



## Data Structure

### *Lab Report*

**Name:** Shahzeb Kayani / Usman Aziz

**Class:** BECE-3A

**ID:** 171209 / 171226

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**Submitted To:** Sir Badar ud Din Tahir

# **“ATM Machine Program”**

## **Table of Contents**

- **Libraries**
- **Functions**
- **File Handling**
- **Storage through Linked list**
- **Features of Program**
- **Execution of Program**

## Libraries:

What we did is we made a program which literally works as an ATM machine, i.e you can withdraw money or deposit money into your account, you can modify the account etc. We'll discuss the features of the program later but first, let's discuss the libraries used in the program.

```
1
2
3  #include<iostream>
4  #include<fstream>
5  #include<cctype>
6  #include<iomanip>
7  using namespace std;
8
```

**iostream** is the predefined library function used for input and output also called as header files. **iostream** is the header file which contains all the functions of program like cout, cin etc. and **#include** tells the preprocessor to **include** these header file in the program. Declares objects that control reading from and writing to the standard streams. This is often the only header you need to include to perform input and output from a C++ program.

**File streams include** two member functions specifically designed to read and write binary data sequentially: write and read . The first one ( write ) is a member function of ostream (inherited by ofstream ). And read is a member function of istream (inherited by ifstream ). Objects of class **fstream** have both.

**Cctype library.** One of the oldest and most useful **C++ libraries** is the Character Type **library** inherited from ANSI C. You use these function to classify characters by their type and they work on even weird character sets like EBCDIC. On the other hand they don't work on strings or arrays of characters. C character classification is an operation provided by a group of functions in the ANSI C Standard Library for the C programming language. These functions are used to test characters for membership in a particular class of characters, such as alphabetic characters, control characters, etc.

**iomanip** is a standard library used for formatting your output. Based on where and how you want to redirect output of your program you can choose to format it to make it look more presentable. For example say if you want to print a table of positive integers in n rows x 3 columns format. The greatest integer in the data set determines the column width but say you only know this at the run time then you could use `setw(x)` function from `iomanip` library to set the column width. For example if your data set looks like `A={1,3,1000,4,503,60}`, you may decide to set column width to 4 (highest number of digits that lie in columns 0 and 1 and add 1 to that) and print your data set in 2 x 3 matrix. This is just an illustration. You may choose any other scheme to set column width and you may choose any other IO stream than `stdio` to relay your output.

## Functions:

We have used different functions in our program. These functions are called whenever the requested input from user matches the respective switch case. The functions we used in the program are as below.

```
void create_account(); //function to get data from user
void show_account() const; //function to show data on screen
void modify(); //function to add new data
void dep(int); //function to accept amount and add to balance amount
void draw(int); //function to accept amount and subtract from balance amount
void report() const; //function to show data in tabular format
int retacno() const; //function to return account number
int retdeposit() const; //function to return balance amount
char rettype() const; //function to return type of account
```

## File Handling:

In C++, files are mainly dealt by using three classes `fstream`, `ifstream`, `ofstream` available in `fstream` headerfile.

`ofstream`: Stream class to write on files

`ifstream`: Stream class to read from files

`fstream`: Stream class to both read and write from/to files.

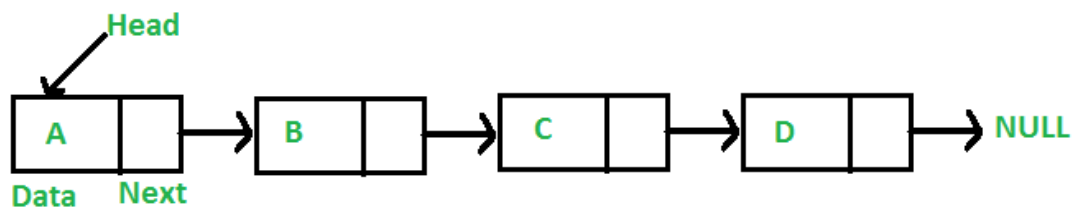
Now the first step to open the particular file for read or write operation. We can open file by

1. passing file name in constructor at the time of object creation
2. using the open method

In our program, we edit a other file in which our account numbers and other data is stored. thus, if we execute the program later, our old data will still be saved.

## Storage of data in Linked List:

A linked list is a linear data structure, in which the elements are not stored at contiguous memory locations. The elements in a linked list are linked using pointers as shown in the below image:

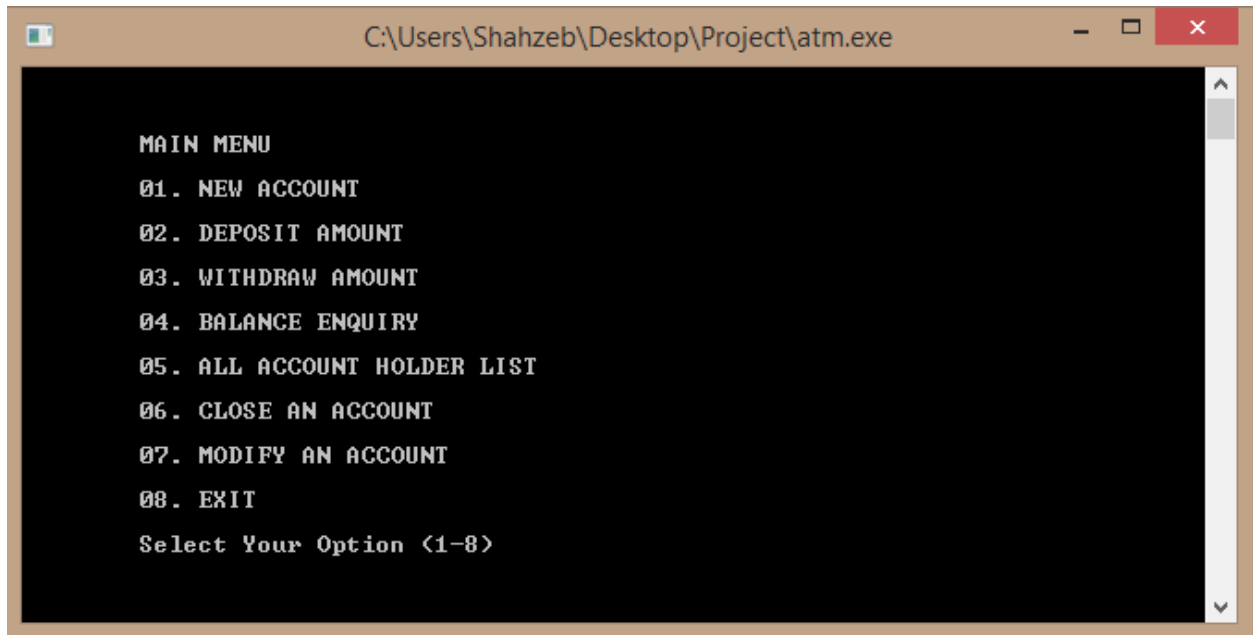


In simple words, a linked list consists of nodes where each node contains a data field and a reference(link) to the next node in the list.

In our program, our linked list has the account number , the name , the account type and the balance of the account.

## Features Of Program:

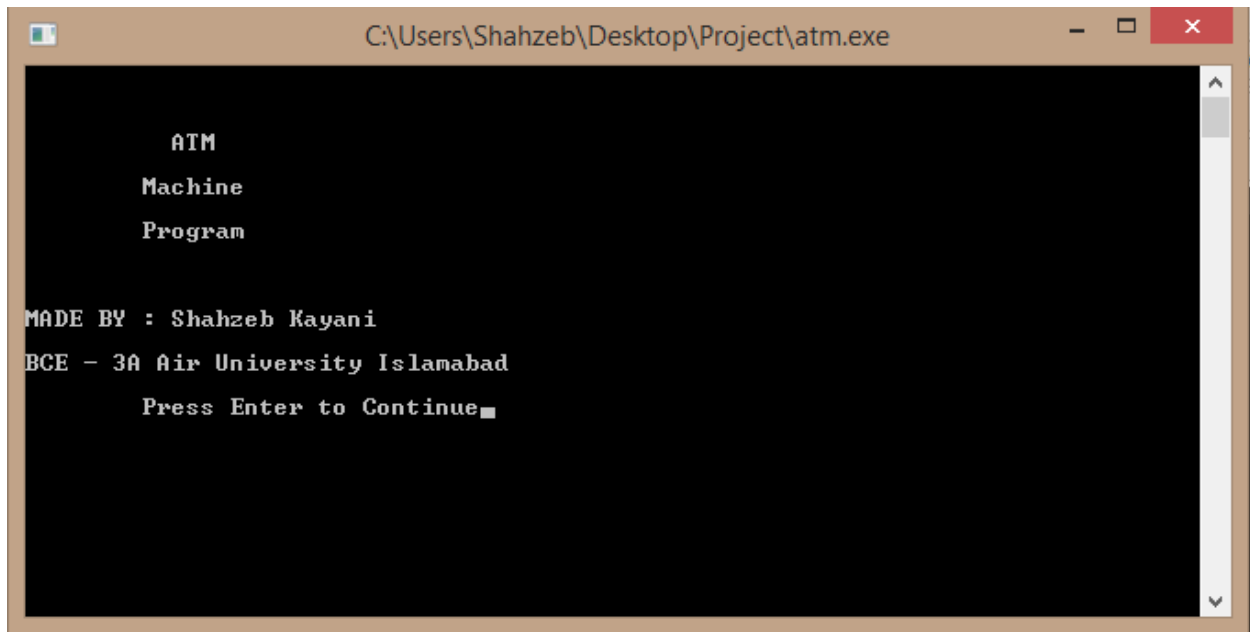
Our program performs the following operations.



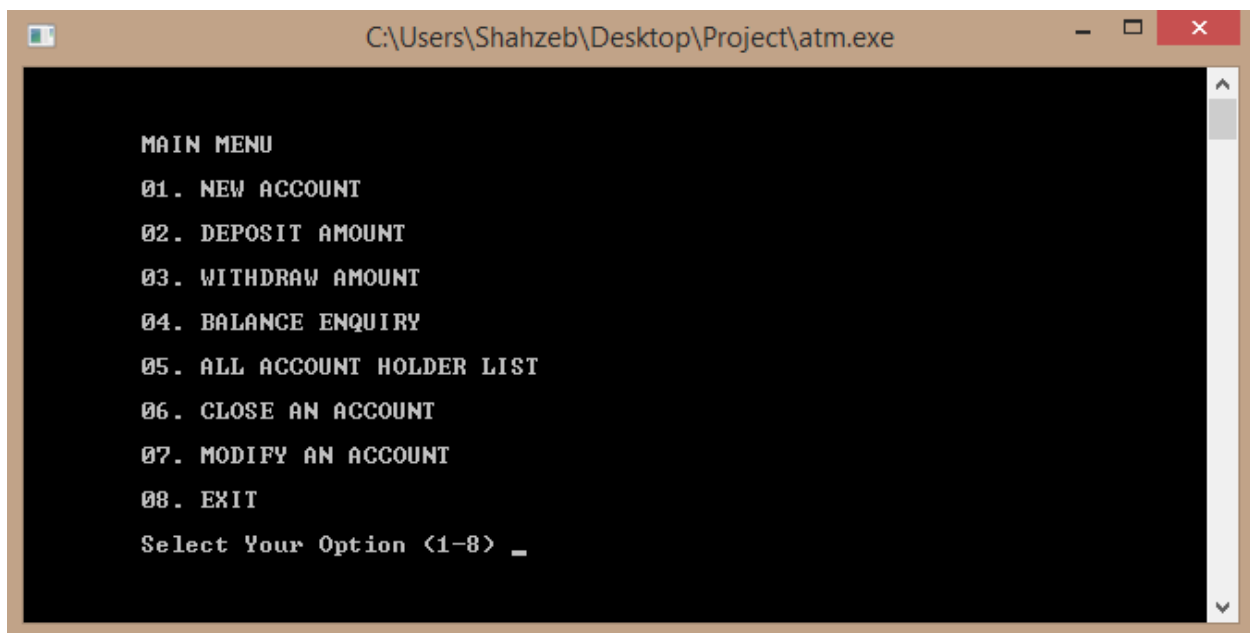
**To further** elaborate our program, we can say that you can create a new account, deposit/withdraw amount, see all other account holders list, enquire your balance, remove an account from the list, edit the contents of an account and last but not the least, to exit the program.

## Execution of the Program:

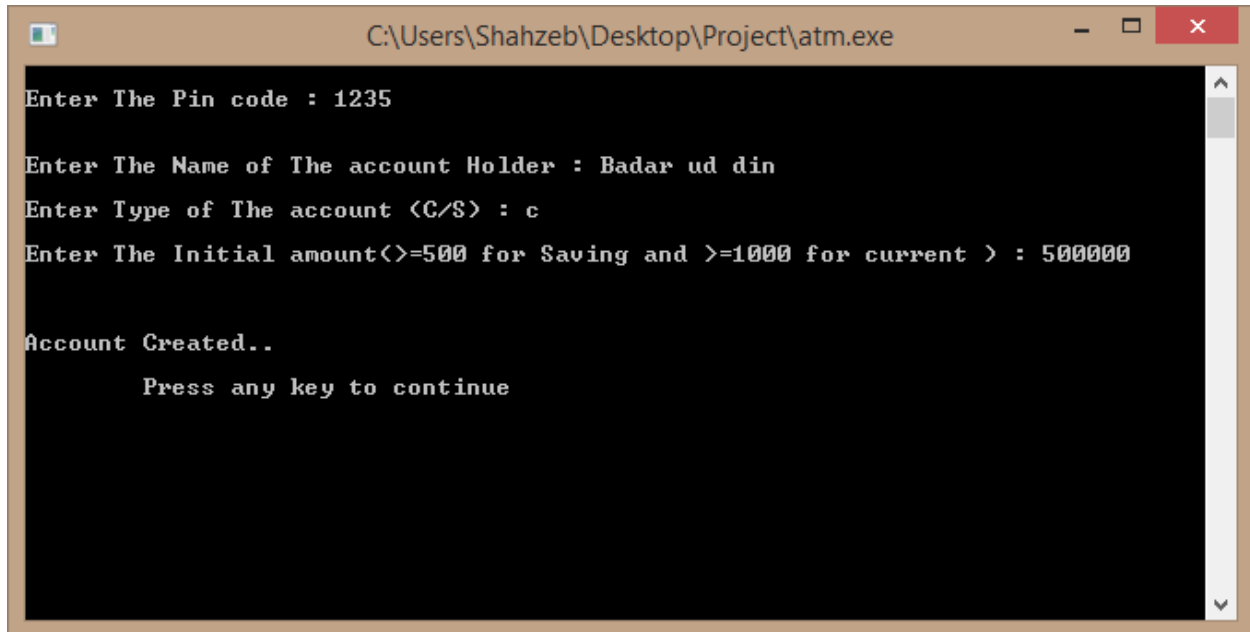
The Execution of the program is as follows:



**This Is The Main Screen**



Pressed 1 and,



```
C:\Users\Shahzeb\Desktop\Project\atm.exe

Enter The Pin code : 1235

Enter The Name of The account Holder : Badar ud din
Enter Type of The account (C/S) : c
Enter The Initial amount(>=500 for Saving and >=1000 for current ) : 500000

Account Created..

    Press any key to continue
```



Back to main screen and pressed 6.

```
C:\Users\Shahzeb\Desktop\Project\atm.exe

ACCOUNT HOLDER LIST
=====
Pin code no.      NAME      Type      Balance
=====
1455              Usman      S 50000
1233              Ather      C 14000
1556              ali        C20000000000
1235              Badar ud  C 50000
11111             Shahzeb   C161209
Kayani

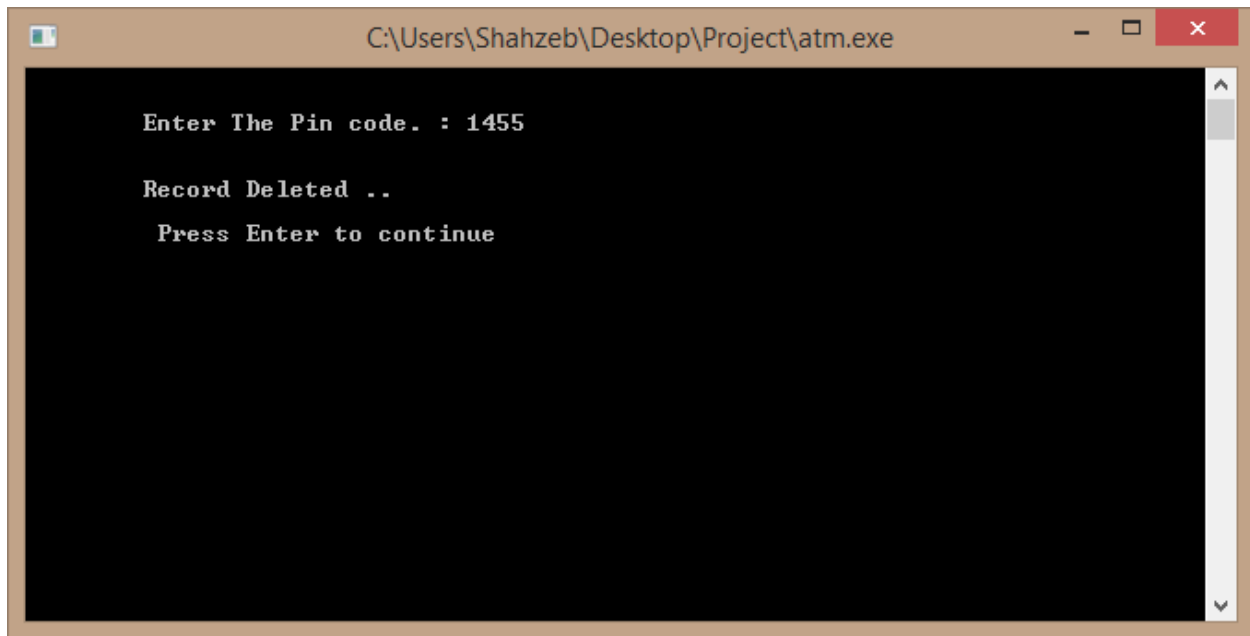
-

C:\Users\Shahzeb\Desktop\Project\atm.exe

Enter The Pin code. : 11111
Pin code. : 11111
Account Holder Name : Shahzeb Kayani
Type of Account : C
Balance amount : 171209

TO WITHDRAW AMOUNT
Enter The amount to be withdraw
10000

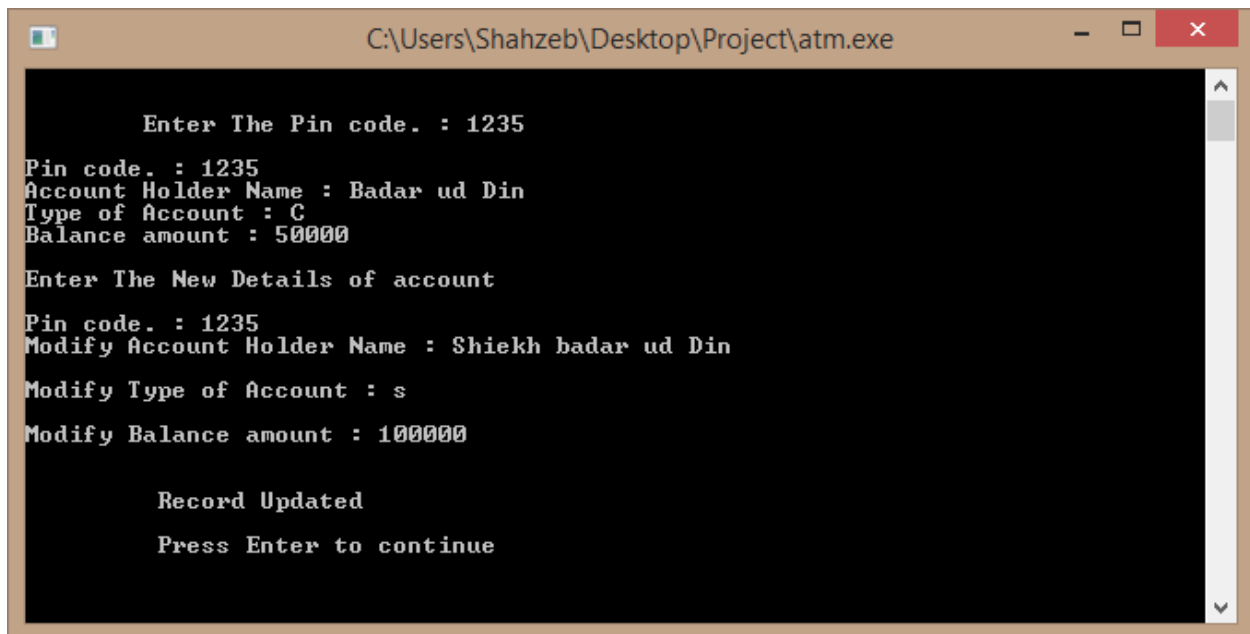
Record Updated
Press Enter to continue
```



```
Enter The Pin code. : 1455

Record Deleted ..

Press Enter to continue
```

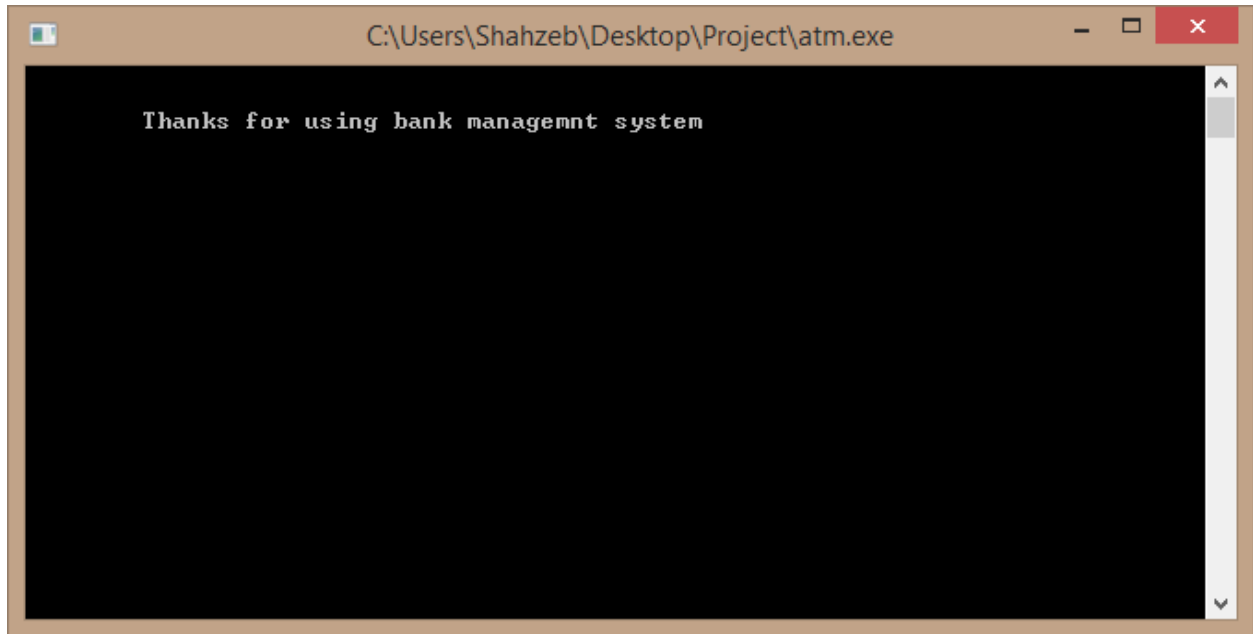


```
Enter The Pin code. : 1235
Pin code. : 1235
Account Holder Name : Badar ud Din
Type of Account : C
Balance amount : 50000

Enter The New Details of account
Pin code. : 1235
Modify Account Holder Name : Shiekh badar ud Din
Modify Type of Account : s
Modify Balance amount : 100000

Record Updated

Press Enter to continue
```



😊-Thank you - 😊