NUML E PAYMENT

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ABSTRACT

The National University of Modern Languages (NUML) has been providing higher education to students in Pakistan for over four decades. Over the years, NUML has been adapting to the changing needs of its students, including the need for an efficient and secure online payment platform.

The problem with traditional fee payment methods is that they can be time-consuming and often require students to physically visit the payment centers, causing inconvenience and delays in processing. Additionally, manual payment processing is prone to human errors, resulting in inaccurate record keeping and reconciliation issues. This can lead to payment discrepancies and misunderstandings between the students and the institution.

The solution to the problem of traditional fee payment methods is the implementation of a modern and user-friendly fee payment system that provides convenience, efficiency, and accuracy to both the students and the university. The fee payment system should offer a secure online payment platform that enables students to make payments using multiple payment options, such as credit/debit cards. The system should also have the capability to generate payment receipts and confirmation emails, allowing students to keep track of their payments and providing proof of payment for future reference. The system should be integrated to provide real-time updates on payment records and enabling accurate record-keeping.

CERTIFICATE

Dated: ———————

Project Proposal

It is certified that project report titled **'NUML E Payment'** submitted by **Abdul Hanan Nawaz**, **Muhammad Hamza** and **Muhammad Bakht Jamal** for the partial fulfillment of the requirement of **"Bachelor's Degree in Software Engineering"** is approved.

COMMITEE

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DECLARATION

We hereby declare that our dissertation is entirely our work and genuine / original. We understand that in case of discovery of any PLAGIARISM at any stage, our group will be assigned an F (FAIL) grade and it may result in withdrawal of our Bachelor's degree.

Group Members	**Signature**
1. Abdul Hanan Nawaz	_____
2. Muhammad Hamza	_____
3. Muhammad Bakht Jamal	_____

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1 Introduction

In today's rapidly changing technological landscape, it has become increasingly important for educational institutions to provide students with user-friendly and efficient services that cater to their needs. One critical area of focus is the payment of tuition fees, which is a crucial component of the financial management process for any academic institution.

Traditional fee payment methods can be time-consuming, inconvenient, and often prone to errors, which can result in delays and inconvenience for both students and universities. Manual payment processing can be a time-consuming process, often involving long lines and physical paperwork. This can be particularly challenging for universities with a large student population, making it difficult to manage and reconcile payments in a timely and accurate manner.

To address these challenges, educational institutions are turning to modern fee payment systems that offer a range of benefits, including convenience, efficiency, and accuracy. These systems provide a secure online platform for students to make payments from anywhere at any time, with multiple payment options available to suit individual preferences. The systems also generate payment receipts and confirmation emails, providing students with proof of payment and enabling accurate record-keeping for universities.

The implementation of a fee payment system can greatly enhance the financial management process for educational institutions, improving processing efficiency, reducing manual errors, and providing a more streamlined and convenient payment process for students. By offering a modern fee payment system, universities can also enhance their reputation as a modern and student-friendly institution, offering the best possible services to support their student's success.

There are several benefits to implementing a modern fee payment system in educational institutions. Firstly, it provides a more convenient payment process for students, enabling them to make payments from anywhere at any time, without having to visit payment centres physically. This can greatly reduce the time and effort required to manage and reconcile payments for universities, resulting in a more efficient and accurate payment processing system.

Secondly, the implementation of a fee payment system can greatly reduce the risk of manual errors in payment processing, which can lead to payment discrepancies and misunderstandings between students and universities. The system can generate payment receipts and confirmation

emails, providing students with proof of payment and enabling universities to maintain accurate payment records.

Finally, the implementation of a fee payment system can enhance the reputation of educational institutions as modern and student-friendly, demonstrating their commitment to providing the best possible services to their students. In this way, universities can attract and retain students, and support their success in their academic pursuits.

In conclusion, the implementation of a modern fee payment system is a critical component of the financial management process for educational institutions. By providing a convenient, efficient, and accurate payment process for students, universities can enhance their reputation as modern and student-friendly institutions, and provide the best possible services to support their students' success.

2   Existing System

Following are some existing systems. Their features and limitations are discussed below.

2.1   CUST [1]

CUST online fee payment system is a secure online platform that enables students to make tuition fee payments to the university from anywhere at any time.

2.1.1   Features
- Tuition fee challan.
- Account book.
- Pay online.

2.1.2   Limitation
- No options for other challans generation.
- No Instalments Option.

2.2   UCP [2]

The online fee payment system for UCP is a modern and user-friendly platform that enables students to make tuition fee payments conveniently and securely from anywhere at any time.

2.2.1   Features
- Tuition Fee Challan.
- Account Book.

- Pay Online.

2.2.2 Limitation
- No Instalments Option.
- No Options for Other Challans.
- No Option for Scholarships holders to add details.

2.3 LUMS [3]

The LUMS online fee payment system provides students with a secure and efficient platform to pay their tuition fees online, reducing the need for manual processing and offering proof of payment. It streamlines the payment process and ensures accurate and timely transactions.

2.3.1 Features
- Tuition Fee Challan.
- Pay Online.
- Options for Other Challans.

2.3.2 Limitation
- No Instalments Option.
- No Options for Print Challan.
- No Option for Scholarships holders to add details.

2.4 UOG [4]

The online fee payment system of the University of Gujrat offers a hassle-free and effective way for students to pay their tuition fees via the internet. It minimizes the risk of manual errors, simplifies the payment process, and furnishes students with a digital receipt for their records.

2.4.1 Features
- Tuition Fee Challan.
- Options for Other Challans.

2.4.2 Limitation
- No Instalments Option.
- No Online Payment Option.
- No Option for Scholarships holders to add details.

3 Comparison between Proposed and Existing Systems

Table 1:Comparison between Different Existing Systems and Proposed Application

Sr. #	Features	CUST	UCP	LUMS	UOG	Proposed System
1	Tuition Challan	✓	✓	✓	×	✓
2	Generate Challans	×	✓	×	✓	✓
3	Print Challan	×	×	×	×	✓
4	Account Book	✓	×	×	✓	✓
5	Instalments	×	×	×	×	✓
6	Pay Online	✓	✓	✓	×	✓
7	Data Analytics	×	×	×	×	✓
8	View Record	×	×	×	×	✓
9	Verification	×	×	×	✓	✓
10	Seize Degree	×	×	×	×	✓
11	Request Letter	×	×	×	×	✓
12	Department and their Representators	×	×	×	×	✓
13	View Department Data	×	×	×	×	✓
14	Print Receipt	×	×	×	×	✓
15	Campus Admin	×	×	×	×	✓
16	Generate Reports	×	×	×	×	✓

17	Download Report	×	×	×	×	✓
18	Campus addition	×	×	×	×	✓
19	Fee Structure	✓	✓	✓	✓	✓
20	Download Fee Structure	✓	✓	✓	✓	✓

4 Problem Description

The problem with traditional fee payment methods is that they can be time-consuming and often require students to physically visit the payment centers, causing inconvenience and delays in processing. Additionally, manual payment processing is prone to human errors, resulting in inaccurate record keeping and reconciliation issues. This can lead to payment discrepancies and misunderstandings between the students and the institution.

5 Project Objective

To overcome this issue, we are turning to modern fee payment systems that offer a range of benefits. These systems provide a secure online platform for students to make payments from anywhere at any time, with multiple payment options available to suit individual preferences. The systems also generate payment receipts and confirmation emails, providing students with proof of payment and enabling accurate record-keeping for universities. The process flow diagram of proposed android application is shown in Figure 1.

6 Proposed System

The proposed NUML E Payment System application is designed to provide a more efficient and streamlined mechanism for processing tuition fee payments. By eliminating the need for manual processing, it will help to reduce errors and delays in payment processing, and provide students with a more convenient and user-friendly payment option. With the ability to track and store payment records securely, the NUML E Payment System application will offer greater transparency and accountability, making it an essential tool for the university's financial management. Ultimately, this innovative payment system will enable NUML to optimize its

payment processing procedures, increase efficiency, and enhance the overall student experience.

6.1 Proposed System Features

Following are the modules of the proposed systems.

6.1.1 Tuition Challan

In NUML E Payment, Tuition Challan will automatically add in the start of semester.

6.1.2 Generate Challan

With the help of this System, User will able to easily Generate their challans like DMC Challan.

6.1.3 Print Challan

The NUML E Payment will also allow User to easily Print their challans.

6.1.4 Account Book

The NUML E Payment will store all the transaction and dues paid by students and they will be able to see these record whenever they want.

6.1.5 Instalments

The NUML E Payment will allow Students to divide fee in instalments.

6.1.6 Pay Online

The NUML E Payment will allow Students to pay their dues online by using their credit or debit cards.

6.1.7 Data Analytics

The NUML E Payment will allow Super Admin and Campus Admin to view all the analytics in a Dashboard with ETL Pipeline and Tableau.

6.1.8 View Record

The NUML E Payment will allow Super Admin and Campus Admin to view all the records.

6.1.9 Verification

The NUML E Payment will allow Campus Admin and Department Representator to verify the dues of a student is paid or not. If Student paid his fee through bank, will have to upload the challan and Department Representator approve or disapprove that image.

6.1.10 Seize Degree

The NUML E Payment will allow Campus Admin to Seize the degree of the defaulter Student.

6.1.11 Request Letter

The NUML E Payment will allow student to write a request letter to Campus Admin with the reason for not paying the dues and a request to increase validation date of his Challan. Campus Admin still have the right to reject his application and seize his degree.

6.1.12 Department and their Representators

The NUML E Payment will allow the Campus Admin to add departments and their representators and give that representator his credentials and Active or Inactive them.

6.1.13 View Department Data

The NUML E Payment will allow the Department Representators to View data of any class of department.

6.1.14 Print Receipt

The NUML E Payment will allow the student to print receipt of the dues he paid or any time he wants.

6.1.15 Campus Admin

The NUML E Payment will allow the Super Admin to add campus admin for a campus and Active or Inactive them.

6.1.16 Generate Reports

The NUML E Payment will allow the Super Admin to generate report of all campuses data and the Campus admin to generate reports of Campus data and Department Representator to generate for department.

6.1.17 Download Report

The NUML E Payment will allow the Super Admin to download report of all campuses data and the Campus admin to download reports of Campus data and Department Representator to download for department.

6.1.18 Campus Addition

The NUML E Payment will allow the Super Admin to add Campus of NUML.

6.1.19 Fee Structure

The NUML E Payment will allow the Accountant of Each Campus to add or update fee structure of his campus.

6.1.20 Fee Structure

The NUML E Payment will allow the students to Download Fee Structure.

7 Methodology

Agile method combines both incremental and iterative methodology. It is iterative because it plans for the work of one iteration to be improved upon in subsequent iterations. It is incremental because completed work is delivered throughout the project.
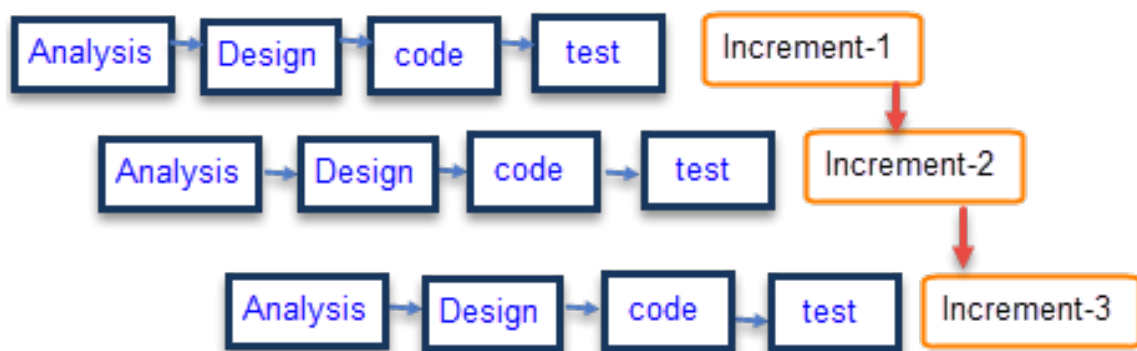

Figure 1: Agile Incremental Model

During a development "iteration" where we build several features some may be iterating to improve, modify or remove existing functionality, while others may be incrementally adding new functionality.

We will use agile SDLC as it is an iterative and incremental process that emphasizes collaboration, flexibility, and continuous improvement. It is a suitable choice for a project like a freelance platform with team management system integration because it allows for rapid development, continuous feedback, and adaptation to changing requirements.

8 Project Scope

The proposed system will provide much more functionalities than the existing systems like generating challans and printing them. These systems provide a secure online platform for

students to make payments from anywhere at any time, with multiple payment options available to suit individual preferences. The systems also generate payment receipts and confirmation emails, providing students with proof of payment and enabling accurate record-keeping for universities.

9   Feasibility Study

We will do our best to meet project deadlines, but there are some risk factors to consider, which are listed below:

9.1   Risk Involved

1. The API policies that we use for Payment Integration have changed.
2. API server breakdowns due to technical issues or scheduled maintenance
3. Internet Connection

10 Resources Requirements

As internet is the best source for developers to take help from it, therefore, there are some basic resources which will be utilized to develop the proposed system.

Table 2: Resources and Requirements

Resource	Requirement	Rational
Internet	3G or above	For basic guidelines and help
Laptop/PC	8GB RAM or above	Processor Core i5-5th Generation 2.20 GHz or faster 10 GB of available hard disc space for system development and maintenance
Mobile/Internet	Android 5.0	For using Application

11 Solution Application Area

We are focusing on E Payments. With the help of our proposed system, Fee can be paid easily and without waiting in queues for Long.

12 Tools and Technologies

Following tools and technologies will be required for development of this application.

Table 3: Tools and Technologies

Development	Technologies	Workload distribution
Web-App	Html, CSS, Bootstrap, JS	Muhammad Hamza, Muhamad Bakht Jamal
Back End	C#, Asp .net MVC	Abdul Hanan Nawaz, Muhammad Bakht Jamal
Database	MSSQL	Muhammad Bakht Jamal, Muhammad Hamza
Mobile App	Java	Abdul Hanan Nawaz, Muhammad Hamza
ETL Pipeline	Python	Abdul Hanan Nawaz
Data Analytics Dashboard	Tableau	Abdul Hanan Nawaz

13 Expertise of the Team Members

Each team member has the foundational knowledge needed to successfully complete this project. All of the team members are proficient programmers with knowledge of problem analysis and problem-solving design.

Table 4: Members and their Expertise

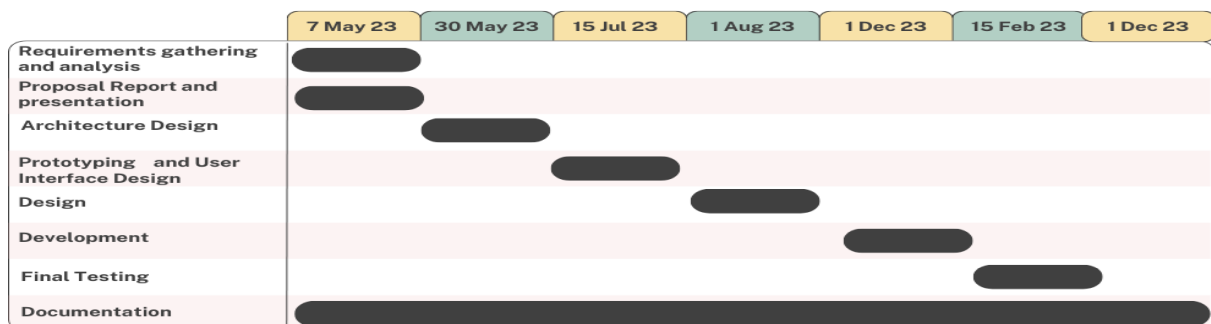| Group Member	Expertise
Abdul Hanan Nawaz	Java, Html, Bootstrap, JS, C#, Asp .net MVC, Python, Documentation
Muhammad Bakht Jamal	C#, Html, CSS, JS, Asp .net MVC, MSSQL, Documentation
Muhammad Hamza	Java, Html, CSS, Bootstrap, JS, MSSQL, Documentation

14 Milestones

Figure 2: Gantt Chart

15 References

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[3] Lahore University of Management Sciences, Lahore. Available at: https://lums.edu.pk/lums_member

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[4] University of Gujrat, Hafiz Hayat Campus, Gujrat. Available at: https://cms.uog.edu.pk/Login/login_view

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