CERTIFICATE

This is to certify that **Amrita Kumari** of Bachelors of Computer Application (2024) has completed their project on **"BANK MANAGEMENT SYSTEM"** under my supervision. The contents imported in the project are results of the student own work carried out as part of academic requirements of VI semester. The student made by my candidate is correct to the best of my knowledge. The candidate has worked to my utmost satisfaction.

APPROVAL SHEET

This project entitled **"BANK MANAGEMENT SYSTEM"** by Amrita Kumari is approved for the degree of Bachelors of Computer Application.

Examiner

_____

Supervisor/Guide

_____

Head of Department

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ACKNOWLEDGEMENT

I am glad that I was able to complete this project and understand many things. I inculcated many personal qualities during this process like responsibility, punctuality, confidence and others.
I express my gratitude to the Head of Department of Bachelors of Computer Application, ITM College of Management, Gida, Gorakhpur for providing me with excellent infrastructure and awesome environment that laid potentially strong foundation for my professional life.
We do acknowledge the guidance rendered by our project coordinator, ITM college of Management, Gida, Gorakhpur who helped us in different ways.
I would like to thank my faculty members, who gave me this opportunity to work on this project. I got to learn a lot from this project about Bank Management System.
At last, I would also want to thank my parents and team members who helped me in finalizing this project within a limited time frame.

Thanks to all.

Amrita Kumari(2314038360049)

TEAM DECLARATION

It is hereby declared that the work presented in this project report entitled as "Bank Management System" is a partial fulfillment of the requirement for the award of final year project.

Achievement of objective has been great team effort by our team members. Every person has taken his responsibility with great sincerity and team spirit. Each member has cooperated well with each other.

The listed of our declaration member is as follows:

- **Amrita Kumari**

ABSTRACT

The Bank Account Management System is an application for maintaining a person's account in a bank. In this project I tried to show the working of a banking account system and cover the basic functionality of a Bank Account Management System. To develop a project 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's workspace to have additional functionalities which are not provided under a conventional banking project.

The Bank Account Management System undertaken as a project is based on relevant technologies. The main aim of this project is to develop software for Bank Account Management System. This project has been developed to carry out the processes easily and quickly, which is not possible with the manuals systems, which are overcome by this software. This project is developed using PYTHON language and MYSQL use for database connection. Creating and managing requirements is a challenge of IT, systems and product development projects or indeed for any activity where you have to manage a contractual relationship. Organization need to effectively define and manage requirements to ensure they are meeting needs of the customer, while proving compliance and staying on the schedule and within budget. The impact of a poorly expressed requirement can bring a business out of compliance or even cause injury or death. Requirements definition and management is an activity that can deliver a high, fast return on investment.

The project analyzes the system requirements and then comes up with the requirements specifications. It studies other related systems and then come up with system specifications. The system is then designed in accordance with specifications to satisfy the requirements. The system design is then implemented with MYSQL and PYTHON. The system is designed as an interactive and content management system. The content management system deals with data entry, validation confirm and updating whiles the interactive system deals with system interaction with the administration and users.

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Chapter 1

INTRODUCTION

Introduction:

The "Bank Account Management System" project is a model Internet Banking Site. This site enables the customers to perform the basic banking transactions by sitting at their office or at homes through PC or laptop. The system provides the access to the customer to create an account, deposit/withdraw the cash from his account, also to view reports of all accounts present. The customers can access the banks website for viewing their Account details and perform the transactions on account as per their requirements. With Internet Banking, the brick and mortar structure of the traditional banking gets converted into a click and portal model, thereby giving a concept of virtual banking a real shape. Thus today's banking is no longer confined to branches. E-banking facilitates banking transactions by customers round the clock globally.

The primary aim of this "Bank Account Management System" is to provide an improved design methodology, which envisages the future expansion, and modification, which is necessary for a core sector like banking. This necessitates the design to be expandable and modifiable and so a modular approach is used in developing the application software. Anybody who is an Account holder in this bank can become a member of Bank Account Management System. He has to fill a form with his personal details and Account Number.

Bank is the place where customers feel the sense of safety for their property. In the bank, customers deposit and withdraw their money. Transaction of money also is a part where customer takes shelter of the bank. Now to keep the belief and trust of customers, there is the positive need for management of the bank, which can handle all this with comfort and ease. Smooth and efficient management affects the satisfaction of the customers and staff members, indirectly. And of course, it encourages management committee in taking some needed decision for future enhancement of the bank.

Now a day's, managing a bank is tedious job up to certain limit. So software that reduces the work is essential. Also today's world is a genuine computer world and is getting faster and faster day-by-day. Thus, considering above necessities, the software for bank management has became necessary which would be useful in managing the bank more efficiently.

All transactions are carried out online by transferring from accounts in the same Bank or international bank. The software is meant to overcome the drawbacks of the manual system.

The software has been developed using the most powerful and secure backend MYSQL database and the most widely accepted web oriented as well as application oriented.

1.2 Synopsis

Bank Account Management System keeps the day by day tally record as a complete banking system. It can keep the information of Account type, account opening form, Deposit fund, Withdrawal, and Searching the transaction, Transaction reports, Individual account opening form, Group Account. The existing part of this project is; it displays Transaction reports, Statistical Summary of Account type and Interest Information.

1.3 AIM if this project

The main aim of designing and developing this Internet banking System python primarily based Engineering project is to provide secure and efficient net banking facilities to the banking customers over the internet. Apache Server Pages, MYSQL database used to develop this bank application where all banking customers can login through the secured web page by their account login id and password. Users will have all options and features in that application like get money from western union, money transfer to others, and send cash or money to inter banking as well as other banking customers by simply adding them as payees.

1.4 Gatting Started

If you want to try out online banking without committing, select our Online Banking. You don't have to register in any way, so it's a good way to check it out first before register.

Once you register, you'll have the choice of doing just basic banking and viewing your balance or doing more involved transactions like bill payments and transfers. The choice is yours. It really depends on how you like to bank.

You will get a confirmation number after each transaction and you can always check the session summary to see what you've done. If you make a mistake, customer service is always available for your good kindness help.

1.5 Main Purpose

The Traditional way of maintaining details of a user in a bank was to enter the details and record them. Every time the user needs to perform some transactions he has to go to bank and perform the necessary actions, which may not be so feasible all the time. It may be a hard hitting task for the users and the bankers too. The project gives real life understanding of Online Banking System and activities performed by various roles in the supply chain. Here, we provide automation for banking system through Internet. Online Banking System project captures activities performed by different roles in real life banking which provides enhanced techniques for maintaining the required information up-to-date, which results in efficiency. The project gives real life understanding of Online Banking System and activities performed by various roles in the supply chain.

1.6 What to expert:

Here are some of the features available through online banking:

1. **View balances:** Firstly login your account with your account number and password. Then checking your balance doesn't require much work. You simply select Account balances and take a look at your balance and past transactions. If you have more than one account, you can also do transfers between accounts
2. **Transfer funds:** When you select Transfer Funds, you'll be asked where to transfer the money to and from, when, and the amount.
3. **Set up recurring bill payments or transfers:** If you make a regular payment every month, it might be convenient to set up an automatic withdrawal from your account.
4. **Monitor CIBC investments:** If you have any CIBC investments, you can keep an eye on those stocks or mutual funds here.
5. **Pay bills:** To pay your bills online, you just need to add to your account the names of the companies you wish to pay bills to.
6. **View our VISA* accounts:** Always a good place to monitor your spending. You can make your credit card payments online, right from your account.

7. **Order Cheques:** We don't need them much anymore due to online banking and debit purchases, but if you still use cheques, you can order them directly

from the BAMS website.

1.7 Take control

Online banking helps you become more of a banker, running your accounts like a small business that you control every day. Once you get started, you'll be hooked. Soon enough you'll be checking your bank account as often as your e-mail.

1.8 Features of BAMS

- User registration for online banking if not register.
- Adding Beneficiary account by customer.
- Transferring amount to the local customer account number.
- Admin must approve the user account activation before it can be used and transferring funds, view statement history.
- Customer gets to know his last login date and time each time he logs in.
- Customer can check all transactions made with their account.
- Customer can check their account statement within a date range.
- Customer can request for ATM and Cheque Book.
- Admin can add/edit/delete customer account's.
- All two of them (customer & admin) can change their password.
- Admin Login pages are hidden from customer for security purpose.
- Passwords are stored as encrypted hashes with an additional random salt for added security.

1.9 Goals and Objectives

1.Main Goals:

- Our motto is to develop a software program for managing the entire bank process related to Administration accounts customer accounts and to keep each every track about their property and their various transaction processes efficiently.
- Hereby, our main objective is the customer's satisfaction considering today's faster in the world.

2. Customer Satisfaction:

- Client can do his operations comfortably without any risk or losing of his privacy.
- Our software will perform and fulfil all the tasks that any customer would desire.

3. Saving Customer Time:

- Client doesn't need to go to the bank to do small operation.

4. Protecting The Customer:

- It helps the customer to be satisfied and comfortable in his choices, this protection contains customer's account, money and his privacy.

5. Transferring Money:

- Help client transferring money to/or another bank or country.

2.1 Modules Description

The Modules description of Bank Account Management System project. These modules will be developed in PHP source code and MYSQL database.

1. Create New Account: A customer who having the account in the world can create a virtual account through this module. This module receives the customer profile details and the bank account details with the proof of the ownership of the bank account.

2. Login: Virtual account holders can login in to the system using this module. Thus this is the secured login page for the customers in the website.

3. Virtual Account: After the approval of new virtual account creation, the customer assigned a unique virtual account number to make the online money transactions. This module views the details of the logged customer's virtual account.

4. Bank Accounts: A customer may have more than one bank account in various banks, in this case, the customer prompted to decide which bank account should reflect in the account debit or amount credit. For these operations customers can add their owned bank accounts here and it will be approved by the administrations of the system.

5. Fund Transfer: This is the module to make fund transfer to the virtual bank account holders or the usual bank account holders from the customer's specified bank account.

6. Beneficiary: Beneficiary is a person who receives money. Here the customer can add the beneficiaries to make fund transfer in the future.

7. Transactions: This module displays the transactions made by the customer in the particular date with the transaction details.

8. Administrative Control: This module contains the administrative functions such as view all virtual account, transactions, approve bank accounts, approve virtual accounts etc.

There are other features and actions that can be performed on a back account but we are not going to look at bank accounts in their entirety only the basics, this way we avoid over complicating the exercise. The purpose of this whole exercise is to show the usefulness of object oriented programming as opposed to really wanting to create a banking system.

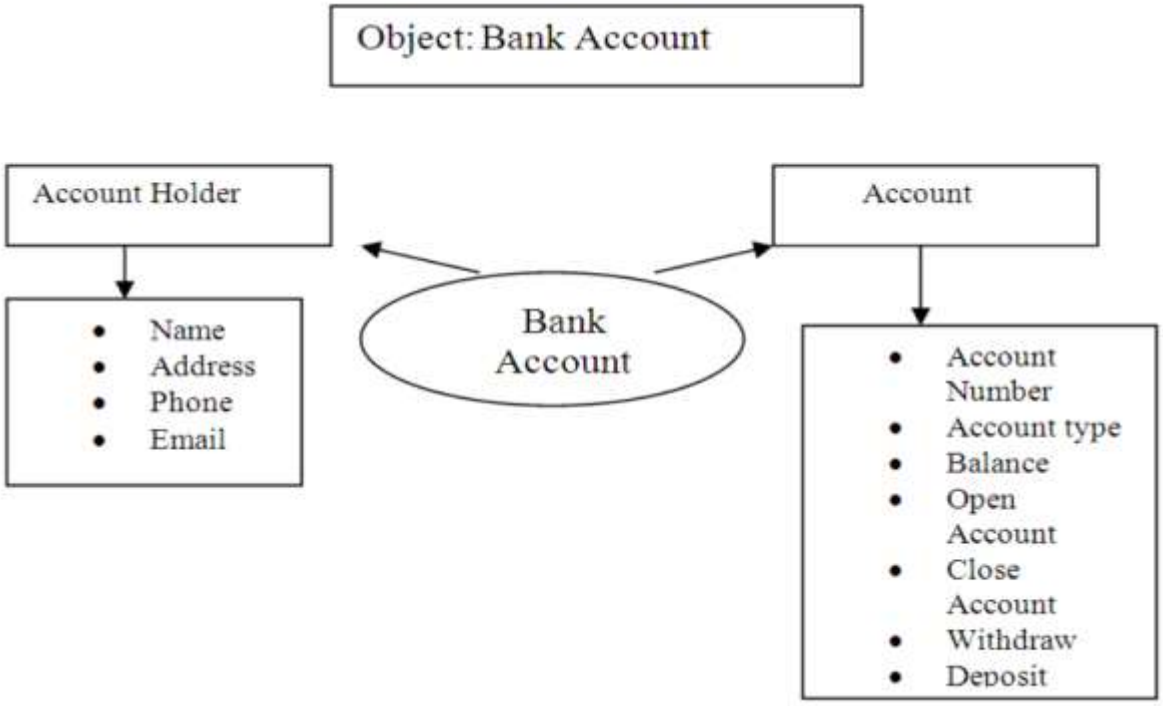

Fig. Bank Account System

Translating the above points into software is easy when you think of a bank account as an object:

Chapter 2

2.2 Methods

- We need to be able to generate an account number
- Account types: Savings or Current Account
- Maintain/update Balance
- Open/Close Account
- Withdraw/Deposit

The next thing we need to look at is where to store the information about the account. Obviously, the best place to store information relating to bank accounts is in a database. To work with a database (from an OOP point of view) will require the following methods:

- Connecting to the database
- Inserting account details
- Updating the balance on any withdrawal or deposits made

Our class will then be called Accounts and we will have a constructor method with the same name that will help us initialize some variables.

2.3 Administrative Modules

Here in my project there are two types of modules. This module is the main module which performs all the main operations in the system. The major operations in the system are:

2.4 Admin Module

Admin can access this project there is an authorization process. If you login as an Admin then you will be redirected to the Admin Home Page and if you are a simple user you will be redirected to your Account Home Page. This performs the following functions: Create Individual Accounts, Manage existing accounts, View all transactions, Balance enquiry, Delete/close account etc.

- Admin login
- Add/delete/update account
- Withdrawal/deposit/statements transaction
- Account Information
- User details list
- Active/Inactive account
- View transaction histories

2.5 User Module

A simple user can access their account and can deposit/withdraw money from their account. User can also transfer money from their account to any other bank account. User can see their transaction report and balance enquiry too.

- User login, use PIN system
- Creating/open new account registration
- Funds transfer (local/international/domestic)
- View statements transaction
- User account details
- Change Password and PIN
- View about developer details

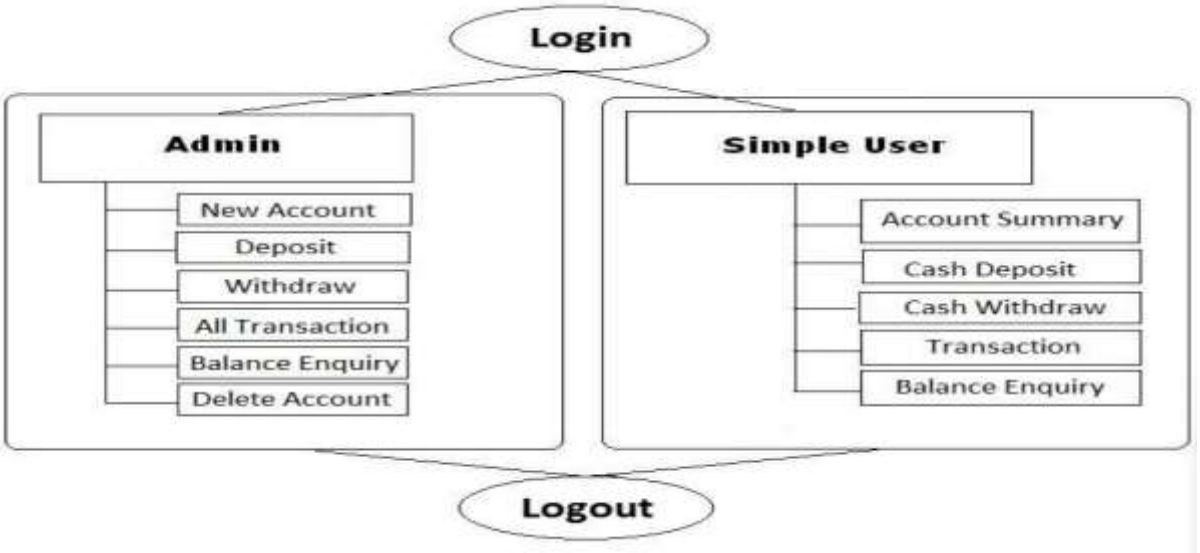

Figure-2.2: Module of project

2.6. Hardware Requirements Specification

Processor	: Intel Pentium III or later
Main Memory (RAM)	: 256 MB
Cache Memory	: 512 KB
Monitor	: 14 inch Color Monitor
Keyboard	: 108 Keys
Mouse	: Optical Mouse
Hard Disk	: 160 GB

2.7. Software Requirements Specification

Front End/Language : Python

Back End/Database : MYSQL

Additional Tools : XAPM Server

Operating System : Windows 7, 8, 9, 10, XP

Chapter 3

3.1 System Design

Design is the first step into the development phase for any engineered product or system. Design is a creative process. A good design is the key to effective system. The term "design" is defined as "the process of applying various techniques and principles for the purpose of defining a process or a system in sufficient detail to permit its physical realization". It may be defined as a process of applying various techniques and principles for the purpose of defining a device, a process or a system in sufficient detail to permit its physical realization. Software design sits at the technical kernel of the software engineering process and is applied regardless of the development paradigm that is used. The system design develops the architectural detail required to build a system or product. As in the case of any systematic approach, this software too has undergone the best possible design phase fine tuning all efficiency, performance and accuracy levels. The design phase is a transition from a user oriented document to a document to the programmers or database personnel.

System design goes through two phases of development:

- Logical Design and
- Physical Design.

3.2 Logical Design

The logical flow of a system and define the boundaries of a system. It includes the following steps:

- Reviews the current physical system – its data flows, file content, volumes, frequencies etc.
- Prepares output specifications – that is, determines the format, content and frequency of reports. Prepares input specifications – format, content and most of the input functions.
- Prepares edit, security and control specifications.
- Specifies the implementation plan.
- Prepares a logical design walk through of the information flow, output, input, controls and implementation plan.
- Reviews benefits, costs, target dates and system constraints.

3.3 Physical Design

Physical system produces the working systems by define the design specifications that tell the programmers exactly what the candidate system must do. It includes the following steps.

- Design the physical system.
- Specify input and output media.
- Design the database and specify backup procedures.
- Design physical information flow through the system and a physical design Walk through.
- Plan system implementation.
- Prepare a conversion schedule and target date.
- Determine training procedures, courses and timetable.
- Devise a test and implementation plan and specify any new hardware/software.
- Update benefits, costs, and conversion date and system constraints.

3.4 Database design

The database, called a bank, will have two tables, one called accounts and the other called customer. Each will hold information about either the account or the customer. The two tables will be linked through a foreign key. The customer table has the following fields:

Account User Table-3.1

Field	Description
cusid	Creates a unique customer id for each new customer
name	Stores the customer name
address	Stores the customer address
acc_id	Links the customer to a account in the accounts table

Accounts Table-3.2

Field	Description
accid	Creates a unique account number for each new account
accno	Stores the account number
type	Stores the account type
balance	Stores the account balance
active	Shows the account status

Since one customer can have many accounts, I thought it only right to insert a foreign key acc_id into the customer table. In addition, instead of having fields such as date created and date closed, I simply use the active field to check if the account is active or not. This will enable us to focus more on the programming than on particulars of the database.

3.5.Data flow diagram

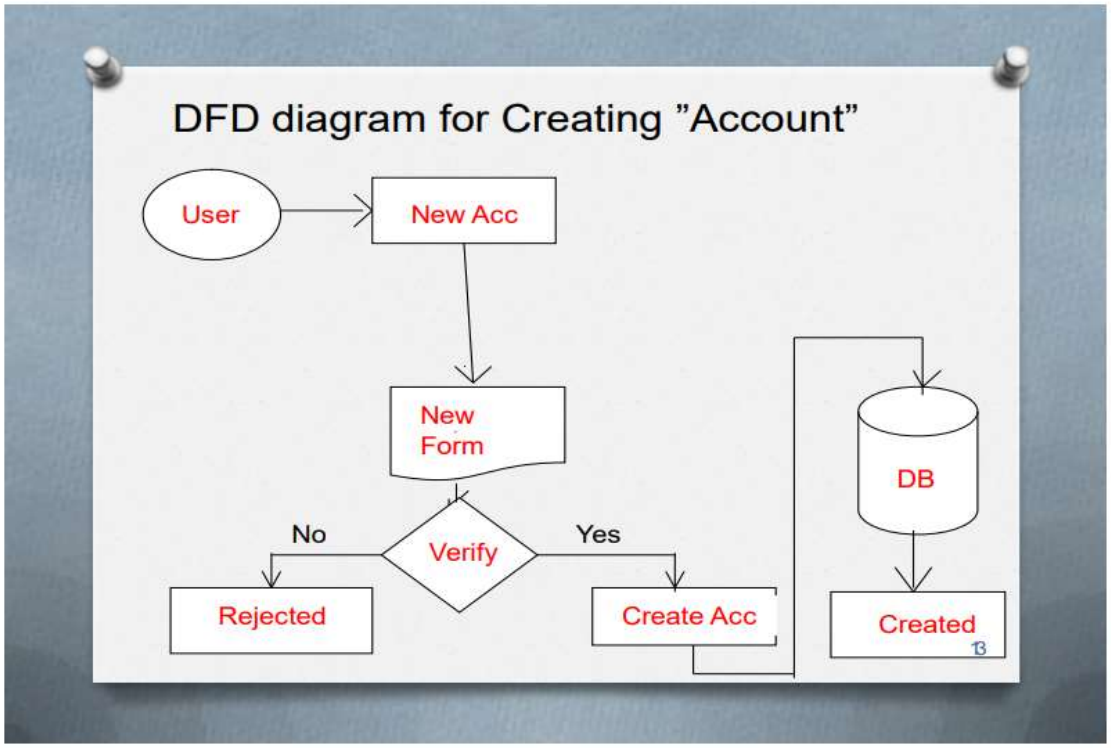

Figure-3.1: Create new account DFD

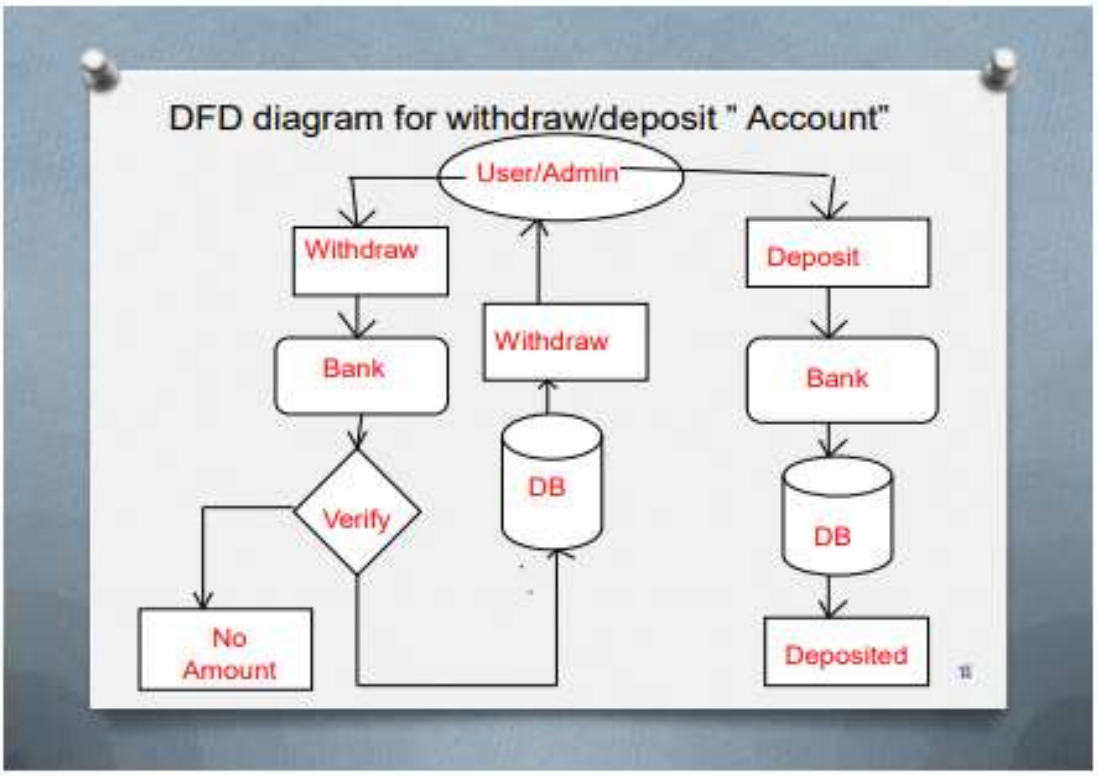

Figure-3.2: Withdraw/deposit account DFD

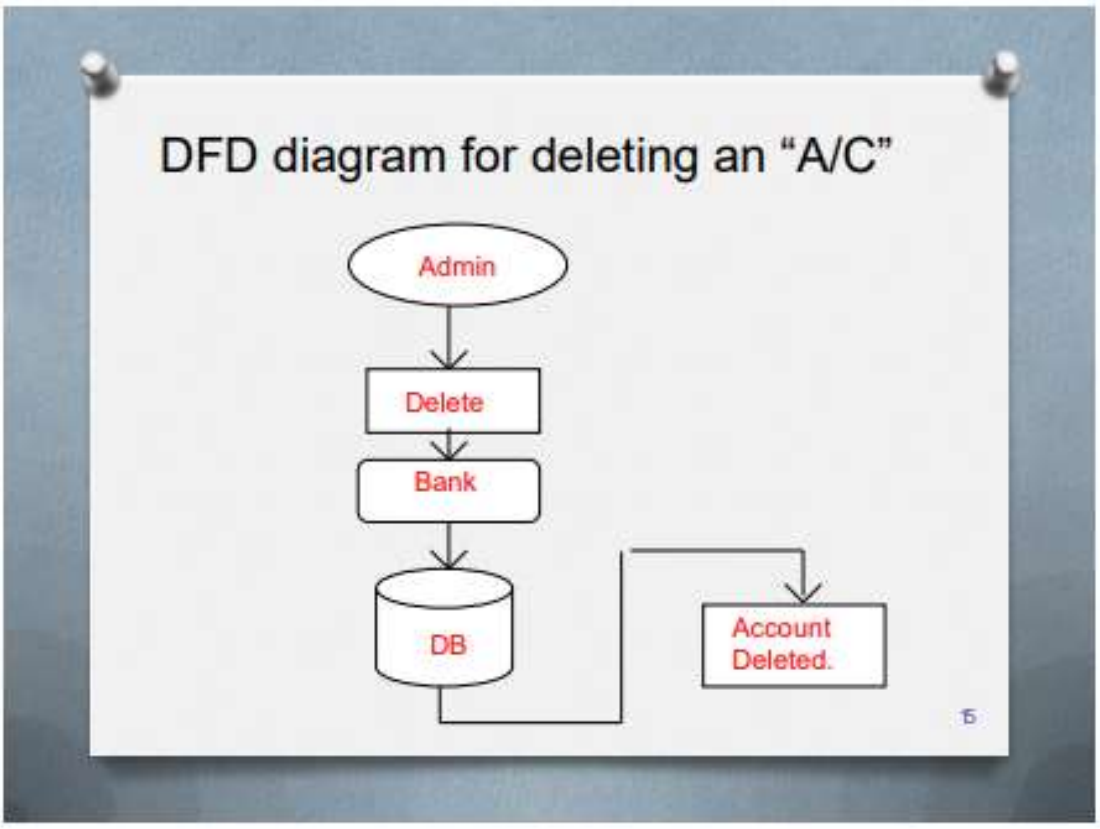

Figure-3.3: Deleting an account DFD

Chapter 4

4.1 General Information:

1. You should register for BAMS bank with the branch where you maintain the account.
2. If you maintain accounts at more than one branch, you need to register at each branch separately. 3.Normally BAMS Bank services will be open to the customer only after he/she acknowledges the receipt of password
3. We invite you to visit your account on the site frequently for transacting business or viewing account balances. If you believe that any information relating to your account has a discrepancy, please bring it to the notice of the branch by e-mail or letter.
4. In a joint account, all account holders are entitled to register, as users of BAMS Bank, but transactions would be permitted based on the account operation rights recorded at the branch. (To begin with the services will be extended only to single or Joint "E or S" accounts only).
5. All accounts at the branch whether or not listed in the registration form, will be available on the BAMS Bank. However the applicant has the option to selectively view the accounts on the BAMS Bank.

4.2 Security terms:

1. The Branch where the customer maintains his/her account will assign:
    a) User Account Number &
    b) Password
2. The User-id and Password given by the branch must be replaced by User Name and Password of customer's choice at the time of first log-on. This is mandatory.
3. Bank will make reasonable use of available technology to ensure security and to prevent unauthorized access to any of these services. The BAMS Bank service is VERISIGN certified which guarantees, that it is a secure site. It means that
    - You are dealing with RR at that moment.
    - The two-way communication is secured with 128-bit SSL encryption technology, which ensures the confidentiality of the data during transmission.
4. You are welcome to access BAMS Bank from anywhere anytime. However, as a matter of precaution, customers may avoid using PCs with public access.
5. There is no way to retrieve a password from the system. Therefore if a customer forgets his/her password, he/she must approach the branch for re-registration.

4.3 Banks terms:

1. All requests received from customers are logged for backend fulfillment and are effective from the time they are recorded at the branch.
2. Rules and regulations applicable to normal banking transactions in India will be applicable mutatis mutandis for the transactions executed through this site.
3. The BAMS Bank service cannot be claimed as a right. The bank may also convert this into a discretionary service anytime
4. Dispute between the customer and the Bank in this service is subject to the jurisdiction of the courts in the Republic of India and governed by the laws prevailing in India.
5. The Bank reserves the right to modify the services offered or the Terms of service of BAMS Bank. The changes will be notified to the customers through a notification on the Site.

4.4. Customer's obligations

1. The customer has an obligation to maintain secrecy in regard to Username & Password registered with the Bank. The bank presupposes that login using valid Username and Password is a valid session initiated by none other than the customer.
2. Transaction executed through a valid session will be construed by RR to have emanated from the registered customer and will be binding on him/her.
3. The customer will not attempt or permit others to attempt accessing the BAMS Bank through any unlawful means.

4.5 Dos & Don’ts:

1. The customer should keep his/her User ID and password strictly confidential and should not divulge the same to any other person. Any loss sustained by the customer due to non-compliance of this condition will be at his/her own risk and responsibility and the Bank will not be liable for the same in any manner.
2. The customer is free to choose a password of his/her own for BAMS Bank services. As a precaution a password that is generic in nature, guessable or inferable personal data such as name, address, telephone member, driving license, date of birth etc. is best avoided. Similarly it is a good practice to commit the password to memory rather than writing it down somewhere.
3. It may not be safe to leave the computer unattended during a valid session. This might give access to your account information to others.

4.6 Safe Online Banking Tips

- URL address on the address bar of your internet browser begins with "https"; the letter’s at the end of "https" means 'secured'.
- Look for the padlock symbol either in the address bar or the status bar (mostly in the address bar) but not within the web page display area. Verify the security certificate by clicking on the padlock.
- Do not enter login or other sensitive information in any pop up window.
- The address bar has turned to green indicating that the site is secured with an SSL Certificate.

4.7 Beware of Phishing Attacks

- Phishing is a fraudulent attempt, usually made through email, phone calls, SMS etc seeking your personal and confidential information.
- State Bank or any of its representatives never sends you email/SMS or calls you over phone to get your personal information, password or one time SMS (high security) password.
- Any such e-mail/SMS or phone call is an attempt to fraudulently withdraw money from your account through Internet Banking. Never respond to such email/SMS or phone call.
- Change your Internet Banking password at periodical intervals.
- Always check the last log-in date and time in the post login page.

Chapter 5

System Design

Software requirements specification (SRS) is the description of the software system that is going to be developed, it is made at the latest phase of analysis, after the functional and non-functional requirements. The set of programming tools and technologies that can be applied to the bank management system depends on whether the on-premise, cloud, or hybrid computing model is used.
Most large-scale financial institutes have their core banking system run on-premise, which may be enforced by the legal system requirement to facilitate servers that store personal data on the territory of the country.

The development of the system is based on the following technologies:

1. Servers running Windows Server/Linux OS, ATM running Windows 10.
2. For the backend part, a scalable programming language supporting multi-threading like Java is required, and Python is required for the data analysis and fraud detection engine.
3. Modern front-end frameworks like React/AngularVue/jQuery for user-interface.
4. Relational DBMS with an engine that supports ACID transactions like Microsoft SQL Server or Oracle RDBMS.

5.1Software Design

Software design comprises a set of principles, concepts and practises to build high quality system. It is intended to form a solution by appropriate consideration of requirements and technical issues. Software design can be defined as:

"Software design is a systematic, intelligent process in which designers generate, evaluate, and specify concepts for a software system whose structure and function achieve clients' objectives or users' needs while satisfying a specified set of constraints,".

Further, [53] gives another view that describes the design space as focused on attaining the stakeholders goals by adapting inner environments (means) to the outer environments (tasks). The outer environments refers to requirements, goals and need; while inner requirements is the set of software, languages, components and tools used to build software (see Figure 4.1).

Software design may have broad spectrum of meanings and objectives based definitions above. Nevertheless, the primary goal of the design process in WCRS is to develop concepts and ideas that could answers our research questions while satisfying project requirements. There are four key considerations when performing design activities:

- Manage problem complexity through separation of concerns;

- Produce abstract representation of design decision;
- Provide unambiguous meaning to the concepts and terms used in the design models;
- Establish guided paths to achieve specific end-user task.

5.1.1:- ER DIAGRAM

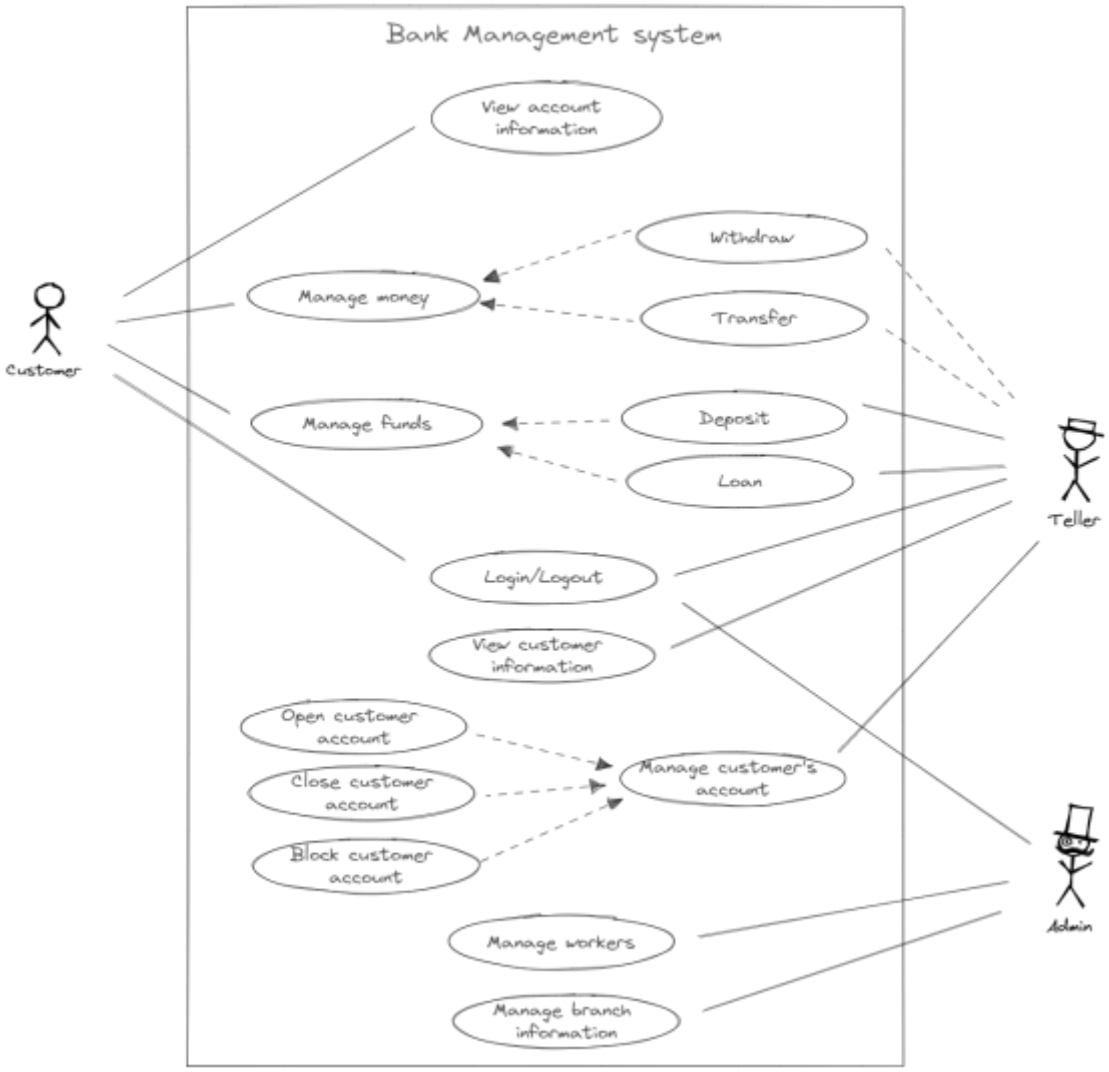

Figure 5.1 : E-R Diagram