Pair Programming

Guhan M – CB.EN.U4CSE19425 - **Haskell**

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Scala

Sample Code

```
    def loan(_acc_no:Int,_amount:Double,_time:Int): Unit ={
        var i = 0
        while(i<acc_no.length){
            if(acc_no(i)==_acc_no){
                balance = balance.updated(i, balance(i)+_amount)
                loan_amount = loan_amount.updated(i, loan_amount(i)+_amount)
                time = time.updated(i, time(i)+_time)
                total_loan = total_loan.updated(i,
total_loan(i)+(_amount+((_amount*5*_time)/1200)))
                println("Loan granted successfully")
                println("Updated balance is "+balance(i))
                println("Loan will be paid in "+_time+" months")
                println("Rate of Interest is 5%")
                println("Total amount to be paid after Interest will be
"+(_amount+((_amount*5*_time)/1200)))
            }
            i+=1
        }
        println("Account number not found")
    }

    def displayall(disp: Int => Unit): Unit ={
        var i = 0
        while(i<acc_no.length){
            disp(acc_no(i))
            i+=1
        }
    }
```

```
PS E:\SEM-6\Principles of Programming Languages\Project> scala .\bank_app.scala
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice
1
Enter your name
Pranav
Enter your account number
1001
Enter your initial balance
5000
```

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice
1
Enter your name
Guhan
Enter your account number
1002
Enter your initial balance
6000
```

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice
2
Enter your account number
1001
Enter the amount to be deposited
1000
Amount deposited successfully
Updated balance is 6000.0
```

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice
3
Enter your account number
1002
Enter the amount to be withdrawn
2000
Amount withdrawn successfully
Updated balance is 4000.0
```

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice
4
Enter your account number
1001
Enter the amount to be transferred
500
Enter the account number to which amount is to be transferred
1002
Amount transferred successfully
Updated balance is 5500.0
```

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice
5
Enter your account number
1001
Enter the Principle amount
50000
Enter the time period in months
12
Loan granted successfully
Updated balance is 55500.0
Loan will be paid in 12 months
Rate of Interest is 5%
Total amount to be paid after Interest will be 52500.0
```

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice
6
Enter your account number
1001
Loan repaid successfully
Updated balance is 3000.0
```

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice
7
Enter your account number
1001
-----------------------------------
Account holder name     : Pranav
Customer Account Number : 1001
Account balance         : 3000.0
Loan Amount             : 50000.0
-----------------------------------
```

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice
8
-----------------------------------
Account holder name     : Pranav
Customer Account Number : 1001
Account balance         : 3000.0
Loan Amount             : 50000.0
-----------------------------------
-----------------------------------
Account holder name     : Guhan
Customer Account Number : 1002
Account balance         : 4500.0
Loan Amount             : 0.0
-----------------------------------
```

Haskell

Sample Code:

```haskell
-- Create Account
createAccount :: [String] -> [Int] -> [Double] -> String -> Double -> ([String], [Int], [Double])
createAccount nameList accNoList balList name initBal = do
    let accNo = length accNoList + 1
    (nameList ++ [name], accNoList ++ [accNo], balList ++ [initBal])

-- Displaying Details
displayDetails :: String -> Int -> Double -> Double -> IO ()
displayDetails name accNo balance loanAmt = do
    putStrLn "--------------------------------"
    putStrLn $ "Account holder name is: " ++ name
    putStrLn $ "Customer Account Number: " ++ show accNo
    putStrLn $ "Account balance is: " ++ show balance
    putStrLn $ "Loan Amount: " ++ show loanAmt
    putStrLn "--------------------------------"

-- Display All Details (Higher-Order function)
displayAllDetails :: (String -> Int -> Double -> Double -> IO ()) -> [String] -> [Int] -> [Double] -> [Double] -> IO ()
displayAllDetails f [] [] [] [] = putStrLn ""
displayAllDetails f (n:nameList) (a:accNoList) (b:balList) (t:totalLoan) = do
    f n a b t
    displayAllDetails f nameList accNoList balList totalLoan

-- Deposit
deposit :: Int -> Double -> [Double] -> [Double]
deposit index amount balList = do
    let newBalance = balList !! index + amount
        (x,_:ys) = splitAt index balList
        newBalList = x ++ [newBalance] ++ ys
    newBalList

-- Withdraw
withdraw :: Int -> Double -> [Double] -> [Double]
withdraw index amount balList = do
    let newBalance = balList !! index - amount
        (x,_:ys) = splitAt index balList
        newBalList = x ++ [newBalance] ++ ys
    newBalList
```

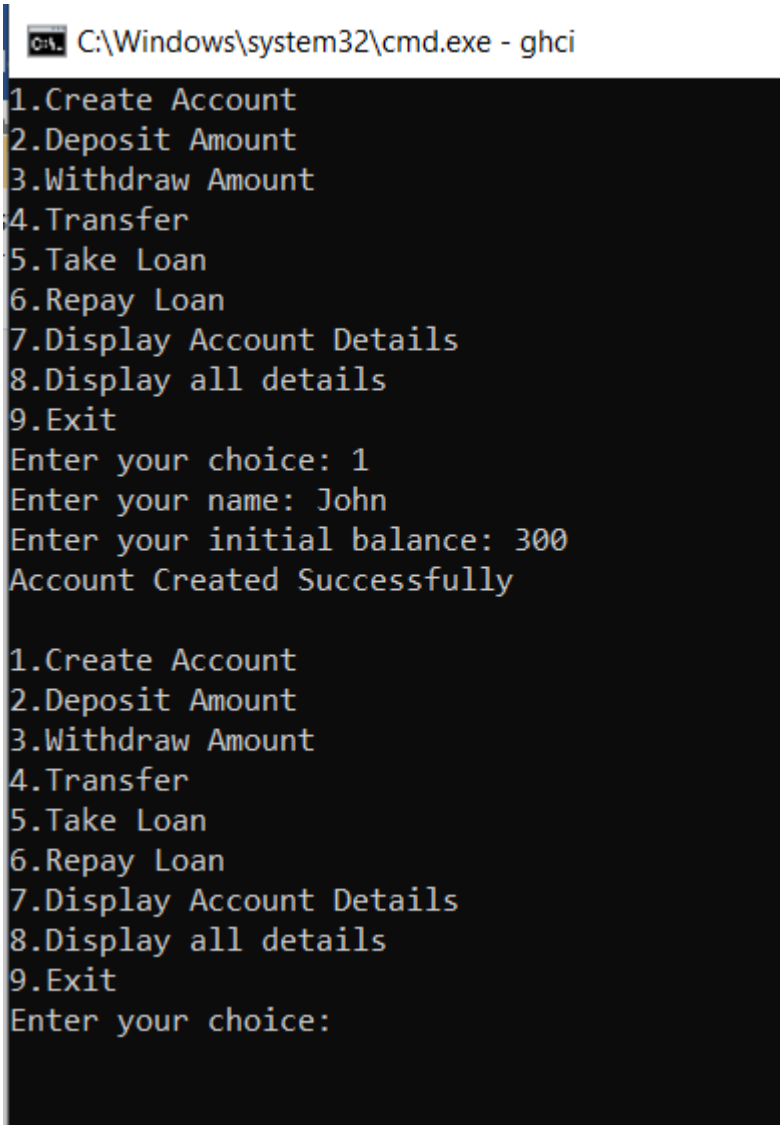
Displaying All Details

C:\Windows\system32\cmd.exe - ghci

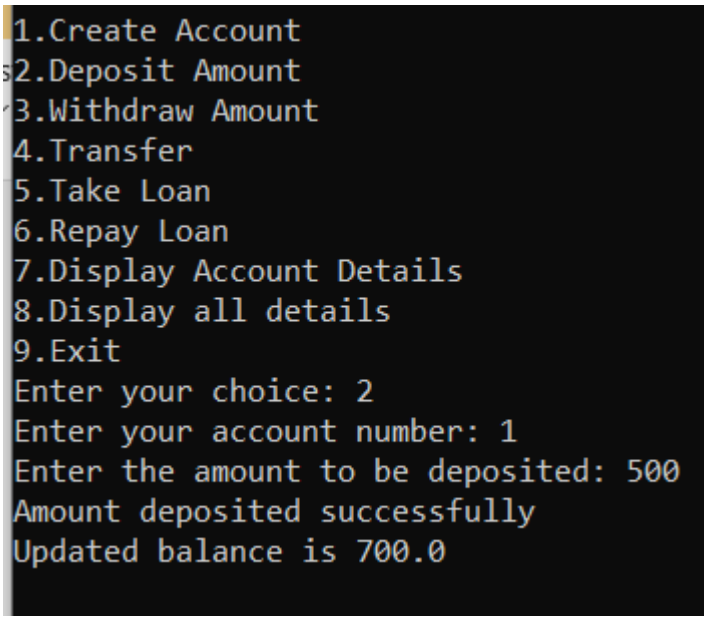
```
ghci> :l bank.hs
[1 of 1] Compiling Main             ( bank.hs, interpreted )
Ok, one module loaded.
ghci> main

1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice: 8
---------------------------------
Account holder name is: Guhan M
Customer Account Number: 1
Account balance is: 200.0
Loan Amount: 0.0
---------------------------------
---------------------------------
Account holder name is: Pranav
Customer Account Number: 2
Account balance is: 300.0
Loan Amount: 0.0
---------------------------------
```

Creating account:



Deposit amount:



Withdraw amount:

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice: 3
Enter your account number: 1
Enter the amount to be withdrawn: 300
Amount withdrawn successfully
Updated balance is 400.0
```

Transfer (Insufficient Balance):

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice: 4
Enter your account number: 2
Enter the amount to be transferred: 500
Enter the account number to which amount is to be transferred: 2
Insufficient balance
```

Take Loan:

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice: 5
Enter your account number: 1
Enter the Principle amount: 100
Enter the time period in months: 5
Loan granted successfully
Updated balance is 800.0
Loan will be paid in 5 months
Rate of Interest is 5%
Total amount to be paid after Interest will be 102.08333333333333
```

Repay Loan:

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice: 6
Enter your account number: 1
Loan repaid successfully
Updated balance is 697.9166666666666
```

Exit:

```
1.Create Account
2.Deposit Amount
3.Withdraw Amount
4.Transfer
5.Take Loan
6.Repay Loan
7.Display Account Details
8.Display all details
9.Exit
Enter your choice: 9
GoodBye!
ghci>
```