



A Short Project Report

On

**HBSE ATM**

**GROUP 1**

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## **TEAM MEMBERS:**

Sr. No.	Name of Team Members	Roll No.
1	BHAVESH BORSE	200010005
2	ESHITA PAGARE	200010016
3	HARRITHHA B	200010018
4	SHASHANK P	200010048

# PROBLEM STATEMENT

Write a C program to mimic the ATM machine:

- ✓ On execution of the code - A welcome message SHOULD be displayed. Then following options for the User to be displayed - withdrawal, pin change, cash deposit, check balance, money transfer.
- ✓ In each of the above options, necessary computations and messages display SHOULD be done.

## TEXT FILES

### 1. ATM CARDS

In total 5 ATM cards will be implemented with one .txt file per ATM card: card1, card2, card3, card4, card5.txt. The format is:

"Name  
Mob. No.  
Acc. No.  
Balance  
Pin  
Exp. Month  
Exp. Year  
Pending Premium  
Transaction History"

### 2. ATM INVENTORY

The ATM inventory atm.txt contains number of notes of each denomination.

"Number of 2000 notes  
Number of 500 notes  
Number of 200 notes  
Number of 100 notes"

## CODE

Code of all members combined into single .c zip file.

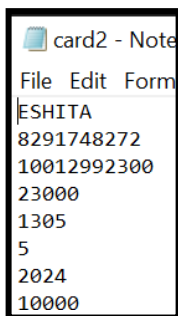
## OPTIONS

PLEASE SELECT AN OPTION:

- |                    |                           |
|--------------------|---------------------------|
| 1. Cash Withdrawal | 6. Recharge Mobile        |
| 2. Pin Change      | 7. Pay Premium            |
| 3. Cash Deposit    | 8. Account Based Transfer |
| 4. Balance Inquiry | 9. Transaction History    |
| 5. IMT             |                           |

## HOME SCREEN

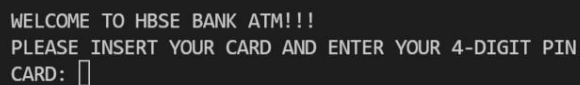
Text file before entering pin



card2 - Note  
File Edit Form  
ESHITA  
8291748272  
10012992300  
23000  
1305  
5  
2024  
10000

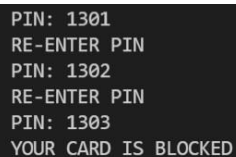
### Execution of Program

#### 1. Main Screen



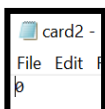
```
WELCOME TO HBSE BANK ATM!!!  
PLEASE INSERT YOUR CARD AND ENTER YOUR 4-DIGIT PIN  
CARD: 
```

2. After entering card number ATM asks to enter PIN
3. If pin is entered wrong three times the card gets blocked



```
PIN: 1301  
RE-ENTER PIN  
PIN: 1302  
RE-ENTER PIN  
PIN: 1303  
YOUR CARD IS BLOCKED
```

#### 4. Data in text file is truncated



card2 -  
File Edit f  
0

5. The card is permanently blocked and "YOUR CARD IS BLOCKED" is displayed each time user inputs the blocked card.
6. If card is expired: Year of expiry below is 2020

```
JOHN  
9970442020  
15120001512  
20000  
6969  
1  
2020  
10000
```

```
WELCOME TO HBSE BANK ATM!!!  
PLEASE INSERT YOUR CARD AND ENTER YOUR 4-DIGIT PIN  
CARD: 5  
SORRY YOUR CARD IS EXPIRED!
```

7. If card is not yet expired:

```
WELCOME SHASHANK  
PLEASE SELECT AN OPTION:  
1. CASH WITHDRAWAL  
2. PIN CHANGE  
3. CASH DEPOSIT  
4. BALANCE INQUIRY  
5. IMT  
6. RECHARGE MOBILE  
7. PAY PREMIUM  
8. ACCOUNT BASED TRANSFER  
9. SHOW TRANSACTION HISTORY  
  
OPTION:
```

### **AFTER EACH OPTION**

1. After Successful Transaction:

```
IF YOU WANT TO CONTINUE FURTHER TRANSACTION  
ENTER 'YES' AND IF NOT ENTER 'NO'
```

2. If 'YES':

```
WELCOME SHASHANK  
PLEASE SELECT AN OPTION:  
1. CASH WITHDRAWAL  
2. PIN CHANGE  
3. CASH DEPOSIT  
4. BALANCE INQUIRY  
5. IMT  
6. RECHARGE MOBILE  
7. PAY PREMIUM  
8. ACCOUNT BASED TRANSFER  
9. SHOW TRANSACTION HISTORY  
  
OPTION:
```

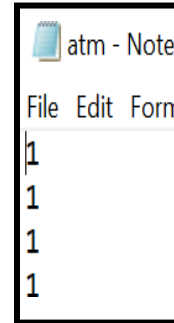
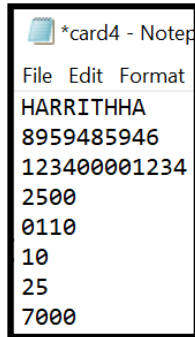
3. If 'NO':

```
NO  
PLEASE COLLECT YOUR CARD  
  
THANK YOU!!!
```

## CASH WITHDRAWAL

Initial Balance: Rs. 2500

ATM Inventory: Total amount available: Rs.2800



### Execution of Program

1. PLEASE ENTER AMOUNT TO BE WITHDRAWN :

2. PLEASE ENTER AMOUNT TO BE WITHDRAWN :  
600\_

3. DO YOU WISH TO WITHDRAW Rs. 600 ?:  
TYPE 'YES' FOR PROCEEDING OR 'NO' FOR RE-ENTERING AMOUNT

NO:  
DO YOU WISH TO WITHDRAW Rs. 100 ?:  
TYPE 'YES' FOR PROCEEDING OR 'NO' FOR RE-ENTERING AMOUNT  
NO  
4. PLEASE ENTER AMOUNT TO BE WITHDRAWN :

YES:

5. If cash is available in ATM and enough bank balance is also available (Ideal case)

```
PLEASE ENTER AMOUNT TO BE WITHDRAWN :
600

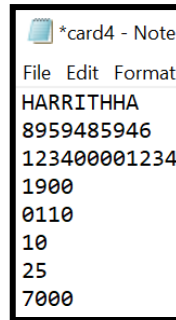
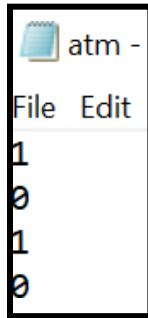
DO YOU WISH TO WITHDRAW Rs. 600 ? :
TYPE 'YES' FOR PROCEEDING OR 'NO' FOR RE-ENTERING AMOUNT
yes

PLEASE WAIT
TRANSACTION IS PROCESSING...

-----
PLEASE COLLECT YOUR CASH :
-----
| DENOMINATION | NUMBER OF NOTES |
-----
| 2000         | 0                |
-----
| 500          | 1                |
-----
| 200          | 0                |
-----
| 100          | 1                |
-----
AVAILABLE BALANCE : Rs.1900.000000

-----
IF YOU WANT TO CONTINUE FURTHER TRANSACTION
ENTER 'YES' AND IF NOT ENTER 'NO'
```

6. Updated ATM inventory and bank balance in files



7. If amount > Rs. 15000 is withdrawn

```
PLEASE ENTER AMOUNT TO BE WITHDRAWN :  
20000  
PER DAY LIMIT TO WITHDRAW CASH IS Rs. 15000  
SORRY FOR THE INCONVENIENCE!
```

8. If amount is entered is not in multiples of 100

```
-----  
PLEASE ENTER AMOUNT IN MULTIPLES OF 100!!!  
-----  
DO YOU WISH TO CONTINUE CASH WITHDRAWAL?  
TO CONTINUE ENTER 'YES', TO GO TO OPTIONS ENTER 'NO'
```

YES - Directs user to enter amount again

NO - Directs user to Options Page

9. If amount to be withdrawn is more than amount in atm inventory

```
PLEASE ENTER AMOUNT TO BE WITHDRAWN :  
2700  
THE CASH IS NOT AVAILABLE!  
SORRY FOR THE INCONVENIENCE!
```

10. If amount to be withdrawn is more than the account balance

```
PLEASE ENTER AMOUNT TO BE WITHDRAWN :  
2000  
ACCOUNT BALANCE IS LESS THAN AMOUNT TO BE WITHDRAWN!  
SORRY FOR THE INCONVENIENCE!
```

11. If enough notes of a denomination are not available

```
PLEASE ENTER AMOUNT TO BE WITHDRAWN :  
1700  
ENOUGH NOTES NOT AVAILABLE  
SORRY FOR THE INCONVENIENCE!
```

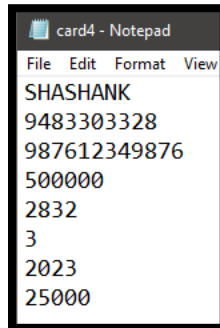
12. If amount to be withdrawn is greater than both atm inventory & account balance

```
PLEASE ENTER AMOUNT TO BE WITHDRAWN :  
2100  
ACCOUNT BALANCE IS LESS THAN AMOUNT TO BE WITHDRAWN AND ENOUGH CASH IS NOT AVAILABLE IN THE ATM INVENTORY  
SORRY FOR THE INCONVENIENCE!
```



## PIN CHANGE

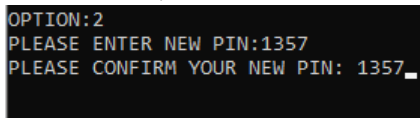
PIN in txt file: 2832.



```
card4 - Notepad
File Edit Format View
SHASHANK
9483303328
987612349876
500000
2832
3
2023
25000
```

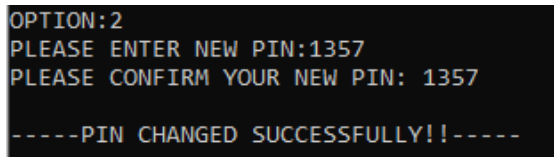
### Execution of Program

1. Enter new pin & confirm, or else Re-enter:

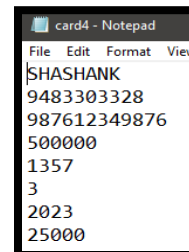


```
OPTION:2
PLEASE ENTER NEW PIN:1357
PLEASE CONFIRM YOUR NEW PIN: 1357_
```

2. New PIN updated in txt file, after a confirmation message.



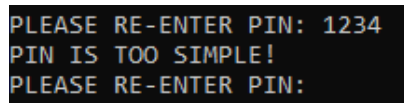
```
OPTION:2
PLEASE ENTER NEW PIN:1357
PLEASE CONFIRM YOUR NEW PIN: 1357
-----PIN CHANGED SUCCESSFULLY!!-----
```



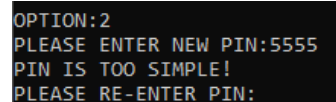
```
card4 - Notepad
File Edit Format View
SHASHANK
9483303328
987612349876
500000
1357
3
2023
25000
```

3. Re-Enter Cases:

- If PIN is too simple like, 2222, 5555, 1234 etc.

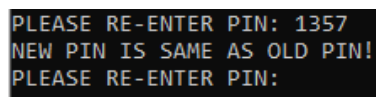


```
PLEASE RE-ENTER PIN: 1234
PIN IS TOO SIMPLE!
PLEASE RE-ENTER PIN:
```



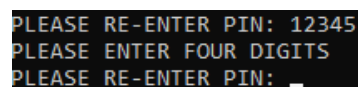
```
OPTION:2
PLEASE ENTER NEW PIN:5555
PIN IS TOO SIMPLE!
PLEASE RE-ENTER PIN:
```

- If new PIN is same as old pin:



```
PLEASE RE-ENTER PIN: 1357
NEW PIN IS SAME AS OLD PIN!
PLEASE RE-ENTER PIN:
```

- If number of digits are not four:

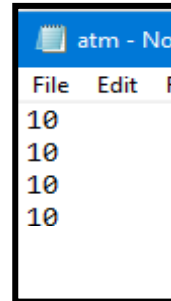
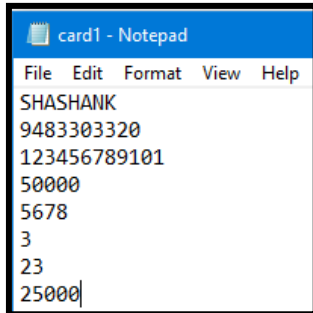


```
PLEASE RE-ENTER PIN: 12345
PLEASE ENTER FOUR DIGITS
PLEASE RE-ENTER PIN: _
```

## CASH DEPOSIT

Initial Balance: Rs. 50000

ATM Inventory: 10, 10, 10, 10 [2000, 500, 200, 100]



### Execution of Program

1. Depositing all at once:

```
3
PLEASE PLACE THE CASH IN THE TRAY PROVIDED:
2000 500 200 100:2 2 2 2
CALCULATING, PLEASE WAIT.....
DENOMINATION      NUMBER
2000               2
500               2
200               2
100              2
TOTAL = 5600
DO YOU WISH TO 'CONFIRM' or 'ADD'? :
CONFIRM

YOUR TRANSACTION WAS SUCCESSFUL!!
Your available balance is Rs.55600

IF YOU WANT TO CONTINUE FURTHER TRANSACTION
ENTER 'YES' AND IF NOT ENTER 'NO'
```

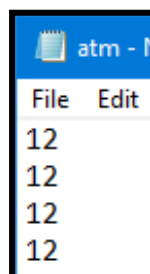
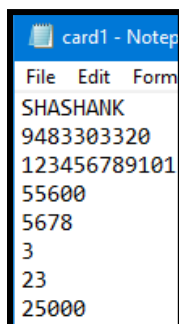
2. Depositing after adding more:

```
PLEASE PLACE THE CASH IN THE TRAY PROVIDED:
2000 500 200 100:1 1 1 1
CALCULATING, PLEASE WAIT.....
DENOMINATION      NUMBER
2000               1
500               1
200               1
100              1
TOTAL = 2800
DO YOU WISH TO 'CONFIRM' or 'ADD'? :
ADD
PLEASE PLACE THE CASH IN THE TRAY PROVIDED:
2000 500 200 100:1 1 1 1
CALCULATING, PLEASE WAIT.....
DENOMINATION      NUMBER
2000               2
500               2
200               2
100              2
TOTAL = 5600
DO YOU WISH TO 'CONFIRM' or 'ADD'? :
Confirm

YOUR TRANSACTION WAS SUCCESSFUL!!
Your available balance is Rs.55600

IF YOU WANT TO CONTINUE FURTHER TRANSACTION
ENTER 'YES' AND IF NOT ENTER 'NO'
```

3. Updated ATM inventory and bank balance in files:



4. If amount > Rs. 2, 00,000 is deposited:

```
PLEASE PLACE THE CASH IN THE TRAY PROVIDED:
2000 500 200 100:200 800 900 600
CALCULATING, PLEASE WAIT.....
DENOMINATION      NUMBER
2000              200
500               800
200               900
100               600
TOTAL = 1040000
DO YOU WISH TO 'CONFIRM' or 'ADD'? :
CONFIRM
Daily limit for cash deposit is 200000 Rs.
Please take the cash back from the tray
```

## **BALANCE INQUIRY**

Contents of card 1:

```
BHAVESH
8999637818
15131151311
200000
1512
10
2025
100000
```

### **Execution of Program**

#### **Main Screen**

```
WELCOME TO HBSE BANK ATM!!!
PLEASE INSERT YOUR CARD AND ENTER YOUR 4-DIGIT PIN
CARD: 1
PIN: 1512
```

1. After entering card number and pin select option

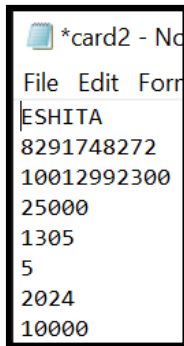
```
WELCOME BHAVESH
PLEASE SELECT AN OPTION:
1. CASH WITHDRAWAL
2. PIN CHANGE
3. CASH DEPOSIT
4. BALANCE INQUIRY
5. IMT
6. RECHARGE MOBILE
7. PAY PREMIUM
8. ACCOUNT BASED TRANSFER
```

2. After selection of option Balance Inquiry enter card number

```
OPTION:4
ENTER THE CARD NUMBER:1
YOUR ACCOUNT BALANCE WILL BE DISPLAYED SHORTLY . . .
AVAILABLE BALANCE: Rs.200000
IF YOU WANT TO CONTINUE FURTHER TRANSACTION
ENTER YES AND IF NOT ENTER NO
```

## IMT (INSTANT MONEY TRANSFER)

INITIAL BALANCE: 25000



### Execution of program

1. ENTER MOBILE NUMBER :

2. ENTER YOUR MOBILE NO:

Entered mobile number matches with registered mobile number:

3. ENTER 4 DIGIT SENDER CODE :

ENTER 4 DIGIT SENDER CODE AGAIN :

4. User correctly enters 4-digit code second time

ENTER AMOUNT  
2000

5. Amount entered is available in account and is a multiple of 100.

-----  
PLEASE CONFIRM YOUR IMT DETAILS  
REMT MOB NO :8291748272  
BENF MOB NO :5748394583  
OTP :2324  
AMOUNT :Rs.2000  
-----  
CONFIRM ?.....YES/NO ☐

After confirming updated account balance

card2 - Not  
File Edit Form  
ESHITA  
8291748272  
10012992300  
23000  
1305  
5  
2024  
10000

6. User fails to enter registered mobile number

MOBILE NUMBER INCORRECT

7. If user fails to enter 4-digit code second time

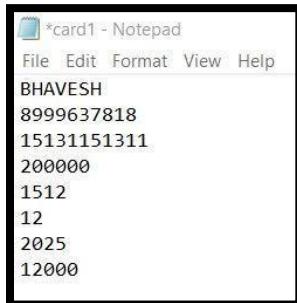
ENTERED CODE DOES NOT MATCH

8.If amount entered is not a multiple of 100

PLEASE ENTER AMOUNT IN MULTIPLES OF 100

## RECHARGE MOBILE

Initial balance in account:



### Execution of Program

1. After Entering PIN and Selecting Option:

```
OPTION:6  
PLEASE ENTER 10-DIGIT MOBILE NUMBER  
7856359420
```

2. After Entering Non-Valid Mobile No.:

```
OPTION:6  
PLEASE ENTER 10-DIGIT MOBILE NUMBER  
123456789  
RE-ENTER MOBILE NUMBER  
12345678900  
RE-ENTER MOBILE NUMBER  
1234567890  
SELECT THE PLAN AMOUNT FOR RECHARGE  
Rs.50  
Rs.100  
Rs.500  
Rs.1000
```

3. After Selecting the Amount of Recharge:

```
3  
TO CONFIRM PRESS '1'  
TO CHANGE CHOICE OF RECHARGE AMOUNT PRESS '2'
```

4. If User Chooses '1' and the Account Balance is Sufficient

```
1  
YOUR TRANSACTION IS UNDER PROCESS . . .  
THE ENTERED MOBILE NUMBER HAS BEEN RECHARGED SUCCESSFULLY!!!  
ACCOUNT BALANCE : Rs.199500
```

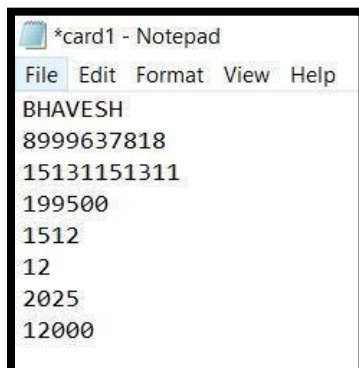
5. Or If Account Balance is Not Sufficient:

```
1
ENOUGH BALANCE NOT AVAILABLE IN YOUR ACCOUNT!
SORRY FOR THE INCONVINIENCE.
```

6. If User Chooses '2':

```
2
SELECT THE PLAN AMOUNT FOR RECHARGE
Rs.50
Rs.100
Rs.500
Rs.1000
```

7. Updated txt Files After Successful Transaction:



\*card1 - Notepad

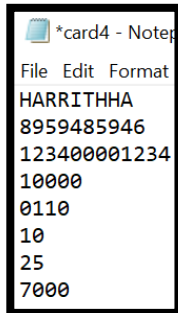
File Edit Format View Help

BHAVESH  
8999637818  
15131151311  
199500  
1512  
12  
2025  
12000



## **PREMIUM PAYMENT**

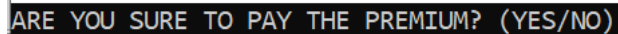
Premium amount in txt file: Rs.7000 and Acc. balance: Rs. 10000



```
*card4 - Notepad
File Edit Format
HARRITHHA
8959485946
123400001234
10000
0110
10
25
7000
```

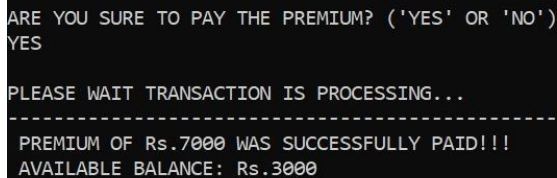
### **Execution of Program**

#### **1. Confirmation Screen**



```
ARE YOU SURE TO PAY THE PREMIUM? (YES/NO)
```

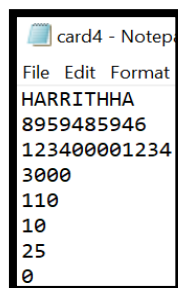
#### **2. User enters: YES**



```
ARE YOU SURE TO PAY THE PREMIUM? ('YES' OR 'NO')
YES

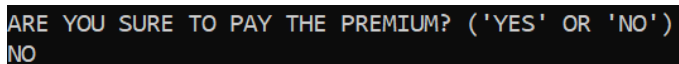
PLEASE WAIT TRANSACTION IS PROCESSING...
-----
PREMIUM OF Rs.7000 WAS SUCCESSFULLY PAID!!!
AVAILABLE BALANCE: Rs.3000
-----
```

#### **3. Premium Paid - 0 remaining Account Balance deducted**



```
card4 - Notepad
File Edit Format
HARRITHHA
8959485946
123400001234
3000
110
10
25
0
```

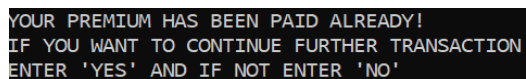
#### **4. User enters: NO**



```
ARE YOU SURE TO PAY THE PREMIUM? ('YES' OR 'NO')
NO
```

Takes back to the options screen

#### **5. If user again wants to pay premium**



```
YOUR PREMIUM HAS BEEN PAID ALREADY!
IF YOU WANT TO CONTINUE FURTHER TRANSACTION
ENTER 'YES' AND IF NOT ENTER 'NO'
```

## ACCOUNT BASED TRANSFER

Initial balance in both accounts:

```
card2 - Notepad
File Edit Format View Help
ESHITA
8291748272
10012992300
25000
1305
5
2024
1234
```

```
card3 - Notepad
File Edit Format View Help
BHAVESH
8999637818
15131151311
250000
1121
12
2025
15000
```

### Execution of Program

ENTER YOUR TO ACCOUNT NUMBER:

- 1.
2. If the account number does not match

ACCOUNT NUMBER IS NOT VALID  
ENTER YOUR TO ACCOUNT NUMBER:

3. If the account number matches with any one of the 5 cards.

ENTER AMOUNT

4. If amount entered is available in account and if user chooses to confirm the transfer.

```
-----
CONFIRMATION SCREEN
-----

FROM ACCOUNT NUMBER :10012992300
TO ACCOUNT NUMBER   :15131151311
AMOUNT               :Rs. 5000
-----

DO YOU WISH TO CONFIRM?...YES OR NO
YES
YOUR TRANSFER IS BEING PROCESSED...

TRANSFER PROCESSED SUCCESSFULLY!!

ACCOUNT BALANCE: Rs. 20000
```

5. The txt file updates are as follows:

```
card3 - Notepad
File Edit Format View Help
BHAVESH
8999637818
15131151311
255000
1121
12
2025
15000
```

## TRANSACTION HISTORY

1. Transaction history saved in the respective card.txt, after every transaction with Date and Time of transaction.

```
card4 - Notepad
File Edit Format View Help
Transaction History:
-----
Wed Jun 09 18:17:31 2021
                        - Rs.12500
CASH WITHDRAWAL
FROM ACC. NO.
987612349876

AVAILABLE BALANCE IS      Rs.487500
-----
Wed Jun 09 18:29:56 2021
                        + Rs.30800
CASH DEPOSIT
TO ACC. NO.
987612349876

AVAILABLE BALANCE IS      Rs.530800
-----
Wed Jun 09 18:42:06 2021
                        - Rs.200
IMT
FROM ACC. NO.
987612349876
TO MOBILE NO.
9876543210

AVAILABLE BALANCE IS      Rs.530600
```

2. On selecting option 9, the transaction history is displayed in the console. And a prompt is given, whether to continue transaction or not.

```
OPTION:9
PLEASE WAIT WHILE WE COLLECT THE DATA...

Transaction History:
-----
Wed Jun 09 18:17:31 2021
                        - Rs.12500
CASH WITHDRAWAL
FROM ACC. NO.
987612349876

AVAILABLE BALANCE IS      Rs.487500
-----
Wed Jun 09 18:29:56 2021
                        + Rs.30800
CASH DEPOSIT
TO ACC. NO.
987612349876

AVAILABLE BALANCE IS      Rs.530800
-----
Wed Jun 09 18:42:06 2021
                        - Rs.200
IMT
FROM ACC. NO.
987612349876
TO MOBILE NO.
9876543210

AVAILABLE BALANCE IS      Rs.530600
-----
Wed Jun 09 18:44:13 2021
                        - Rs.1000
MOBILE RECHARGE
FROM ACC. NO.
987612349876
TO MOBILE NO.
9876543210
```

## **ROLE OF TEAM MEMBERS**

TEAM MEMBERS	ROLE
BHAVESH BORSE	IMPLEMENTED BALANCE INQUIRY AND MOBILE RECHARGE.
ESHITA PAGARE	IMPLEMENTED IMT (INSTANT MONEY TRANSFER) AND ACCOUNT BASED TRANSFER.
HARRITHHA B	IMPLEMENTED CASH WITHDRAWAL AND PREMIUM PAYMENT
SHASHANK P	IMPLEMENTED CASH DEPOSIT, PIN CHANGE AND TRANSACTION HISTORY

## **REFERENCES**

In order to work on this project - *HBSE ATM*, we have referred to the following sources during various phases of development of the project.

1. Current Time: <https://www.geeksforgeeks.org/ctime-function-in-c-c/>
2. System Time: <https://docs.microsoft.com/en-us/windows/win32/api/minwinbase/ns-minwinbase-systemtime>
3. PIN Change: [https://www.youtube.com/watch?v=WbasTn5sGTA&t=15s&ab\\_channel=howtobank](https://www.youtube.com/watch?v=WbasTn5sGTA&t=15s&ab_channel=howtobank)
4. Cash Deposit: [https://www.youtube.com/watch?v=GI1LF\\_jPyZ0&ab\\_channel=PiBiNi](https://www.youtube.com/watch?v=GI1LF_jPyZ0&ab_channel=PiBiNi)
5. IMT: <https://www.youtube.com/watch?v=k18951R7NL4>
6. Change colour: <https://www.youtube.com/watch?v=IOHhUDDZaRk>

# **THANK YOU!**