International Study Centre

*Report Title

by

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Date: 24\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, pseudocode 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

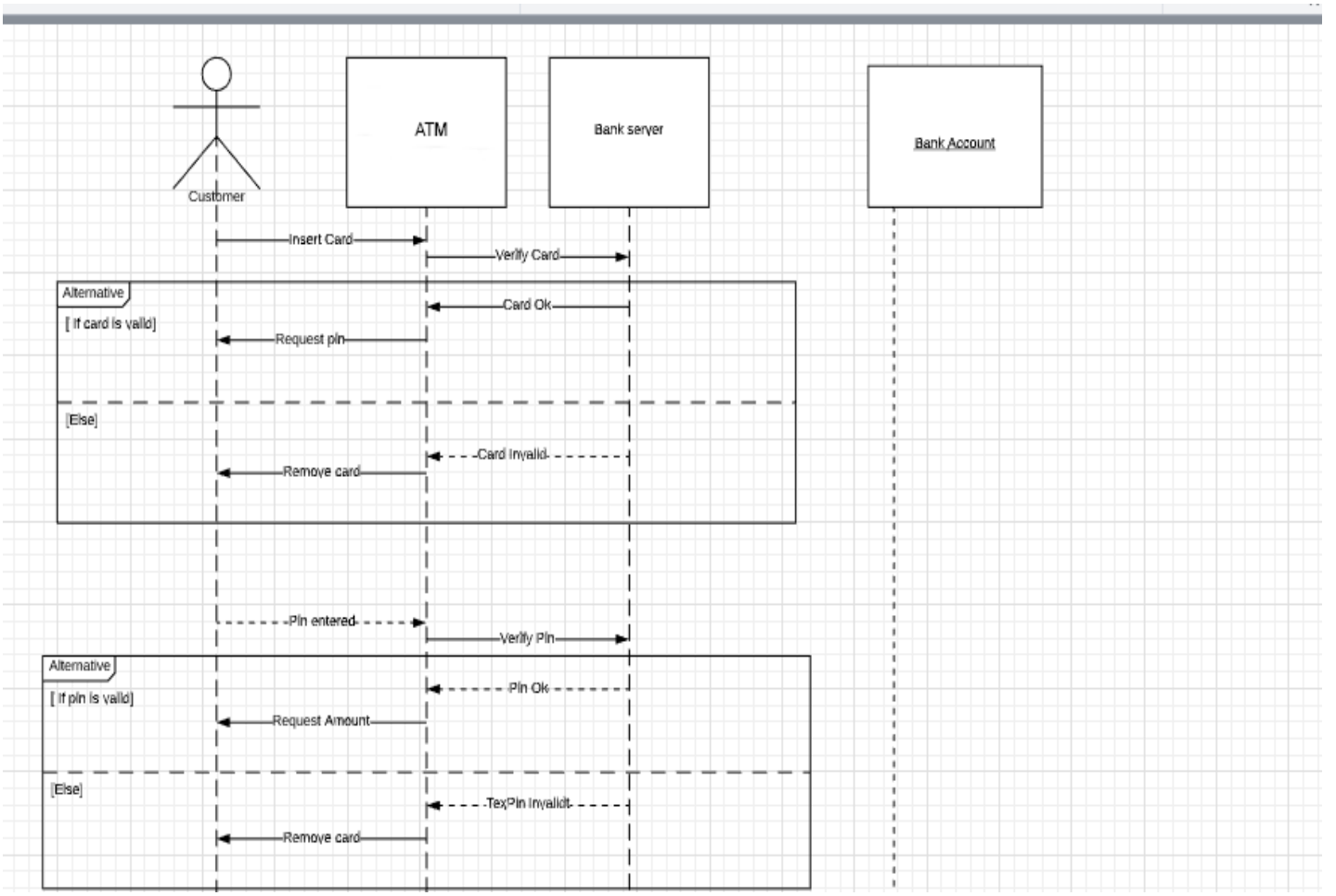
Given 3 trials, the user is able to see his balance by entering a four-digit pin that must NEVER be displayed on screen but masked by the Asterix(*) character. A list of pins stored on the file system must be loaded to verify the pin. The user should be able to withdraw funds below asset limit and cannot 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.

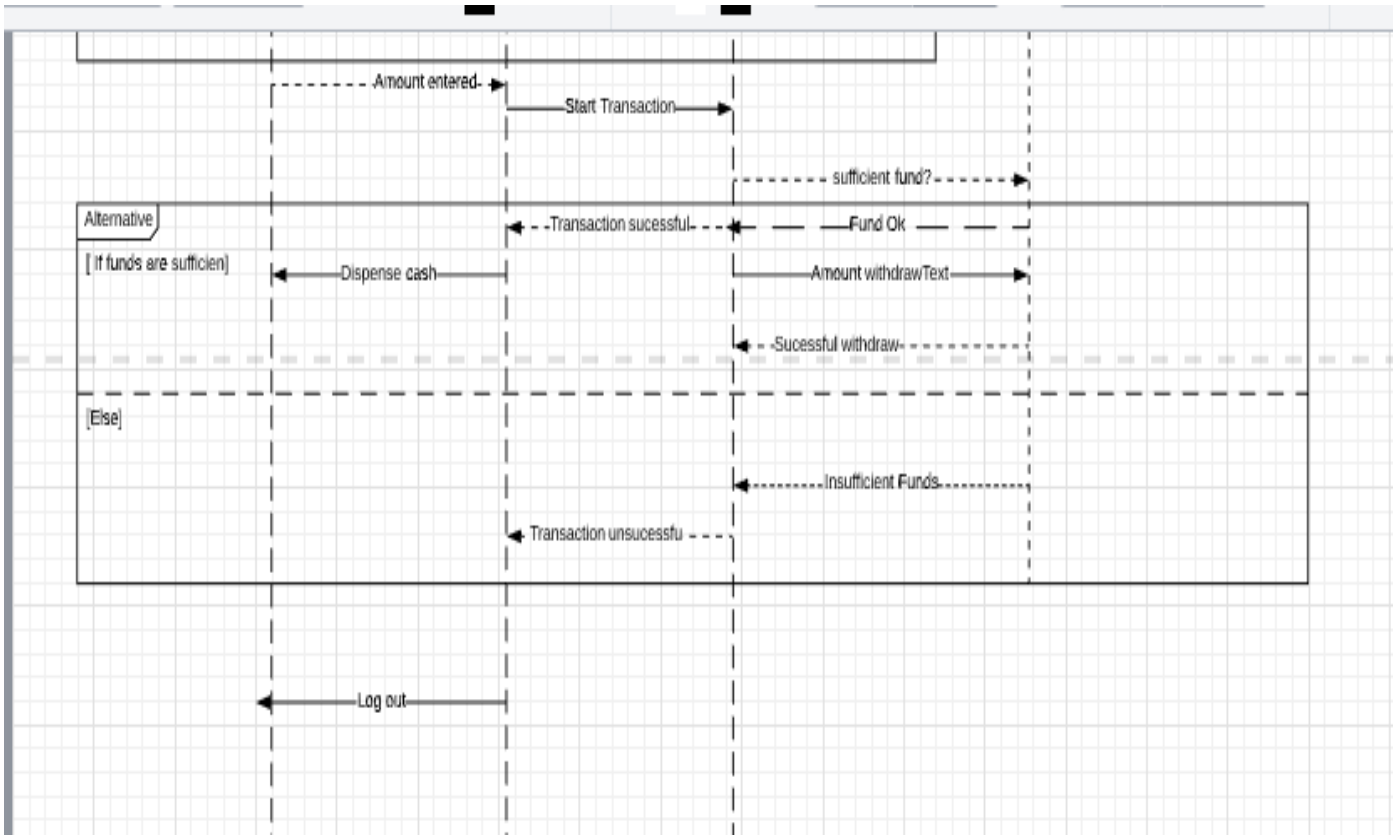
Use case diagram of ATM machine:-

Description:-

In this given ATM system, there three performer bank, clients and usable. In employable, it gives request to course of action and shutdown being utilized case for give direction to action to customer. Also, bank spare the trade like deposite, withdrawal, move and solicitation. If customer use considerable pin number it gives right information and gives result positive. In case usage misguided or invalid number it doesn't give any nuances. What's more, besides it keeps all the record of banking trade. Regardless, clients directly off the bat check their detail by using meeting use case in << include>> into trade for keeping their records. In a comparable way, when client endeavor to check balance they ought to use significant pin number through << extend>>. Which gives right information to customer.

Sequence diagram

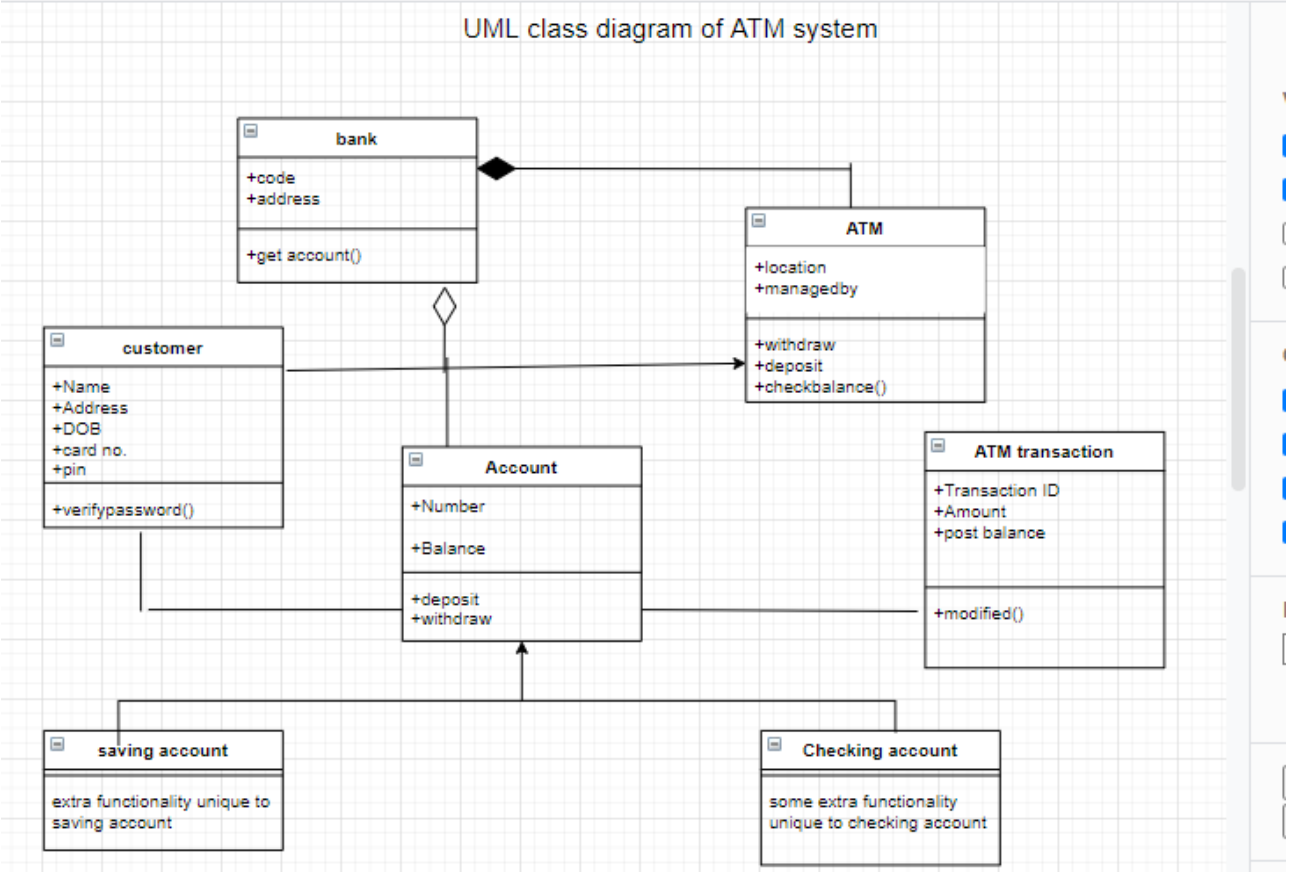

Customer
ATM
Bank server
Bank Account
Insert Card
Verify Card
Alternative
[If card is valid]
Card Ok
Request pin
[Else]
Card Invalid
Remove card
Pin entered
Verify Pin
Alternative
[If pin is valid]
Pin Ok
Request Amount
[Else]
TexPin Invalidt
Remove card



Description:-

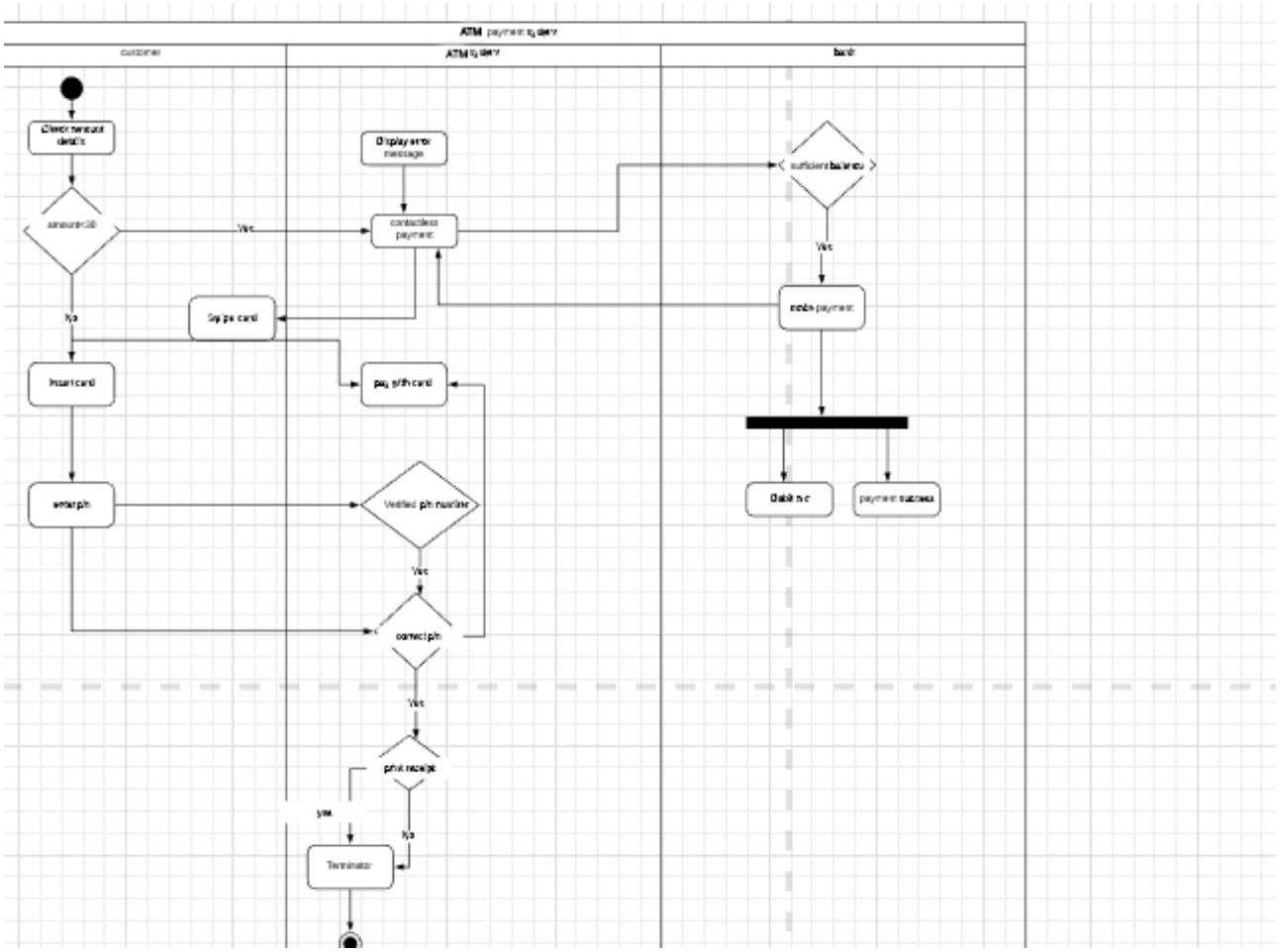
In given arrangement outline of ATM machine, right off the bat client demand embed card to ATM and bank worker confirm card. On the off chance that card is confirmed, at that point it takes demand pin number ATM. At the point when pin number is right at that point bank framework affirmed the card alright. After that recommend to expel the card. Furthermore, utilize the pin entered and again it checked that pin. In the event that pin number is correct, at that point take demand sum. Furthermore, propose evacuate the card. In an equivalent manner, If reserves are adequate ATM machine apportion money and bank worker shows exchange successful at that point ledger approved store alright and give sum withdrawal and successful withdrawal. In the event that client utilize off base pin number it gives wrong exchange unsuccessful and no give any data. Furthermore, at definite when client take right detail and bank worker propose for logout the ATM framework.

Class diagram of ATM system (Machine):-



In given class outline of ATM machine there are five super class, for example, bank, ATM, Customer, Account and ATM exchange. In bank super class it incorporates two characteristics and one strategy which all are in positive signs. What's more, in ATM class it has two properties and three techniques which remembers for positives. In client class it conveyed name, address, DOB, card number and pin as a qualities and checked secret phrase as a strategies. ATM exchange class incorporate exchange ID, Amount and post balance in traits and in techniques it keeps just one changed class. Just as record super class it separated into two sub classes like sparing record and financial records In sparing record it has practically exceptional to sparing and financial records it practically special to financial records.

Activity diagram of ATM system (machine):-



C++ programming coding for ATM machine:-

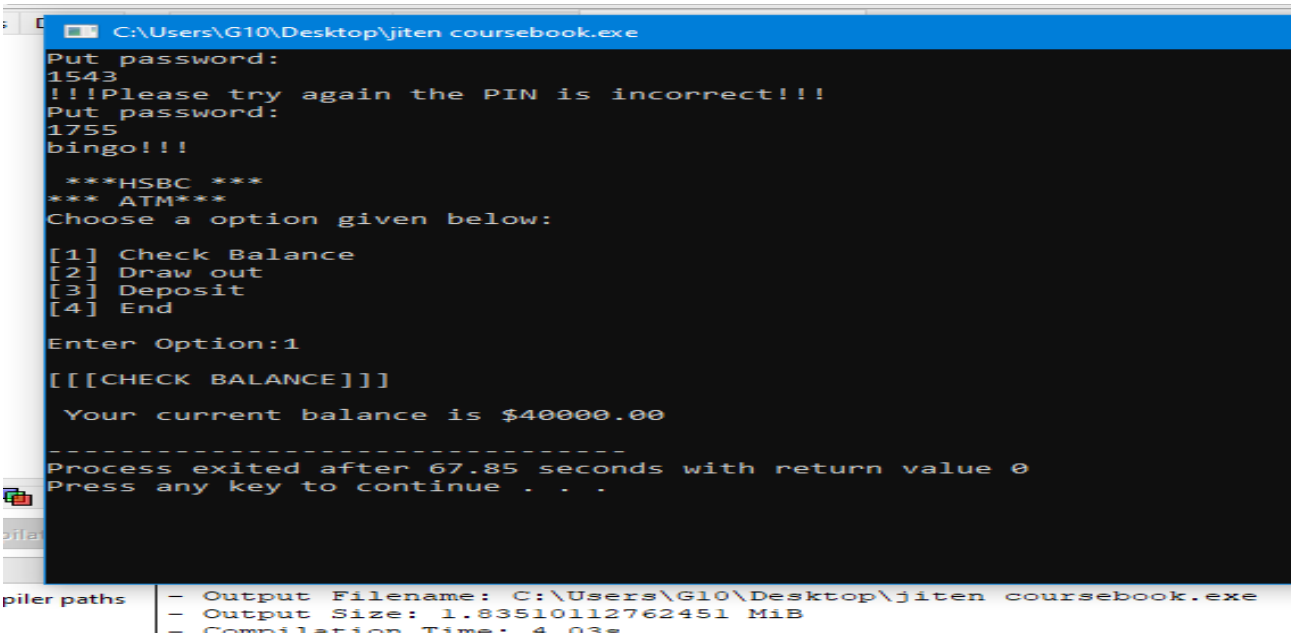
```
#include<iostream>
using namespace std;
int main()
{
int password;
for (int i=0;i<3;i++)
{cout <<"Put password:\n";
cin>>password;
```

```
if (password==1755)
{cout<<"bingo!!!\n";
double balance = 40000;
double withdraw, deposit;
int option;
cout<<"\n";
cout<<" ***HSBC ***\n";
cout<<"*** ATM***"<<endl;
cout<<"Choose a option given below:\n";
cout<<"\n";
cout<<"[1] Check Balance \n"
<<"[2] Draw out \n"
<<"[3] Deposit \n"
<<"[4] End \n"
<<"\n"
<<"Enter Option:";
cin>>option;
switch(option)
{
case 1:
cout<<"\n[[[CHECK BALANCE]]]\n";
cout.setf(ios::fixed);
cout.setf(ios::showpoint);
cout.precision(2);
cout<<"\n Your current balance is $"<<balance<<endl;
break;
case 2:
cout<<"\n[[[Draw out]]]\n";
cout<<"Enter amount: $";
```

```
cin>>withdraw;
balance = balance - withdraw;
cout.setf(ios::fixed);
cout.setf(ios::showpoint);
cout.precision(2);
cout<<"You Draw out $"<<withdraw<<endl;
cout<<"Your remaining balance is $"<<balance<<endl;
continue;
case 3:
cout<<"\n[[[DEPOSIT]]]\n";
cout<<"Enter amount: $";
cin>>deposit;
balance = balance + deposit;
cout.setf(ios::fixed);
cout.setf(ios::showpoint);
cout.precision(2);
cout<<"You deposited $"<<deposit<<endl;
cout<<"Your new balance is $"<<balance<<endl;
continue;
case 4:
cout<<"\n***[[[End MODE]]]***\n";
break;
default:
cout<<"\n That is an invalid option \n";
}
break;
}
else
cout<<"!!!Please try again the PIN is incorrect!!!\n";}
```

return 0;

}


C:\Users\G10\Desktop\jiten coursebook.exe
Put password:
1543
!!!Please try again the PIN is incorrect!!!
Put password:
1755
bingo!!!
***HSBC ***
*** ATM***
Choose a option given below:
[1] Check Balance
[2] Draw out
[3] Deposit
[4] End
Enter Option:1
[[[CHECK BALANCE]]]
Your current balance is $40000.00
Process exited after 67.85 seconds with return value 0
Press any key to continue . . .
piler paths
- Output Filename: C:\Users\G10\Desktop\jiten coursebook.exe
- Output Size: 1.83510112762451 MiB