

## **Bank Management System**

The Bank Account Management System is an application for maintaining a person's account in a bank. In this project I tried to show the working of a banking account system and cover the basic functionality of a Bank Account Management System. To develop a project for solving financial applications of a customer in a banking environment in order to nurture the needs of an end banking user by providing various ways to perform banking tasks.

This project contains mainly two classes: Customer and Account. The relationship between these two classes is 'has-a' relationship which is nothing but the strict composition relationship. Means accounts can't exist without customers. For an account there is a need of at least one customer.

The functionalities which include in this project are:

- 1) File handling
- 2) Dynamic binding
- 3) Virtual classes
- 4) Inheritance
- 5) Operator overloading

### **UML Diagrams:**

UML behavioral diagrams visualize, specify, construct, and document the dynamic aspects of a system. The behavioral diagrams are categorized as follows: use case diagrams, interaction diagrams, state-chart diagrams, and activity diagrams.

### **Use Case Diagram:**

Use case diagrams present an outside view of the manner the elements in a system behave and how they can be used in the context.

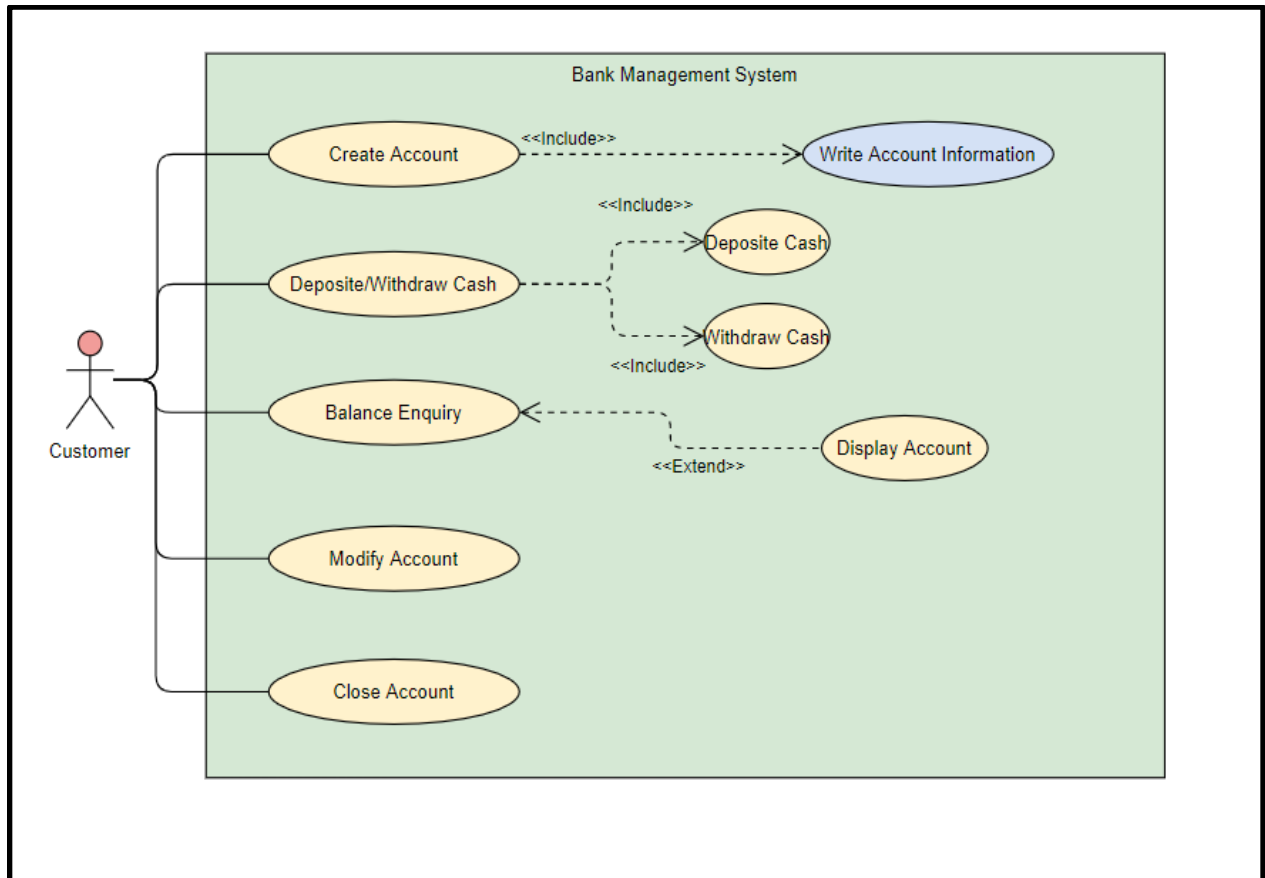
Use case diagrams comprise of –

- Use cases
- Actors
- Relationships like dependency, generalization, and association

Use case diagrams are used –

- To model the context of a system by enclosing all the activities of a system within a rectangle and focusing on the actors outside the system by interacting with it.

- To model the requirements of a system from the outside point of view.



**Fig-1: Use Case Diagram**

Above diagram is the representation of bank management system as a use case diagram.

### Structural Diagrams:

The structural diagrams represent the static aspect of the system. These static aspects represent those parts of a diagram, which forms the main structure and are therefore stable.

These static parts are represented by classes, interfaces, objects, components, and nodes. The four structural diagrams are –

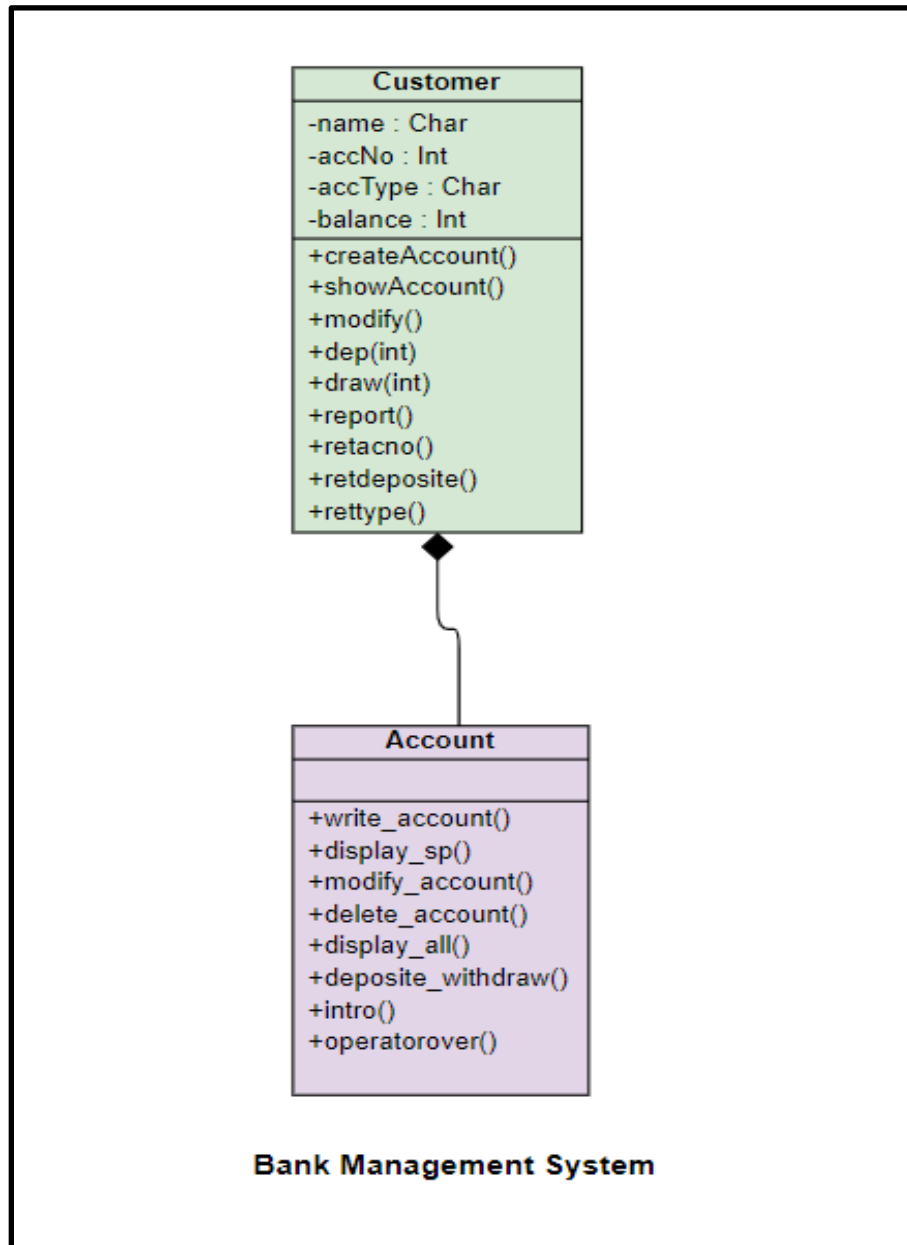
- Class diagram
- Object diagram
- Component diagram
- Deployment diagram

## Class Diagram:

Class diagrams are the most common diagrams used in UML. Class diagram consists of classes, interfaces, associations, and collaboration. Class diagrams basically represent the object-oriented view of a system, which is static in nature.

Active class is used in a class diagram to represent the concurrency of the system.

Class diagram represents the object orientation of a system. Hence, it is generally used for development purposes. This is the most widely used diagram at the time of system construction.

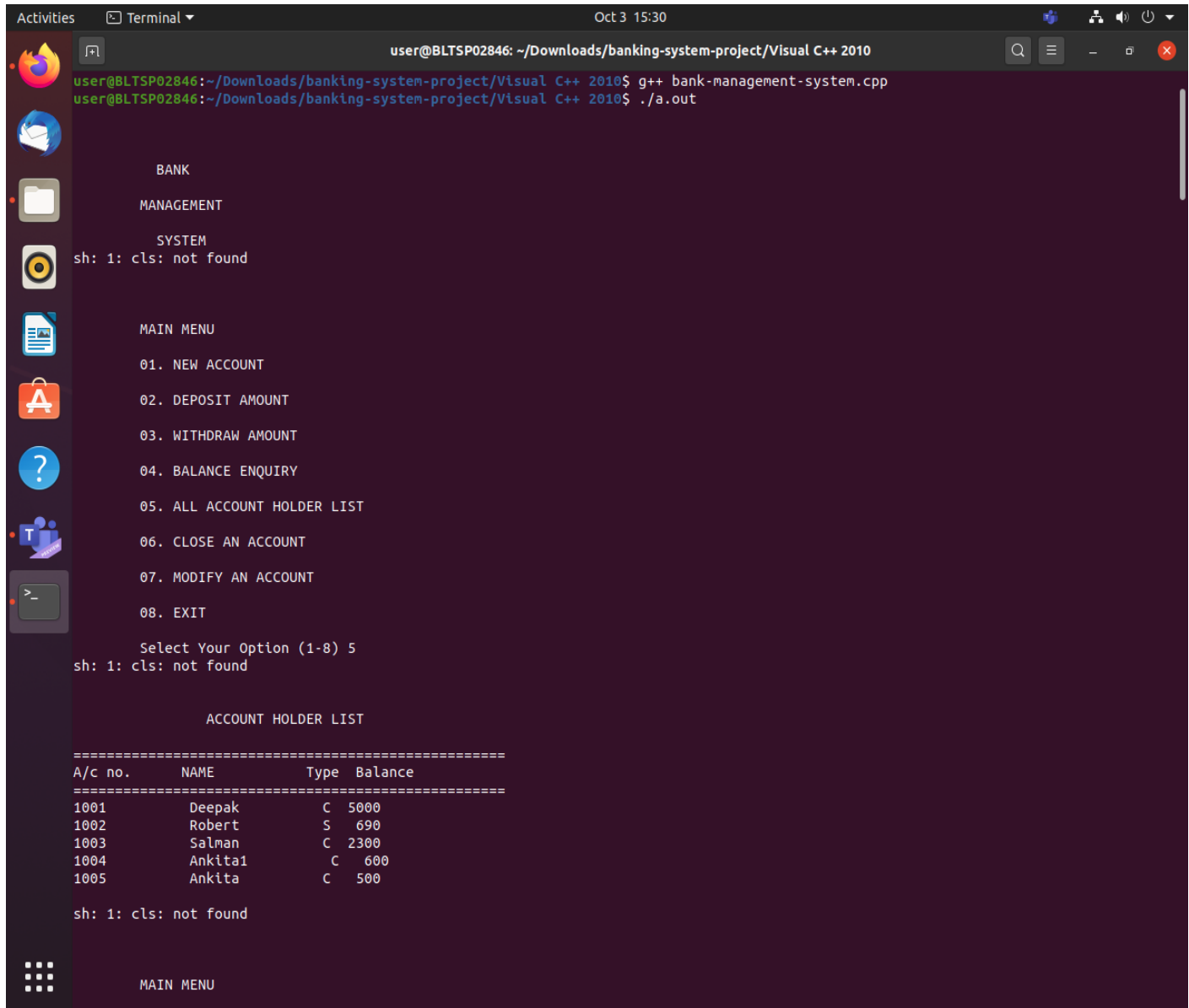


**Fig-2: Class Diagram**

Above diagram is the representation of the bank management system as the class diagram.

## Project Demonstration:

### Step 1:



```
user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010
user@BLTSP02846:~/Downloads/banking-system-project/Visual C++ 2010$ g++ bank-management-system.cpp
user@BLTSP02846:~/Downloads/banking-system-project/Visual C++ 2010$ ./a.out

      BANK
      MANAGEMENT
      SYSTEM
sh: 1: cls: not found

      MAIN MENU

      01. NEW ACCOUNT
      02. DEPOSIT AMOUNT
      03. WITHDRAW AMOUNT
      04. BALANCE ENQUIRY
      05. ALL ACCOUNT HOLDER LIST
      06. CLOSE AN ACCOUNT
      07. MODIFY AN ACCOUNT
      08. EXIT

      Select Your Option (1-8) 5
sh: 1: cls: not found

      ACCOUNT HOLDER LIST

=====
A/c no.   NAME      Type  Balance
=====
1001      Deepak      C   5000
1002      Robert      S    690
1003      Salman      C   2300
1004      Ankita1     C    600
1005      Ankita      C    500

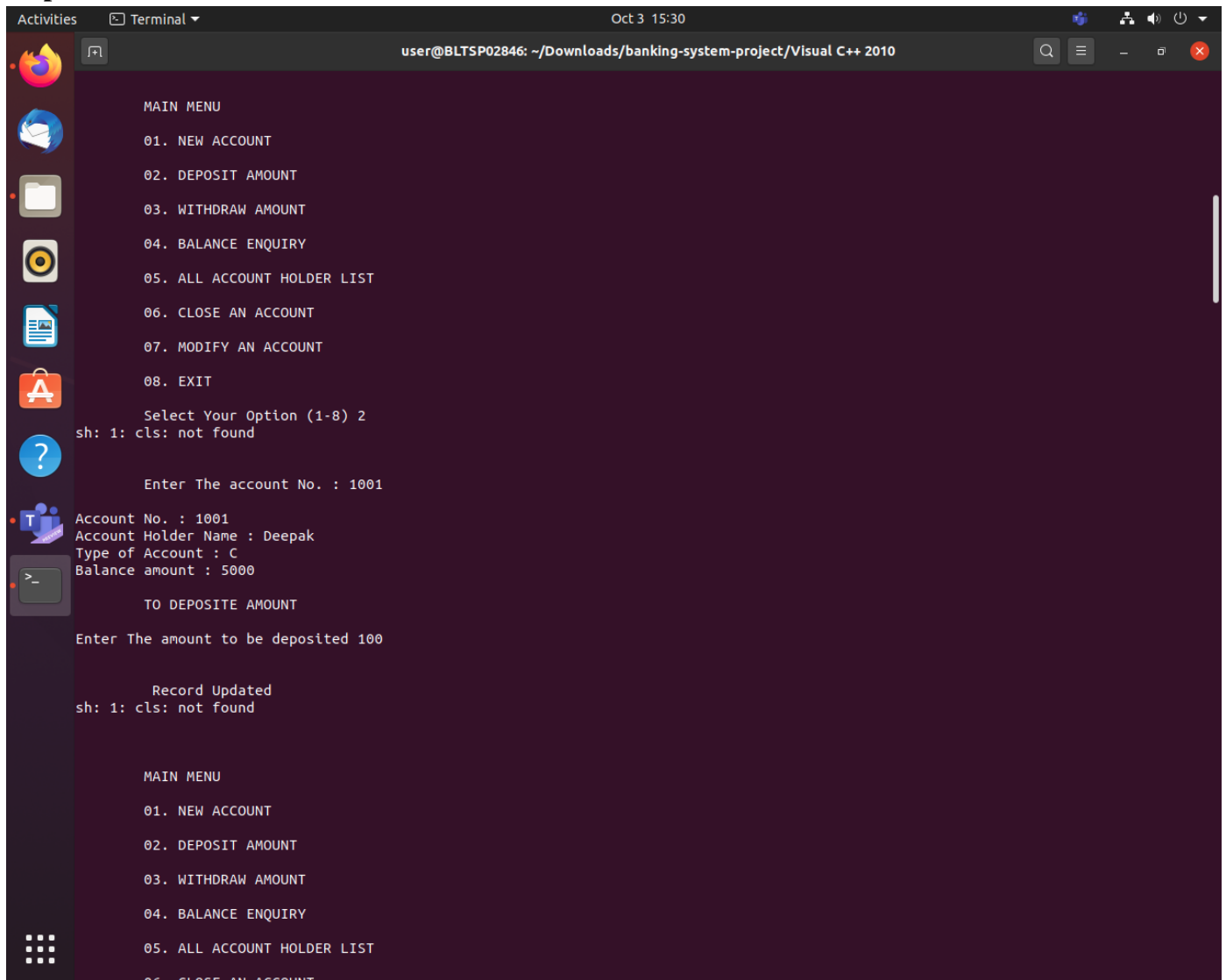
sh: 1: cls: not found

=====
MAIN MENU
```

**Fig-3: Displaying account holder list**

In the above figure we can see all account holder list with account number, name, type of account and balance.

## Step: 2



The image shows a terminal window titled "user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010". The terminal displays the following text:

```
MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT

Select Your Option (1-8) 2
sh: 1: cls: not found

Enter The account No. : 1001

Account No. : 1001
Account Holder Name : Deepak
Type of Account : C
Balance amount : 5000

TO DEPOSITE AMOUNT

Enter The amount to be deposited 100

Record Updated
sh: 1: cls: not found

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
```

The terminal window includes a sidebar with application icons (Firefox, Mail, Files, etc.) and a top bar with system information (Activities, Terminal, Oct 3 15:30).

**Fig-4: Deposit amount**

```
Activities Terminal Oct 3 15:30 user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT
Select Your Option (1-8) 4
sh: 1: cls: not found

Enter The account No. : 1001

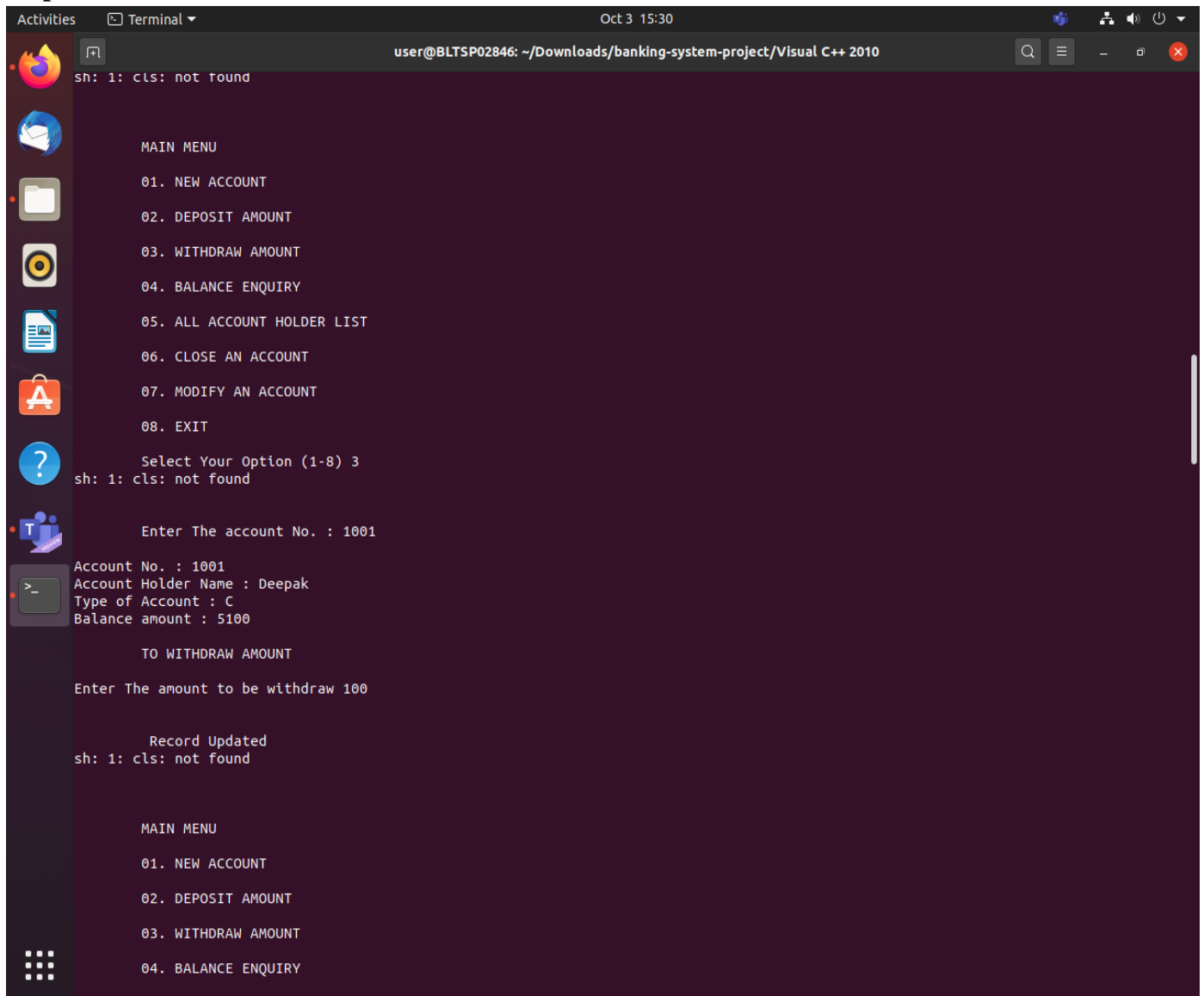
BALANCE DETAILS
Account No. : 1001
Account Holder Name : Deepak
Type of Account : C
Balance amount : 5100
sh: 1: cls: not found

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT
```

**Fig-5: Balance Enquiry**

Here, we can see option 2 is to get selected to deposit the amount. Initially amount for 1001 account number was 5000 after deposit it became 5100.

### Step: 3



The image shows a terminal window titled "Terminal" with the path "user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010". The terminal output is as follows:

```
sh: 1: cls: not found

MAIN MENU

01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT

Select Your Option (1-8) 3
sh: 1: cls: not found

Enter The account No. : 1001

Account No. : 1001
Account Holder Name : Deepak
Type of Account : C
Balance amount : 5100

TO WITHDRAW AMOUNT

Enter The amount to be withdraw 100

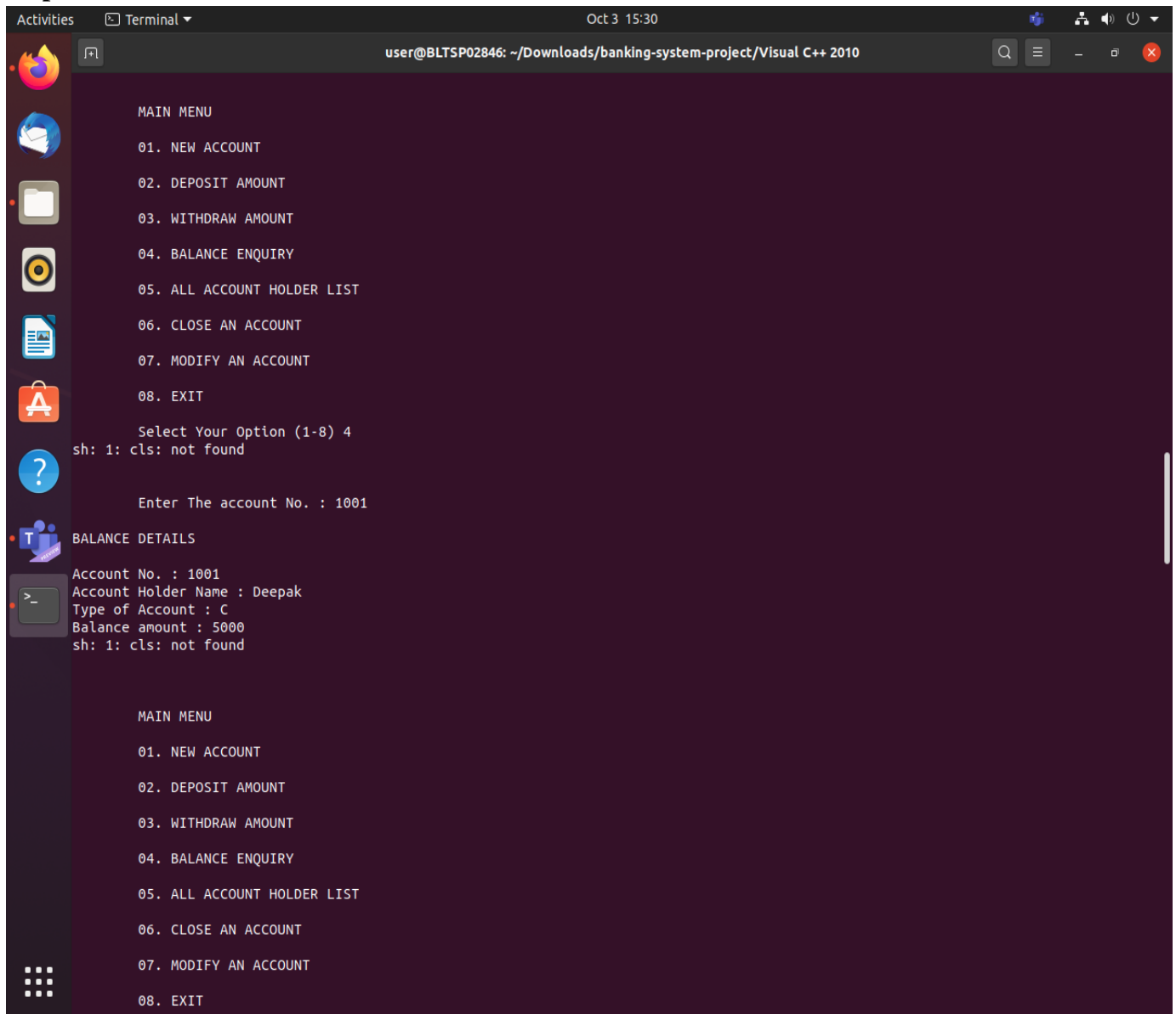
Record Updated
sh: 1: cls: not found

MAIN MENU

01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
```

**Fig-6: Withdraw amount**

## Step: 4

A terminal window titled "user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010" is shown. The terminal displays a "MAIN MENU" with options 01 to 08. Option 04, "BALANCE ENQUIRY", is selected. The prompt "Select Your Option (1-8) 4" is followed by "sh: 1: cls: not found". Then, "Enter The account No. : 1001" is entered. The terminal shows "BALANCE DETAILS" for account 1001, with details: "Account No. : 1001", "Account Holder Name : Deepak", "Type of Account : C", and "Balance amount : 5000". Another "sh: 1: cls: not found" message appears. The "MAIN MENU" is displayed again at the bottom of the terminal.

```
user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT

Select Your Option (1-8) 4
sh: 1: cls: not found

Enter The account No. : 1001

BALANCE DETAILS
Account No. : 1001
Account Holder Name : Deepak
Type of Account : C
Balance amount : 5000
sh: 1: cls: not found

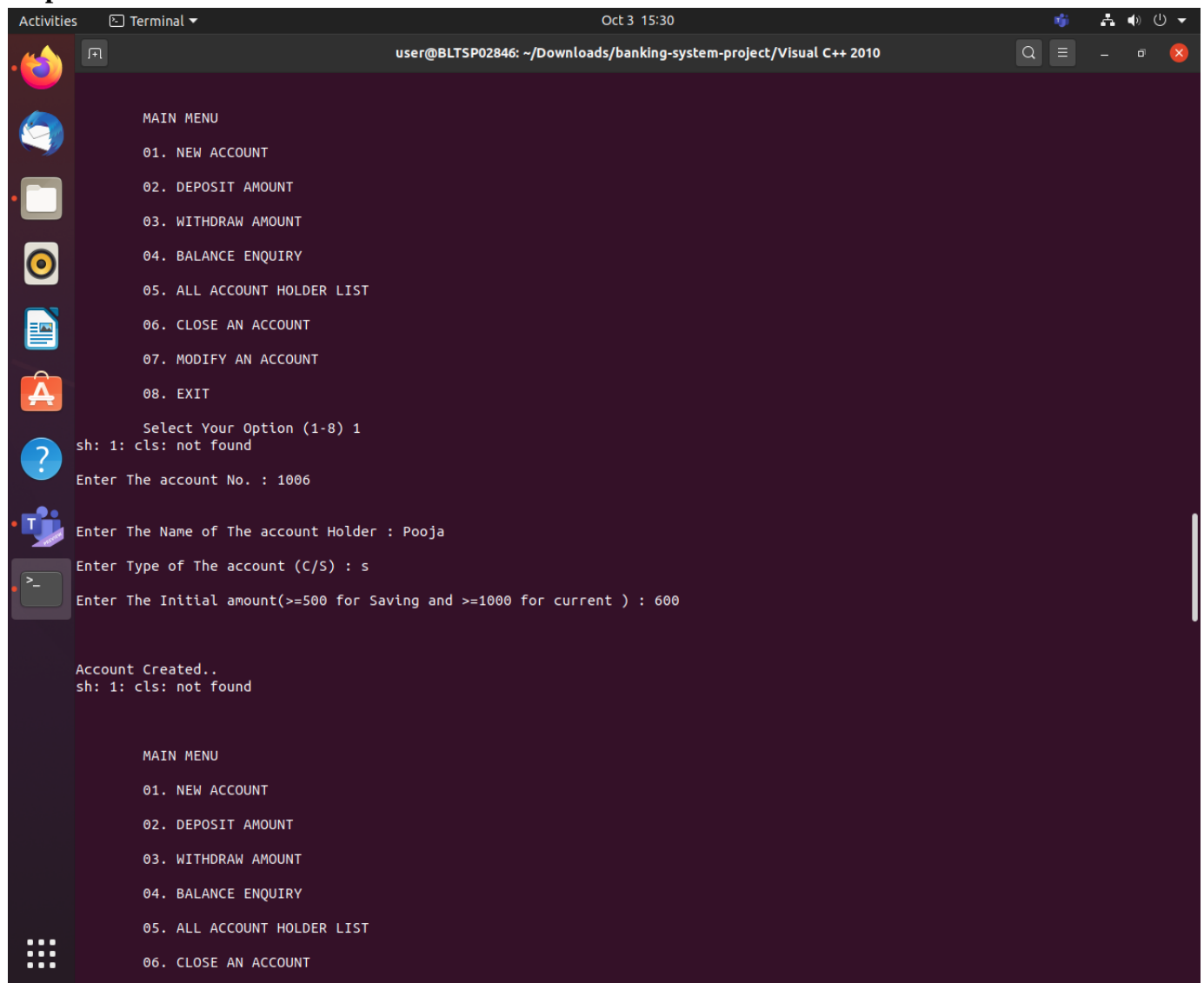
MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT
```

**Fig-7: Balance Enquiry**

Here, we can see option 3 is to get selected to withdraw the amount. Initially amount for 1001 account number was 5100 after withdrawing it became 5000.



## Step: 5



The image shows a terminal window with a dark background and light-colored text. The window title bar indicates the user is 'user@BLTSP02846' and the current directory is '~/Downloads/banking-system-project/Visual C++ 2010'. The program output displays a 'MAIN MENU' with eight options. Option 01, 'NEW ACCOUNT', is selected. The program prompts for an account number (1006), the account holder's name (Pooja), the account type (s for saving), and the initial amount (600). After these inputs, it displays 'Account Created..' and then shows the 'MAIN MENU' again, with option 06, 'CLOSE AN ACCOUNT', visible at the bottom.

```
user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010

MAIN MENU

01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT

Select Your Option (1-8) 1
sh: 1: cls: not found
Enter The account No. : 1006
Enter The Name of The account Holder : Pooja
Enter Type of The account (C/S) : s
Enter The Initial amount(>=500 for Saving and >=1000 for current ) : 600

Account Created..
sh: 1: cls: not found

MAIN MENU

01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
```

**Fig-7: Create new account**

```
Activities Terminal Oct 3 15:30 user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT

Select Your Option (1-8) 5
sh: 1: cls: not found

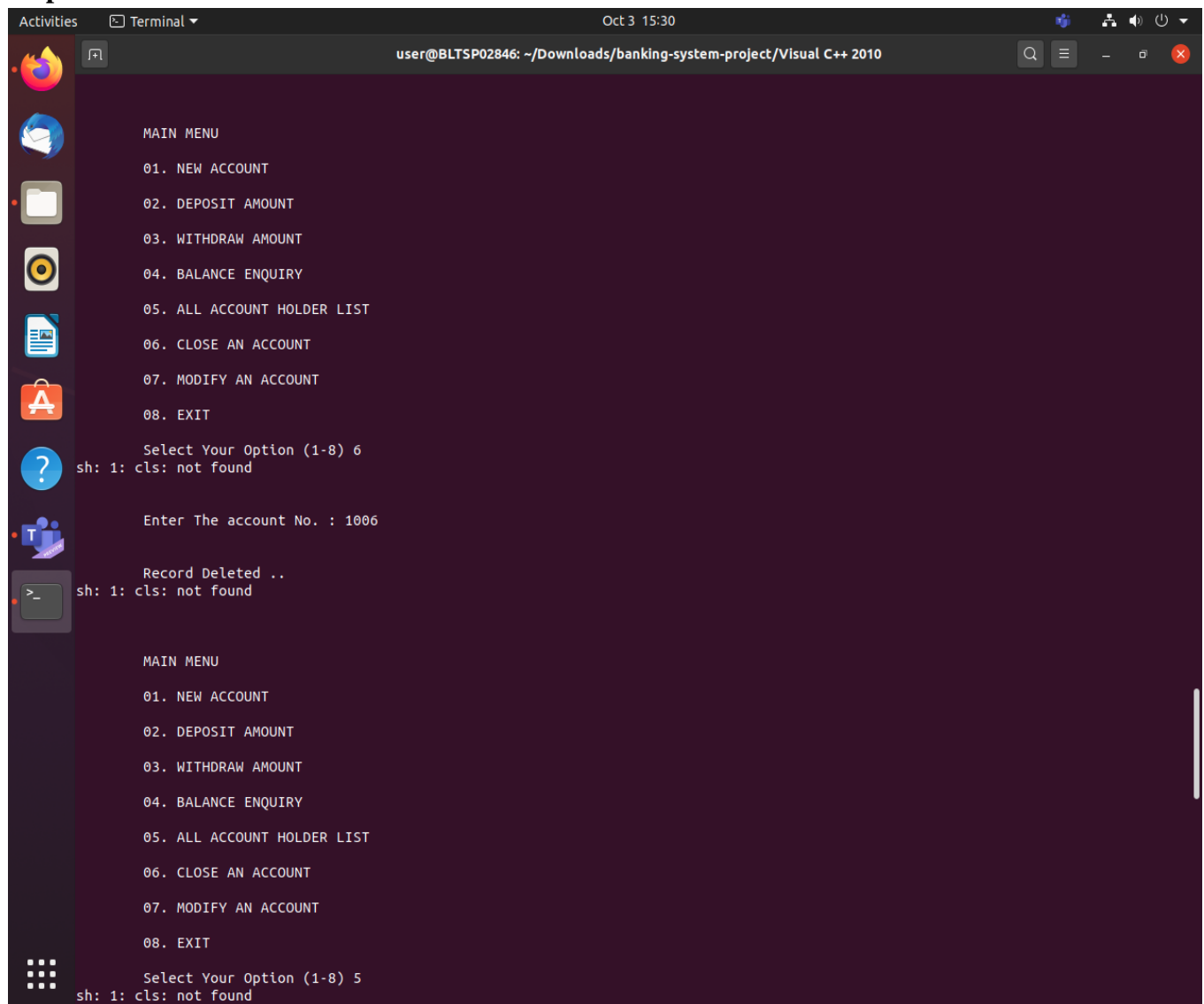
ACCOUNT HOLDER LIST
=====
A/c no.  NAME      Type  Balance
=====
1001     Deepak      C    5000
1002     Robert      S     690
1003     Salman      C    2300
1004     Ankita1     C     600
1005     Ankita      C     500
1006     Pooja       S     600

sh: 1: cls: not found

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
```

**Fig-7: All account holder list after creating new account**

## Step: 6



The image shows a terminal window titled "user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010". The terminal displays a banking system menu with the following options:

```
MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT
```

The user selects option 6, and the terminal displays:

```
Select Your Option (1-8) 6
sh: 1: cls: not found
```

The user then enters the account number 1006, and the terminal displays:

```
Enter The account No. : 1006
```

The terminal then displays:

```
Record Deleted ..
sh: 1: cls: not found
```

The terminal then displays the menu again:

```
MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT
```

The user selects option 5, and the terminal displays:

```
Select Your Option (1-8) 5
sh: 1: cls: not found
```

**Fig-7: Remove an account**

```
Activities Terminal Oct 3 15:30 user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT

Select Your Option (1-8) 5
sh: 1: cls: not found

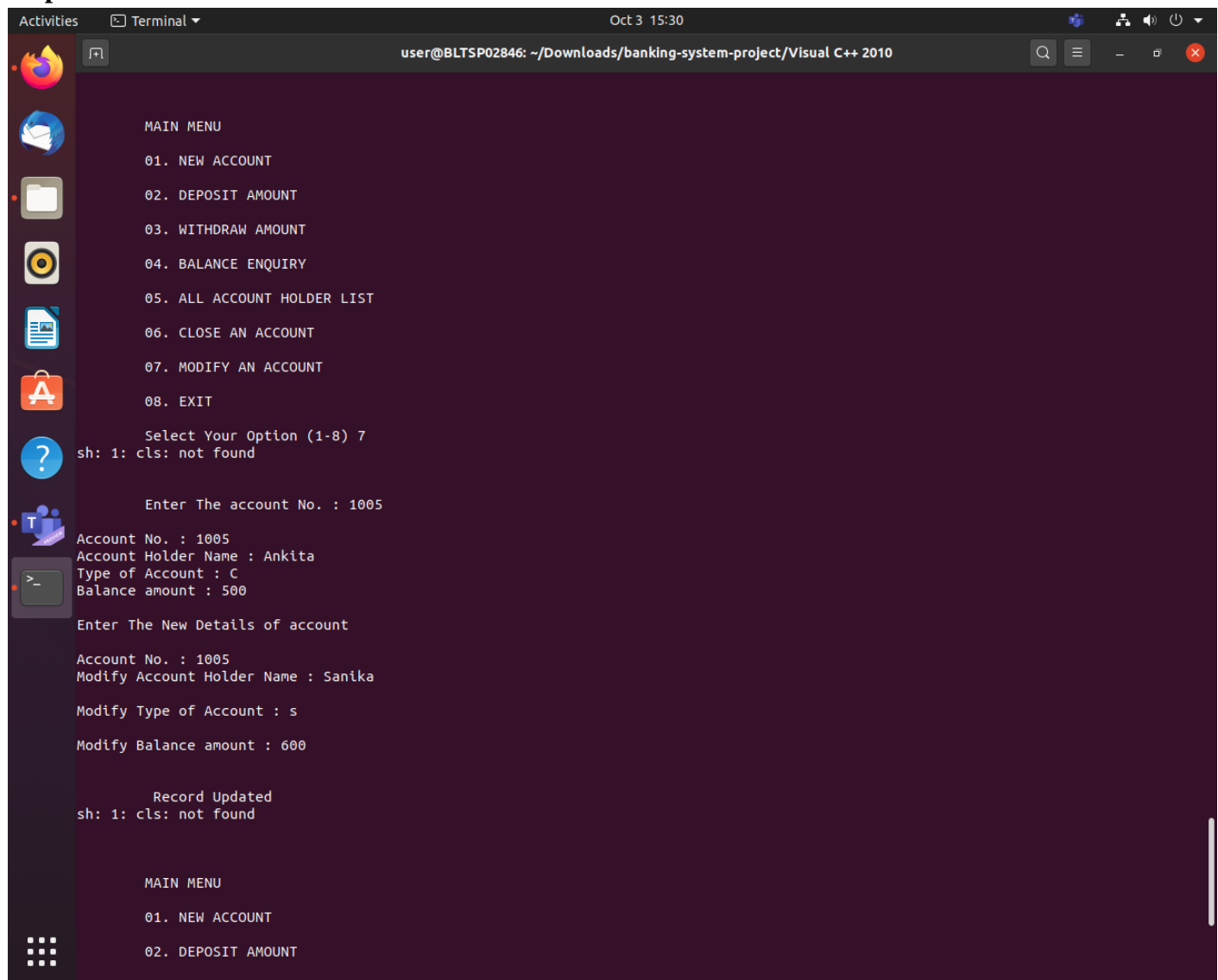
ACCOUNT HOLDER LIST
=====
A/c no.   NAME      Type  Balance
=====
1001      Deepak    C     5000
1002      Robert    S      600
1003      Salman    C    2300
1004      Ankita1    C      600
1005      Ankita     C      500

sh: 1: cls: not found

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
```

**Fig-7: All account holder list after removing an account**

## Step: 7



The image shows a terminal window titled "Terminal" with the address bar displaying "user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010". The terminal output shows the following sequence of events:

```
MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT

Select Your Option (1-8) 7
sh: 1: cls: not found

Enter The account No. : 1005
Account No. : 1005
Account Holder Name : Ankita
Type of Account : C
Balance amount : 500

Enter The New Details of account
Account No. : 1005
Modify Account Holder Name : Sanika
Modify Type of Account : s
Modify Balance amount : 600

Record Updated
sh: 1: cls: not found

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
```

**Fig-7: Modify an account**

```
Activities Terminal Oct 3 15:31 user@BLTSP02846: ~/Downloads/banking-system-project/Visual C++ 2010

Account No. : 1005
Account Holder Name : Ankita
Type of Account : C
Balance amount : 500

Enter The New Details of account

Account No. : 1005
Modify Account Holder Name : Sanika

Modify Type of Account : s

Modify Balance amount : 600

Record Updated
sh: 1: cls: not found

MAIN MENU
01. NEW ACCOUNT
02. DEPOSIT AMOUNT
03. WITHDRAW AMOUNT
04. BALANCE ENQUIRY
05. ALL ACCOUNT HOLDER LIST
06. CLOSE AN ACCOUNT
07. MODIFY AN ACCOUNT
08. EXIT

Select Your Option (1-8) 5
sh: 1: cls: not found

ACCOUNT HOLDER LIST

=====
A/c no.   NAME      Type  Balance
=====
1001      Deepak     C    5000
1002      Robert     S     690
1003      Salman     C   2300
1004      Ankita1    C     600
1005      Sanika     S     600
```

**Fig-7: All account holder list after modifying an account**

In this project first i have done one cpp file for the project. The project with this link-[Bank Project](#) working fine. All the operations are working fine with this link. After that i have done the modular programming but the operations are not working fine with this link-[Modular-bank project](#)