Palestine Technical University-Kadoorie

Faculty of Engineering and Technology

Computer system Engineering Department

Bank Management System

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Acknowledgement

On the successful completion of our project BANK MANAGEMENT SYSTEM, we would like to express our sincere gratitude to everyone who helped us in the completion of the project.

We are sincerely thankful to our parents and our project guide Dr. Mahmoud Moshref for his interest, guidance and suggestions throughout the course of the project. We feel honored and privileged to work under him. he shared his vast pool of knowledge with us that helped us steer through all the difficulties with ease. This project would not have been possible without his guidance.

ABSTRACT

The bank management system project is a program that keeps track of a client's bank account. This project demonstrates the operation of a banking account system and covers the essential functions of bank management software. It develops a project for resolving a customer's financial applications in a banking environment to meet the needs of an end banking user by providing multiple ways to complete banking chores. The project bank management system is built on cutting-edge technologies. This project was designed to make it simple and quick to complete previously impossible processes with manual systems which are now possible with this software.

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CHAPTER 1: INTRODUCTION

The banking management system sector has seen some greatest expansion in the past year and with the number of customer interactions increasing the day it has totally all the records in the database. When it comes to managing the money or valuable assets it automatically becomes a crucial matter for the service provider and the client as well for the trustworthiness. The banking management system is one of the most complex systems because the things it covered under the roof for transparency among the customers. from managing the customer information, account information to the transaction happening every minute or second. It does not only preserve the details of the transaction and other information but generates the report to further banking functions. In this banking management system, there are many operations that are automated which ease the work for the working of the bank. This reduces the requirement for manual labor and the automated tasks will be error-free as they will only work as they are programmed whereas doing work manually there is always a possibility of human error.

As it simplifies most of the manual tasks for the bank but there is a major concern over the security of the data and assets of the customer so it is very important to keep up with security features and tested each module carefully while deploying. This digitization of the bank will help the bank in every aspect of its growth.

It will not only make the work easy but significantly improve the speed of work as there are no physical files or data sheets will be there to manage everything will be managed logically with the system and machine. The information about the customer or if the customer wants to know their information will be just some clicks away and with an increase in transparency between the customer and fast service it will automatically get the trust of customers.

1.1 PROBLEM STATEMENT

Once a time, people have to spend three to four hours to go for bank transaction sometimes cost of transaction was more than that of money deposited or withdrawn. E-banking allows customer to conduct financial transaction on a secure website. Nowadays User-Friendly Technology is becoming more popular among customers, most of the banks are providing e-banking facility.

Today, most of the customers are increasingly using the technological banking facilities available in banking sector. It reduces cost and saves time. From the customers perceptive towards technological banking provides a convenient and effective way to manage finance that is easily accessible at 24 hours a day in 7 days a week. On the other hand, online banking has certain problems such as lack of knowledge to operate the technology, set-up cost, legal issues, lack of relationship among banker and customer, securely and privacy issues. For some people the User-Friendly Technology really simplifies their life style, while for others it is very much threatening and complex. Therefore, in this context, it is necessary to study the perception of customers' challenges towards User Friendly Technology.

1.2 PROJECT PURPOSE

Banking activities are considered to be the life blood of the national economy. Without banking services, trading and business activities cannot be carried on smoothly. Banks are the distributors and protectors of liquid capital which is of vital significance to a developing country.

develop a software for solving financial applications of a customer in banking environment in order to nurture the needs of an end banking user by providing various ways to perform banking tasks. Also, to enable the user workspace to have additional functionalities which are not provided under a conventional banking software.

1.3 SYSTEM OBJECTIVES

- To design an application, which would store bank data with high accuracy.
- To provide an interface for retrieving customer related details with high accuracy.
- To sell financial services in the financial markets.
- To deal with government transactions.
- To deal with withdrawals and deposits for individuals or groups alike.
- To providing bank checks to customers.

1.4 THE TARGET GROUPS OF THE PROJECT

especially for businessman, market owners for any type of commerce, companies, employees and all of people in general.

CHAPTER 2: PRELIMINARY LITERATURE REVIEW

I have read several software engineering researches based on providing more technical and modern solutions, and there were many distinctive and striking results, the most prominent of which was a research by DICEUS Company, which was built mainly to provide customized software solutions and help technology companies expand the scope of their teams. This company worked smarter than others and provided A software solution for a banking system based primarily on artificial intelligence, which has many features and benefits that distinguish it from other research and software solutions.

About DICES Company:

Starting in 2011 out of Illia Pinchuk, the developer passionate about technology, DICEUS has become a reliable partner for custom software development and staff augmentation.

The company's headquarters, along with the major development center, is located in Wroclaw, Poland, the administration — in Vienna, Austria.

The company's websites on the Internet:

On Facebook: https://www.facebook.com/DICEUS/

On LinkedIn: https://www.linkedin.com/company/diceus/about/

On google: https://diceus.com/

On Gmail: info@diceus.com

Illia Pinchuk (Founder & Chief Executive Officer at DICEUS)

AI development for banking:

When it comes to AI for FinTech, many clients don't fully realize how powerful this technology can be.

First and foremost, what's artificial intelligence in banking? AI includes systems that mimic human behavior and are capable of self-learning and correcting actions by analyzing information. In the banking industry, AI optimizes internal and external operations, strengthens workflows.

Offer a few core services of AI for FinTech, including the development of enterprise performance management, production planning analytics, workforce analytics, CRM analytics, advanced predictive analytics tools. AI for banking is among the hottest trends right now. Modern digital financial teams utilize AI-based tools to provide better services, attract more clients, and increase revenue. They help optimize data aggregation and usage, mitigate regulatory and market risks, improve customer experience, and combat many banking problems, including fraud.

The most important features:

1- Advanced analytics

Our AI-powered solutions and services are provided to equip your company with predictive analytics tools complemented with machine learning. For instance, you can use to build some smart customer relationships system (CRM) powered with forecasting capabilities to identify market demands with the help of historical data. Our AI team will help you define how AI can be helpful in your bank.

2- Natural language processing (NLP)

Offer natural language processing solutions like chat bots for banks to help you increase customer satisfaction and loyalty by providing modern customer support. Our AI team has experience building custom-tailored chat bot applications for banks and financial organizations. We conduct in-depth target audience analysis to identify your most common communicational patterns and contexts.

Benefits of our AI banking solutions:

1- Reduced costs

2- Improved customer service

3- Increased efficiency

4- Optimized processes

Banking AI development process:

Algorithm implementation

AI services are different from other IT areas. The thing is that any artificial intelligence in banking case study requires different options depend on your needs. Our data scientists will offer the most relevant services that suit your tasks, we can create a custom algorithm for AI in banking sector.

Frequently asked questions:

1- What is artificial intelligence in banking so important?

AI in financial services is a set of practices and digital solutions that facilitate operations.

2- How do banks win with AI and automated machine learning?

Smart solutions and automation are among the hot trends nowadays. AI solutions for banking cut time and money expenses significantly, increase employee productivity, and improve customer service quality. It’s possible thanks to advanced digital operations.

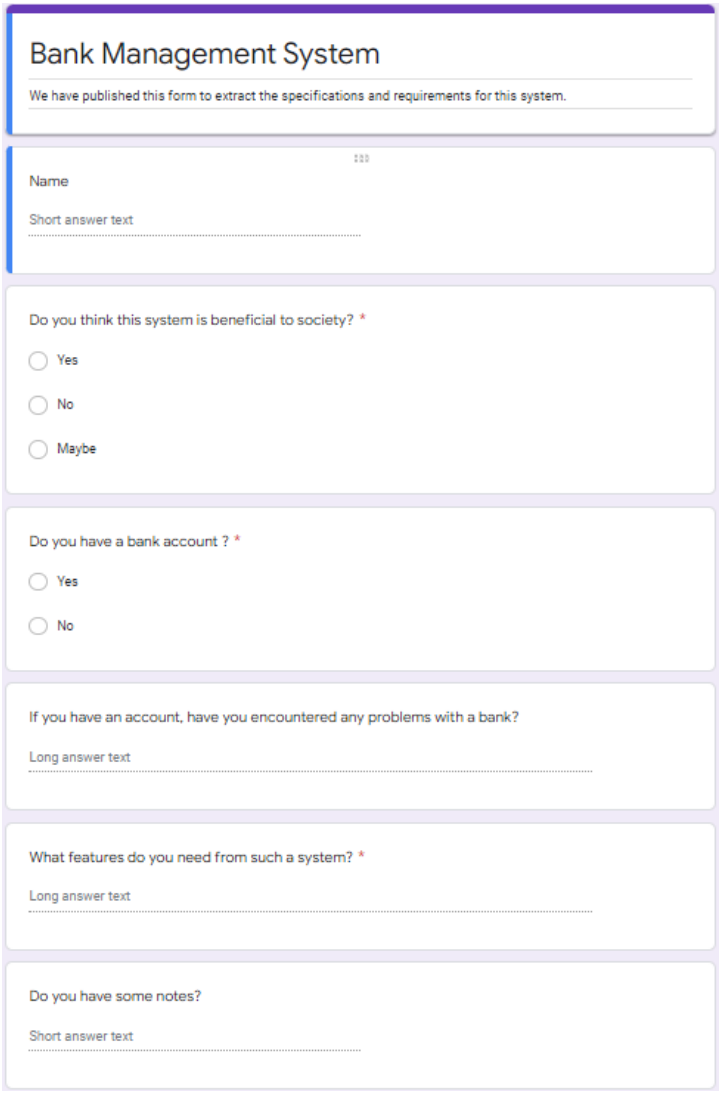
3- Why choose DICEUS AI development company for banking?

have rich experience in working with banks and providing innovative services. the case studies include projects for American, European, and Middle East businesses, implementation of automation technologies, and advanced custom solutions.

CHAPTER 3: METHODOLOGY, REQUERMENTS

The system will be designed to be user friendly. The user friendly and interactive interfaces design helps to achieve this by enabling customers to do what they need, the system will be simple to use.

We visited a branch of the Arab Bank and met one of the employees to get the most basic requirements of the system, and we made another questionnaire (aimed to students from different universities) to get their opinion on what services they need which made the requirements clearer to be documented and worked on.



Bank Management System

We have published this form to extract the specifications and requirements for this system.

Name

Short answer text

Do you think this system is beneficial to society? *

- Yes
- No
- Maybe

Do you have a bank account ? *

- Yes
- No

If you have an account, have you encountered any problems with a bank?

Long answer text

What features do you need from such a system? *

Long answer text

Do you have some notes?

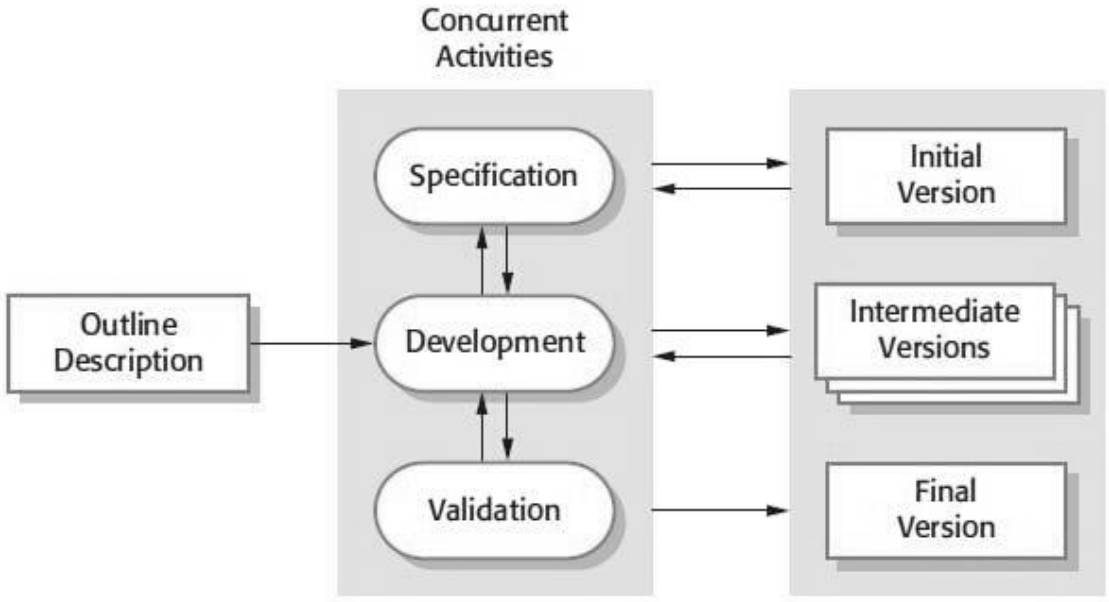
Short answer text

3.1 METHODOLOGY (PROCESS MODEL)

We will use agile model.

Why this model?

- Because the system will be developed incrementally allowing users to access some
  services while other service underwent developments.
- Customer is involved in the project's development.



3.2 REQUERMENTS

3.2.1 Functional requirements:

a - Admin requirement:

- Admin login: The admin shall be able to login to his account.
- Accounts Information, Users and employees details list: The admin shall be able to view Accounts Information, Users and employees details list and update it
- Give vacations: The admin shall be able to give vacations.
- Approval of the currency exchange rate: The admin shall be able to Approval of the currency exchange rate
- View statements transaction: The admin shall be able to view the transaction histories.

b - Employee requirement:

- Employee login: The employee shall be able to login to account.
- Add, delete and update accounts: the employee shall be able to creating/open new account to the bank management system.
- Create bank checks for users: the employee shall be able to create bank checks for users.
- Transformation: The employee shall be able to fund transfer
- Withdrawal, deposit and statements transaction.
- View statements transaction: The employee shall be able to view details of transaction for all users.
- Users account details: The employee shall be able to view details of accounts of users.
- Change Password: The employee shall be able to change the password of his account and users.

c - User requirement:

- User login: The user shall be able to login to account.
- Withdrawal: The user shall be able to withdrawal cash from the ATM.
- Deposit/statements transaction.
- View statements transaction: The user shall be able to view details of transaction.
- User account details: The user shall be able to view details of account.
- Change Password: The user shall be able to change the password of account.
- Request bank check: The user shall be able to request bank checks.

3.2.2 Non-functional requirements:

Those requirements which are not the functionalities of a system but are the characteristics of a system are called the non-functionalities. Every software system has some non-functionalities.

1- Security

Security is the feature of the system which ensures that system must be protected from the unintentional or malignant harm; unauthorized access to the data is not permissible.

For the safety purpose the data must be backed up after certain period of time say 24 hours and the backed-up data must be stored in a secure location.

In banking system must be able to send or receive the information to or from the server and client in an encrypted way The information kept in the system ought to be precise and complete.

2- Performance

The term performance alludes to the capacity of the system or software to process as many as transactions per second as submitted to it without failure.

3- Usability

The designed must be easy to use and enable the client to manage their accounts or transactions with simplicity.

Must have graphical user interface and it must have the ability to provide informative error messages The interfaces of the system ought to be clear, easy and simple to use and understand.

4-Availability

The services banking should be available round the clock.

5- Traceability

Traceability refers to the capability for tracing the status of the transaction and account on account number basis.

Traceability is an important aspect in the banking industry, where it makes tracking of transaction possible.

6-Reliability

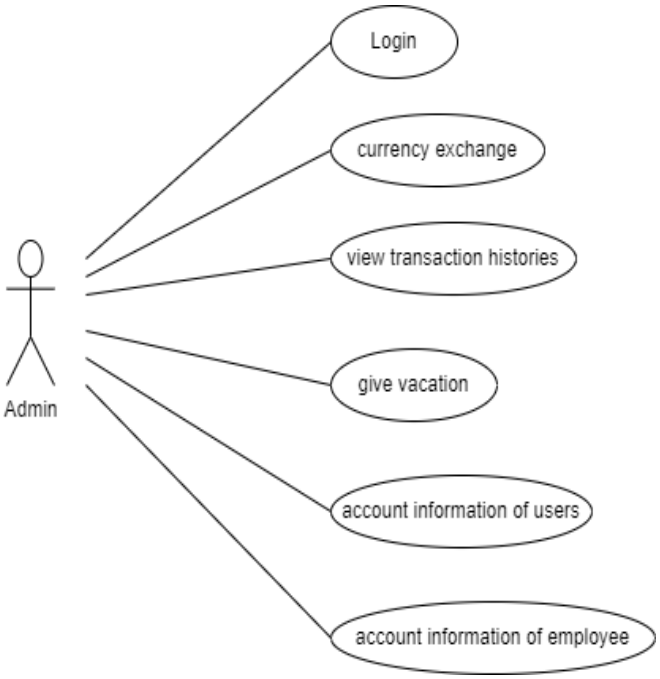
Reliability reflects the capacity of the software to maintain its performance over the time.

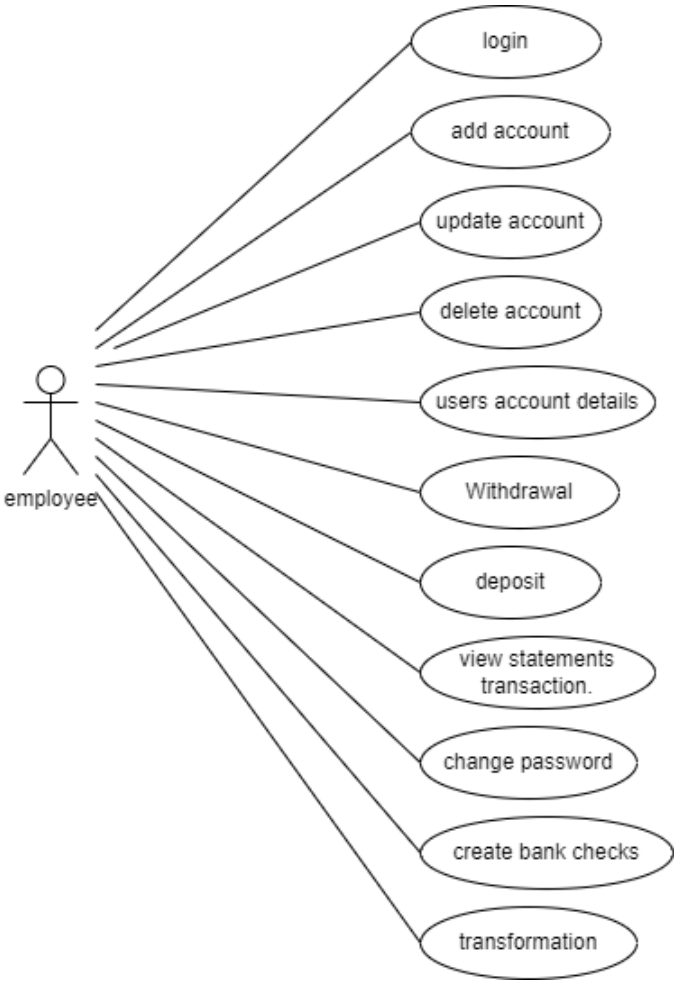
It implies how well the system performs in peak hours.

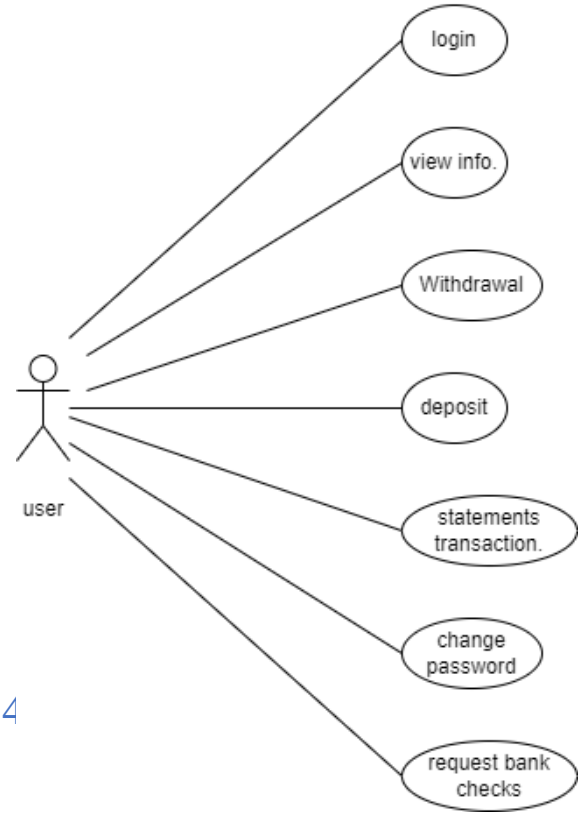
A robust system is one which has the capacity to handle the bugs without failure i.e., how effortlessly it handles the bugs.

CHAPTER4: SOFTWARE DIAGRAMS

4.1 Use case diagrams







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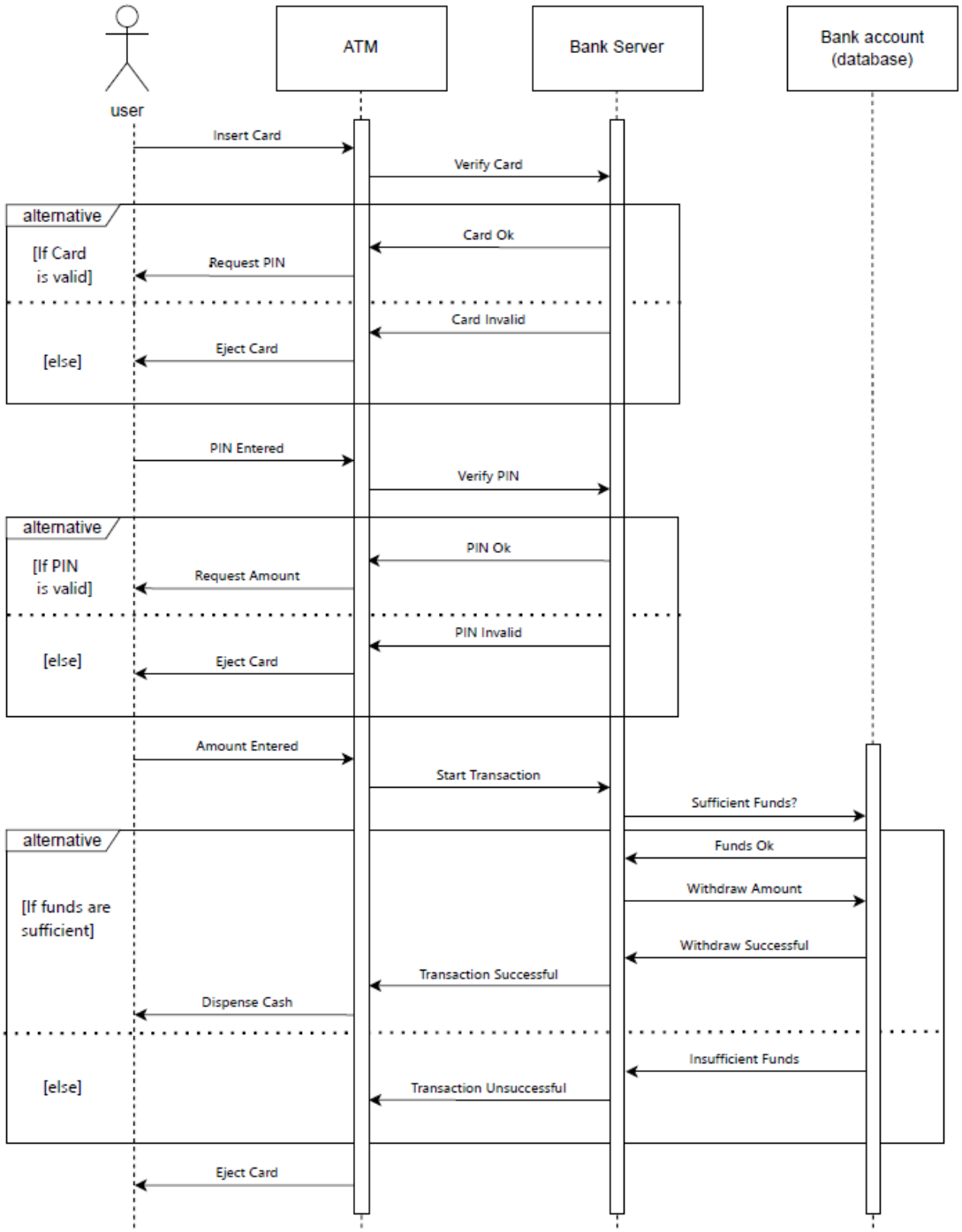
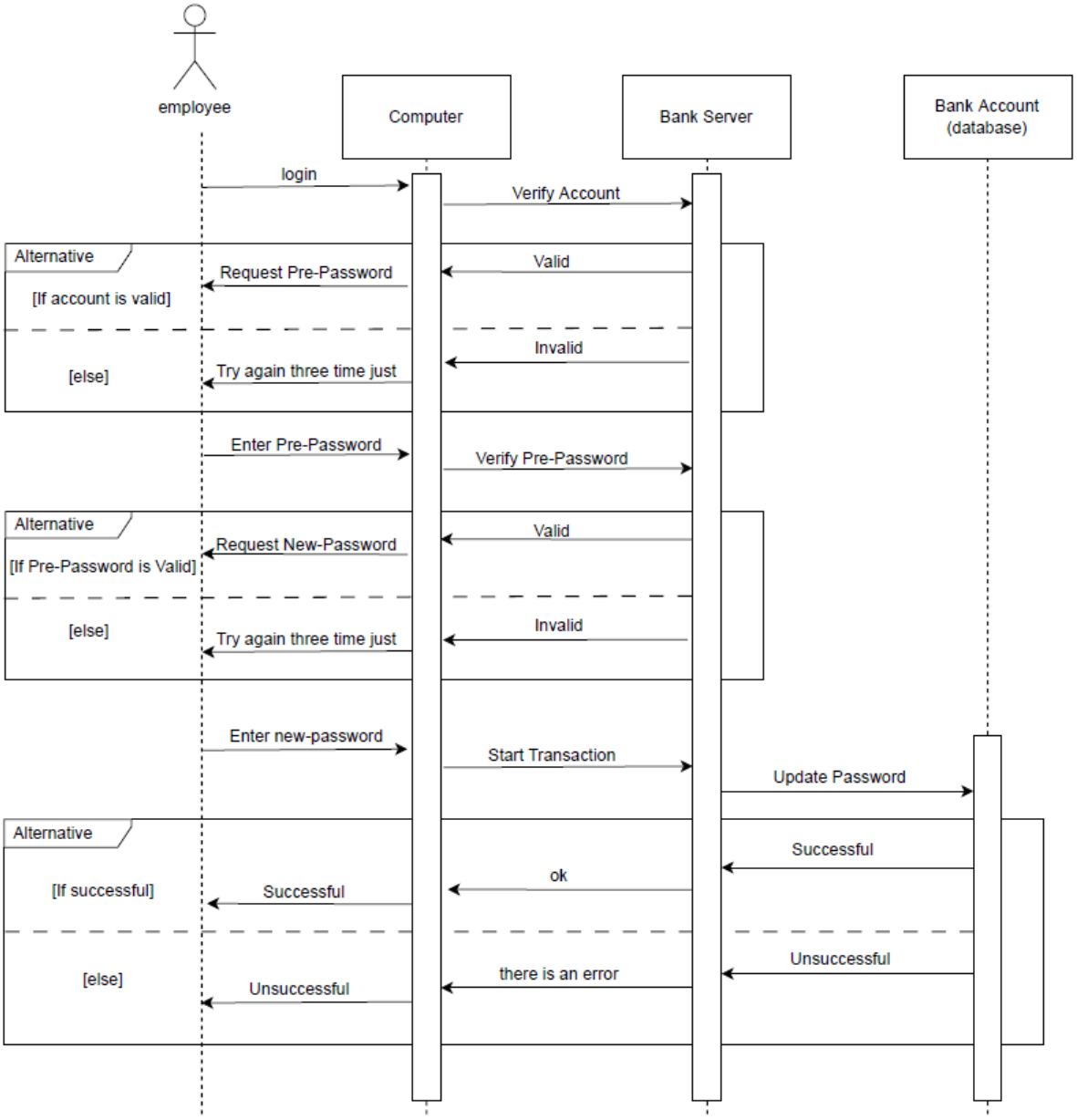
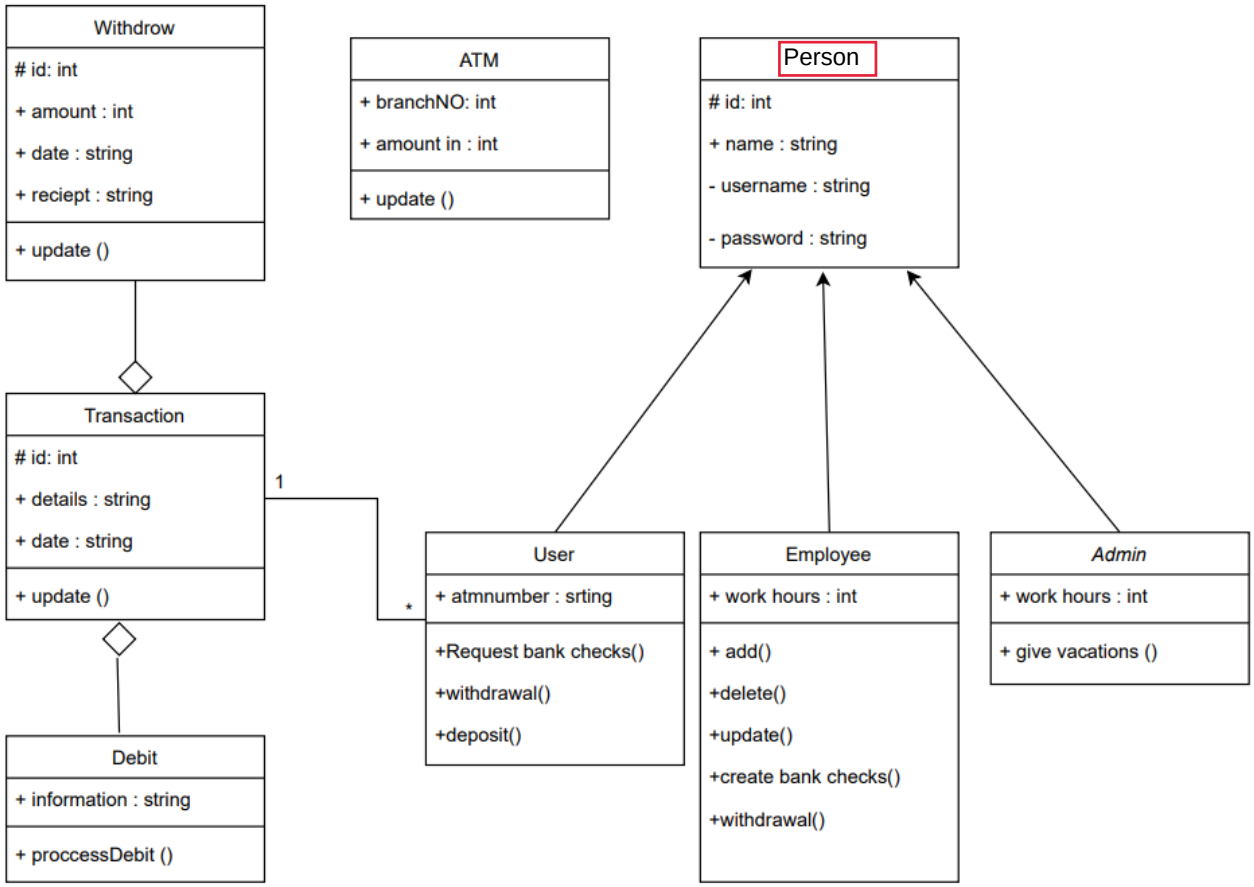
4.2.1: For withdraw



4.2.2: For change password



4.3 Class diagram



CHAPTER 5: CHALLENGES & TEAM MEMBER WORK

5.1 Challenges

- We faced some difficulties because the work pressure will focus mainly on both of us, each member will bear the total half of the work on the project This was the most prominent challenge and we were able to overcome it by intensifying efforts and reading previous research and repeated research until we reached the desired result.
- As for the second challenge, the difference was on some points in the project, and that we were only two members. There is no third or fourth. We take the opinion of the majority. This stage was one of the most difficult stages of the project. The solution to this problem was to convince the other party of the right opinion so that one of us would convince the other and we would adopt its result.
- As for the challenge that was playing a role, we could not overcome it except with difficulty, which is setting dates for meeting the work team when we set a time, either I am busy or the other member, especially in the last days of the project, especially since we are in a period of pressure.
- The main challenge was where to start? How do we start? How to do creative work with minimal effort?
- How to get the work done more quickly, as if we were working for a client, and the most important challenge is to be satisfied with the client at the level of work and time.

5.2 Team member work

Mohammad Abu Safat	• INTRODUCTION • PROBLEM STATEMENT • PROJECT PURPOSE • THE TARGET GROUPS • METHODOLOGY (PROCESS MODEL) • FUNCTIONAL REQUERMENTS, • SEQUANCE DIAGRAM (withdraw) • CLASS DIAGRAM
Osama Marie	• OBJECTIVES • PRELIMINARY LITERATURE REVIEW • NON-FUNCTIONAL REQUERMENTS • USE CASE DIAGRAM • SEQUANCE DIAGRAM (change password) • CHALLENGES • REFERENCES

REFERENCES

[1] M. Moshref, R. Al-Sayyed, and S. Al-Sharaeh, “Multi-objective Optimization Algorithms for Wireless Sensor Networks: A comprehensive Survey,” Journal of Theoretical and Applied Information Technology, Vol.98. No 14, 2020.

[2] Bank Account Management System June 2015

Thesis for: Bachelor of Computer Science & Engineering Advisor: Ayesha Sidiki

[3] Palestine Islamic bank 5/5/2022

[4] Mojahed Rayyan: bank employee 29/5/2022 Phone call and his phone number:

0568321229

[5] Company Website: https://diceus.com/