A Short Project Report

On

HBSE ATM

GROUP 1

CONTENTS

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"

3. PREMIUM RECORD

The premium record prem1.txt,prem2.txt contains year of payment of paid premium.

*prem2

File Edit F
2020
2021

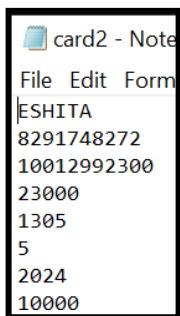# CODE

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
```

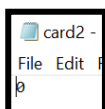## Execution of Program

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:
```
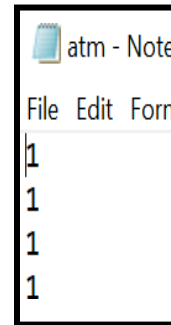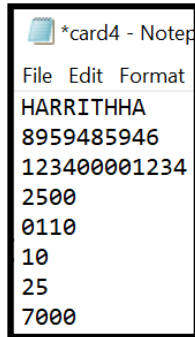
3. If 'NO':

```
NO
PLEASE COLLECT YOU CARD

THANK YOU!!!
```

CASH WITHDRAWAL

Initial Balance: Rs. 2500   ATM Inventory: Total amount available: Rs.2800

```
*card4 - Notep
File Edit Format
HARRITHHA
8959485946
123400001234
2500
0110
10
25
7000
```

```
atm - Note
File Edit Form
1
1
1
1
```

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:

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PLEASE ENTER AMOUNT TO BE WITHDRAWN :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

YES:

5. If cash is available in ATM and enough bank balance is also available (Ideal case)
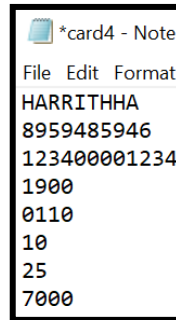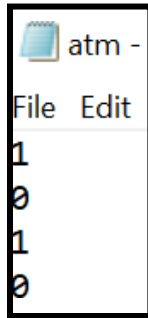
```
PLEASE ENTER AMOUNT TO BE WITHDRAWN :
600

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


```
atm -
File  Edit
1
0
1
0
```



```
*card4 - Notep
File  Edit  Format
HARRITHHA
8959485946
123400001234
1900
0110
10
25
7000
```

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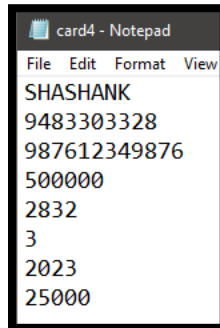
12. If amount to be withdrawn is greater than both atm inventory & account balance

```
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!
```
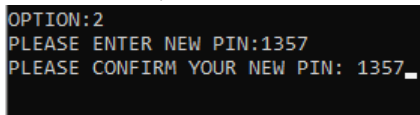
PIN CHANGE

PIN in txt file: 2832.

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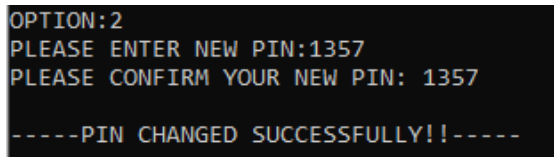
Execution of Program

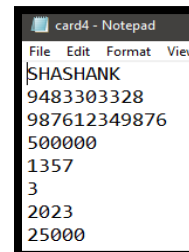1. Enter new pin & confirm, or else Re-enter:

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

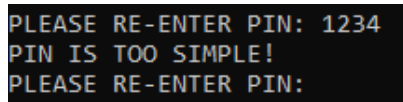2. New PIN updated in txt file, after a confirmation message.

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

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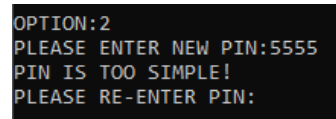
```
card4 - Notepad
File  Edit  Format  View
SHASHANK
9483303328
987612349876
500000
1357
3
2023
25000
```

3. Re-Enter Cases:

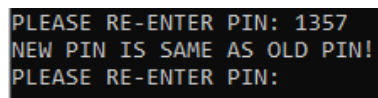> If PIN is too simple like, 2222, 5555, 1234 etc

```
PLEASE RE-ENTER PIN: 1234
PIN IS TOO SIMPLE!
PLEASE RE-ENTER PIN:
```
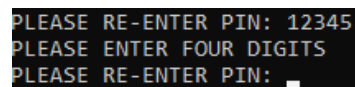
```
OPTION:2
PLEASE ENTER NEW PIN:5555
PIN IS TOO SIMPLE!
PLEASE RE-ENTER PIN:
```

> If new PIN is same as old pin:

```
PLEASE RE-ENTER PIN: 1357
NEW PIN IS SAME AS OLD PIN!
PLEASE RE-ENTER PIN:
```
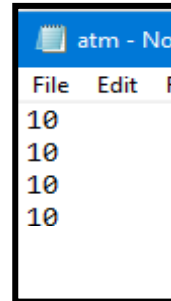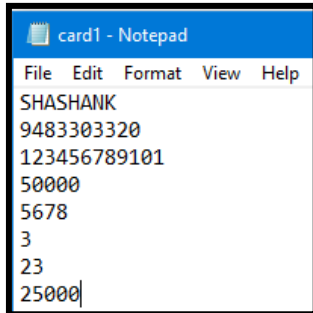
> If number of digits are not four:

```
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]

```
card1 - Notepad
File  Edit  Format  View  Help
SHASHANK
9483303320
123456789101
50000
5678
3
23
25000
```

```
atm - Not
File  Edit  F
10
10
10
10
```

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'
```
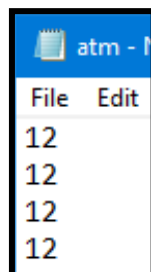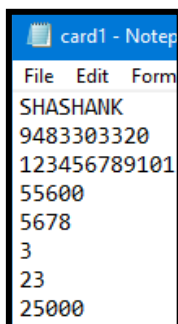
2. Depositing after adding more:

```
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:

```
card1 - Notep
File  Edit  Form
SHASHANK
9483303320
123456789101
55600
5678
3
23
25000
```

```
atm - 
File  Edit
12
12
12
12
```

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
```

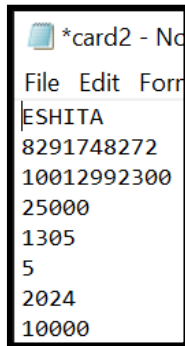2. After selection of option Balance Inquiry enter card number

```
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

```
*card2 - No
File Edit Form
ESHITA
8291748272
10012992300
25000
1305
5
2024
10000
```

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  Forr
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:

```
*card1 - Notepad
File  Edit  Format  View  Help
BHAVESH
8999637818
15131151311
200000
1512
12
2025
12000
```

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
```
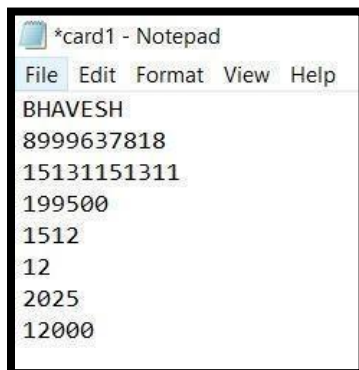
5. Or If Account Balance is Not Sufficient:

```
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
```

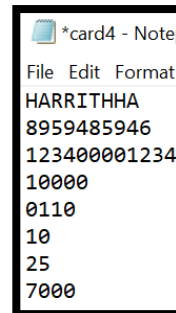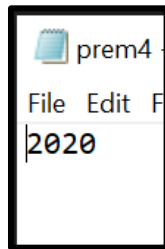7. Updated txt Files After Successful Transaction:

```
*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(Record Starts from Year 2020)

```
prem4 -
File  Edit  F
2020
```

```
*card4 - Notep
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)
```
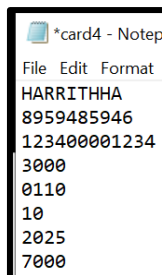
2. User enters: YES & Previous Year Premium is Paid & Present Year Premium is not Paid

```
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. Account Balance deducted

```
*card4 - Notep
File  Edit  Format
HARRITHHA
8959485946
123400001234
3000
0110
10
2025
7000
```

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 for same year

```
YOUR PREMIUM HAS BEEN PAID ALREADY FOR YEAR 2021!
IF YOU WANT TO CONTINUE FURTHER TRANSACTION
ENTER 'YES' AND IF NOT ENTER 'NO
```

6. If previous year premium is not paid

```
--------------------------------------------------------------------------
 YOUR INSURANCE POLICY HAS EXPIRED AS YOU DID NOT PAY PREMIUM IN 2020!!!
--------------------------------------------------------------------------
```

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

1.
```
ENTER YOUR TO ACCOUNT NUMBER:
```

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...

TANSFER 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.

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

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
4. Cash Deposit: 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!