Answers

```
//Object Class
public class Bank
  {
    String accNo;
    String surname;
    String name;
    double balance;

     Bank()
    {
      accNo="";
      surname="";
      name="";
      balance=0;
    }

     Bank(String aN, String sn, String n, double b)
    {
      accNo=aN;
      surname=sn;
      name=n;
      balance=b;
    }

     public String toString()
    {
      String client = String.format("%-15s%-20s%-20s%-10.2f",accNo,surname,name,balance);
     return client;
    }
     public String getAccNo()
    {
      return accNo;
    }

     public String getSurname()
    {
      return surname;
    }

     public double getBalance()
    {
      return balance;
    }
```

```
 public void setBalance(double deposit)
     {
       balance = balance + deposit;
     }

     public String status()
     {
       String message ="";
       if (balance < 0)
       {
         message="Overdraft";
       }
       return message;
     }

   }
```

//Test Class

```
import java.util.*;
  import java.io.*;

    public class TestBank
   {
     Scanner kb = new Scanner (System.in);
     Bank []bankArr=new Bank[20];
     int size=0;

      TestBank()
     {
       try
       {
         Scanner sc=new Scanner(new FileReader("bank.txt"));
         while(sc.hasNext())
         {
           String line=sc.nextLine();
           Scanner scLine=new Scanner(line).useDelimiter(";");
           String aN= scLine.next();
           String sn=scLine.next();
           String n=scLine.next();
           double b = scLine.nextDouble();
           bankArr[size]=new Bank(aN,sn,n,b);
           size++;
         }
       }
          catch(FileNotFoundException e)
{
```

```
System.out.println("Error"+e.getMessage());
        }
    }



     public void display()
    {
      for(int i=0;i<size;i++)
      {
        System.out.printf(bankArr[i].toString());
        System.out.println();
      }
    }
     public void sort()
    {
      for(int i=0;i<size;i++)
      {
        for(int j=0;j<size-1;j++)
        {
          if(bankArr[j].getSurname().compareTo(bankArr[j+1].getSurname())>0)
           {
             Bank temp=bankArr[j];
             bankArr[j]=bankArr[j+1];
             bankArr[j+1]=temp;
           }
        }
      }
    }

    public void displayStatus()
    {
      for(int i=0;i<size;i++)
      {
        System.out.printf("%-15s%-12.2f%-20s" ,
         bankArr[i].getAccNo(),bankArr[i].getBalance(),bankArr[i].status());
        System.out.println();
      }
    }

     public void update()
    {
      System.out.println("Enter the account number to update");
      String aN = kb.next();
      boolean found=false;
      int p=0;
      while(p<size&&!found)
```

```
{
 if(bankArr[p].getAccNo().equals(aN))
          {
            found=true;
            System.out.println("Enter an amount to deposit");

double deposit = kb.nextDouble();
            bankArr[p].setBalance(deposit);
            System.out.println("The updated details of client "+aN+" are");
            System.out.println(bankArr[p].toString());

          }
          p++;
        }
        if(!found)
        {
          System.out.println(aN+" is not found");
        }
      }
       public static void main(String [] args)
      {

        Scanner kb=new Scanner(System.in);
        TestBank obj=new TestBank();
        System.out.println();
        int option;
        do
        {
          System.out.println();
          System.out.println();
          System.out.println("        Menu ");
          System.out.println();
          System.out.println("1. Display list of Clients");
          System.out.println("2. Display sorted list using surname");
          System.out.println("3. Display Status");
          System.out.println("4. Search & Update Balance");
          System.out.println("5. QUIT");
          System.out.println();
          System.out.print("Please choose an option ? ");
         option = kb.nextInt();
          System.out.println();
          kb.nextLine();
          switch (option)
          {
            case 1:

              System.out.println("List of Clients");
              System.out.println("===============");
```

```
obj.display();
                System.out.println();

                break;

            case 2:

                System.out.println("Employees Details sorted in Surname order");
                obj.sort();
                obj.display();


                break;

            case 3:

                System.out.println("Status of Clients");
                System.out.println("================");
                obj.displayStatus();

                break;

            case 4:

                obj.update();
                break;

            case 5:
                break;

            default:
                System.out.println("Option not on menu - Please re-enter a valid option from 1 to 5");
                System.out.println();

          }

        }
        while(option!=5);
      }

    }
```

Answers

2.1 String sql = "**SELECT * FROM WorkersTB ORDER BY EmpSurname** ";

2.2 String sql = "**SELECT EmpNo,EmpName,EmpSurname,Branch FROM WorkersTB WHERE JobDesc LIKE 'Office'** ";

2.3 String sql = "**SELECT EmpNo,EmpName,DateJoined,YEAR(NOW())-YEAR(DateJoined) AS [YrsWrked] FROM WorkersTB**";

2.4 String sql = "**UPDATE WorkersTB SET JobDesc='Horticulturist' WHERE JobDesc='Gardener'** ";

2.5 String sql = "**INSERT INTO WorkersTB VALUES (1359,'Henry','Howard','Manager',#2000/10/10#,'Durban',7500)** ";

2.6

```
System.out.println("enter the Branch");
String br=kb.nextLine();
System.out.println("enter the Start Date of the Project");
String  date=kb.next();

String sql = "SELECT WorkersTB.EmpNo,EmpName,EmpSurname FROM
  WorkersTB,ProjectsTB WHERE WorkersTB.EmpNo =  ProjectsTB.EmpNo
  AND StartDate >= #"+date+"# AND Branch=' "+br+" ' ";
```

2.7 String sql = "**SELECT WorkersTB.EmpNo,EmpName,JobDesc FROM WorkersTB,ProjectsTB WHERE JobDesc LIKE 'Manager' AND Area LIKE 'Durban'** ";

2.8 String sql = "**SELECT COUNT(*) AS [Total] FROM WorkersTB WHERE JobDesc LIKE 'Maintenance'** ";

2.9

```
System.out.println("Enter the Project Number to Delete");
int pn = kb.nextInt();
String sql =  "DELETE * FROM ProjectsTB WHERE ProjectNo="+pn+"  ";
```

2.10 String sql = "**SELECT DISTINCT Area FROM ProjectsTB ORDER BY Area** ";

2.11 String sql = "**SELECT Branch, FORMAT(SUM(Salary),'Currency') AS [TOTAL] FROM WorkersTB GROUP BY Branch** ";

2.12 String sql = "**SELECT ProjectNo, Area FROM ProjectsTB Where EndDate is null**";

2.13 String sql = "**SELECT Avg(Salary) as [Average] FROM WorkersTB Where JobDesc like 'Manager'** ";