DU Services System

SE-801: Software Project Lab-3

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Submitted To

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Letter of Transmittal

Dr. Ahmedul Kabir

Assistant Professor,

Institute of Information Technology,

University of Dhaka.

 Subject: Submission of term report on "DU Services System".

 Sir,

With due respect, I am submitting the report on the above topic you assigned me. In this report, I have given my best effort being some shortcomings. I earnestly hope that you would excuse my errors and oblige thereby.

Sincerely yours,

Amran Hossain

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University of Dhaka

Session: 2016-2017

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Acknowledgement

I am highly indebted for getting such a tremendous opportunity to prepare this report. I would like to thank my first supervisor, Md. Saeed Siddik, Assistant Professor, Institute of Information Technology, University of Dhaka. He helped me a lot throughout this project. He gave me a proper guideline about how I can prepare this report and complete the project. Also, I would like to thank my current supervisor, Dr. Ahmedul Kabir, Assistant Professor, Institute of Information Technology, University of Dhaka for helping me a lot in this project. In completing this report, I have collected various important data and information from the authority and my supervisor. I am thankful to all of the works cited.

Abstract

This study is made for Online Services Management System. The scope of the study is to analyze the web-based service system and to know the functions and drawbacks and component level design, interface design, deployment diagram and user manual of the system. In short, Applicant applies for the testimonial or certificate with giving personal details accurately. Then transact the money with payment module integrated in this system. Admin may accept or reject the application and build testimonial or certificate for the applicants. The status will be known through the email. Also, applicants may log in the system and see the status of application. Then applicants get the certificate or testimonial.

The object of the study is to develop a system of any kind of Services System of DU.

Chapter 1: Introduction

This chapter is a part of the document for the project "DU Services System". This chapter intended audience for the project are focused on.

1.1 Purposes

This document briefly describes the software design component, interface design, deployment diagram and user manual of DU Services System. It contains functional, non-functional, and supporting requirements and establishes a requirement baseline for the development of the system. The requirements specified in the software requirement and specification are independent, uniquely numbered and organized by topic. This document and software requirement specification serves as an official mean of communicating user requirements to the developer and provides a common reference point for both the developer team and the stakeholder community. Also know the testing requirement and function in this document.

1.2 Intended audience

This document and software requirement specification in intended for several audiences including the customers as well as the project managers, designers, developers and testers. The customers will use this document and software requirement specification to verify that the developer team has created a product that is acceptable to the customers. This project managers of the developer team will use this software requirement specification and this document to plan milestones and a delivery date and ensure that the developing team is on track during development of the system. The designers will use this document and software requirement specification as a basis for creating the system's design. The designers will fulfill the customer needs. The developers will use this document and software requirement specification as a basis for developing the system's functionality. The developers will link the requirements defined in this document and software requirement specification to the software they create to ensure that they have created a software that will fulfill all the customer's documented requirements. The testers will use this document to derive test plans and test cases for each documented requirement. When portions of the software are complete, the testers will run their tests on that software to ensure that the software fulfills the requirements documented in this document. The testers will again run their tests on the entire system when it is complete and ensure that all requirements documented in this document have been fulfilled.

1.3 Conclusion

This analysis of the audience helped us to focus on the users who will be using our analysis. This overall document will help each and every person related to this project to have a better idea about the project.

Chapter 2: Component Level Design

2.1 Introduction

Component-level design occurs after the first iteration of architectural design has been completed. At this stage, the overall data and program structure of the software has been established. The intent is to translate the design model into operational software. But the level of abstraction of the existing design model is relatively high, and the abstraction level of the operational program is low. The translation can be challenging, opening the door to the introduction of subtle errors that are difficult to find and correct in later stages of the software process.

A component is a modular building block for computer software. In the context of object-oriented software engineering, a component contains a set of collaborating classes. Each class within a component has been fully elaborated to include all attributes and operations that are relevant to its implementation. As part of the design elaboration, all interfaces that enable the classes to communicate and collaborate with other design classes must also be defined. To accomplish this, you begin with the requirements model and elaborate analysis classes (for components that relate to the problem domain) and infrastructure classes (for components that provide support services for the problem domain).

2.2 Analysis class

In Architectural design, I have selected some analyzing classes based on criteria. Those classes are:

- Admin: Admin control the testimonial and certificate process and add, modify the system class.
- Student: Student apply for the document and get notification for his updated status.
- Document: Testimonial and Certificate for the main purpose of this system.
- Transaction: Control the payment process fully.
- Authentication: Login, sign up, recovery etc. process is defined here.
- Department: Student must be from a department and admin also.

2.3 Elaboration of Design Components

Here I depict the design components elaborately.

2.3.1 Student
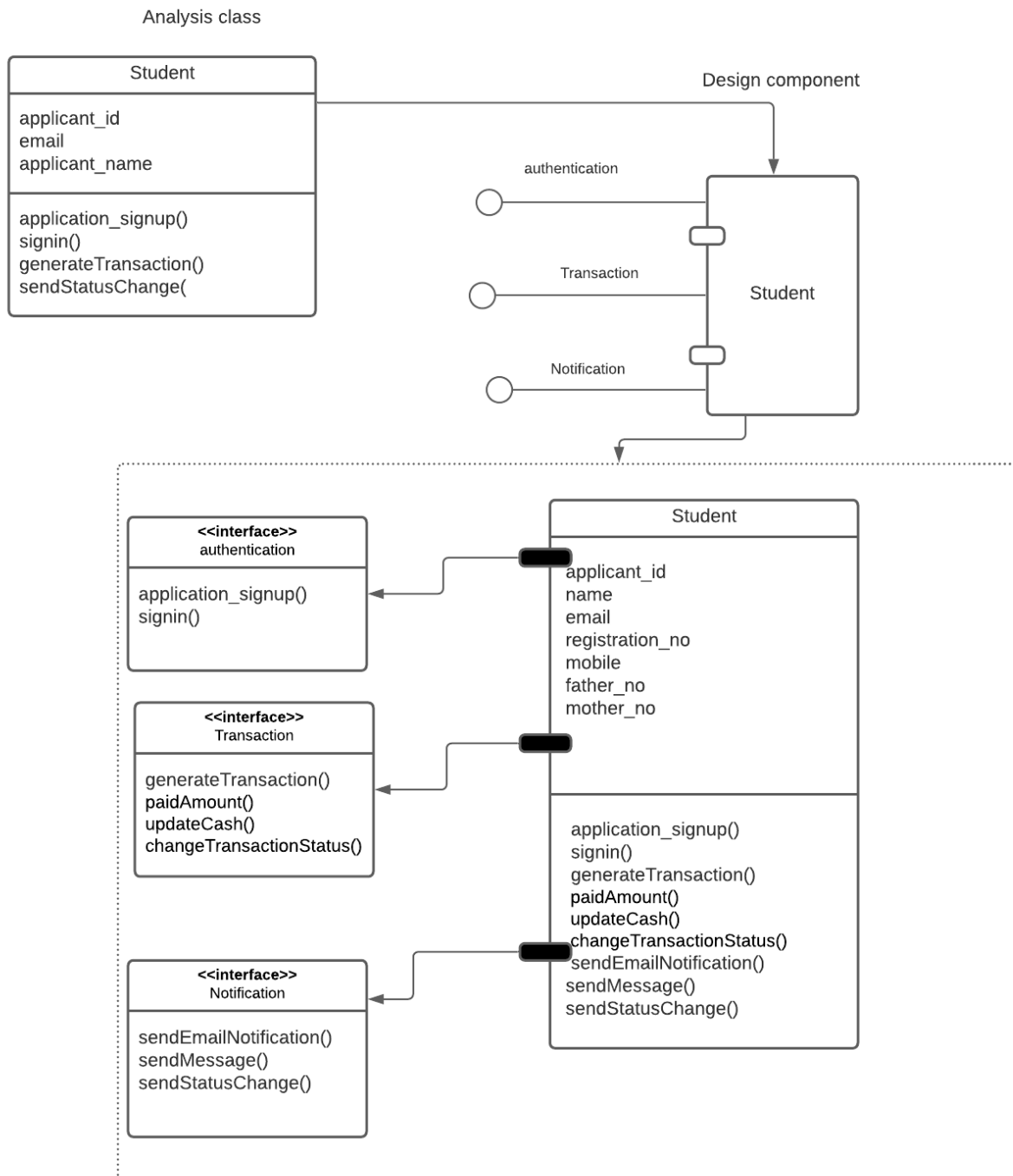
Analysis class

Figure 1: Analyses class for student component

2.3.2 Transaction

Analysis class

Transaction

transaction_id
amount
status

application()
transactMoney()
generateTransaction()

Design component

Applicant

Transaction

manageTransaction

Transaction

transaction_id
amount
status

application()
transactMoney()
generateTransaction()
paidAmount()
updateCash()
changeStatus()

<<interface>>
Applicant

application()
transactMoney()

<<interface>>
manageTransaction

generateTransaction()
paidAmount()
updateCash()
changeStatus()

Figure 2: Analyses class for Transaction

2.3.3 Document

Analysis class

Design component

Document
document_id type
checktypeofDocument() documentProcess() makeTestimonial() application() statusChange()

CertificateProcess

TestimonialProcess

Document

initiateDocument

<<interface>> initiateDocument
checktypeofDocument() documentProcess()

Document
document_id type date length
checktypeofDocument() documentProcess() makeTestimonial() application() statusChange() acceptTestimonial() rejectTestimonial() makeCertificate() application() statusChange() acceptCertificate() rejectCertificate()

<<interface>> TestimonialProcess
makeTestimonial() application() statusChange() acceptTestimonial() rejectTestimonial()

<<interface>> CertificateProcess
makeCertificate() application() statusChange() acceptCertificate() rejectCertificate()

Figure 3: Analysis class for document

2.3.4 Authentication

Analysis class

Design component

Authentication
id
type
application()
transactMoney()
generateTransaction()

authenticateAdmin

Authentication

authenticateApplicant

<<interface>> authenticateAdmin
signin()
recoveraccount()
signup()

Authentication
id
type
session key
signin()
recoveraccount()
signup()
applicant()
matchRegistrationNo()
matchDept()

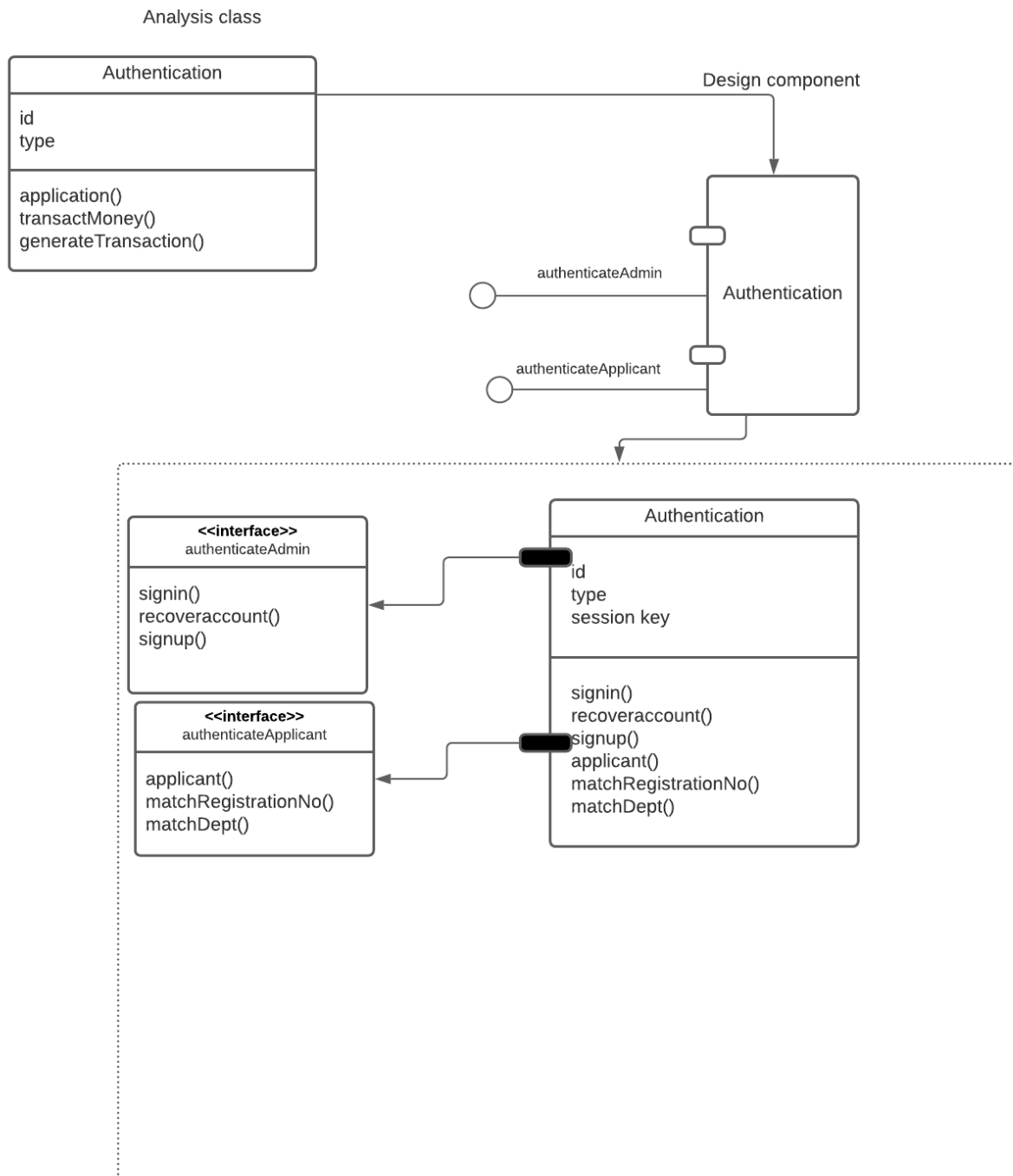| <<interface>> authenticateApplicant |
|---|
| applicant() |
| matchRegistrationNo() |
| matchDept() |

Figure 4: Analyses class for authentication
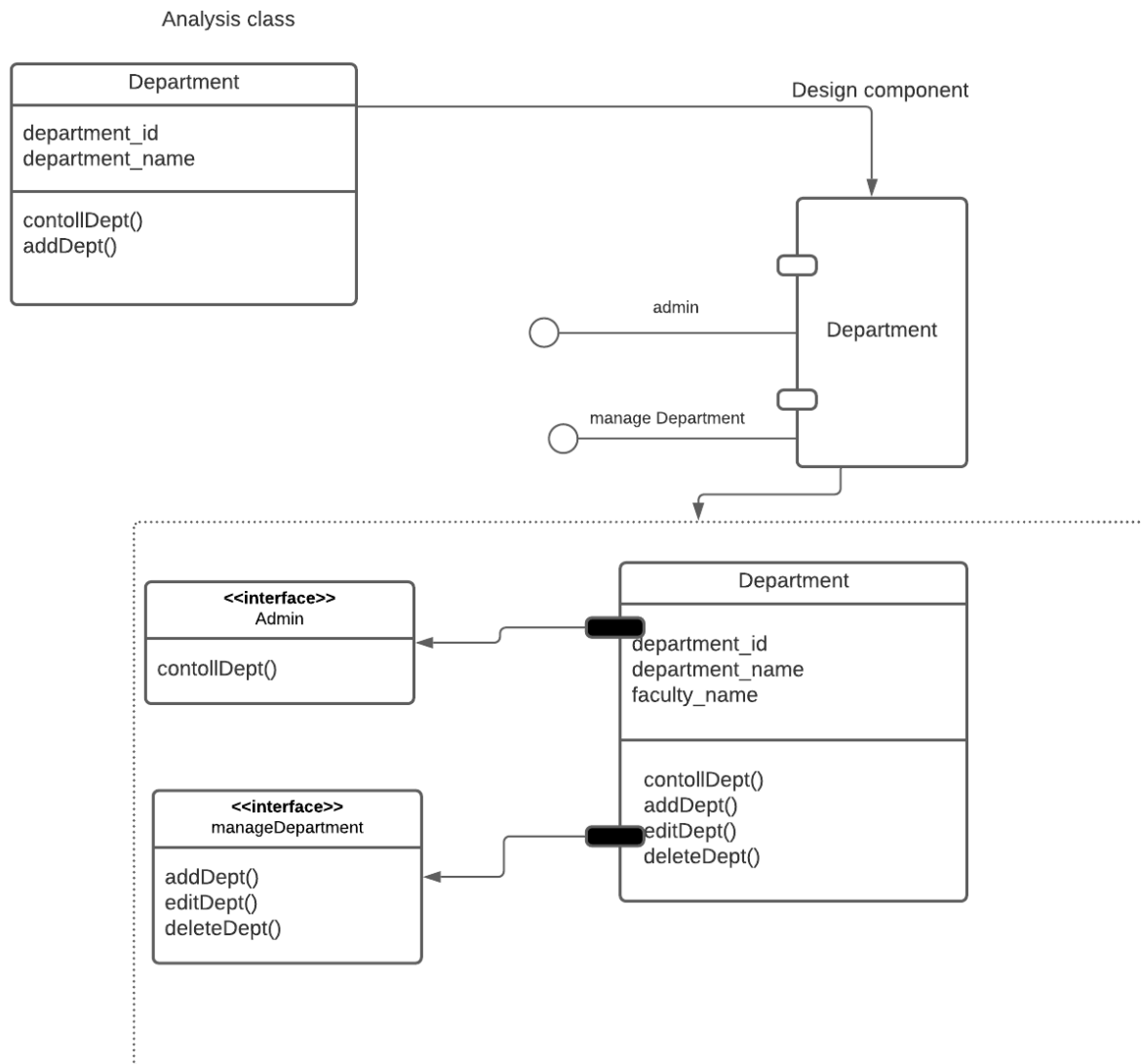
2.3.5 Department

Analysis class

Figure 5:Analyses class for department
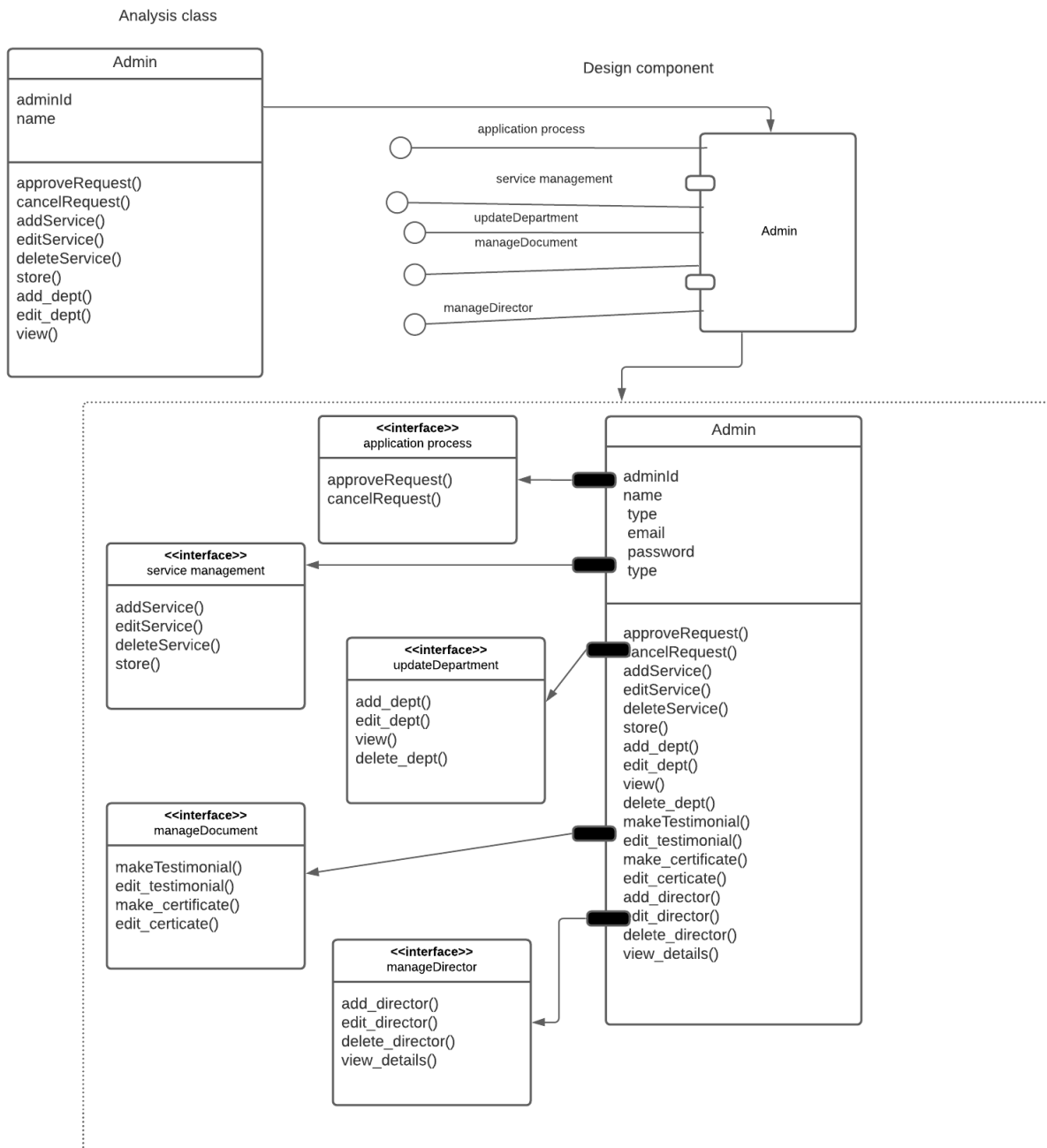
2.3.6 Admin

Analysis class

Figure 6: Analysis class for admin

2.4 Deployment Diagram

A deployment diagram in the Unified Modeling Language models the physical deployment of artifacts on nodes. Elaborating deployment diagrams provide additional implementation details. Deployment diagrams are used as part of architectural design and are represented in descriptor form. In this form, major system functions (often represented as subsystems) are represented within the context of the computing environment that will house them.
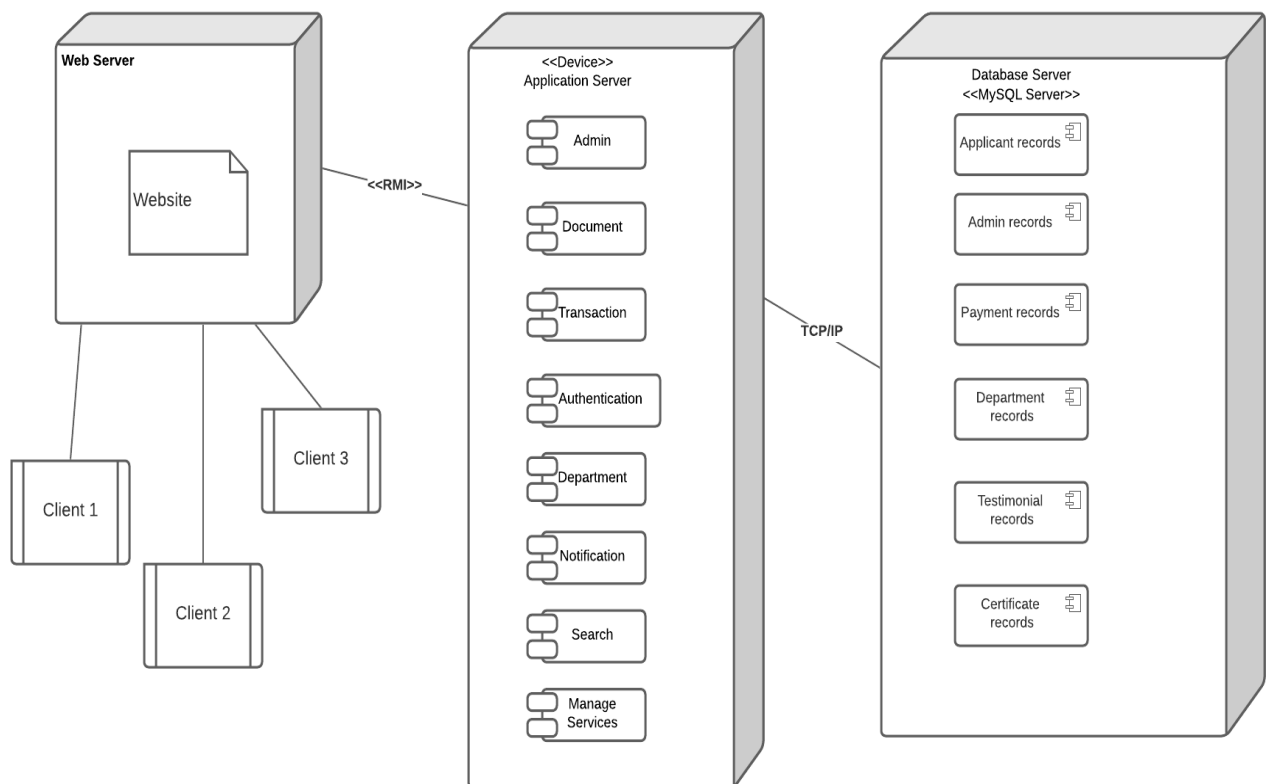

Figure 7: Deployment diagram

Chapter 3: User Interface Design

User Interface Design is the design of websites, computers, appliances, machines, mobile communication devices and software applications with the focus on the user's experience and interaction. The Golden Rules:

Three golden rules for interface design are:

1. Place the user in control.

2. Reduce the user's memory load.

3. Make the interface consistent.

These golden rules actually form the basis for a set of user interface design principles that guide this important aspect of software design.

3.1 Interface Analysis
We divide interface analysis into the following part:

1. User analysis

2. Task analysis

3.1.1 User analysis

There are two steps in this part. 1) Identify User 2) Know User

3.1.1.1 Identify User

From the requirement and specification document we found two types of user in this system. These are:

1) Admin
2) Applicant

3.1.1.2 Know User

User Type	Characteristics	Value
Admin	Age	25-40
	Skills	Above Average
	Domain expert	Yes
	Application expert	Yes
	Frequency of use	Frequently
	Consequence of a mistake	No
	General computer experience	Yes
Applicant	Age	18-50
	Skills	Average
	Domain expert	No
	Application expert	Yes
	Frequency of use	Frequently
	Consequence of a mistake	No
	General computer experience	Yes

3.1.2 Task analysis

- Admin Task analysis

Table 2 : Admin Task analysis

Tasks	Process Goal	Precondition	Subtasks
Application processing	Applicants apply for the testimonial and certificate and admin checked it	Logged in as admin using email and password	Approve application Cancel application
Department manages	Adding department by admin	Logged in as an admin	Add department Remove department Delete department
Services manages	After admin login admin manages services	Logged in as an admin	Add service

Admin role	After admin login admin gives the role	Logged in as an admin	Super admin Sub admin

- Applicant Task analysis

Table 3: Applicant Task analysis

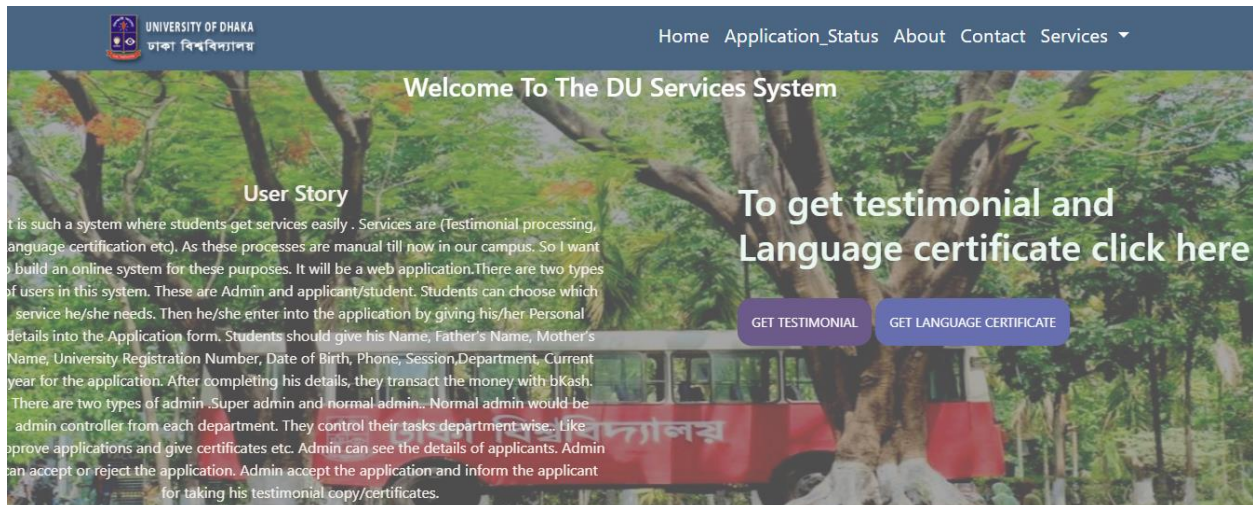| Tasks	Process Goal	Precondition	Subtasks
Application processing	Applicant application with giving details	Applicant must be valid and must have a valid registration no.	Give valid input
Transaction	Applicant log in or sign up and then pay now button click and	Logged in as an applicant or applicant must have an application	Generate transaction Paid amount
Notification management	Applicant applies for an application.	Must have application	Email notification Message notification

3.2 Interface Design Steps

Figure 8: Home page

Figure 9: Application form

Figure 10: Search status or login

Profile	Data	Status
ID	949045	
Name	Amran Hossain	
Father's name	Iqbal Hossain	
Mother's name	Seuly Akter	
Registration No	2016-515-046	
Session	2016-17	
Running Year	4th	Pending
class Roll	0917	
Email	ahossain0917@gmail.com	

Figure 11:User profile

Figure 12: payment process
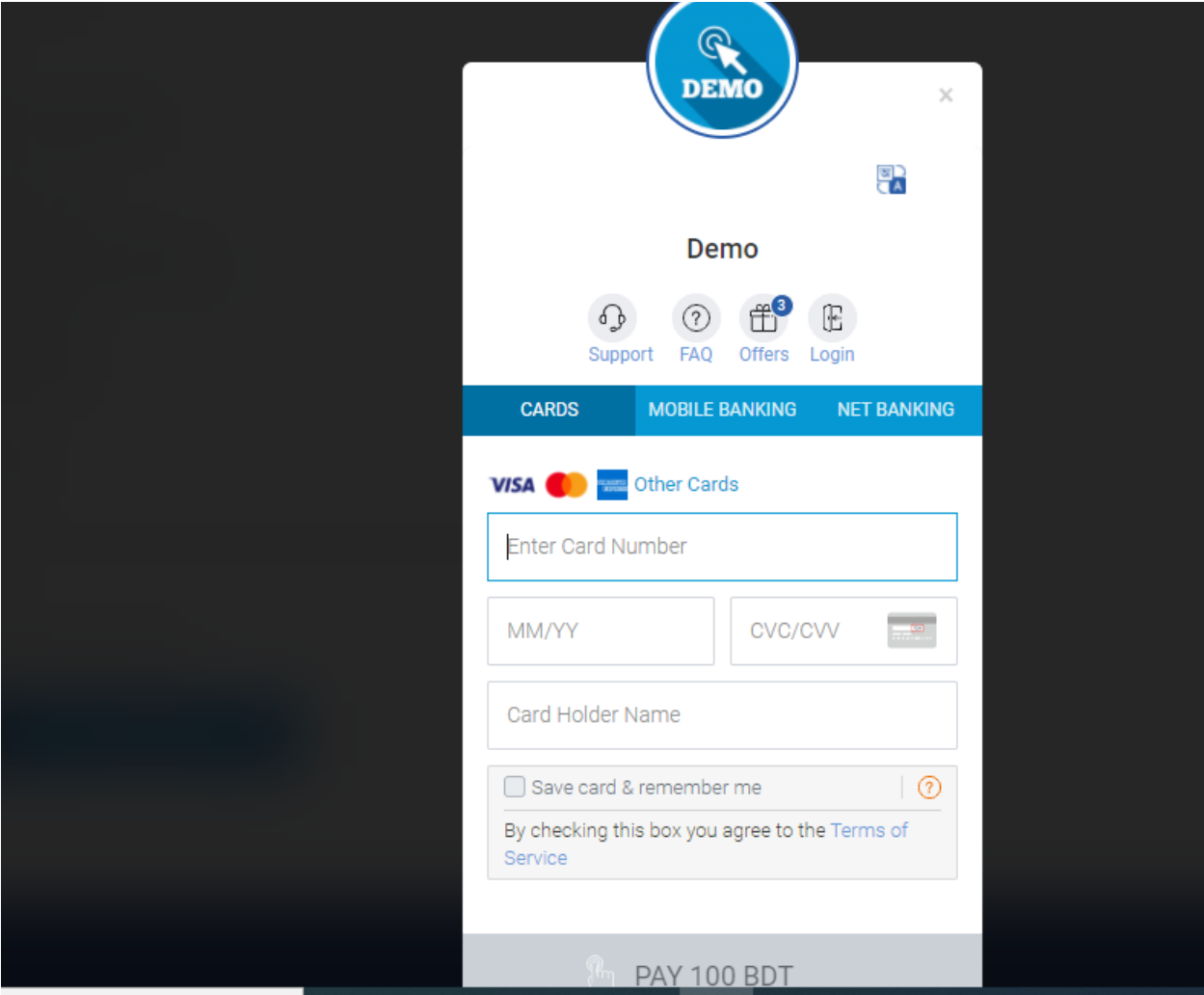
Figure 13: Transactional process

#	Applicant ID	Applicant Name	Registration No	Language	Action
#	570984	Amran Hossain	2016-515-046	Arabic	View Details Approved Download Cancel
#	139077	Zihadul Sheikh	2016-614-802	Turkish	View Details Approved Download Cancel

Figure 14: notification process

Figure 15:admin login

Figure 16: recover account

Departments List

#	Department Name	Faculty/Institute name	Action
#	Chemistry	Faculty of Science	View Edit Delete
#	Statistics	Faculty of Science	View Edit Delete
#	IIT	Institute of Information Technology	View Edit Delete
#	Leather Engineering	Institute of Leather Engineering and Technology	View Edit Delete
#	Footwear Engineering	Institute of Leather Engineering and Technology	View Edit Delete
#	Leather Products	Institute of Leather Engineering and Technology	View Edit Delete
#	Pharmacy	Faculty of Pharmacy	View Edit Delete
#	Pharmaceutical Chemistry	Faculty of Pharmacy	View Edit Delete
#	Clinical Pharmacy and Pharmacology	Faculty of Pharmacy	View Edit Delete
#	English	Faculty of Arts	View Edit Delete

« Previous Next »

Figure 17:department list

Edit Departments

Department Name:

Chemistry

Faculty/Institute Name:

Faculty of Science

Update Department

Figure 18: Edit

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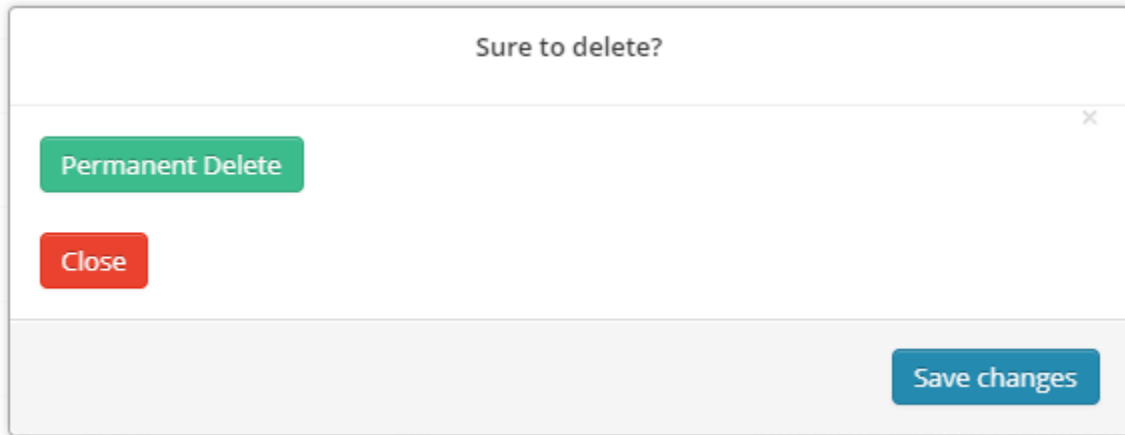
Figure 19: Delete
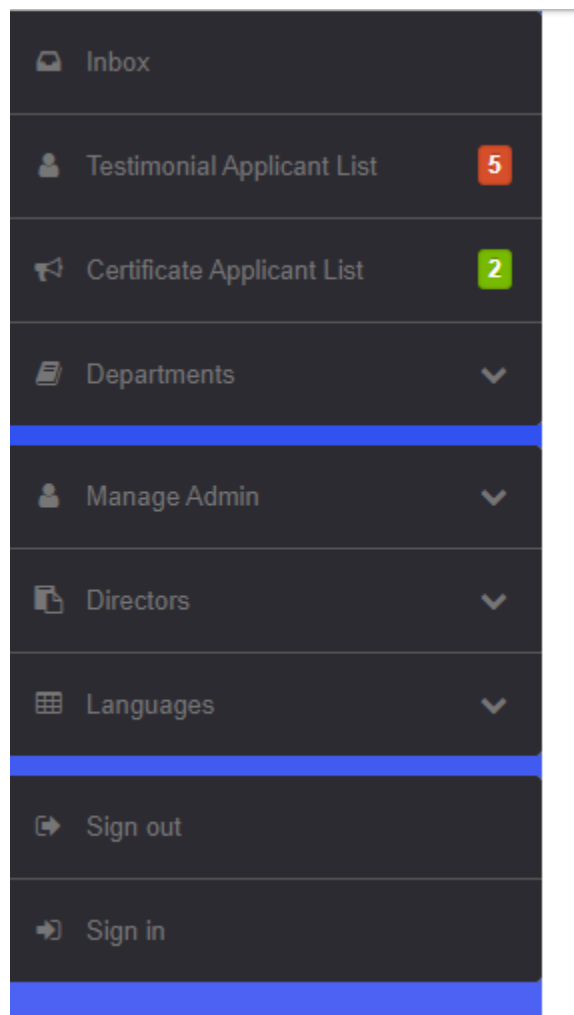
Figure 20: Sidebar admin

Figure 21: Certificate of Completion

TO WHOM IT MAY CONCERN

This is to certify that Amran Hossain S/o, Iqbal Hossain & Sheuly Akter, Brahmmonkhara,Chotona,Debidwar,Cumilla, was a student of IIT , University of Dhaka. He has successfully completed the final examination of "Master in Information Technology (MIT)" course (Session-2016-17, Roll-0917) and his CGPA is 3.46 on a scale of 4.00.

He is energetic, efficient and well behaved. he has a pleasant personality and possesses good moral character. To the best of my knowledge, he did not take part in any activity subversive of the state or of discipline.

Figure 22: Testimonial process

Chapter 4: Testing Component

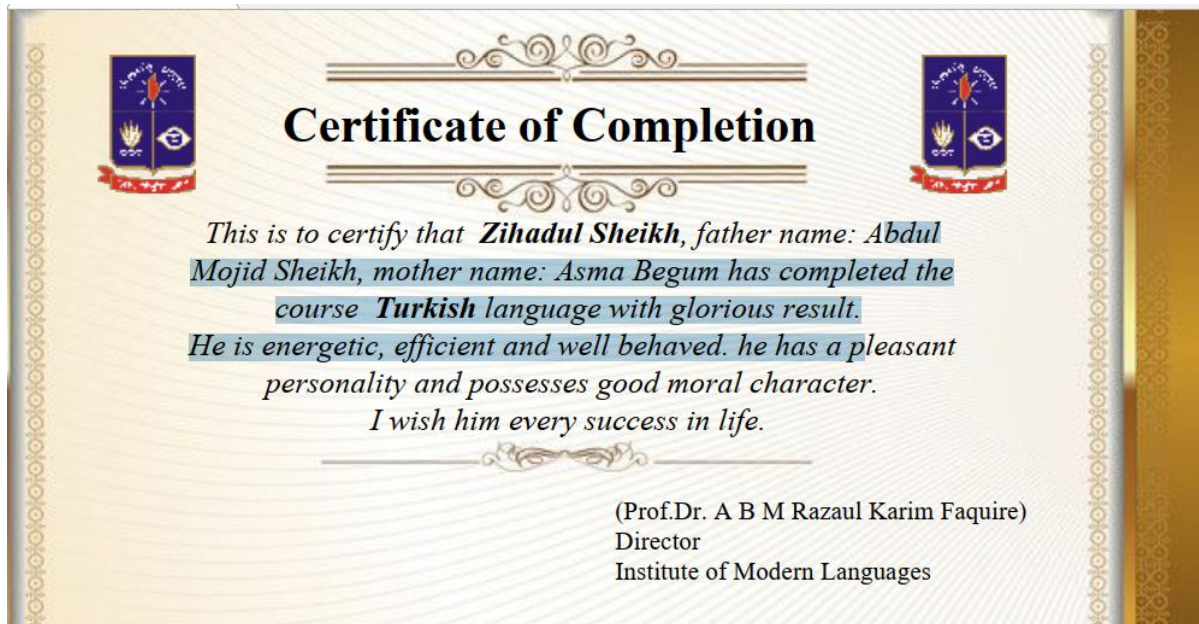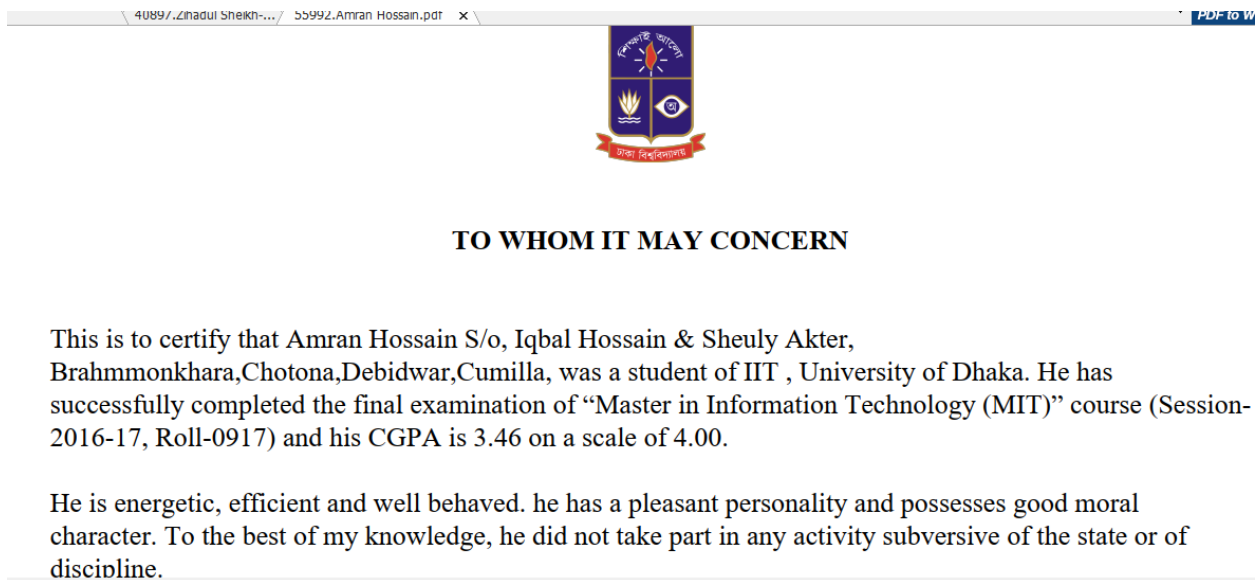## 4.1 Introduction

Software Testing is a method to check whether the actual software product matches expected requirements and to ensure that software product is defect free. Actually, there are two types of testing. Black box testing and White box testing. I have used black box testing for this software.

4.2 Software Testing Goals

Most essential software testing goals are described in here,

- Bug detection: QA experts detect and root out bugs and malfunctions before customers find them. It's a short-term objective that requires a scrutinous approach which can be provided by the manual software testing.

- Bug prevention: The bug-prevention objective is superior to others and implies not only anticipation but also prevention of defects from recurring in the future. In the long run, bug prevention helps to shorten the product time to market, reduce the cost of software quality maintenance and increase the customer satisfaction and loyalty to your product.

- User satisfaction: The main aim of any product is to give satisfaction to their customers. UI/UX Testing ensures the best user experience.

- Software quality and reliability: It is an essential requirement of any software product. Testing ensures a quality and reliable product is delivered to customers.

- Cost effective: It is one of the important advantages of software testing. Testing any IT project on time helps you to save your money for the long term. In case if the bugs caught in the earlier stage of software testing, it costs less to fix.

- Security: It is the most vulnerable and sensitive benefit of software testing. People are looking for trusted products. It helps in removing risks and problems earlier.

4.3 Levels of Testing

Here are important strategies in levels of testing in software engineering:

- **Unit Testing:** This software testing approach is followed by the programmer to test the unit of the program. It helps developers to know whether the individual unit of the code is working properly or not.
- **Integration Testing:** It focuses on the construction and design of the software. You need to see that the integrated units are working without errors or not.

- **System Testing:** In this method, your software is compiled as a whole and then tested as a whole. This testing strategy checks the functionality, security, portability, amongst others.
- **Acceptance Testing**: Checks the requirements of a specification or contract are met as per its delivery.

4.4 Testing Procedure

Following test cases have been performed on this system. To run these cases, internet must be in working condition.

Table 3: Test case

Test ID	Test Case	Input Test Data	Steps to be Executed	Expected Result	Actual Result	Pass/ Fail
T1	Test if application successful	Applicant personal details	1. Input required field 2. Click "Sign Up"	Application successfully submitted	Application Successful	Pass
T2	Test if applicant log in works	Email and applicant id	1. Input required field 2. Click "Search Status"	Successfully logged in	Successfully logged in	Pass
T3	Test if payment completed	Details for payment	1. Select "Pay now" 2. Given input data. 3. Choose payment option.	Payment completed	Payment completed	Pass
T4	Test if notification received	Application data	1.Logged in to search status. 2. Check email	Notification received	Notification not received	Pass
T5	Test if admin log in works	Email and password	1. input required field 2. Click "Log in"	Successfully logged in	Successfully logged in	Pass
T6	Test if password reset worked	Previous password, current password and email.	1.Click password reset option 2. Give Email	Password reset successfully	Password reset successfully	Pass

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T7	Test if application approval worked	Application	Click approve button	Application approved	Application approved	Pass
T8	Test if application cancel worked	Application	Click cancel button	Application cancels	Application cancels	Pass
T9	Test if testimonial/certificate is ready	Application	Click download button	Document is ready	Document is ready	Pass
T10	Test if department added in system	Department name and faculty name	Click add button	Department added successfully	Department added successfully	Pass

4.5 Risk and Contingencies

There will some risks when using this system. Transaction process will be fall down for occurring internet problem or payment gateway company's internal server error occurs. For successfully application start to end user have to fulfill user credentials as needed carefully. Otherwise, system may not work properly.

Chapter 5: User Manual

5.1 Application run

It is a web application. For run the application locally we need xampp control panel. Laravel installation, MySQL database and an IDE. To run the application just write "php artisan serve" in command line.

If this application host in internet just open the browser and hit the url.

5.2 Use the Application

Firstly, after hitting the url we get the homepage of the website and select services from the navbar what services do we want. Then click the button on get testimonial or get certificate and find an application form. Fill up the form accurately and submitting this get a unique applicant id which will be needed for log in this website for applicant. Then click the pay now button and get payment form and pay the money according to procedure.

After applicant complete his application to know his application status, he/she may click the application status button and give email and applicant id. After log in applicant see the status either admin accept or reject the application. Also, applicant know his status through the email. Also, applicant pay after login the system not in sign up time.

For Admin panel admin must log in with giving email and password. Also, admin may recover password also by clicking forgotten account. After log in the system admin see the applicant list who are apply for the certificate or testimonial. Admin accept or reject the application after click those buttons. Admin may download the testimonial and certificate copy. Admin click the approve button and change the status automatically. System gives email notification to the applicant. Also, admin add, delete or edit department, language and also director as much needed.

Chapter 6: Conclusions and Future Work

6.1 Conclusion:

Working with DU Services system was a new experience for me. I got the opportunity to learn about building a website. I have learnt how transaction system added in a system. I have tried my level best to implement the system as flawlessly as possible. However, there is still room for improvement. In future, I will try to host it in the server. Also, I have been experienced with web development work by building this system. Now I will be able to build any kind of website.

6.2 Future Work:

For transaction process of this system, I used sandbox sslcommerz free api. I will do it real time transaction in next. Also, I will host this website into internet. Now it is in my localhost. Also, I will add any other services system in automatically by this system which are related to transaction system. I will build this more user friendly so that user will be happy after using this system. In future I will try to add machine learning in this system so that system works with more data within a shorten time.

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