International Study Centre

*Report Title

by

Niraj chaudhary Tharu

For:Iyalla john Alamina

Date: 26\08\2020

Course: Software design

Details

Assessment Criteria

The student will be required to choose one out of four system specifications or any system of interest and must be discussed with tutor. To meet the marking criteria for the course work all systems must have extensive well written documentation of the following elements:

1. Use of object oriented analysis, design and implementation of classes obtained
2. Use of use case analysis to determine system requirements
3. Use of activity diagrams to model system behaviour and specific system outcomes.
4. Use of sequence diagram to demonstrate implementation system component interaction
5. Use of a class relationship diagram that reflects outputs of the use case, activity and sequence diagram
6. Use of wire frame models and/or package diagrams
7. A text user interface should be implemented for the system using the curses library
8. The use of low-level algorithms, programs, functions, pseudo-code and flowcharts.
9. Unit tests should be written for a minimum of 5 functions within the program.
10. Working functional and appropriately commented program that demonstrates a direct implementation of the system design.

3. Automated Teller Machine (ATM) simulation

Given 3 trials, the user is able to see his balance by entering a four-digit pin that must NEVER be displayed on screen but masked by the Asterix(*) character. A list of pins stored on the file system must be loaded to verify the pin. The user should be able to withdraw funds below asset limit and cannot redraw more than 3 times within a space of minutes.The balance from each pin should be determined each time the program is run and is a random value between 0 and 100. The user should also be allowed to change his pin at any time which should
be reflected in the file system.

Use case diagram of ATM machine:-
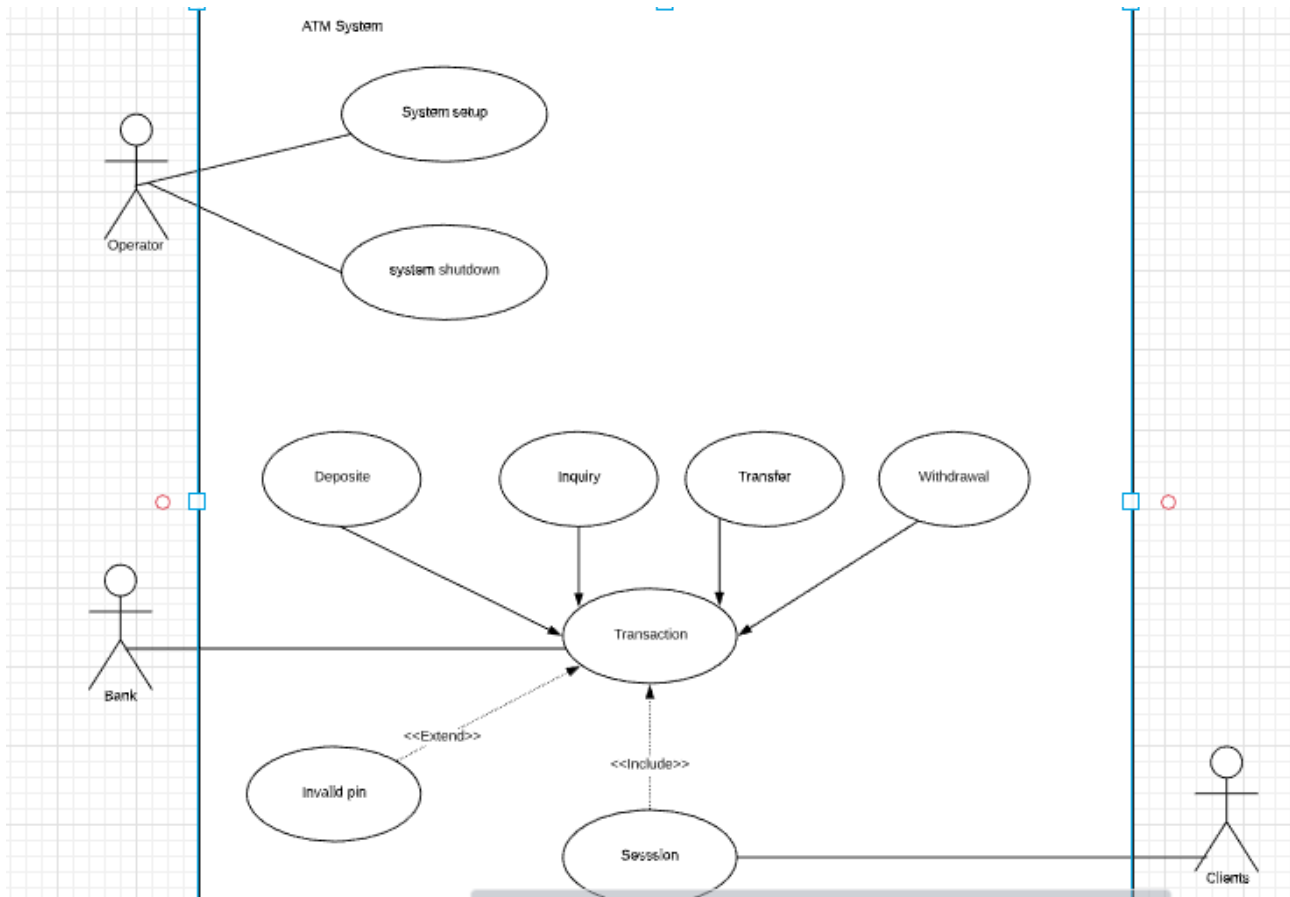
Description:-

Sequence diagram for ATM machine:-Here is the outline of Automated Teller Machine(ATM) which shows the activity of ATM.It explain how the machine operates.It shows the three entertainers associated with it that are bank,client and operative.Operative plays out the highlights of arrangement and shutdown being used case for provide guidance to activity for client. Bank plays out the activity of money store, withdrawal, request and move. What's more, customer can possibly admittance to their record if there

In this given ATM framework, there three entertainer bank, customers and employable. In employable, it provides order to arrangement and shutdown being used case for provide guidance to activity for client. Also, bank protect the exchange like store, withdrawal, move and request. On the off chance that client utilize legitimate pin number it gives right data and gives result positive. In the event that utilization off-base or invalid number it doesn't give any subtleties. And furthermore it keeps all the record of banking exchange. Nonetheless, customers right off the bat check their detail by utilizing meeting use case in << include>> into exchange for keeping their records. In an equivalent manner, when customer attempt to check balance they should utilize legitimate pin number through << extend>>. Which gives right data to client.
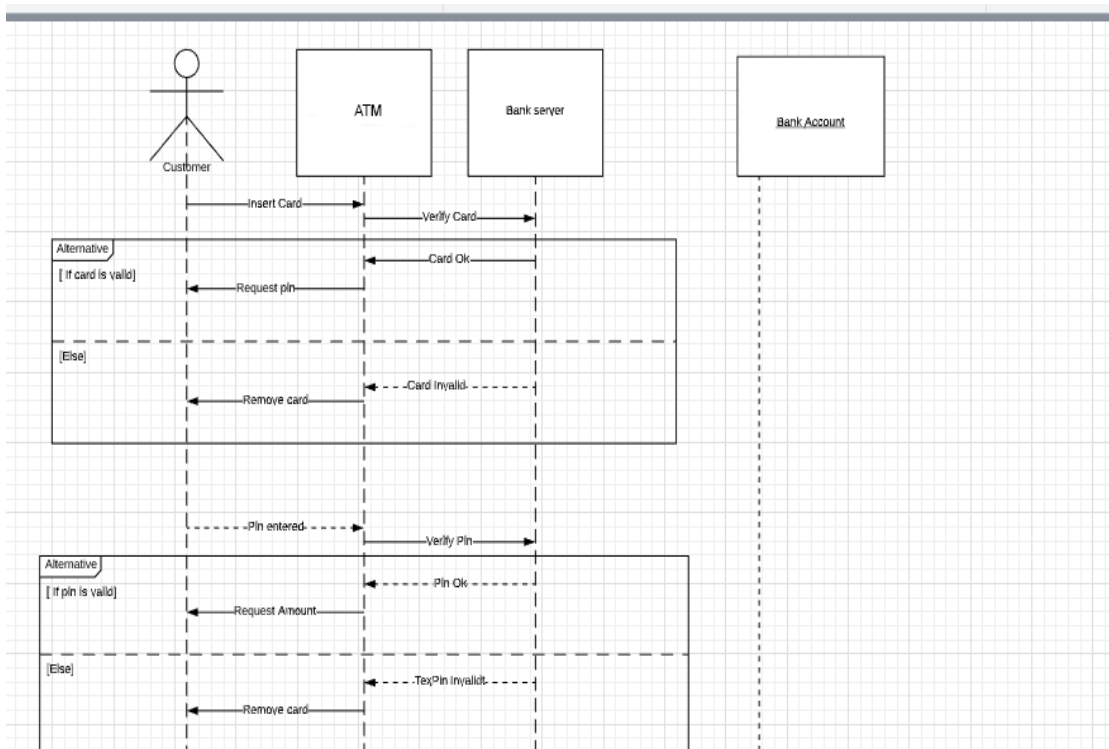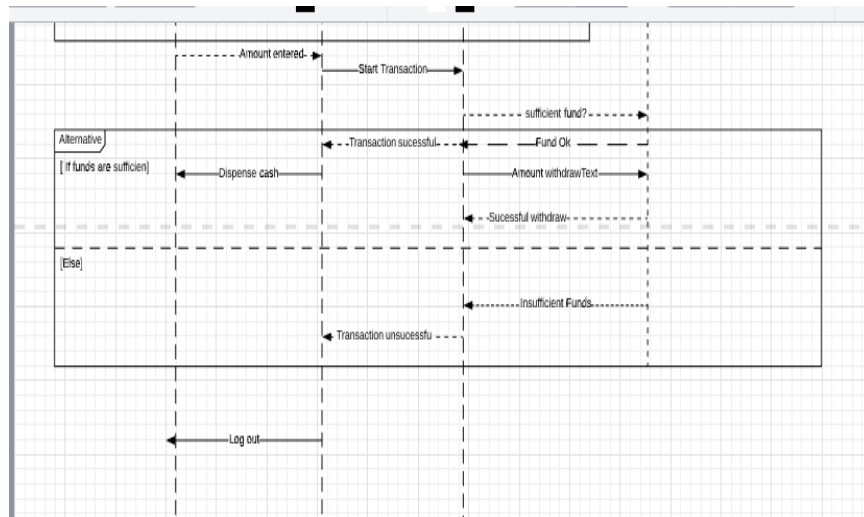
Description:-

In the given above sequence diagram,in first customer insert a card into ATM and Bank server verify card and ask for the pin code.IF the customer enter the correct pin the system will show its detail and gives customer access to their account. It shows the balance, and also allows the function of withdrawing money from the account.If the customer input the valid amount then the ATM machine will dispense the cash and prints out the bill.

Class diagram of ATM system (Machine):-

UML class diagram of ATM system
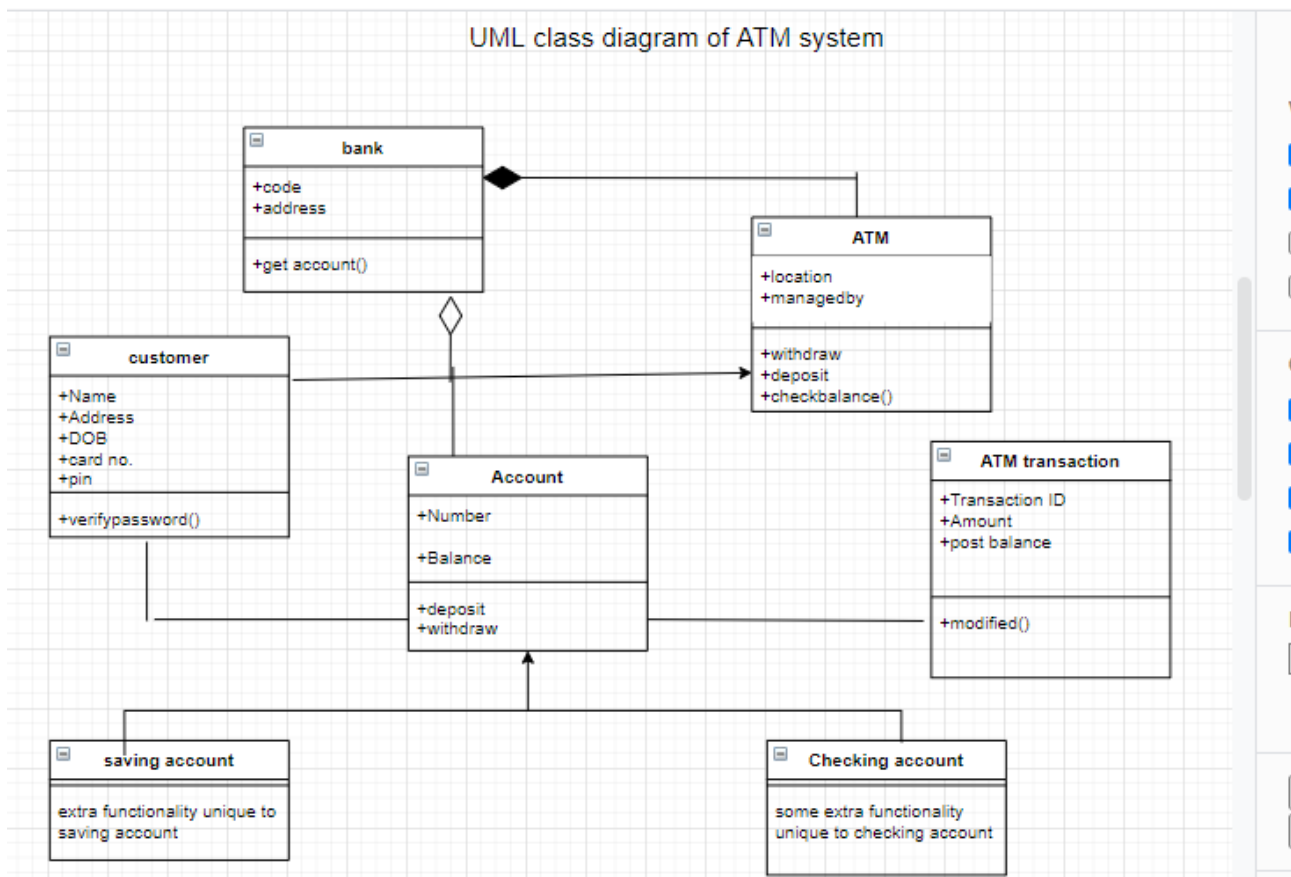
In given class chart of ATM machine there are five super class, for example, bank, ATM, Customer, Account and ATM exchange. In bank super class it incorporates two qualities and one strategy which all are in positive signs. Also, in ATM class it has two qualities and three strategies which remembers just for positives. In client class it conveyed name, address, DOB, card number and pin as a traits and checked secret word as a techniques. ATM exchange class incorporate exchange ID, Amount and post balance in qualities and in strategies it keeps just one altered class. Just as record super class it partitioned into two sub classes like sparing record and financial records In sparing record it has practically one of a kind to sparing and financial records it practically special to financial records.

Activity diagram of ATM system (machine):-
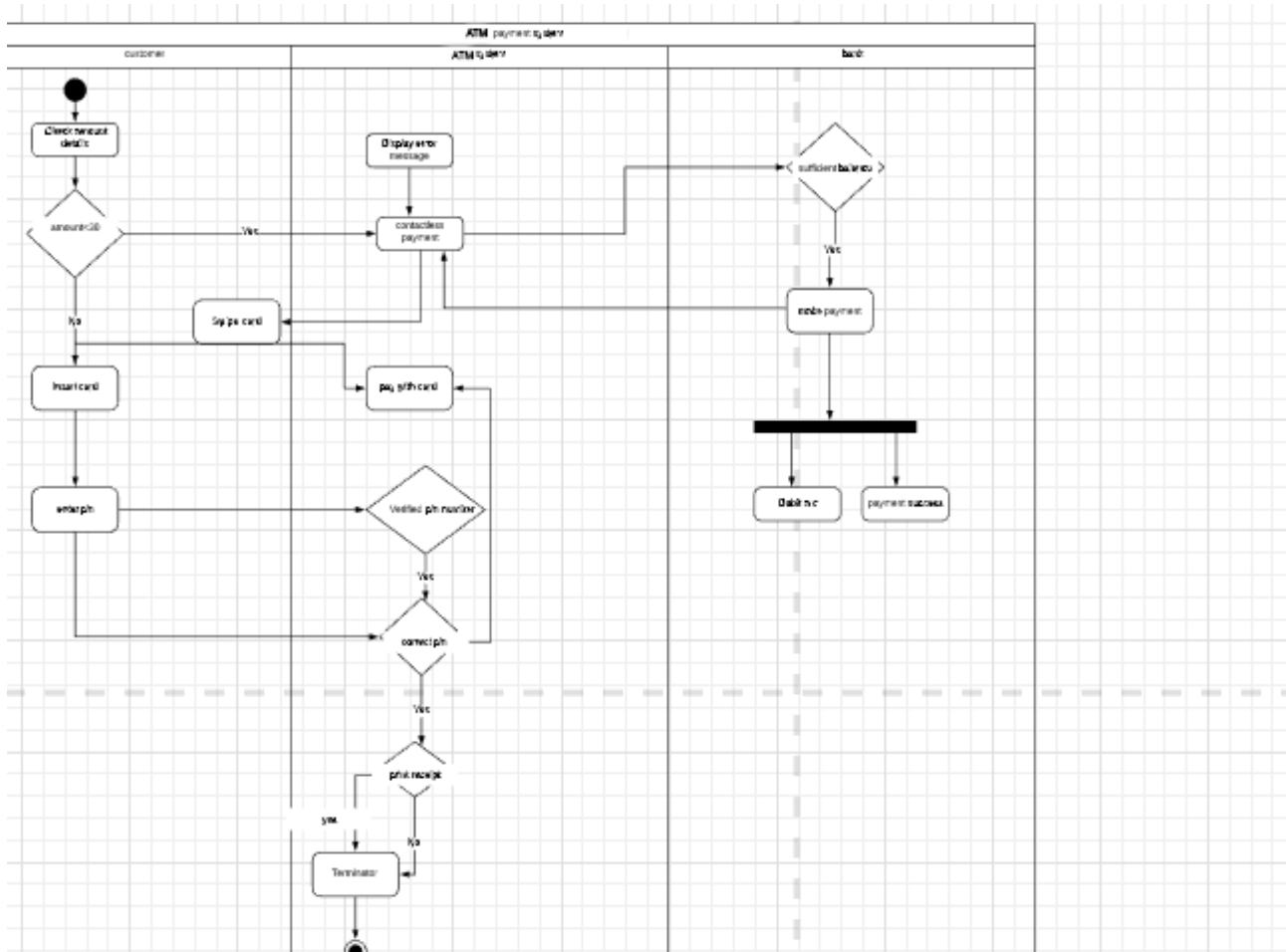
C++ programming coding for ATM machine:-

```cpp
#include<iostream>

using namespace std;

int main()

{

top:

int pin;

for (int i=0;i<3;i++)

{cout <<"PLease Enter your Pin\n";

cin>>pin;
```

```cpp
if (pin==1234)
{cout<<"Password Correct!!\n";

double balance = 1000;
double withdraw, deposit;

int n;

cout<<"\n";
cout<<" Weelcome!!\n";
cout<<" Automated Teller Machine "<<endl;
cout<<"Select option :\n";
cout<<"\n";
cout<<"1. Balance enquiry\n"
<<"2. Cash Withdraw \n"
<<"3. Cash Deposit \n"
<<"4. End \n"
<<"\n"
<<"Enter Option:";
cin>>n;
switch(n)
{
case 1:
cout<<"\n Balance Enquiry\n";
cout.setf(ios::fixed);
cout.setf(ios::showpoint);
cout.precision(2);
cout<<"\n Your current balance is $"<<balance<<endl;
```

```cpp
break;
case 2:
cout<<"\n Cash Withdrawl\n";
cout<<"Please Enter the Amount: $";
cin>>withdraw;
balance = balance - withdraw;
cout.setf(ios::fixed);
cout.setf(ios::showpoint);
cout.precision(2);
cout<<"Withdrawl amount is $"<<withdraw<<endl;
cout<<"Remainig amount is $"<<balance<<endl;
continue;
case 3:
cout<<"\n DEPOSIT\n";
cout<<"PLease Enter the amount: $";
cin>>deposit;
balance = balance + deposit;
cout.setf(ios::fixed);
cout.setf(ios::showpoint);
cout.precision(2);
cout<<"You have addes $"<<deposit<<endl;
cout<<"Your new current balance is $"<<balance<<endl;
continue;
case 4:
cout<<"\n EXIT \n";
break;
default:
cout<<"\n Invalid Option \n";
}
```

```cpp
break;

}

else

cout<<"Password incorrect\nPLease try agian\n";}

goto top;

return 0;

}
```

OUTPUT:

```
PLease Enter your Pin
1234
Password Correct!!

 Weelcome!!
 Automated Teller Machine
Select option :

1. Balance enquiry
2. Cash Withdraw
3. Cash Deposit
4. End

Enter Option:1

 Balance Enquiry

 Your current balance is $1000.00
PLease Enter your Pin
1234
Password Correct!!

 Weelcome!!
 Automated Teller Machine
Select option :

1. Balance enquiry
2. Cash Withdraw
3. Cash Deposit
4. End

Enter Option:2

 Cash Withdrawl
Please Enter the Amount: $600
Withdrawl amount is $600.00
Remainig amount is $400.00
PLease Enter your Pin
```