International Study Centre

*Report Title

by

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Course: Software design

2 Coursework

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

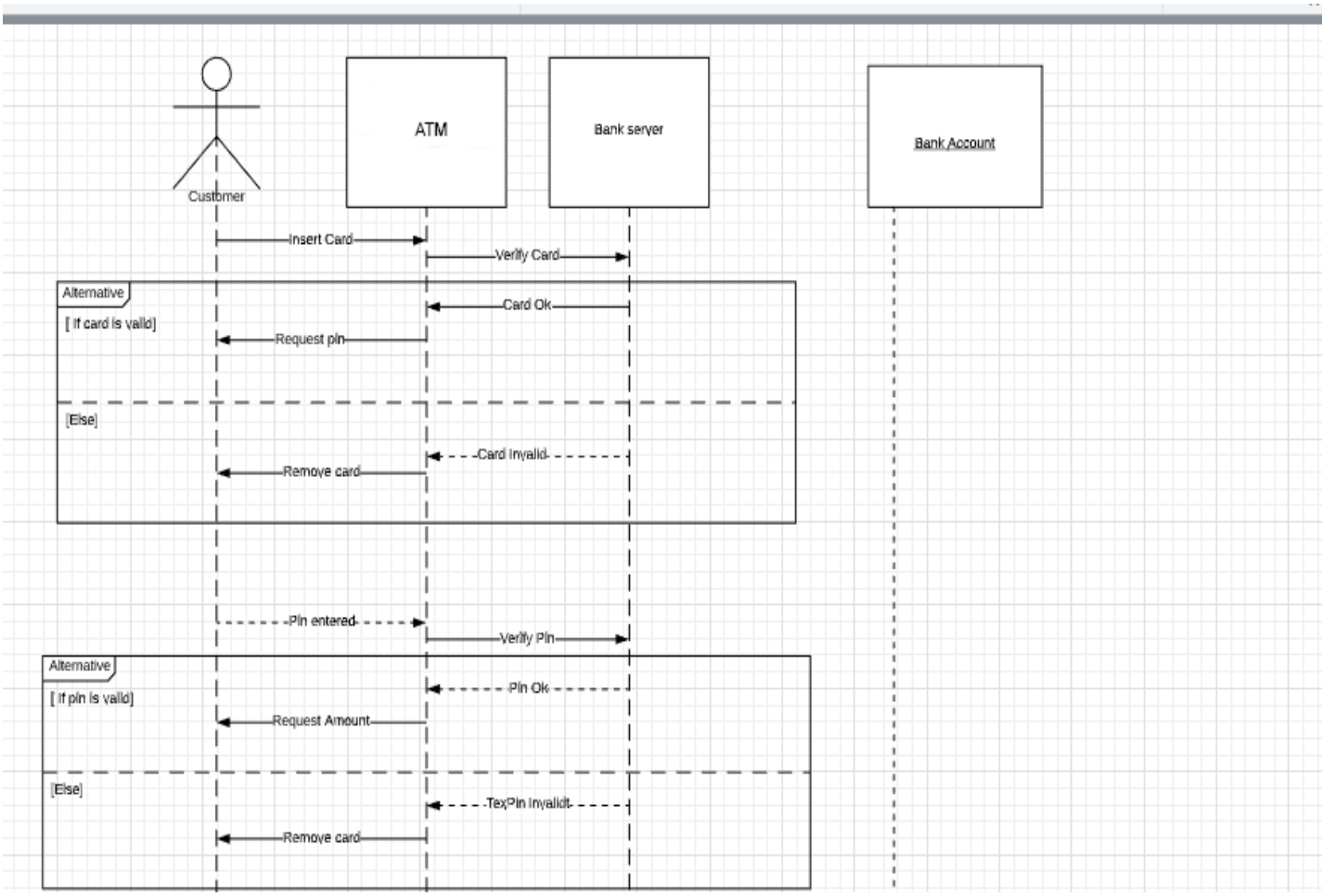
Given 3 trials, the user is able to see his balance by entering a four-digit pin that must NEVER be displayed on screen but masked by the Asterix(*) character. A list of pins stored on the file system must be loaded to verify the pin. The user should be able to withdraw funds below asset limit and cannot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

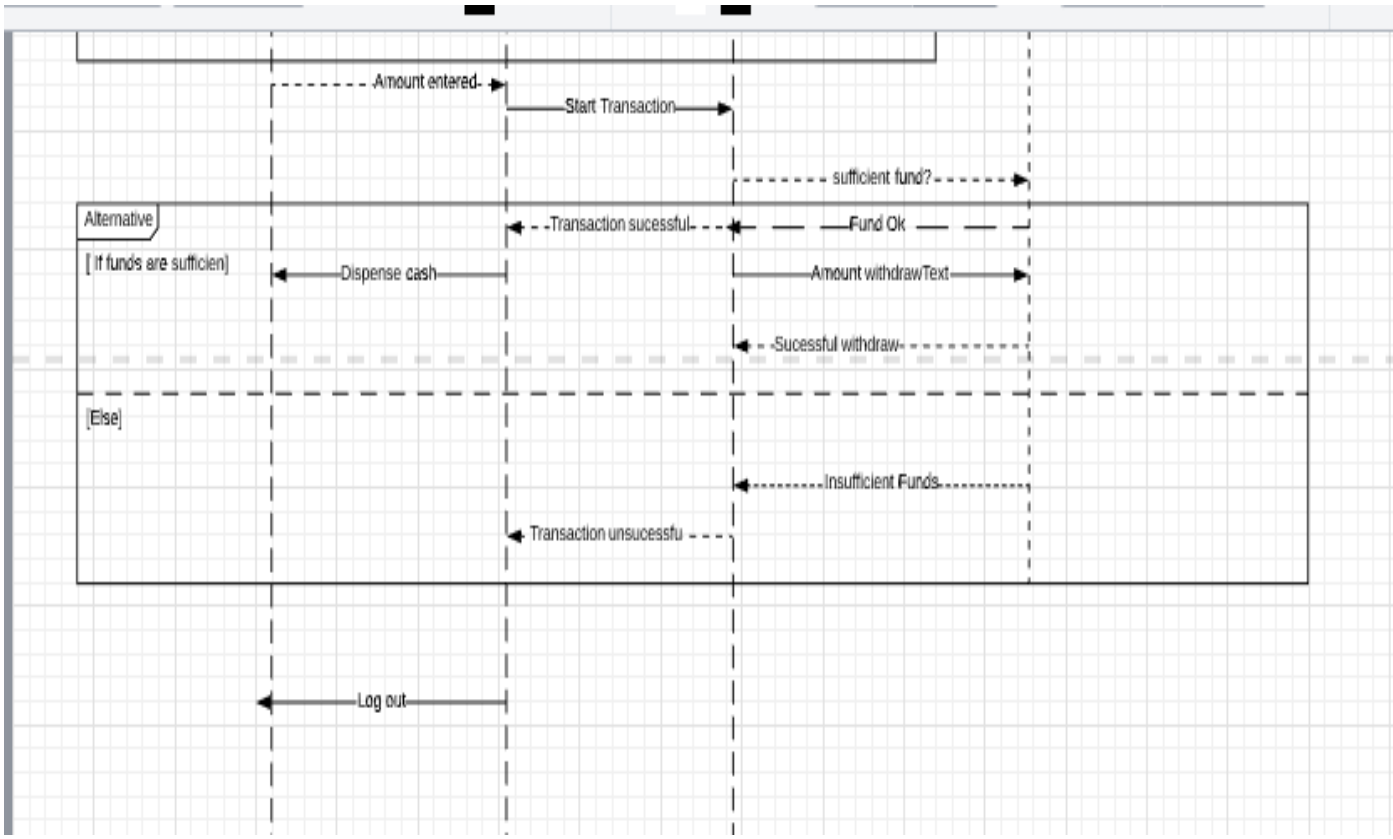
Use case diagram of ATM machine:-

Description:-

In this given ATM framework, there three entertainer bank, customers and usable. In employable, it offers solicitation to game-plan and shutdown being used case for provide guidance to activity to client. Additionally, bank save the exchange like deposite, withdrawal, move and requesting. On the off chance that client utilize impressive pin number it gives right data and gives result positive. In the event that utilization misinformed or invalid number it doesn't give any subtleties. Also, other than it keeps all the record of banking exchange. In any case, customers straightforwardly off the bat check their detail by utilizing meeting use case in << include>> into exchange for keeping their records. In a practically identical manner, when customer try to check balance they should utilize noteworthy pin number through << extend>>. Which gives right data to client.

Sequence diagram

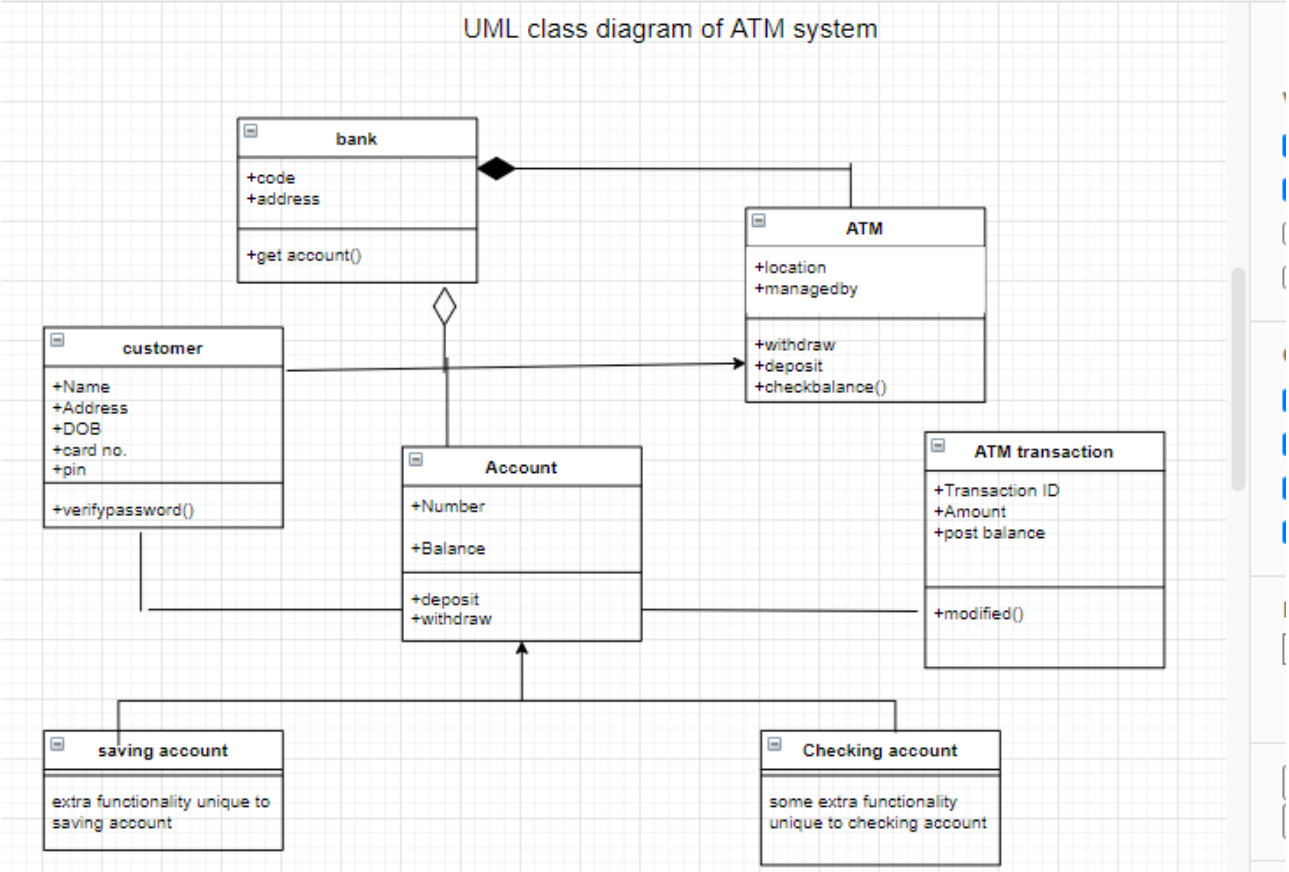

Customer
ATM
Bank server
Bank Account
Insert Card
Verify Card
Alternative
[If card is valid]
Card Ok
Request pin
[Else]
Card Invalid
Remove card
Pin entered
Verify Pin
Alternative
[If pin is valid]
Pin Ok
Request Amount
[Else]
TexPin Invalidt
Remove card



Description:-

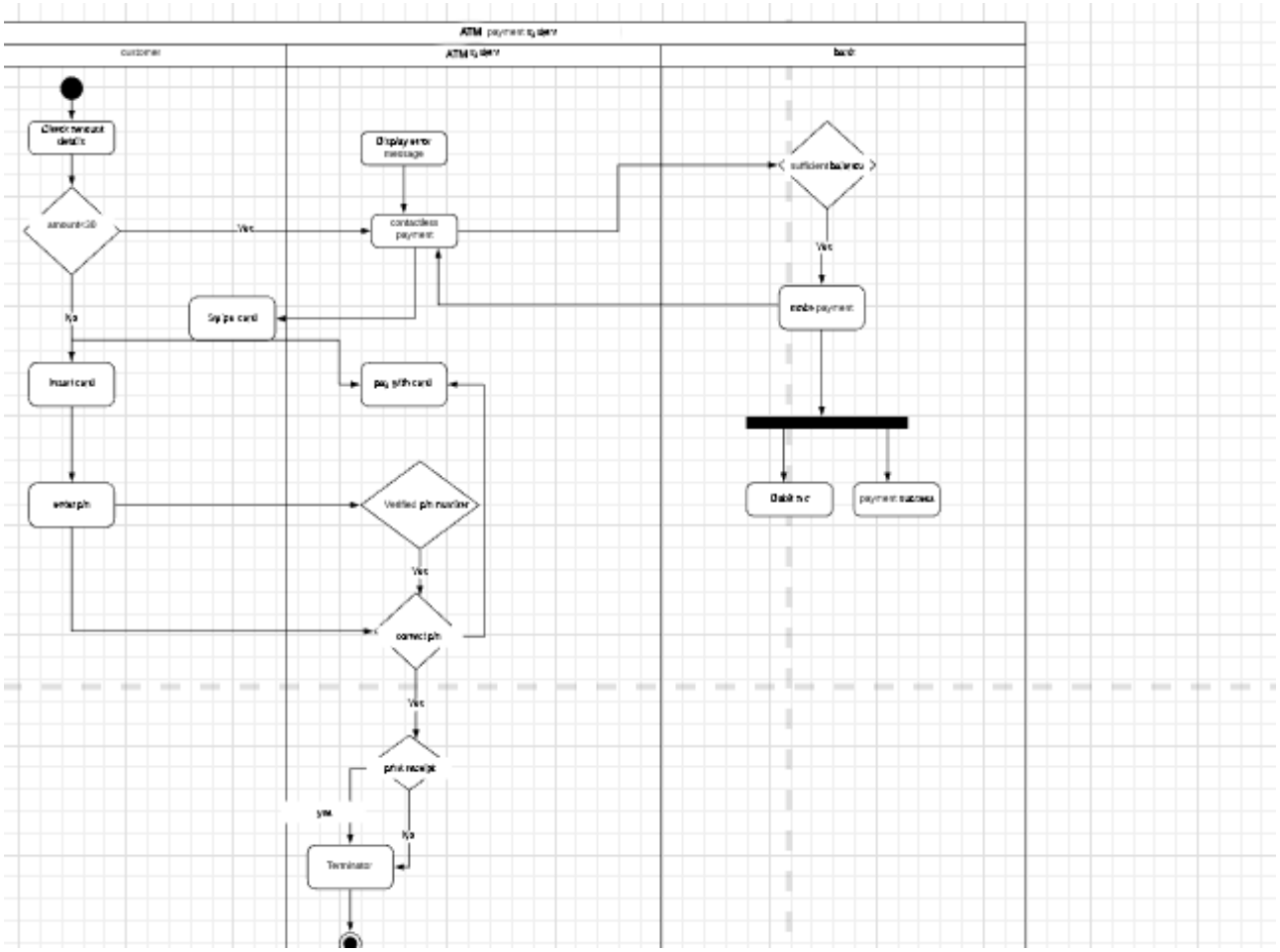
In given plan blueprint of ATM machine, directly off the bat customer request implant card to ATM and bank specialist affirm card. In case card is affirmed, by then it takes request pin number ATM. Exactly when pin number is directly by then bank structure confirmed the card okay. After that prescribe to remove the card. Moreover, use the pin entered and again it watched that pin. In the occasion that pin number is right, by then take request aggregate. Moreover, propose empty the card. In an identical way, If holds are satisfactory ATM machine allot cash and bank specialist shows trade fruitful by then record affirmed store okay and give total withdrawal and effective withdrawal. If customer use misguided pin number it gives wrong trade fruitless and no give any information. Moreover, at positive when customer take right detail and bank specialist propose for logout the ATM structure.

Class diagram of ATM system (Machine):-



In given class framework of ATM machine there are five super class, for instance, bank, ATM, Customer, Account and ATM trade. In bank super class it fuses two attributes and one system which all are in certain signs. Likewise, in ATM class it has two properties and three strategies which recalls for positives. In customer class it passed on name, address, DOB, card number and pin as a characteristics and checked mystery state as a systems. ATM trade class fuse trade ID, Amount and post balance in attributes and in methods it keeps only one changed class. Similarly as record super class it isolated into two sub classes like saving record and money related records In saving record it has basically outstanding to saving and monetary records it for all intents and purposes uncommon to budgetary records.

Activity diagram of ATM system (machine):-



C++ programming coding for ATM machine:-

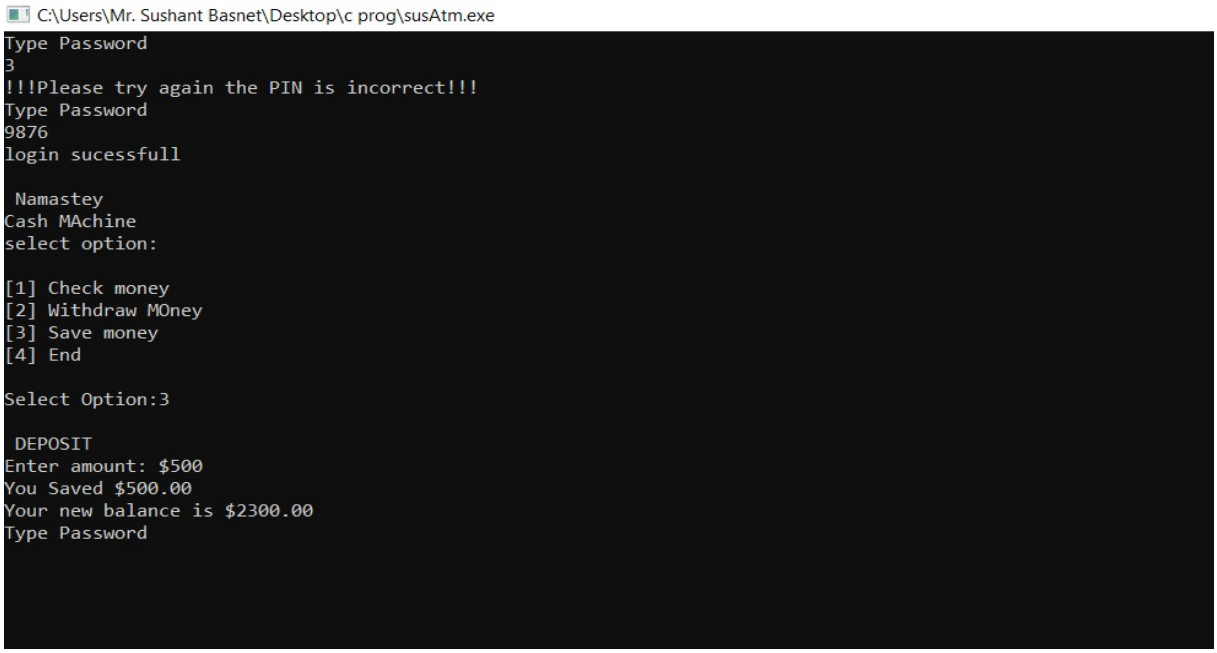
```
#include<iostream>
using namespace std;
int main()
{
int password;
for (int i=0;i<3;i++)
{cout <<"Type Password\n";
cin>>password;
```

```
if (password==9876)
{cout<<"login sucessfull\n";
double balance = 1800;
double withdraw, deposit;
int option;
cout<<"\n";
cout<<" Namastey\n";
cout<<"Cash MAchine"<<endl;
cout<<"select option:\n";
cout<<"\n";
cout<<"[1] Check money \n"
<<"[2] Withdraw MOney \n"
<<"[3] Save money \n"
<<"[4] End \n"
<<"\n"
<<"Select 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 current balance = $"<<balance<<endl;
break;
case 2:
cout<<"\n WithDraw \n";
cout<<"Enter amount: $";
```

```
cin>>withdraw;
balance = balance - withdraw;
cout.setf(ios::fixed);
cout.setf(ios::showpoint);
cout.precision(2);
cout<<"You have drawn $"<<withdraw<<endl;
cout<<"Your current 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 Saved $"<<deposit<<endl;
cout<<"Your new balance is $"<<balance<<endl;
continue;
case 4:
cout<<"\n**End**\n";
break;
default:
cout<<"\n Sorry \n";
}
break;
}
else
cout<<"!!!Please try again the PIN is incorrect!!!\n";}
```

return 0;

}


C:\Users\Mr. Sushant Basnet\Desktop\c prog\susAtm.exe
Type Password
3
!!!Please try again the PIN is incorrect!!!
Type Password
9876
login sucessfull
Namastey
Cash MAchine
select option:
[1] Check money
[2] Withdraw MOney
[3] Save money
[4] End
Select Option:3
DEPOSIT
Enter amount: $500
You Saved $500.00
Your new balance is $2300.00
Type Password