to the ongoing challenges encountered by SMEs in ensuring the proper and compliant maintenance of financial records, the study used modern innovation in conversational AI, OCR, and secure cloud computing to present a solution that fits the real-life conditions.

The background and the rationale that were set out in Chapter 1 highlight the primary place of SMEs in the economy, the deficiencies of current accounting tools, and the omnipresence of messaging platforms. It defined explicit goals, expected value, and factors of success and the system was developed to be a viable solution to incomplete data, inadequate accounting literacy and complex compliance.

Chapter 2 has broken down the general challenge into separate sub problems: disjointed data, usability issues, manual bookkeeping mistakes, insufficiency of timely financial information, the complexity of tax compliance, and security. These concerns were the input in the specific functional and nonfunctional requirements that any feasible solution should satisfy.

Chapter 3 described the research and design approach, which indicated how secondary sources, thematic analysis, user stories, and architectural design strategies were used to develop a sensible system concept. It made the workflow of MVP comprehensible and admitted methodological constraints and ethical aspects, making the design realistic and responsible.

The system concept was outlined in chapter 4, with the highlevel architecture and its contributed modules of conversational interface, NLP engine, OCR processing, ledger management, reporting and security. It outlined the set of MVP functionality, such as conversational transaction entry, receipt capture, automated bookkeeping, and simple tax compliance, as well as simplified user flow. It was also in this chapter that the future phases advanced features were identified and the design of the design was shown to align to the identified problems.

Chapter 5 transformed these theoretical evaluations into a plan of action and proposals. It promoted the MVPfirst implementation plan, the utilisation of proven AI and cloud

environments, user-centered design, effective security, and constant improvement using feedback. The action plan that was proposed had phases of short, medium and long term development.

Taken together, these chapters show that an AIdriven conversational accounting assistant is much more than a fantastic idea, but rather it is strategically focused on the needs of SMEs who are ambitious to digitalize and are limited in their finances and complexity. This approach of going to users in their regular chat systems will reduce the barriers of adoption and integrate the concept of bookkeeping into people's daily business lives instead of making it an additional, cumbersome chore.

Nevertheless, the project is realistic concerning the constraints of the project. The design will need to be tested with iterative prototyping and field tests, AI elements will have to be constantly optimized and regulations will have to be constantly changed. It is a blueprint work, a more or less systematic, academically rigorous statement of the subject matter of the problem, requirements, and concept of solution, to be used in subsequent empirical assessment.

Summing up, the AI Accountant Assistant System suggested in this report is one of the opportunities of introducing artificial intelligence to improve the financial management of SMEs. It will enhance financial discipline, decrease mistakes, facilitate formalization, and, in the long term, bring to the world more robust small businesses by integrating conversational interfaces, document understanding, and automated bookkeeping into a secure and userfriendly design.

List of References

1. EDICOM Group. (2025, September 29). Pakistan: The FBR sets a timeline for mandatory e-invoicing.
2. Federal Board of Revenue. (2025, April 22). FAQs: Digital invoicing and integration requirements. Government of Pakistan.
3. Federal Board of Revenue. (2025). SRO 709(I)/2025: Sales Tax (Electronic Invoicing) Rules. Government of Pakistan.
4. Federal Board of Revenue. (2025). Digital invoicing user manual. Government of Pakistan.
5. House of Pakistan. (2025). Digital transformation and SMEs in Pakistan: Unlock new growth with digital tools.
6. Mobilink Microfinance Bank. (2025). Strengthening SMEs through digital inclusion (MicroInsights, Issue 6).
7. Nimbus RMS. (2025, September 24). FBR e-invoicing requirements: Insights from a tax consultant.
8. Raees, K. (2025, October 16). Cloud adoption in SMEs: A digital lifeline for growth, competitiveness & resilience [LinkedIn article].
9. Smart House of Pakistan. (2025). Digital transformation of Pakistani SMEs: Opportunities and challenges.
10. Synavos. (2025, September 12). E-invoicing 2025 regulation in Pakistan: Avoid FBR penalties with compliant systems.
11. TMRC. (2025, September 24). Why every business in Pakistan must adopt digital invoicing software.
12. World Population Review. (2025, December 5). WhatsApp users by country 2025.
13. YCloud. (2025, December 3). 100+ most up-to-date WhatsApp statistics of 2026.
14. Rasayel. (2025, May 15). 27+ WhatsApp statistics for 2025: Users, countries & more.
15. Meetanshi. (2025, April 18). WhatsApp statistics 2025 – Usage, users, revenue & more.
16. Gallup Pakistan. (2025). Among Pakistanis who use social media, use of WhatsApp is most popular for staying in touch.
17. SMEDA. (2025). SME Observer: January–June 2025. Small and Medium Enterprises Development Authority.

18. Borman, W. C. (1993). Role of early supervisory experience in supervisor performance. Journal of Applied Psychology, 78(3), 443–449.
19. Theusen, G. J., & Fabrycky, W. J. (1984). Management science and economics (6th ed.). Prentice-Hall.
20. Smith, B. L. (1994). Biofeedback. Science, 62, 673–675.
21. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340.
22. Federal Board of Revenue. (2025). *Guidelines for digital invoicing and electronic record maintenance*. Islamabad: FBR.
23. Gallup Pakistan. (2025). *Social media and business communication trends in Pakistan*. Gallup.
24. Goodhue, D. L., & Thompson, R. L. (1995). Task-technology fit and individual performance. *MIS Quarterly*, 19(2), 213–236.
25. SME Development Authority. (2025). *Digital transformation in Pakistani SMEs: Current state and challenges*. Government of Pakistan.
26. Tornatzky, L. G., & Fleischer, M. (1990). *The processes of technological innovation*. Lexington Books.
27. Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(2), 186–204.
28. Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, 27(3), 425–478.
29. Widyaningsih, R. (2024). The role of artificial intelligence in enhancing financial reporting accuracy for SMEs. *InstractBee Journal of Accounting and Finance*, 1(1), 15–32.
30. Islam, A. (2025). Configuring AI-guided sustainable competitive advantage for SMEs. *Journal of Innovation & Knowledge*, 10(2), 1–15.
31. Schwaeke, J. (2025). The new normal: The status quo of AI adoption in SMEs. *Journal of Public Budgeting, Accounting & Financial Management*, 37(2), 145–172.
32. Anonymous. (2025). Artificial intelligence in accounting: Revolutionizing financial processes. *Theoretical & Practical Research in Economic Fields*, 16(1), 89–104.

33. Anonymous. (2024). Review of artificial intelligence in accounting. *Journal of Accounting and Financial Management*, 9(4), 1–18.
34. Anonymous. (2024). Pros and cons of using artificial intelligence in accounting. *International Review of Management and Marketing*, 14(2), 55–67.
35. Krieger, F., et al. (2023). Machine learning-based information extraction for long tail invoices. *Journal of Information Systems*, 37(3), 201–219.
36. OpenDialog. (2023). *Conversational AI in finance: Virtual assistants and chatbots for digital transformation*. OpenDialog.
37. OpenLedger. (2025). *AI accounting chatbots in 2025: Transforming financial operations*. OpenLedger.

Bahria University
Islamabad Campus

RC-01

Thesis/ Project Supervisor Allocation Form

Please tick the relevant box: ☑ BBA ☐ MBA (2nd last semester)

1. Student Name: M. HAIDER ABDULLAH Enroll #: 01-111211-062.

Course Code: FYP-401 Cr. Hrs 3 Degree Duration: 4 Cell No. 0334-5661207.

Email: randhawahaider28@gmail.com. CMS Registration: Yes/No.

(In case of Project, details of other Members)

2. Student Name: M. ZULKIFAL AKHTAR Enroll #: 01-111221-080.

Course Code: FYP-401 Cr. Hrs 3 Degree Duration: 4 Cell No. 0323-5935078

Email: zulkifalakhtar22@gmail.com. CMS Registration: Yes/No.

3. Student Name: Ali AKBAR. Enroll #: 01-111232-022

Course Code: FYP401 Cr. Hrs 3 Degree Duration: 4 Cell No. 03184551540

Email: Aliakberjumani11@gmail.com CMS Registration: Yes/No.

Research Type: ☐ Thesis ☑ Project

Research Area: ☐ Supply Chain Management/ PM ☐ Marketing ☐ HRM ☑ Finance ☐ MIS

Name of Supervisor: Sadaf Alam.

1. Student Signature: Haider. Date: 25/09/2025.

2. Student Signature: 3. Student Signature:

Supervisor Signature

Note:

1. Student must fill and send this form to respective supervisor for the approval. After approval send this form at research.cell@bahria.edu.pk and CC your supervisor.
2. Students first inquire the supervisor's available slots either from Supervisor or research cell before submission of supervisor allocation form to research cell

RC – 02

Major: Fin No_____

Library Database Verification Form

MBA ☐ BBA ☑

Bahria University, Business School

With respect to the anti-plagiarism policies proposed by Higher Education Commission, students are required to fill this form for the purpose of ensuring that the Thesis / Project topic chosen by them has not been done before. Topics can be crossed checked with the database available in the library.

Changes in the Thesis / Project topic, however, will require the filling of a new 'Library Verification Form', but after midterm examination no changes in the Topic will be accepted.

Please submit the scanned copy of this form at **research.cell@bahria.edu.pk** within two weeks of Thesis / Project Registration.

Please fill in the required information:

Enrollment No(s)	01-111221-080 01-111221-082 01-111232-022.
Student Name	Muhammad Hasbe Abdullah Muhammad Zuhaid Akhtar Ali Akber.
Thesis / Project Topic (Company's Name)	AI - Accountant.

STAFF USE ONLY

Topic Verification

Do you have the proposed topic in your library database repository?

- Yes
- ✓ No

Verifier Name: Saima Ali (CL) Sign: _____

Date: 13-11-25

Stamp: _____

13/11/25

SUPERVISOR APPROVAL:

Name: Dr. Sohail Anwar Sign: _____ Date: 13-11-2025

Bahria University
Islamabad Campus

RC-04

MBA

1st Half Semester Progress Report

Name of Student(s)	ALi Akbar	Haider Abdullah	M. Zulkifal
Enrollment No.	01-111232-022	01-111221-080	01-111221-062
Thesis/Project Title	AI Accountant		

Supervisor Student Meeting Record

No.	Date	Place of Meeting	Topic Discussed	Signature of Student
1	15-10-25	WS-10	Discussed Projects & ewse AI accountant	
2	28-10-25	WS-10	MVP for the Software	
3	5-11-25	WS-10	Discussed relevant papers & theories for deep understandy	

Progress Satisfactory [✓] Progress Unsatisfactory [ ]

Remarks: Students has shown the progress week by week

Signature of Supervisor: Dr Sadaf Name Date: 11-12-25

Name: Dr. Sadaf Note:

Students attach 1st & 2nd half progress report at the end of spiral copy.

Bahria University
Islamabad Campus

RC-04

MBA

2nd Half Semester Progress Report & Approval Statement

Name of Student(s)	Ali Akbar Haider Abdullah M. Zulqifal
Enrollment No.	01-111232-022 01-111221-080 01-111221-062
Thesis/Project Title	AI Accountant assistant

Supervisor Student Meeting Record

No.	Date	Place of Meeting	Topic Discussed	Signature of Student
4	23-11-25	WS-10	Research design & methodology Basic prototyping of Software	
5	5-12-25	WS-10	Survey formation & selection of target audience	
6	11-12-25	WS-10	Final work on the report & Suggestions by supervisor taken in account.	

APPROVAL FOR EXAMINATION

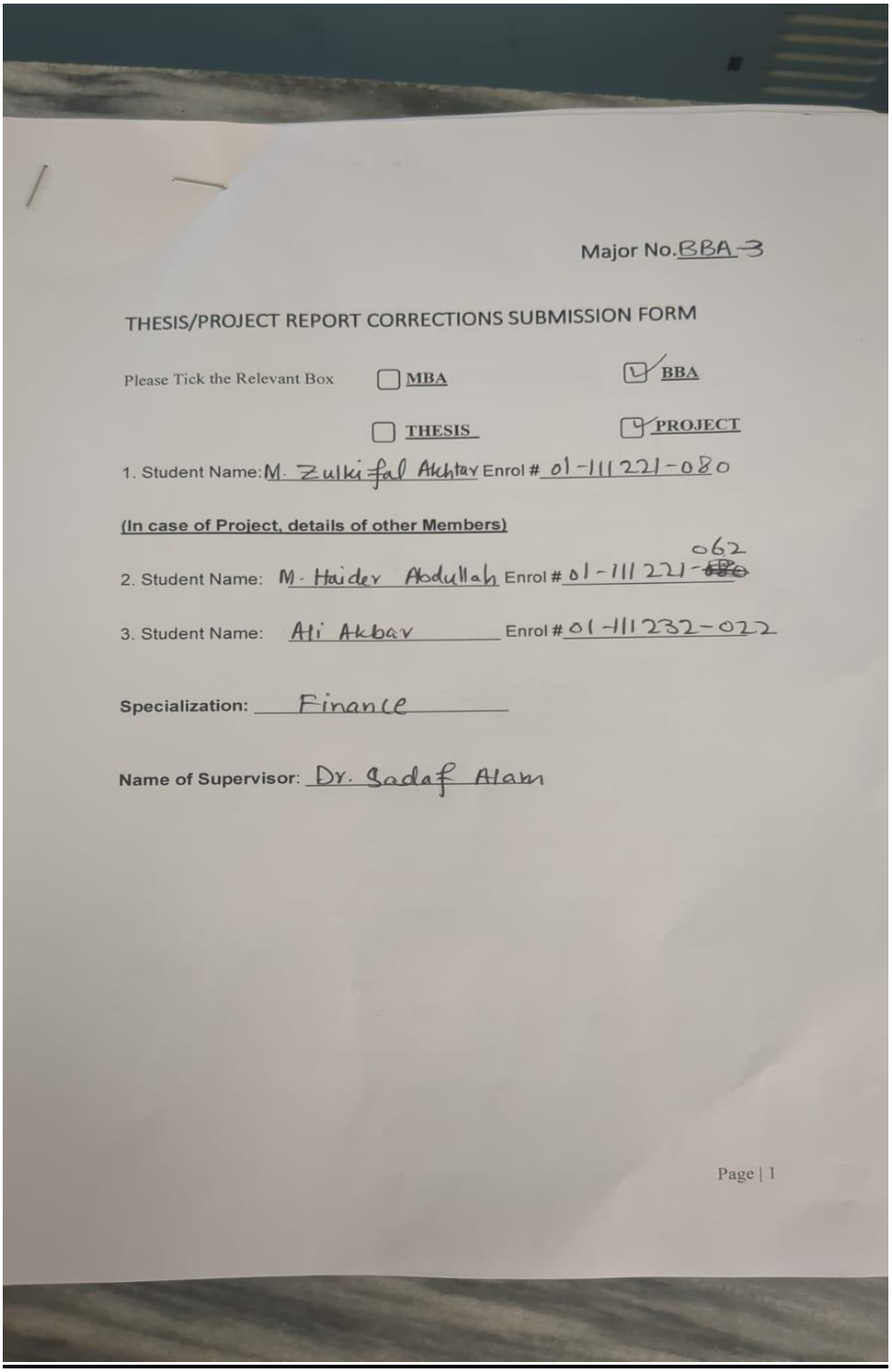
Candidates' Name: Haider Abdullah Enrollment No: 01-111221-062

Project/Thesis Title: AI Accountant

I hereby certify that the above candidates 'thesis/project proposal has been completed to my satisfaction and, to my belief, its standard appropriate for submission for examination. I have also conducted plagiarism test of this using HEC prescribed software and found similarity index at 3% that is within the permissible limit set by the HEC for thesis/ project MBA. I have also found the thesis/project proposal in a format recognized by the department of Business Studies.

Signature of Supervisor: _____ Date: 11-12-25

Name: Dr. Sadaf



Major No. BBA-3

THESIS/PROJECT REPORT CORRECTIONS SUBMISSION FORM

Please Tick the Relevant Box ☐ MBA ☑ BBA

☐ THESIS ☑ PROJECT

1. Student Name: M. Zulkifal Akhtar Enrol # 01-111221-080

(In case of Project, details of other Members)

2. Student Name: M. Haider Abdullah Enrol # 01-111221-062

3. Student Name: Ali Akbar Enrol # 01-111232-022

Specialization: Finance

Name of Supervisor: Dr. Sadaf Alam

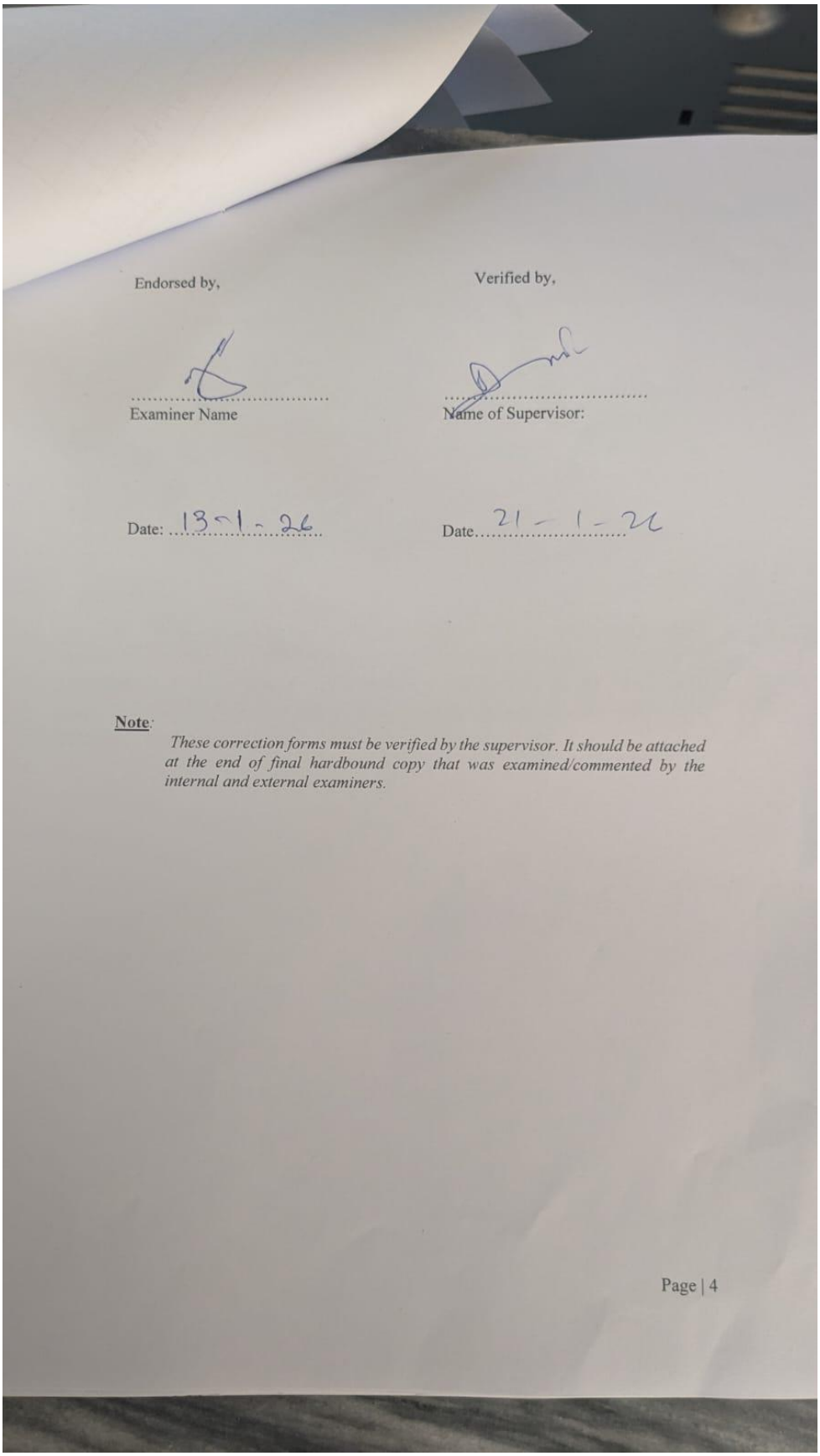
Page | 1

Examiner's Instructions: Please fill in the following details.

No.	Corrections required (Suggested by Examiners)	Amendments made	Located on Page
Chapter 1			
-	Need to improve	More details	12
-	Same instructions	added precisely.	
	by examiner 2		
Chapter 2			
-	Elaborate in detail	More explanation	16
-	Same instruction	added.	
	by examiner 2		
Chapter 3			
-	Write clear Methodology		22
-	Same changes	Steps in methodology	
	by examiner 2	rewrited.	
Chapter 4			
-	Rewrite.	Rewrited this	28
-	Same changes	chapter	
	by examiner 2		

apter 5			
-	improve	- Improved quality of details.	36
-	Some changes by examiner 2		
Executive Summary/Abstract			
-	—	—	—
General Comments			
-	follow the formatte.	Resettled the format as per instructions	

** Please add rows if necessary*



Endorsed by,

.....
Examiner Name

Date: 13-1-26

Verified by,

.....
Name of Supervisor:

Date 21-1-26

Note:

These correction forms must be verified by the supervisor. It should be attached at the end of final hardbound copy that was examined/commented by the internal and external examiners.

AI Accountant - FYP - Proposal.docx

ORIGINALITY REPORT

3%	2%	0%	2%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Asia Pacific University College of Technology and Innovation (UCTI) Student Paper	1%
2	Submitted to Faculty of Computing Student Paper	<1%
3	blog.claydesk.com Internet Source	<1%
4	Submitted to Higher Education Commission Pakistan Student Paper	<1%
5	Submitted to IUBH - Internationale Hochschule Bad Honnef-Bonn Student Paper	<1%
6	www.frontiersin.org Internet Source	<1%
7	www.modishproject.com Internet Source	<1%
8	www.managementjournals.net Internet Source	<1%
9	Submitted to University of Essex Student Paper	<1%
10	Submitted to University of Lancaster Student Paper	<1%
11	Ashu Sharma, Veena Vohra, Rose Antony. "Strategies for Sustainable Growth in Modern Organizations", Routledge, 2026 Publication	<1%
12	core.ac.uk Internet Source	<1%
13	dokumen.tips Internet Source	<1%
14	ijeber.com Internet Source	<1%
15	eprints.utm.my Internet Source	<1%
16	link.springer.com Internet Source	<1%