RNS Institute of Technology

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Department of Information Science and Engineering

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Data structures Laboratory-18CSL38

Banking System

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Abstract

The purpose of this mini project is in fulfillment of the requirements of customer using the bank for payment. The programing language used to develop the project is C. The data structure used is doubly linked list.

The domain "Banking System" keeps the day to day Tally record as a complete Banking. It can keep the information of Account opening, Deposit, Withdraw and display the transaction report, Individual account opening and editing details. The exciting part of this project is it displays transaction reports, Statistical summary of all accounts.

Introduction

This program will be provided as toll to the bank. The bank has been working for account information, withdrawal (through cash/cheque) and deposit amount. In this program you can keep record for daily banking transactions.

The objective is to prepare the program that can maintain data and provide a user friendly interface for retrieving customer related details just in few seconds, so it is not time consuming process. No paper work required and can be implemented further.

The program should also facilitate the addition of new customer account , deletion of account and modification of existing customer account and show all.

Objective of the project

The objective and goals of the proposed program are:-

To allow only authorized user to access various function. Reduced clerical work as most of the work is done by computer, provide greater speed and reduced time consumption to increase the number of account and customer.

This program will reduce the manual workload and give information instantly, the program will maintain the list of account and customer record and balance status. The program will be user friendly so that even a beginner can operate it and thus maintain the status of account balance easily.

Data Structure

DOUBLY LINKED LIST:

‣ Doubly linked list contains a link element called first and last

‣ Each link carry a data fields and a link field called next.

‣ Each link is linked with its next-link using its next link.

‣ Each link is linked with previous link using its previous link.

‣ Last link carries a link as null to mark the end of list.

BASIC OPERATION:

‣ Insertion- add an element at the beginning of the list

‣ Deletion- delete an element at the beginning of the list

‣ Insert last– add an element in the end of the list

‣ Delete last- delete an element from the end of the list

‣ Insert after- add an element after an item of the list

‣ Update- to update/edit a node

‣ Traversal- to traverse all the nodes one after another.

System Requirements

System Requirements
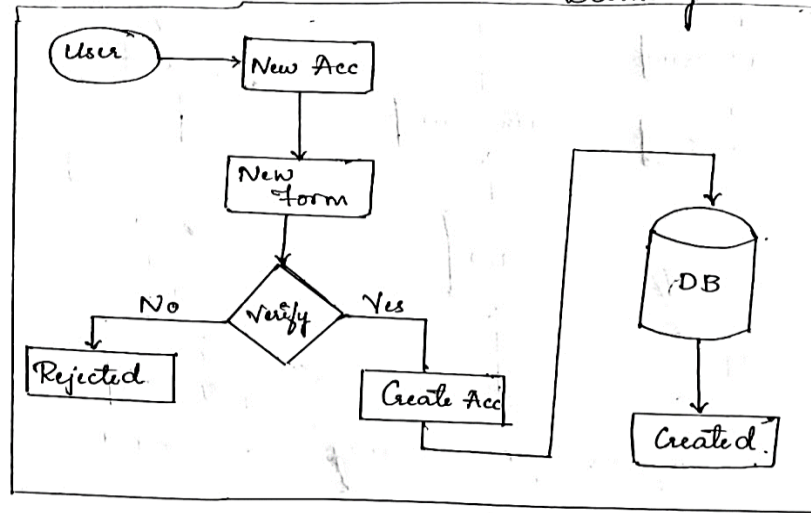
- Code blocks or any other c platforms.
- Windows XP or higher OS.
- Online GDB can also be used

Hardware

- PROCESSOR – Intel core 2 Duo (1.6GHZ) or higher version.
- RAM - 2GB or more.
- HARD DISK – 1GB of free hard disk.
- GRAPHICS – Not applicable.

Project Architecture
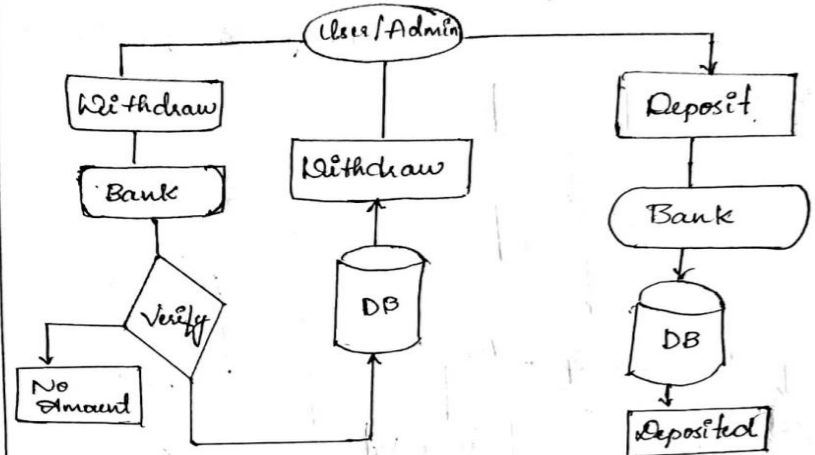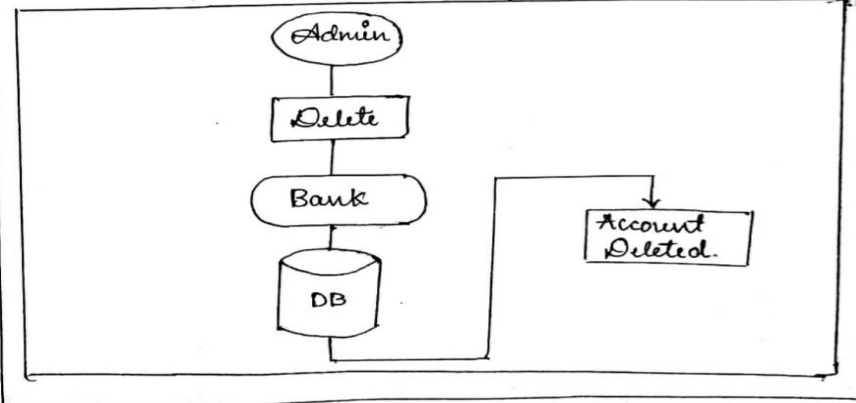
DFD diagram for displaying the Entire List of accounts

User/Admin

↓

View

↓

check number of account

N (zero access) → No accounts

Y (one or more access) →

DB

↓

Display
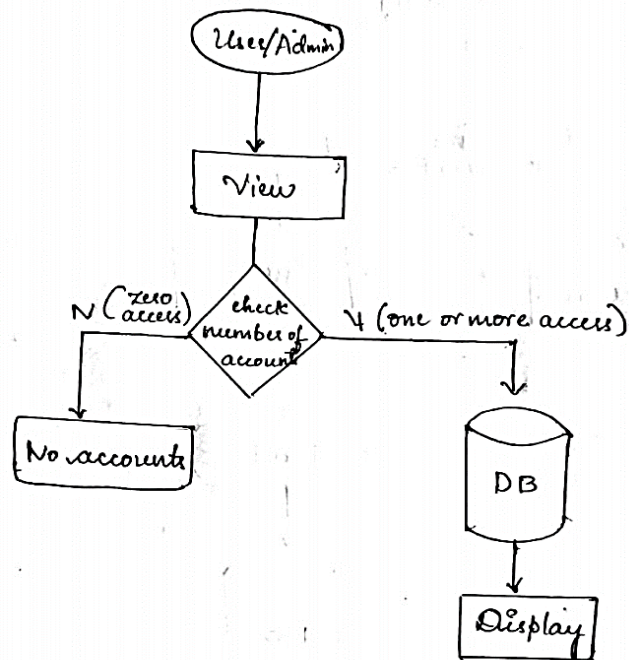
DFD diagram for Editing Account.

User/Admin

↓

Verify Account Number

N → No account

Y → Changes

↓

Bank

↓

DB

↓

Changes Saved
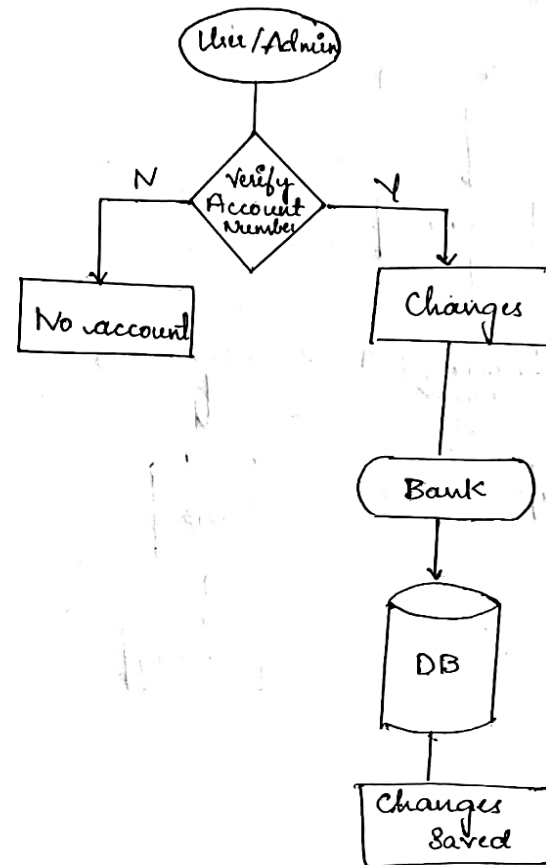
Implementation modules

Node (structure)

Variables declared:

Char types:

- fname(first name)
- lname(last name)
- acc_no(account number)
- address
- citizenship (aadhar number)
- phone(mobile number)

Int types:

- Age

Float types:

- Amt(amount/balance)

Pointer variables:

- First(head)
- Last(tail)
- Temp(pointer1)
- Temp1(pointer2)
- Prev
- Next

Functions:

1] **create()**

Step1: input account number (8digits).

Step2: verify whether its 8 digits and no alphabets in between and store it.

Step3: input first name and last name, age, address and store it.

Step4: input aadhar number (12 digits).

Step5: verify whether its 12digits and no alphabets and store it.

Step6: input phone number(10 digits).

Step7: verify whether its 10 digits and no alphabets and store it.

Step8: input amount to deposit.

Step9: return.

2] **insert at first()**

Step1: calls create() function and input values.

Step2: if first == NULL

       Then

       first=temp

       last=first

       else

       first-> prev= temp

       Temp->next=first

       First=temp

Step4: return.

3] **display**()

Step1: if first == NULL

       Then

       Print no accounts.

       Else

       While(temp!= NULL)

       Print the list of accounts.

temp= temp->next

End while.

Step2: return.

4] **edit()**

Step1: input account number to edit.

Step2: verify account number for existence.

True-> goto step3 to 6.

False-> print 'no accounts' return.

Step3: print options { 1. to edit name

2. To edit age

3. To edit address

4. To edit phone number

5. To edit aadhar number}

Step4: input choice.

Step5: input values to be changed.

Step6: verify input then value are changed and saved.

Step7: return.

5] **depositamt()**

Step1: input account number

Step2: verify account number

> If it exits then
>
> Goto step3
>
> Else print 'account number does not exist'
>
> Return.

Step3: print 'account details and balance'.

Step4: input amount to deposit.

Step5: balance updated.

Step6: print 'account details and new balance'.

Step7: return.

6] **withdrawamt()**

Step1: input account number.

Step2: verify account number

> If it exits then
>
> Goto step3
>
> Else

Print 'account number does not exit'

Return.

Step3: print 'account details and balance'.

Step4: input amount to withdraw

Step5: if amount > balance

Print 'insufficient balance …. Retry'

Goto step4

Else

Balance = balance – withdraw

Step6: print account details and new balance.

Step7: return.

7] **delaccfront()**

Step1: if first == NULL

Print 'no account to delete'.

Return.

Step2: if temp-> next == NULL

Print account details that is deleted.

Free(temp)

First= null

Else

First=temp->next

Print account details that is deleted.

Free(temp)

First->prev= NULL.

Step3: return.

8] delaccend()

Step1: if first == NULL

Print 'no of account to delete'

Return.

Step2: if temp->next == NULL

Print account details that is deleted.

Free (last)

Last= temp1

Last-> next = NULL

Step3: return

9] **delacc()**

Step1: if first == NULL

       Print 'no of account is delete'

       Return

Step2: if temp-> next == NULL

       Print account details to be deleted

       Free (temp)

       First = NULL

       Return.

Step3: input account number is deleted

Step4: verify account number

       True-> goto step5

       False-> print 'account dose not exist'

       Return.

Step5: while(temp!= NULL)

       If (temp ->prev== NULL)

       Calls delaccfront()

       Break;

Else

Print account details to be deleted.

Tmp-> prev-> next= temp->next

Temp-> next-> prev= tenp-> prev

Free(temp

Break;

Temp= temp-> next

End while.

Step6: return.

10] **main()**

Step1: print menu

Step2: print choices { 1.create number of new account

2. Add another account

3. View accounts list

4. Edit account

5. Deposit amount

6. Withdraw amount

7. Delete account

8. Exit}

Step3: input choice

Step4: while(1)

Step5: switch(choice)

  case 1: input value of n

    for i=0 to i<n

     call insertatfirst()

     i++

    end for

    break;

  case 2: insertatfirst()

    break

  case 3: display()

    break

  case 4: edit()

    break

  case 5: depositamt()

    break

  case 6: withdrawamt()

    break

  case 7: delacc()

    break

case 8: exit(1)

default: print 'Incorrect choice'

end while

Step6: End.

Results

```
                    CUSTOMER BANKING ACCOUNTS MANAGEMENT SYSTEM


                        WELCOME TO THE MAIN MENU

            1.Create N number of new accounts
            2.Add another account
            3.View accounts list
            4.To Edit account details
            5.Deposit amount
            6.Withdraw amount
            7.Delete account
            8.Exit



             Enter your choice:1
Enter the value of n : 5
                    ADD RECORD

**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.

Enter 8 digit account number:1000000f
Wrong Input...
 Try again

Enter 8 digit account number:10000001

Enter first name:Rushwanth

Enter last name:K

Enter the age:19

Enter the address:3758,10thcross,blore-78

Enter the Aadhar number(12 digits): 111122223333

Enter the phone number(10 digits): 9876543211
```

```
Enter the amount to deposit:Rs.45000
                        ADD RECORD

**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.


Enter 8 digit account number:10000002

Enter first name:Rohith

Enter last name:HK

Enter the age:19

Enter the address:467,42ndcross,blore-01

Enter the Aadhar number(12 digits): 555566667777

Enter the phone number(10 digits): 9090888777

Enter the amount to deposit:Rs.60000
                        ADD RECORD

**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.


Enter 8 digit account number:10000003

Enter first name:Rutvick

Enter last name:S

Enter the age:20

Enter the address:46,15thcross,nelmangla

Enter the Aadhar number(12 digits): 333300009999

Enter the phone number(10 digits): 9877654421

Enter the amount to deposit:Rs.50000
                        ADD RECORD

**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.
```

```
Enter 8 digit account number:10000004

Enter first name:Rahul

Enter last name:RK

Enter the age:20

Enter the address:378,1stmain,blore-26

Enter the Aadhar number(12 digits): 454566662332

Enter the phone number(10 digits): 98273
Wrong Input...
 Try again

Enter the phone number(10 digits): 9827300011

Enter the amount to deposit:Rs.65000
                         ADD RECORD

**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.


Enter 8 digit account number:10000005

Enter first name:Sandeep

Enter last name:N

Enter the age:25

Enter the address:1221,6thmain,blore-85

Enter the Aadhar number(12 digits): 1212676788
Wrong Input...
 Try again

Enter the Aadhar number(12 digits): 121267678899

Enter the phone number(10 digits): 9088765522

Enter the amount to deposit:Rs.30000
```

```
                1.Create N number of new accounts
                2.Add another account
                3.View accounts list
                4.To Edit account details
                5.Deposit amount
                6.Withdraw amount
                7.Delete account
                8.Exit



            Enter your choice:3

ACC. NO.        NAME            AGE     AADHAR No.      ADDRESS                 PHONE           BALANCE

10000005        Sandeep N       25      121267678899    1221,6thmain,blore-85   9088765522      Rs.30000.000000

10000004          Rahul RK      20      454566662332    378,1stmain,blore-26    9827300011      Rs.65000.000000

10000003        Rutvick S       20      333300009999    46,15thcross,nelmangla  9877654421      Rs.50000.000000

10000002          Rohith HK     19      555566667777    467,42ndcross,blore-01  9090888777      Rs.60000.000000

10000001        Rushwanth K     19      111122223333    3758,10thcross,blore-78 9876543211      Rs.45000.000000

                1.Create N number of new accounts
                2.Add another account
                3.View accounts list
                4.To Edit account details
                5.Deposit amount
                6.Withdraw amount
                7.Delete account
                8.Exit




            Enter your choice:2
                    ADD RECORD

**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.
```

```
Enter 8 digit account number:10000006

Enter first name:Yuvan

Enter last name:S

Enter the age:30

Enter the address:489,8thcross,blore-02

Enter the Aadhar number(12 digits): 345312227890

Enter the phone number(10 digits): 9887700123

Enter the amount to deposit:Rs.83000


            1.Create N number of new accounts
            2.Add another account
            3.View accounts list
            4.To Edit account details
            5.Deposit amount
            6.Withdraw amount
            7.Delete account
            8.Exit




            Enter your choice:3
ACC. NO.        NAME          AGE     AADHAR No.       ADDRESS                  PHONE        BALANCE

10000006           Yuvan S    30      345312227890     489,8thcross,blore-02    9887700123   Rs.83000.000000

10000005         Sandeep N    25      121267678899     1221,6thmain,blore-85    9088765522   Rs.30000.000000

10000004          Rahul RK    20      454566662332     378,1stmain,blore-26     9827300011   Rs.65000.000000

10000003         Rutvick S    20      333300009999     46,15thcross,nelmangla   9877654421   Rs.50000.000000

10000002         Rohith HK    19      555566667777     467,42ndcross,blore-01   9090888777   Rs.60000.000000
```

```
10000002          Rohith HK     19      555566667777     467,42ndcross,blore-01   9090888777     Rs.60000.000000

10000001          Rushwanth K   19      111122223333     3758,10thcross,blore-78 9876543211     Rs.45000.000000


          1.Create N number of new accounts
          2.Add another account
          3.View accounts list
          4.To Edit account details
          5.Deposit amount
          6.Withdraw amount
          7.Delete account
          8.Exit




          Enter your choice:4


**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.


Enter acc no. to edit details
3425345

Account number does not exist.


          1.Create N number of new accounts
          2.Add another account
          3.View accounts list
          4.To Edit account details
          5.Deposit amount
          6.Withdraw amount
          7.Delete account
          8.Exit




          Enter your choice:4
```

```
**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.


Enter acc no. to edit details
10000001
        1.To edit name
        2.To edit age
        3.To edit address
        4.To edit phone number
        5.To edit Aadhar number
        Enter your choice 2

Enter new age: 23

 Changes Saved.


                1.Create N number of new accounts
                2.Add another account
                3.View accounts list
                4.To Edit account details
                5.Deposit amount
                6.Withdraw amount
                7.Delete account
                8.Exit




                 Enter your choice:4

**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.


Enter acc no. to edit details
10000003
        1.To edit name
        2.To edit age
        3.To edit address
        4.To edit phone number
        5.To edit Aadhar number
```

```
        4.To edit phone number
        5.To edit Aadhar number
        Enter your choice 4

Enter new phone number(10 digits): 9000011117

 Changes Saved.


                1.Create N number of new accounts
                2.Add another account
                3.View accounts list
                4.To Edit account details
                5.Deposit amount
                6.Withdraw amount
                7.Delete account
                8.Exit



                 Enter your choice:4

**IMPORTANT NOTE: while entering names and addresses DO NOT Enter SPACES between.


Enter acc no. to edit details
10000005
        1.To edit name
        2.To edit age
        3.To edit address
        4.To edit phone number
        5.To edit Aadhar number
        Enter your choice 5

Enter new Aadhar number(12 digits): 53434345gth
Wrong Input...
 Try again

Enter new Aadhar number(12 digits): 000099991111

 Changes Saved.
```

```
1.Create N number of new accounts
2.Add another account
3.View accounts list
4.To Edit account details
5.Deposit amount
6.Withdraw amount
7.Delete account
8.Exit


        Enter your choice:3
```

ACC. NO.	NAME	AGE	AADHAR No.	ADDRESS	PHONE	BALANCE
10000006	Yuvan S	30	345312227890	489,8thcross,blore-02	9887700123	Rs.83000.000000
10000005	Sandeep N	25	000099991111	1221,6thmain,blore-85	9088765522	Rs.30000.000000
10000004	Rahul RK	20	454566662332	378,1stmain,blore-26	9827300011	Rs.65000.000000
10000003	Rutvick S	20	333300009999	46,15thcross,nelmangla	9000011117	Rs.50000.000000
10000002	Rohith HK	19	555566667777	467,42ndcross,blore-01	9090888777	Rs.60000.000000
10000001	Rushwanth K	23	111122223333	3758,10thcross,blore-78	9876543211	Rs.45000.000000

```
1.Create N number of new accounts
2.Add another account
3.View accounts list
4.To Edit account details
5.Deposit amount
6.Withdraw amount
7.Delete account
8.Exit


        Enter your choice:5

Enter acc no. to deposit
```

```
Enter acc no. to deposit
10000003

10000003              Rutvick S   Rs.50000.000000

Enter amt to deposit
7200

10000003              Rutvick S   Rs.57200.000000


              1.Create N number of new accounts
              2.Add another account
              3.View accounts list
              4.To Edit account details
              5.Deposit amount
              6.Withdraw amount
              7.Delete account
              8.Exit




               Enter your choice:6

Enter acc no. to withdraw
234656

Account number does not exist.


              1.Create N number of new accounts
              2.Add another account
              3.View accounts list
              4.To Edit account details
              5.Deposit amount
              6.Withdraw amount
              7.Delete account
              8.Exit
```

```
                Enter your choice:6

Enter acc no. to withdraw
10000006

10000006                Yuvan S   Rs.83000.000000

Enter amt to withdraw
5600

10000006                Yuvan S   Rs.77400.000000

                1.Create N number of new accounts
                2.Add another account
                3.View accounts list
                4.To Edit account details
                5.Deposit amount
                6.Withdraw amount
                7.Delete account
                8.Exit




                Enter your choice:6

Enter acc no. to withdraw
10000005

10000005                Sandeep N   Rs.30000.000000

Enter amt to withdraw
35000

Insufficient balance... retry with amount lesser than your balance

Enter amt to withdraw
20000

10000005                Sandeep N   Rs.10000.000000

                1.Create N number of new accounts
```

```
                1.Create N number of new accounts
                2.Add another account
                3.View accounts list
                4.To Edit account details
                5.Deposit amount
                6.Withdraw amount
                7.Delete account
                8.Exit




                 Enter your choice:7

Enter Acc no. to delete
23125342

Account does not exist.


                1.Create N number of new accounts
                2.Add another account
                3.View accounts list
                4.To Edit account details
                5.Deposit amount
                6.Withdraw amount
                7.Delete account
                8.Exit




                 Enter your choice:7

Enter Acc no. to delete
10000003

Account deleted is

10000003        Rutvick S       9000011117      Rs.57200.000000

Successfully deleted...
```

```
                1.Create N number of new accounts
                2.Add another account
                3.View accounts list
                4.To Edit account details
                5.Deposit amount
                6.Withdraw amount
                7.Delete account
                8.Exit




                 Enter your choice:7

Enter Acc no. to delete
10000006

Account deleted is

10000006          Yuvan S        9887700123        Rs.77400.000000

Successfully deleted...


                1.Create N number of new accounts
                2.Add another account
                3.View accounts list
                4.To Edit account details
                5.Deposit amount
                6.Withdraw amount
                7.Delete account
                8.Exit




                 Enter your choice:7

Enter Acc no. to delete
10000001

Account deleted is

10000001          Rushwanth K    9876543211        Rs.45000.000000
```

```
Successfully deleted...

        1.Create N number of new accounts
        2.Add another account
        3.View accounts list
        4.To Edit account details
        5.Deposit amount
        6.Withdraw amount
        7.Delete account
        8.Exit



        Enter your choice:3
ACC. NO.        NAME        AGE     AADHAR No.      ADDRESS                     PHONE           BALANCE

10000005        Sandeep N   25      000099991111    1221,6thmain,blore-85       9088765522      Rs.10000.000000

10000004        Rahul RK    20      454566662332    378,1stmain,blore-26        9827300011      Rs.65000.000000

10000002        Rohith HK   19      555566667777    467,42ndcross,blore-01      9090888777      Rs.60000.000000

        1.Create N number of new accounts
        2.Add another account
        3.View accounts list
        4.To Edit account details
        5.Deposit amount
        6.Withdraw amount
        7.Delete account
        8.Exit



        Enter your choice:9

 Incorrect input...

        1.Create N number of new accounts
```

Conclusion & Future Enhancements

This banking system project will serve as a useful approach to data base dialog box to deposit and withdraw the money for the person. It will reduce the time taken by the user/admin to handle accounts. This program has a user friendly approach.

Currently handling savings account only in future we can handle other types of account ex:-Fixed deposit, retirement accounts, checking accounts, etc. And even online banking will be updated soon. Passwords and log-in Id's will be added for better security and privacy.

References

- **Books–** 'Programming in C & Data Structures' by A.A Godse
- **Weblinks–** https://www.codewithc.com/mini-project-in-c-bank-management-system/

THANK YOU