



Project Final Report

BANK MANAGEMENT SYSTEM

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Semester:

3rd (Section B)

Abstract of Bank management system:

Bank management system which is developed in c++ (Data Structure and algorithms) is to provide a flexible solutions for bank management system. With this system all users such as bank admin, bank employee and bank customers will find easy to use and able to perform all their operations using this system. This system enable its users to open and close the bank account. Three main users of this system.

Admin will able to add employee, edit employee record etc. Admin get all over holds on this project.

Bank employee will able to login when admin open his account. Bank employee will able to open customer account, edit his information, delete accounts and activate ATM account. Employee will able to withdraw money, make transection and deposit customer money.

Bank customer only able to login his ATM account when his bank account also activate as ATM by bank employee. By ATM login he can make transection, withdrawal, see other ATM features.

This system also hold all previous history of users account like deposit money record, transection record, withdraw money record and received money record. Also main feature of this system is hold account registration date and account history record time and date. Bank account and ATM account number auto generate and random assign to every user.

Introduction of bank management system:

The Bank Account Management System is an application for maintaining a person's account in a bank. The purpose to develop a project is to solve a 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. Banking system allow to add new customer account, deposit money, withdraw money, make transection from one account to another account, account balance and account history.

Objective of Bank management system:

The main objective of developing this banking System is to provide secure and efficient banking facilities to the bank customers. It will Reduced manual work as most of the work done by using computer. As all the manual work as calculation maintain record etc will be done automatically so it will

increase work speed and reduce time consumption to complete any bank related work. It will also increase the work efficiency. This will reduced the manual workload and give information instantly. The main purpose of developing bank management system is to design an application, which could store customer data and provide an interface for retrieving his details with 100% accuracy. By this system customer can save his money, withdraw money, check his account balance and send money to other accounts.

Features of Bank management System:

The main purpose of the banking system is to automate all the banking processes with improved performance and realize the vision of paperless banking. Salient features of the proposed bank management system is given below:

➤ **Admin features:**

Admin can get all access of bank management system. Admin will able to login project using password that is set default in code. After login admin can change his account password. Only one admin will handle this project features. Admin can do these features as given below:

- ❖ Employee portion
 - ✓ Add employee record
 - ✓ Search employee record
 - ✓ Update employee record
 - ✓ Delete employee
 - ✓ Total employee
 - ✓ Recover employee account
- ❖ User account portion
 - ✓ Search user account
 - ✓ Delete user account
 - ✓ All accounts
 - ✓ Total registered accounts
 - ✓ Account history
- ❖ Change admin account password
- ❖ Bank balance
- ❖ Logout

➤ **Bank employee**

Bank employee will be able to login his account when his account is create by admin. Employee can do following features:

- ❖ User account quires

- ✓ Create new account
- ✓ Search account record
- ✓ Update account record
- ✓ Delete account
- ✓ Total account
- ✓ Show All accounts
- ✓ Account history
- ❖ ATM account portion
 - ✓ Activate ATM account
 - ✓ Search ATM account
 - ✓ Delete ATM account
 - ✓ Total registered ATM account
 - ✓ Recover ATM account pin code
- ❖ Balance portion
 - ✓ Deposit money
 - ✓ Withdraw money
 - ✓ Send money
- ❖ Bank balance
- ❖ Change password
- ❖ Logout
- **ATM user features**

Bank customer only able to login his ATM account when his bank account also activate as ATM by bank employee. By ATM login he can make:

 - ❖ Withdraw money from ATM
 - ❖ Send money from ATM
 - ❖ Change ATM pin code
 - ❖ Logout

Compilation and modules description of bank management system:

Brief details and dry run of this project is given below:

- **Correct and wrong entrance of choice effect on program**

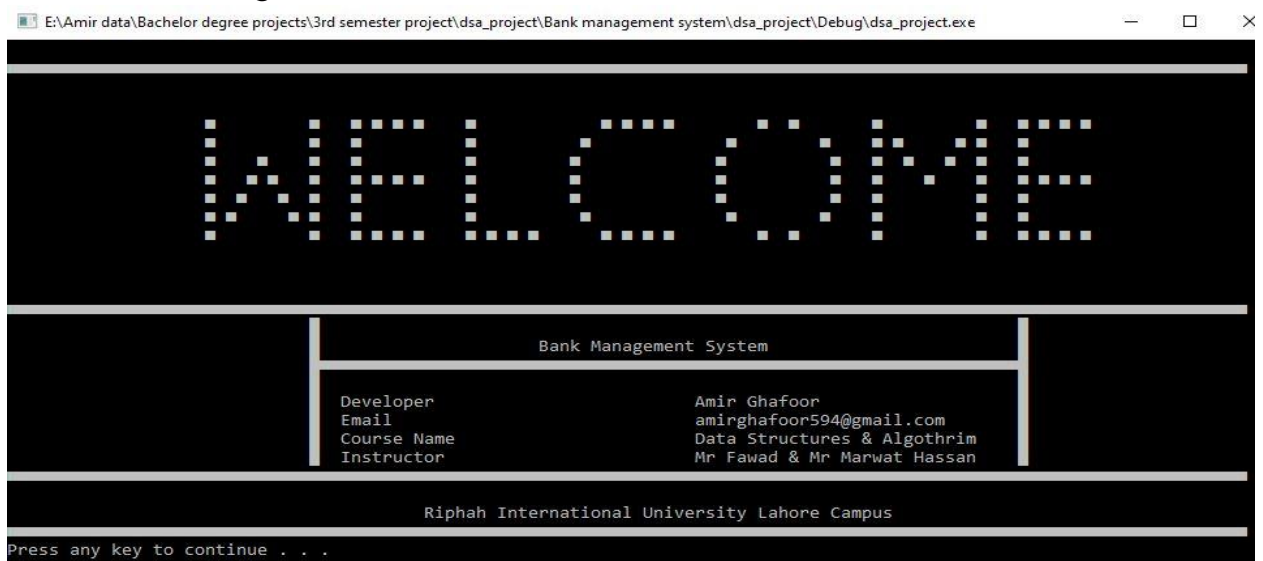
If user enter correct choice as given in modules then task will perform other wise pop screen will show in red color and program will run until user not close by enter 0. Interface screen given below when user enter wrong choice and this features add over all in program.



After press any key the color of screen will again in normal condition and program will take again choice from user.

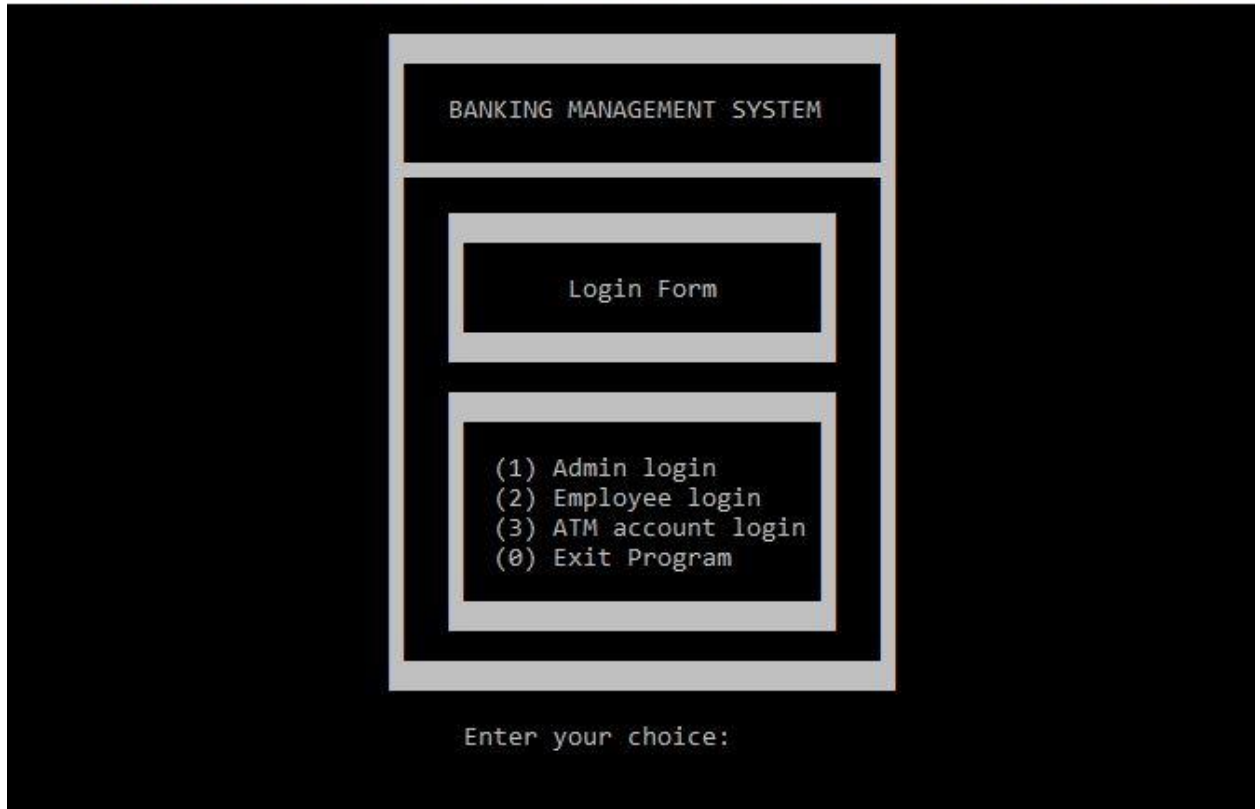
➤ **Starting**

In start a pop screen will show that show project details and developer information as given below:



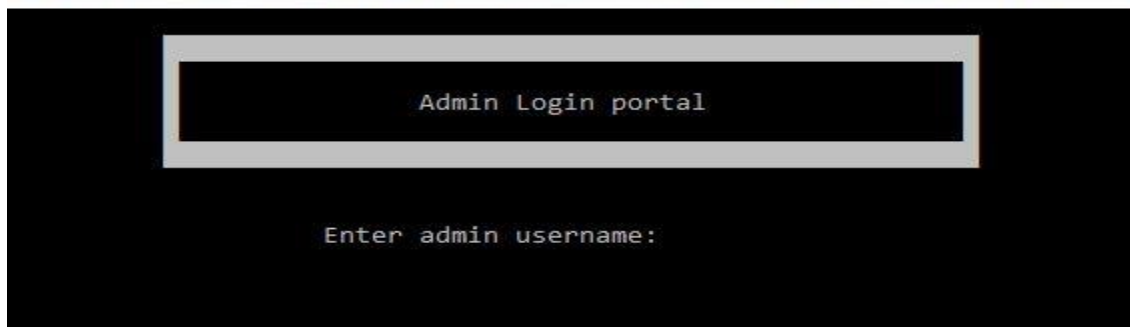
After press any key there will show a loading bar and after few second loading **home screen** will show as given.

chelor degree projects\3rd semester project\dsa_project\Bank management system\dsa_project\Debug\dsa_project.exe



There three modules as shown in pic. If user enter 1,2,3,0 and press enter then given operation perform otherwise it gave error.
If user enter 1 then admin login form open as:

chelor degree projects\3rd semester project\dsa_project\Bank management system\dsa_project\Debug\dsa_project.exe

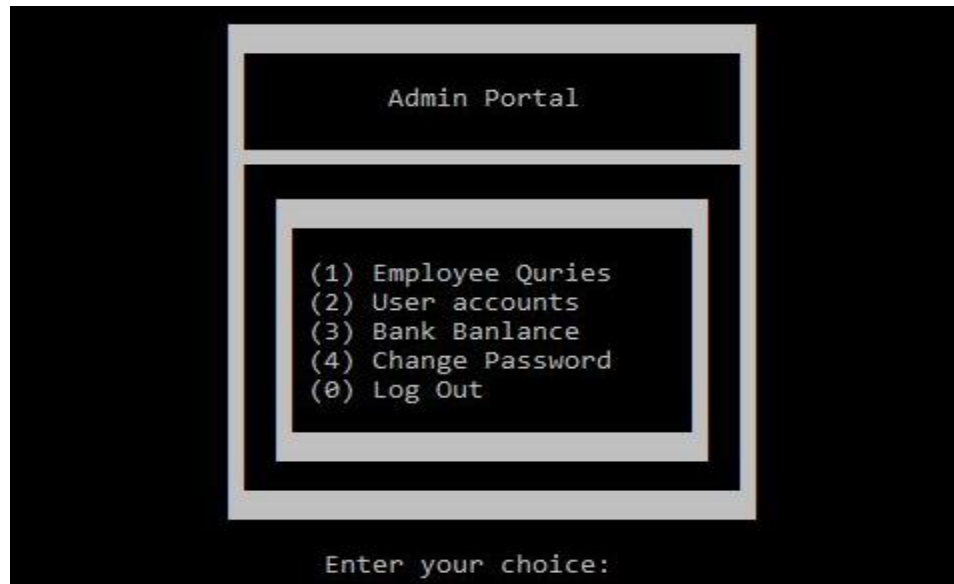


If admin enter correct username and admin password that given in code as hardcore then admin account home screen will open otherwise

it return again to home screen. If user enter correct then admin features show as:

➤ **Admin Account compiling**

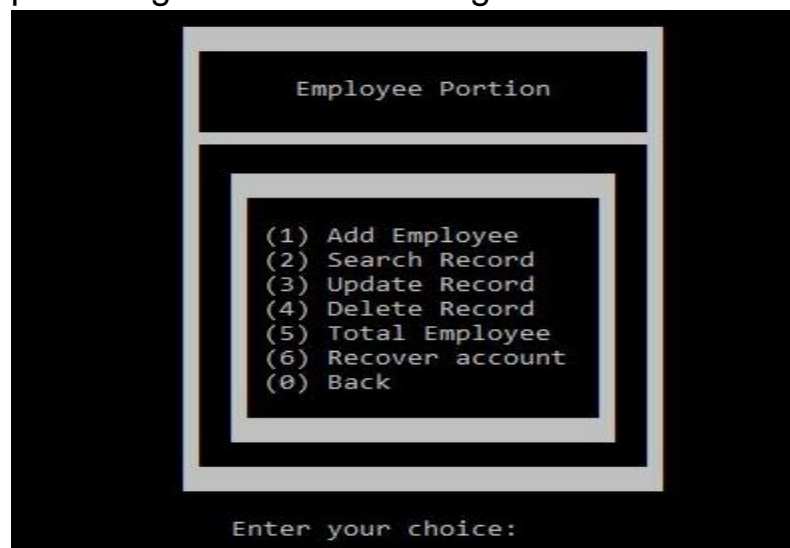
❖ **Home screen**



After successfully login this admin screen will show and admin can perform given task according choice. If user enter correct choice then task perform otherwise its show red screen given in above images. If user enter choice 1 then employee quires home screen will show as:

✓ **Employee quires**

After user choice this screen will show and user can perform given task according to choice as:



In this section user can do given task. If user enter choice 1 then then account registration screen will show as:

\\3rd semester project\\dsa_project\\Bank management system\\dsa_project\\Debug\\dsa_pro

The screenshot shows a terminal window titled "Account Registration portal". At the top, there are two buttons: "Press (1) for entry" and "Press (0) for back". Below the buttons, the text reads: "Enter id card format(XXXXXX-XXXXXXX-X): 32303", "Enter Employee account password : **", "Please enter correct CNIC number as given format", and "Press any key to continue . . .".

In this section for registration of account of employee CNIC number will put and if user will enter correct CNIC number as giver format then it will take password and password length must b equal to 7. If CNIC format not correct and not l digits then it will show error as given in pic. After correct entrance of information then account will open of employee.

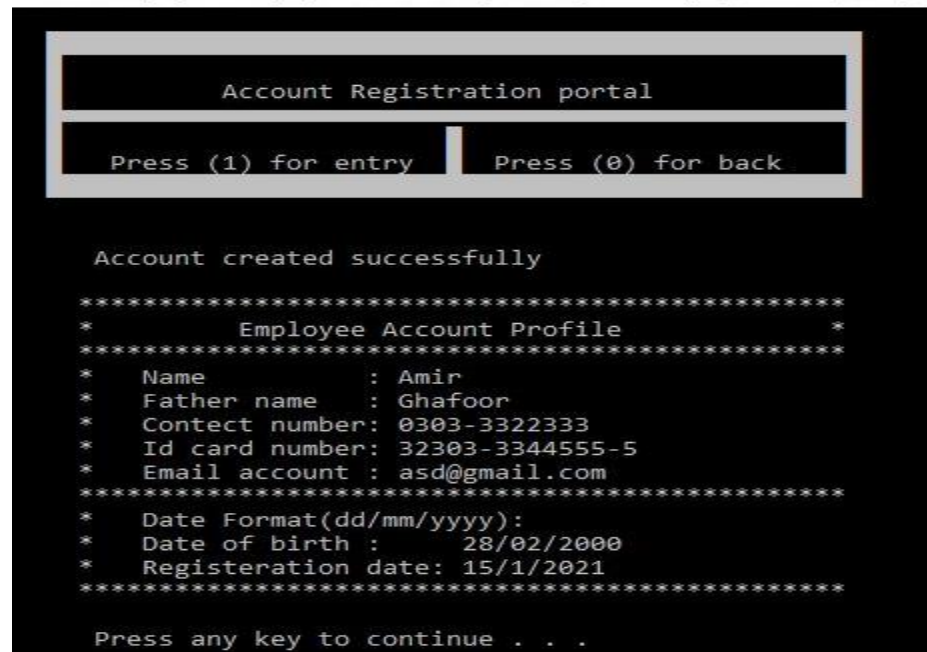
After opening of account its will take his personal information as:

d semester project\\dsa_project\\Bank management system\\dsa_project\\Debug\\dsa_project.e

The screenshot shows a terminal window titled "Account Registration portal". At the top, there are two buttons: "Press (1) for entry" and "Press (0) for back". Below the buttons, the text reads: "Enter name: Amir", "Enter father name: Ghafoor", "Enter context number format(03xx-xxxxxxx): 0303", "Enter correct context number as given format", "Enter context number format(03xx-xxxxxxx): 0303-3322333", "Enter email account (only gmail): ads.com", "Please enter valid email account", "Enter email account (only gmail): asd@gmail.com", "Enter date birth format(dd/mm/yyyy): 29/02/2000", "Please enter correct DateOfBirth as given format", and "Enter date birth format(dd/mm/yyyy): 28/02/2000".

In this section again validation must fallow otherwise its will not move forward until user enter correct information. After

entrance of personal information employee profile will show on screen as:

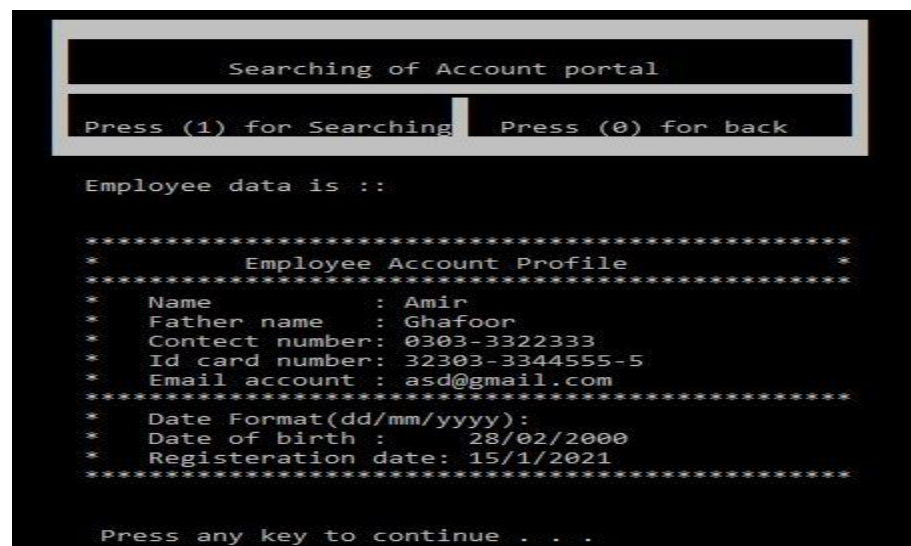


When profile show then user press any key it will take gain on registration screen.

In employee quires if he enter choice 2 as search record.

Here again it will take choice 1 and 0. If user enter 1 then it will take for searching if user enter 0 then it will return to back screen. In wrong choice it will show red pop screen.

In this section user enter employee CNIC number as shown in image. If user enter wrong format then it return to back screen.



After correct CNIC format and correct CNIC number profile of employee will show if account registered. Press any then it will take to back screen and where user perform other task.

In employee quires screen user choice 3 then update account.

Here it will take employee CNIC and take to get employee data portion screen as:

d semester project\dsa_project\Bank management system\dsa_project\Debug\dsa_project.ex

```
Updation Account portal
Press (1) for Updation  Press (0) for back

Enter name: Amir
Enter father name: Abdul Ghafoor
Enter contact number format(03xx-xxxxxxx): 0404-4433443
Enter email account (only gmail): asd@

Please enter valid email account

Enter email account (only gmail): asd@gmail.com
Enter date birth format(dd/mm/yyyy): 12/12/2000

Employee account is update successfully

Press any key to continue . . .
```

Here user enter employee data and press enter then account will update. And press any then it return to back screen.

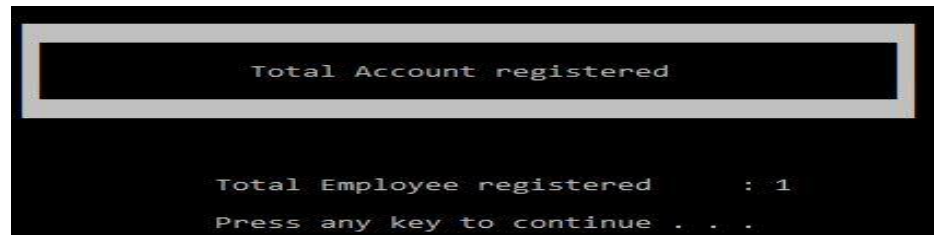
If user enter choice 4 then it will take to deletion account screen as:

```
Deletion Account portal
Press (1) for deletion  Press (0) for back

Enter id card format(xxxxxx-xxxxxxx-x): 32303-33
```

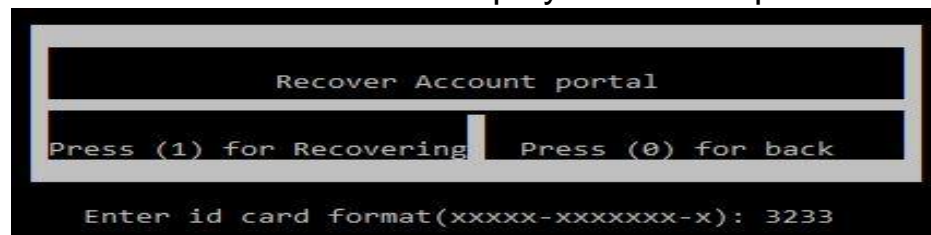
Here it will take employee CNIC number account will delete if registered and return to back screen.

Next if user enter choice 5 then it show total register account in record as:



Here show total account return to back screen.

If user enter choice 6 then it take account recover screen where admin can recover employee account password.

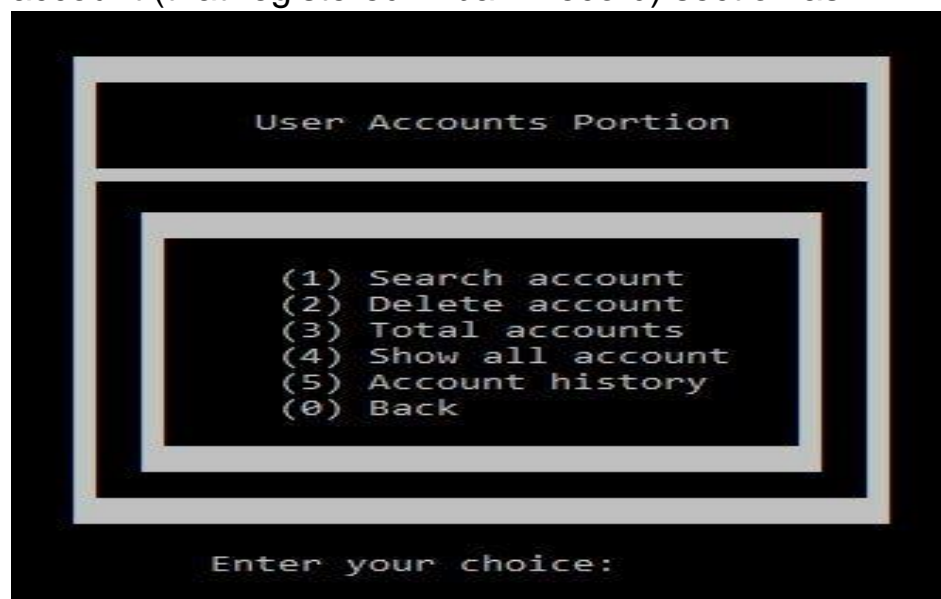


Here user enter employee CNCI number change employee account password.

If user enter 0 then it will take to admin account home screen where he perform other task.

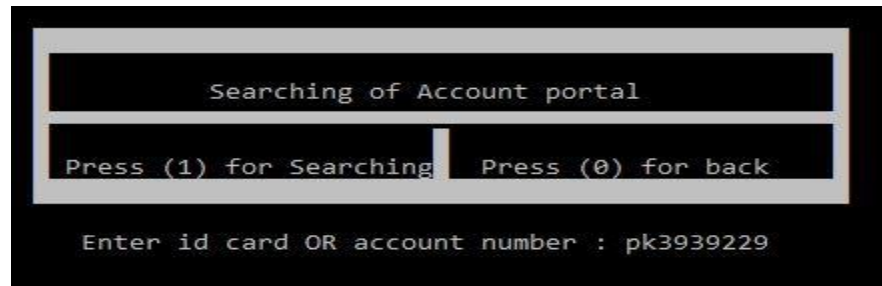
✓ **User account portion**

In admin home screen user enter 2 then it will take to user account (that registered in bank record) section as:



Here if user can perform all task of user accounts.

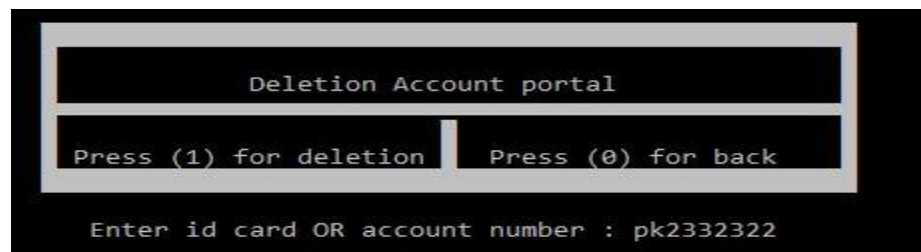
If user enter choice 1 then it will take to searching screen to search account by CNIC number bank account number as:



```
Searching of Account portal
Press (1) for Searching Press (0) for back
Enter id card OR account number : pk3939229
```

If user account register then user profile will show. And return to back screen.

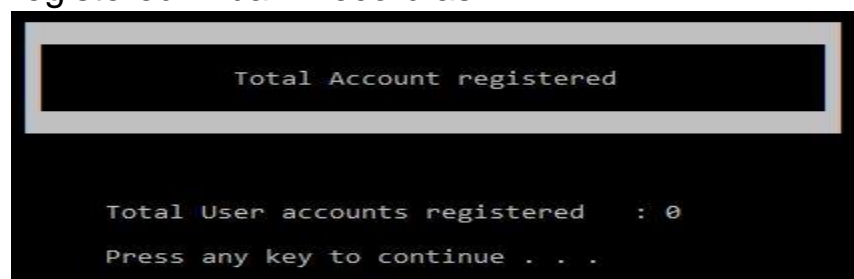
If user enter choice 2 then it will take deletion of user account screen. User can delete user bank account by CNIC number or bank account number as:



```
Deletion Account portal
Press (1) for deletion Press (0) for back
Enter id card OR account number : pk2332322
```

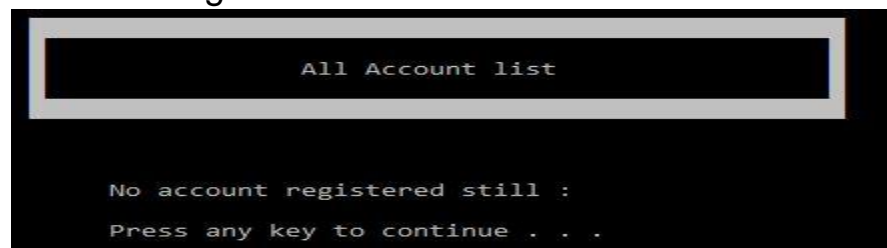
After deletion it will return back screen.

If user enter choice 3 then it will show how many account registered in bank record as:



```
Total Account registered
Total User accounts registered : 0
Press any key to continue . . .
```

If user enter choice 4 then it will show all user bank accounts registered in bank as:



```
All Account list
No account registered still :
Press any key to continue . . .
```

After this it will return to back screen.

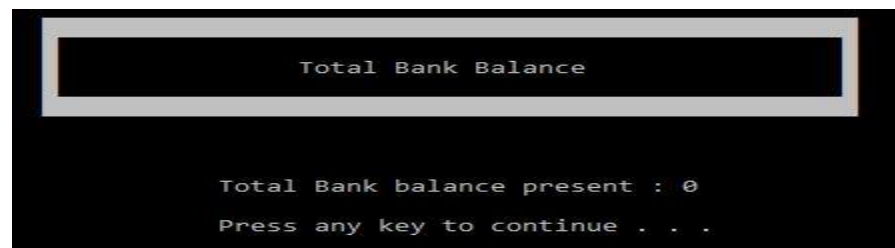
If user enter choice 5 then it will take to screen where he can see user account by searching bank account number as:



In the end of this section user return back admin home screen.

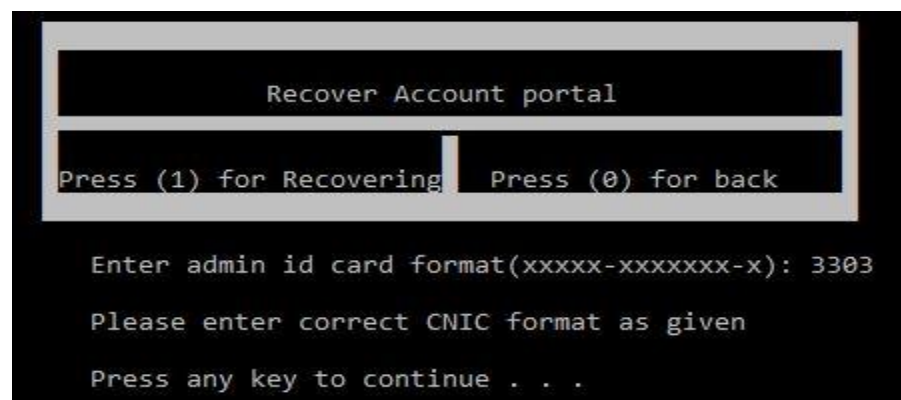
✓ **Bank balance**

In admin home screen user enter 3 then it will show to bank balance on screen as:



✓ **Change password**

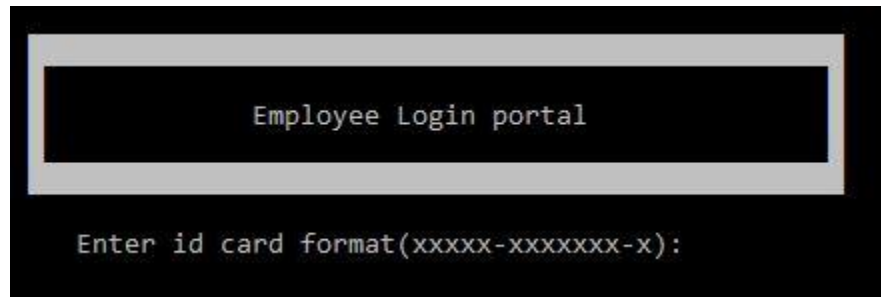
If user enter choice 4 then he will change admin account password using admin CNIC number that given in code by default.



At end in section admin account he will logout by enter choice as:

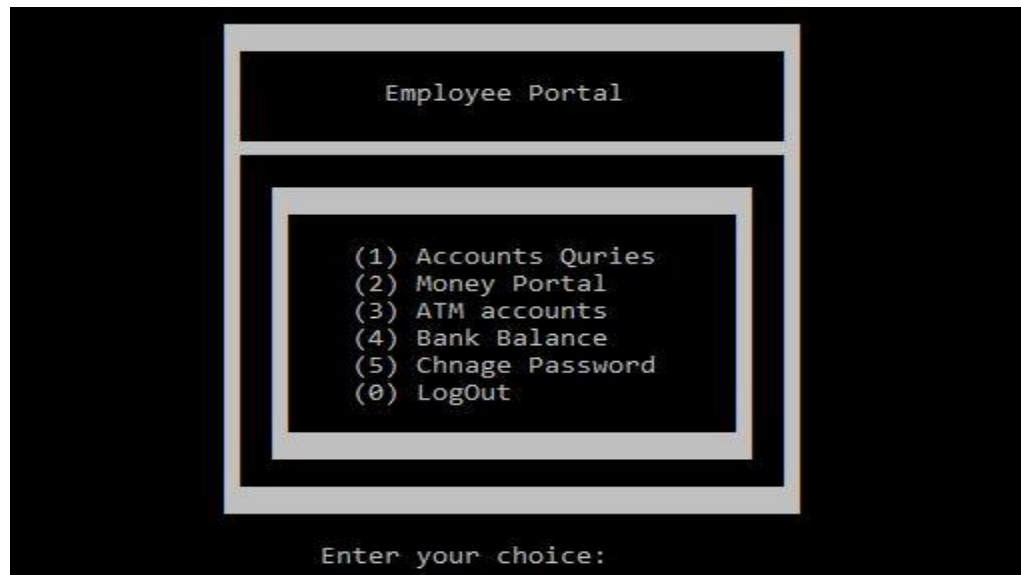
❖ Employee portion

If user enter choice to login as employee then employee login screen will show as:



Employee can login his account using correct data and his account must be created by admin.

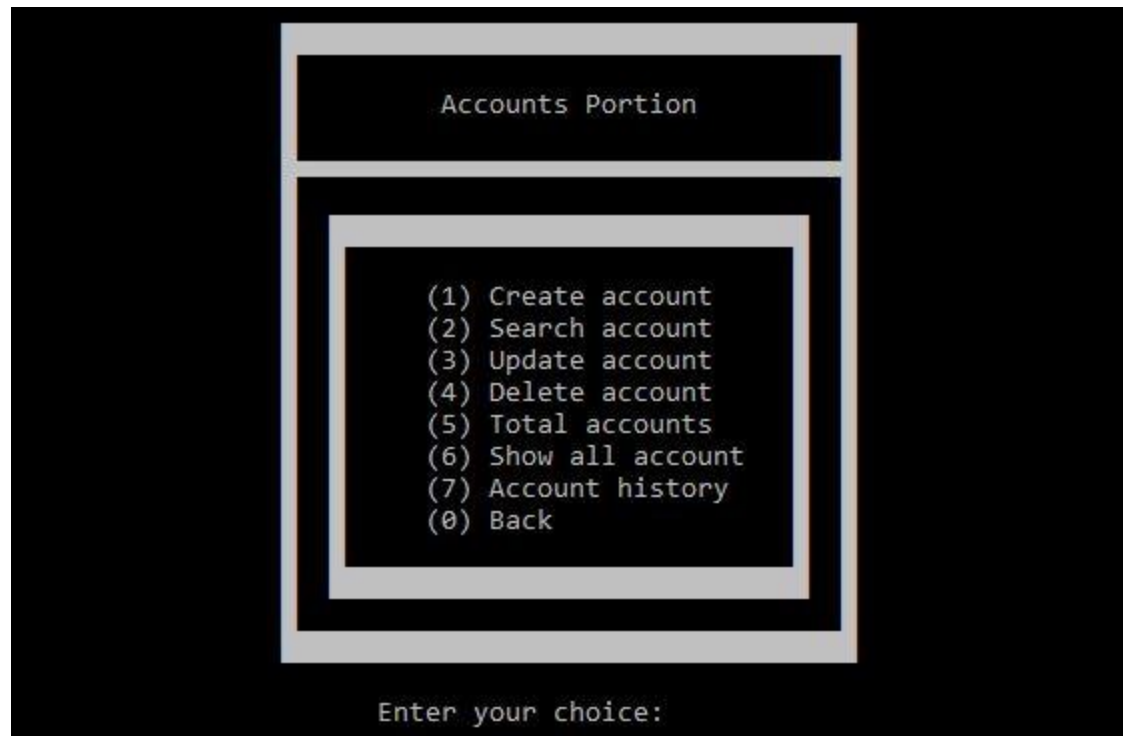
After login employee screen will show where user perform task as:



If here user can manage user account quires, balance quires, ATM quires etc. as given.

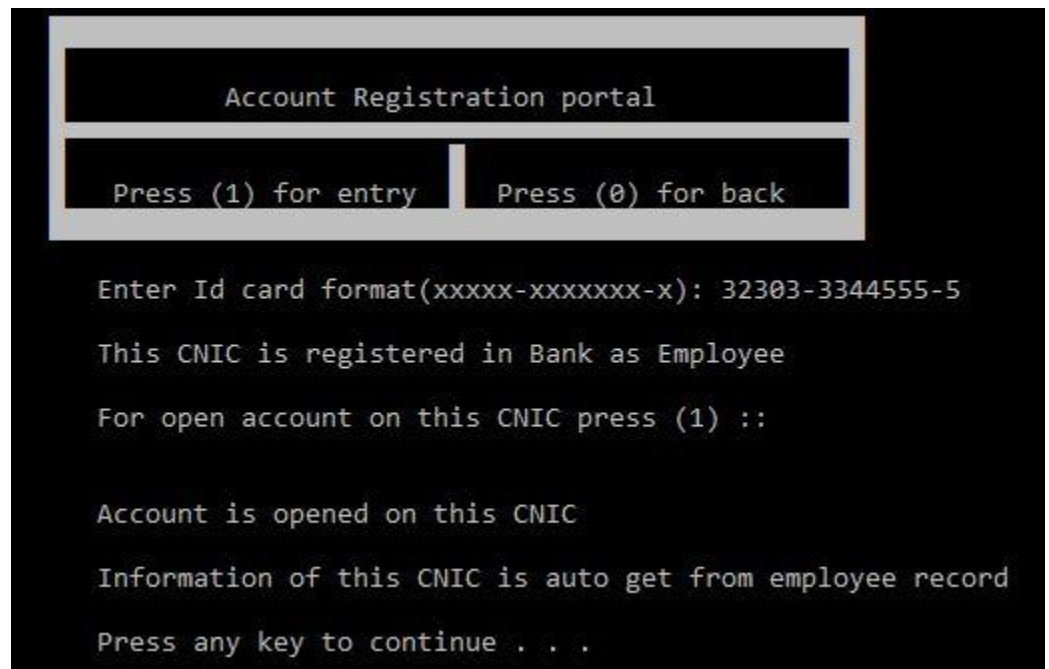
If user enter choice 1 then will go to user account quires as:

✓ **User account quires**



Here user can perform given task by entering choice as given.

If user enter choice 1 then it will take to create user bank account as:



If user CNIC number of employee then it will auto fetch information from employee record store in bank account record. Bank account auto generate for every account as:

```
Account Registration portal
Press (1) for entry    Press (0) for back

Account is created successfully

*****
*           Account Profile           *
*****
*   Name           : Amir            *
*   Father name    : Abdul Ghafoor   *
*   Contact number : 0404-4433443    *
*   Id card number : 32303-3344555-5 *
*   Email account  : asd@gmail.com    *
*****
*   Account Title  : Amir            *
*   Bank Account   : PK95022710102   *
*****
*   Date Format(dd/mm/yyyy):          *
*   Date of birth   : 12/12/2000      *
*   Bank account register date: 15/1/2021 *
*****
Press any key to continue . . .
```

If user enter choice 2 then it will take to searching screen to search account by CNIC number bank account number as:

```
Searching of Account portal
Press (1) for Searching    Press (0) for back

Account data is ::

*****
*           Account Profile           *
*****
*   Name           : Amir            *
*   Father name    : Abdul Ghafoor   *
*   Contact number : 0404-4433443    *
*   Id card number : 32303-3344555-5 *
*   Email account  : asd@gmail.com    *
*****
*   Account Title  : Amir            *
*   Bank Account   : PK95022710102   *
*****
*   Date Format(dd/mm/yyyy):          *
*   Date of birth   : 12/12/2000      *
*   Bank account register date: 15/1/2021 *
*****
Press any key to continue . . .
```


If user account register then user profile will show. And return to back screen.

If user enter choice 3 then it will update user account profile except account number and CNIC number.

If user enter choice 4 then it will take deletion of user account screen. User can delete user bank account by CNIC number or bank account number as:

```
Deletion Account portal
Press (1) for deletion | Press (0) for back
Enter id card OR account number : pk2332322
```

After deletion it will return back screen.

If user enter choice 5 then it will show how many account registered in bank record as:

```
Total Account registered

Total User accounts registered : 1
Press any key to continue . . .
```

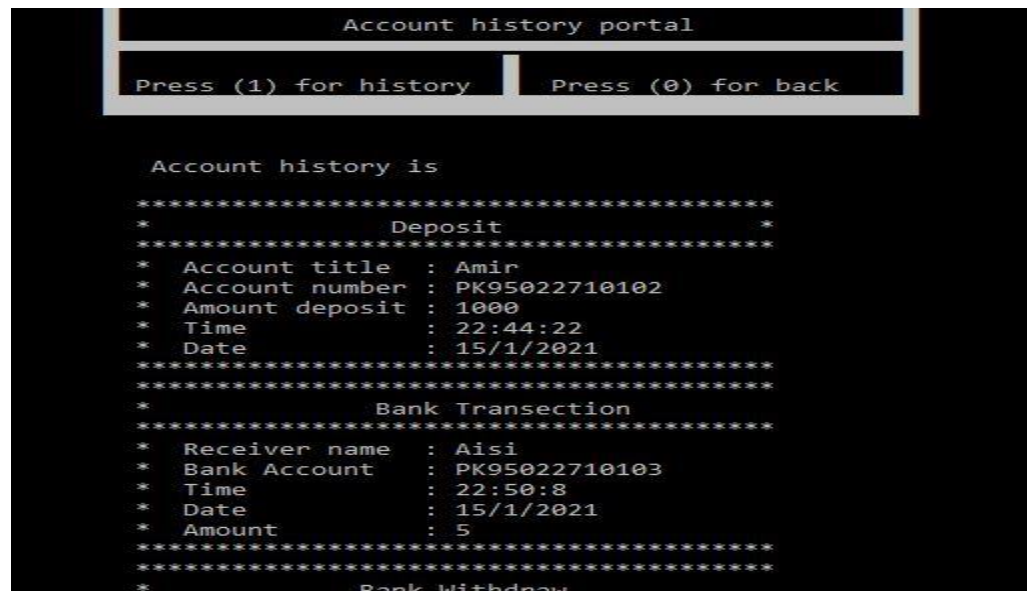
If user enter choice 6 then it will show all user bank accounts registered in bank as:

```
All Account list

All Accounts list is :
*****
*           Account 1
*****
* User name       : Amir
* CNIC number    : 32303-3344555-5
* Bank Account   : PK95022710102
*****
Press any key to continue . . .
```

After this it will return to back screen.

If user enter choice 7 then it will take to screen where he can see user account by searching bank account number as:



After at the end user will return back.

✓ **Money Portal**

If user enter choice 2 then he go to money section there will able send money, deposit money, check balance and withdrawal as:



If user choice 1 then he make transection of from user account to another as:

```
Money transfer portal
Press (1) for transfer | Press (0) for back

*****
*           Sender Account Detail           *
*****
* Account title   : Amir                   *
* Bank Account   : PK95022710102           *
*****
*           Receiver Account Detail          *
*****
* Account title   : Aisi                    *
* Account Number  : PK95022710103           *
*****
* Press (1) for transfer | Press (0) for back*
*****

Enter amount you want to transfer :
```

If user choice 2 then he will deposit money in user account as:

```
Money transfer portal
Press (1) for transfer | Press (0) for back

Amount transfer successfully

*****
*           Transection history              *
*****
* Sender account title   : Amir              *
* Sender Bank account    : PK95022710102      *
* Receiver account title : Aisi               *
* Receiver Bank account  : PK95022710103      *
* Transection amount     : 5                  *
* Date of transection    : 15/1/2021          *
* Time of transection     : 22:50:8           *
*****

Press any key to continue . . .
```

If user enter choice 3 then here show user account current balance as:

```
Account details is:

*****
*           Account Detail                   *
*****
* Current Balance: 995                       *
* Account title   : Amir                   *
* Bank Account    : PK95022710102           *
*****
```

Is user enter choice 4 then he make withdrawal of user account as:

Money Withdraw portal

Press (1) for Withdraw Press (0) for back

Account details is:

```
*****
*           Account Detail           *
*****
* Current Balance: 995
* Account title   : Amir
* Bank Account    : PK95022710102
*****
```

Enter amount you want to withdraw :

✓ **ATM portion**

If user enter choice 3 then he will go in ATM portion where he activate, delete etc. task as:

ATM Accounts Portion

(1) Create ATM account
(2) Search ATM account
(3) Delete ATM account
(4) Total ATM accounts
(5) Recover ATM account
(0) Back

Enter your choice:

If user enter choice 1 then he will activate ATM account. ATM account only activate if bank account registered on CNIC as:

Account Registration portal

Press (1) for entry Press (0) for back

Enter id card OR Bank account number : 3233-

```

Account Registration portal
Press (1) for entry    Press (0) for back

Enter ATM account Pincode (4 digits): ****
ATM account is activated:
ATM account will be show next:
Press any key to continue . . .

```

If user enter choice 2 then go to search ATM account. If bank account is registered on CNIC and ATM not activate then it will not show any data on ATM portion as:

```

Searching of Account portal
Press (1) for Searching    Press (0) for back

Account data is ::

*****
*                          Account Profile                          *
*****
*   Name           : Amir
*   Father name    : Abdul Ghafoor
*   Contect number: 0404-4433443
*   Id card number: 32303-3344555-5
*   Email account  : asd@gmail.com
*****
*   Account Title  : Amir
*   ATM Account    : 9502471011
*   Bank Account   : PK95022710102
*****
*   Date Format(dd/mm/yyyy):
*   Date of birth   : 12/12/2000
*   Bank account register date: 15/1/2021
*   ATM account register date : 15/1/2021
*****

```

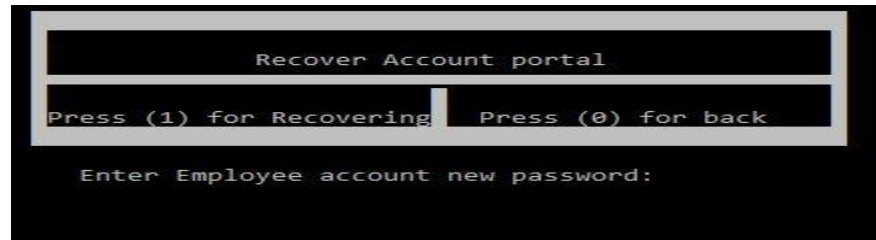
If user enter choice 3 then he will delete ATM account. If user delete ATM account then his bank account not delete from record but if bank account deleted then ATM will automatic delete.

If user enter choice 4 then there will show total ATM account registered.

If user enter choice 5 then he will recover pi code of ATM account.

✓ **Change password**

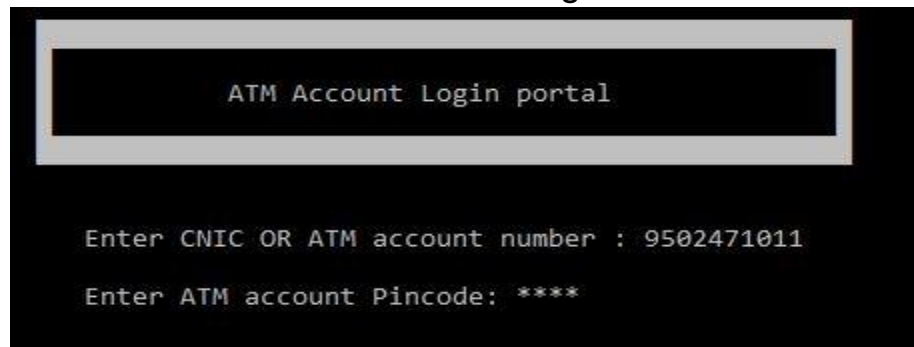
In this section user change his account password using his CNIC number as:



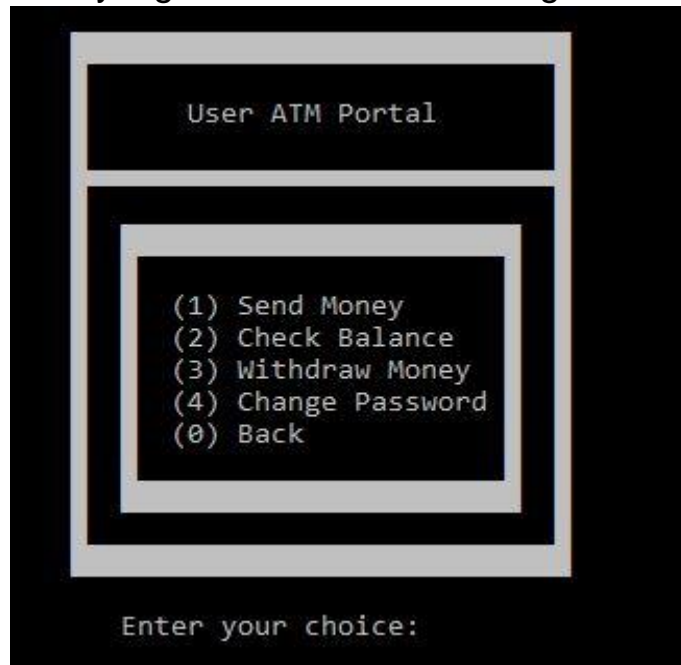
At the end user will logout.

❖ ATM login

In this section user can login using his ATM account number and ATM 4 digits pin code. If user bank account registered but not activate then he will not able to login.



After successfully login user will do task as given:



If User enter choice 1 then he will make transection from one ATM account to another ATM account as:

Money transfer portal

Press (1) for transfer

Press (0) for back

Enter Receiver ATM account Number : 9502471011

Please Use different ATM account number for transection

Press any key to continue . . .

Restriction will show error to send money other account.

Money transfer portal

Press (1) for transfer

Press (0) for back

```

*****
*           Sender Account Detail           *
*****
* Account title      : Amir
* ATM Account       : 9502471011
* Bank Account      : PK95022710102
*****
*           Receiver Account Detail         *
*****
* Account title      : Aisi
* ATM Account       : 9502471012
* Account Number    : PK95022710103
*****
* Press (1) for transfer | Press (0) for back*
*****
Enter amount you want to transfer :

```

After enter different ATM account number detail will show. After transection history will show as:

Money transfer portal

Press (1) for transfer

Press (0) for back

Amount transfer successfully

```

*****
*           Transection history             *
*****
* Sender account title      : Amir
* Sender ATM account       : 9502471011
* Sender Bank account      : PK95022710102
* Receiver account title   : Aisi
* Receiver ATM account     : 9502471012
* Receiver Bank account    : PK95022710103
* Transection amount       : 100
* Date of transection      : 15/1/2021
* Time of transection      : 23:18:20
*****
Press any key to continue . . .

```


If user enter choice 2 in ATM portion then he will check his account current balance. There are no need to enter his ATM account again because he has already login. His account auto fetch from login.

```
Account Balance

Account details is:

*****
*           Account Detail           *
*****
* Current Balance: 995
* Account title   : Amir
* ATM Account    : 9502471011
* Bank Account   : PK95022710102
*****

Press any key to continue . . .
```

If user enter choice 3 then he will make withdrawal. Here again no need to enter his account number.

```
Money Withdraw portal

Press (1) for Withdraw | Press (0) for back

Account details is:

*****
*           Account Detail           *
*****
* Current Balance: 895
* Account title   : Amir
* ATM Account    : 9502471011
* Bank Account   : PK95022710102
*****

Enter amount you want to withdraw :
```

If user enter choice 4 then he will change his ATM account pin code by entering his ATM account number. After this he will logout from his account.

Language and Tools:

- Language
 - ❖ C++
- Tool /Compiler
 - ❖ Microsoft Visual Studio 2019 version 16.8.3.

Scope of Project:

The bank management system will entertain only runtime. It means that it will not use any type of database or file handling concepts it will use only runtime. Interface of project is not GUI. It is develop on console base.

Future Upgrading:

In future we will add more features which is need during using and upgrade this project. In future we will add gui interface and permanent backend storage like database.

Source code of project:

Complete code of this project is available on GitHub website. Link for code is given below.

<https://github.com/amirghafoor786/Bank-management-system-data-structures.git>

The screenshot shows the GitHub interface for the repository 'Bank-management-system-data-structures' by user 'amirghafoor786'. The repository has 1 branch (main) and 1 tag. The file list includes:

File Name	Commit Message	Commit Date
project code	code file	3 days ago
Bank Management System using data...	Add files via upload	3 days ago
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