COMSATS UNIVERSITY ISLAMABAD
ATTOCK CAMPUS

Programming fundamentals

Project

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Project Proposal for ATM System

Project Title:

Automated Teller Machine (ATM) System

Project Team:

- **Member 1:** Abdul Samad
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Institution:

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1. Introduction

As the world is moving faster, the use of ATMs is inevitable in order to provide banking services to the customers effectively. The goal of our project is to design an easy to use ATM system which would mimic the basic banking operations like checking balance, withdrawing money, changing PIN and transferring money. This system will make it easier for users to access their bank accounts and manage them in a secure manner.

2. Objectives

The main objectives of this project are:

1. To design and implement a user-friendly ATM interface.
2. To ensure secure transactions through PIN authentication.
3. To provide functionalities for balance checking, cash withdrawal, PIN change, and fund transfer.
4. To handle transactions efficiently and accurately.
5. To offer multilingual support for a broader user base.

3. Features

The proposed ATM system will include the following features:

- **User Authentication:** PIN-based security to ensure only authorized access.
- **Multilingual Support:** Options for English and Urdu to cater to a diverse user base.
- **Balance Inquiry:** Allows users to check their current account balance.
- **Cash Withdrawal:** Enables users to withdraw money, ensuring checks for sufficient balance and valid withdrawal amounts.
- **PIN Change:** Provides functionality to change the user's PIN for security.
- **Fund Transfer:** Allows users to transfer funds to another account after verifying sufficient balance.

4. System Requirements

Hardware Requirements:

- A computer with a minimum of 4GB RAM.
- Java Development Kit (JDK) installed.

Software Requirements:

- Java Runtime Environment (JRE).
- Integrated Development Environment (IDE) like Eclipse or IntelliJ IDEA.
- Operating System: Windows, macOS, or Linux.

5. System Design

5.1. User Interface

The user interface will be console-based, providing text prompts for user input and displaying information. It will include:

- Welcome Screen
- Language Selection
- Main Menu with options for balance checking, cash withdrawal, PIN change, and fund transfer.

5.2. Flow of Control

1. **User Authentication:**
    - Prompt for PIN entry.
    - Verify PIN.
    - Allow access to main menu upon successful authentication.
2. **Main Menu:**
    - Display options for balance inquiry, cash withdrawal, PIN change, and fund transfer.
    - Execute the selected operation.
3. **Operations:**
    - **Balance Inquiry:** Display current balance.
    - **Cash Withdrawal:** Prompt for withdrawal amount, validate, and update balance.
    - **PIN Change:** Prompt for new PIN and update.
    - **Fund Transfer:** Prompt for recipient account number and amount, validate, and update balance.

6. Implementation

The implementation of the ATM system is done using Java. Below is the complete code of the project:

```
import java.util.*;
public class project1{
   Scanner input=new Scanner(System.in);

   public static void main(String [] args){
      Scanner input=new Scanner(System.in);

      int password=3344;
      int total_balance=34000;
      char continuty;

      System.out.println("\nWELL COME TO INITIATE A TRANSACTION\n");


      System.out.println("Insert Your Card.....\n");
      System.out.print("Enter Your Pin:");
      int input_pin=input.nextInt();
      while(input_pin!=password){
         System.out.print("WRONG PIN!...Re Enter Your Pin:");
         input_pin=input.nextInt();

      }


      System.out.println("\n1.English");
      System.out.println("2.اردو");
      System.out.print("ENTER YOUR LANGUAGE اپنی زبان منتخب کریں");
      int language=input.nextInt();
      System.out.println("\n\t  .....MAIN MENU.....");
      String menu[][]={{"1.Check Balance","2.Withdrawal of Amount "},{"3.Change Pin","4.Funds
Transfer"},{"5.Exit",""}};
      for(int i=0;i<3;i++){
         for(int j=0;j<2;j++){
            System.out.print(menu[i][j]+"\t\t");
         }
         System.out.println("");
      }

      do{
         System.out.print("Enter Your Choice From The Above (1/2/3/4/5): ");
         int choice=input.nextInt();
         if(choice==1){
            System.out.println("Your Net Balance is:"+total_balance);

         }
```

```
        else if(choice==2){

              total_balance=withdraw(total_balance);
              System.out.println("Now Your Balance Is"+total_balance);
        }



       else  if(choice==3){

        password=change_pin(password);
        }
        else if(choice==4){
            total_balance=fund_transfer(total_balance);
            System.out.println("Now Your Balance Is"+total_balance);
        }
        else if (choice==5){
            System.out.println("EXIT");
            continuty='n';
            break;
        }
        else{
            System.out.println("Ivalid Input");
        }




        System.out.print("Do You Want To Continue:");
        continuty=input.next().charAt(0);

     }while(continuty=='y' || continuty=='Y');
     System.out.println("THANK YOU :)");

  }

public static int withdraw(int total_balance){
   Scanner input=new Scanner(System.in);
   System.out.print("Enter The Amount To Be Withdraw:");
   int withdraw=input.nextInt();
   if(withdraw<=total_balance && withdraw%500==0){
     return total_balance-withdraw;
   }
  else{
     if(withdraw>total_balance){
```

```
        System.out.println("Insufficient Balance");
       }
       else{
        System.out.println("you entered wrong figure");
       }
       return total_balance;
   }}
   public static int  change_pin(int password){
    Scanner input=new Scanner(System.in);
    System.out.print("Enter Your New Pin:");
    int new_pin=input.nextInt();
    System.out.println("Your Pin Is Changed");
    return new_pin;

}

public static int fund_transfer( int balance){
Scanner input=new Scanner(System.in);
System.out.println("Enter The Acccount Number You Have To Transfer");
String new_acc_no=input.next();
System.out.println("Your Current Balance Is"+ balance);

System.out.println("Enter The Amount You Have To Transfer");
int amount=input.nextInt();
if(amount<=balance){
System.out.println("Fund  Trnsfer Successfully");
return balance-amount;}
else{
    System.out.println("Insuficient Balance");
    return balance;
}
}
}
```

possible Out puts:

```
WELL COME TO INITIATE A TRANSACTION

Insert Your Card.........

Enter Your Pin:5566
WRONG PIN!...Re Enter Your Pin:4455
WRONG PIN!...Re Enter Your Pin:1234
WRONG PIN!...Re Enter Your Pin:3344

1.English
2.????
ENTER YOUR LANGUAGE ???? ???? ????? ????1

          .....MAIN MENU.....
1.Check Balance          2.Withdrawal of Amount
3.Change Pin             4.Funds Transfer
5.Exit
Enter Your Choice From The Above (1/2/3/4/5): 1
Your Net Balance is:34000
Do You Want To Continue:y
Enter Your Choice From The Above (1/2/3/4/5): 2
Enter The Amount To Be Withdraw:50000
Insufficient Balance
Now Your Balance Is34000
Do You Want To Continue:y
Enter Your Choice From The Above (1/2/3/4/5): 2
Enter The Amount To Be Withdraw:30000
Now Your Balance Is4000
Do You Want To Continue:y
Enter Your Choice From The Above (1/2/3/4/5): 2
Enter The Amount To Be Withdraw:3999
you entered wrong figure
```

```
Do You Want To Continue:y
Enter Your Choice From The Above (1/2/3/4/5): 3
Enter Your New Pin:1122
Your Pin Is Changed
Do You Want To Continue:y
Enter Your Choice From The Above (1/2/3/4/5): 4
Enter The Acccount Number You Have To Transfer
sdc4
Your Current Balance Is4000
Enter The Amount You Have To Transfer
50000
Insuficient Balance
Now Your Balance Is4000
Do You Want To Continue:y
Enter Your Choice From The Above (1/2/3/4/5): 300
Ivalid Input
Do You Want To Continue:
y
Enter Your Choice From The Above (1/2/3/4/5): 4
Enter The Acccount Number You Have To Transfer
ddd33
Your Current Balance Is4000
Enter The Amount You Have To Transfer
4000
Fund  Trnsfer Successfully
Now Your Balance Is0
Do You Want To Continue:y
Enter Your Choice From The Above (1/2/3/4/5): 1
Your Net Balance is:0
Do You Want To Continue:y
Enter Your Choice From The Above (1/2/3/4/5): 5
EXIT
THANK YOU :)
```

7. Conclusion

The proposed ATM system will be able to offer basic banking services to the customers through a secure and interactive touch screen. This project will help us to show how well we understand Java programming, how to create an attractive and user-friendly interface, and how to protect users' transactions. This project is an opportunity to apply the knowledge gained in the course of our study and to enrich our experience in software development.