1. Implement below Program using Java Concepts

a. Create a class name as ReadAnWriteDate

```java
public class ReadAnWriteDate { //Question 01-a

    public static void main(String[] args)  {

        ArrayList<List> a=new ArrayList<List>();
        a=read_data (".\\Resources\\StudentDetails.xlsx", "Sheet1"); //Question 01 -b
        print_data(a);  //Question 01 -c
    }

```

b. Read the data from Excel Sheet (Use Apache POI) and should have below columns and should contain data
Name, Courses, Fee
Kirk, Java, $100
Dan, Python, $100

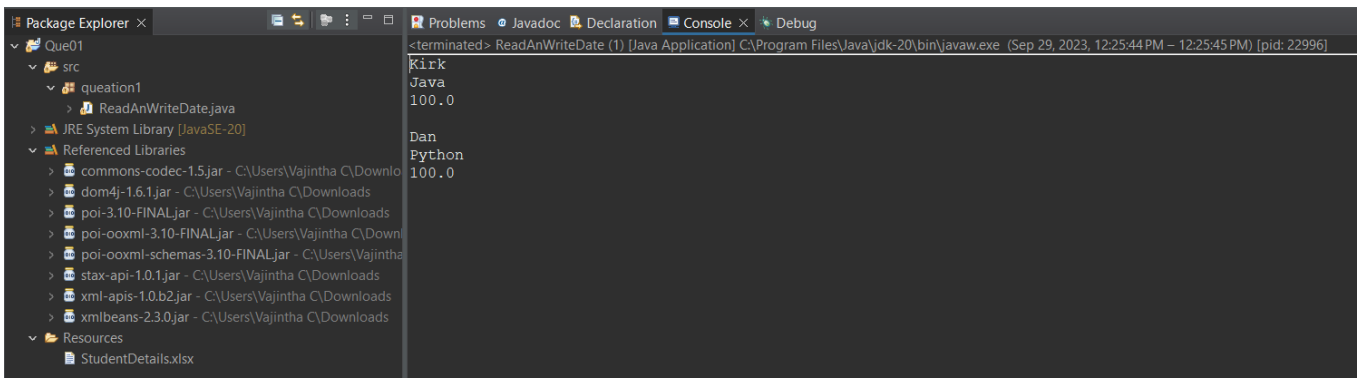
	A	B	C	D
1	Name	courses	Fee	
2	Kirk	Java	$100	
3	Dan	Python	$100	
4				
5				

```java
    //"read_data" method will read the data from the excel file and return the data in arrayList
    public static ArrayList<List> read_data(String workbookPath, String sheetName){

        ArrayList<List> testdata = new ArrayList<List>();

        try
        {
            FileInputStream inputStream = new FileInputStream(workbookPath);

            XSSFWorkbook workbook = new XSSFWorkbook(inputStream);
            XSSFSheet sheet = workbook.getSheet(sheetName);

            FormulaEvaluator formulaEvaluator = workbook.getCreationHelper().createFormulaEvaluator();

            int rowCount=sheet.getLastRowNum();
            int columnCount=sheet.getRow(0).getLastCellNum();


            for(int i=1; i<=rowCount; i++) {
                List <Object> rowData=new ArrayList<Object>();
                XSSFRow row = sheet.getRow(i);

                for(int j=0; j<columnCount;j++) {

                    XSSFCell cell=row.getCell(j);
                    switch(formulaEvaluator.evaluateInCell(cell).getCellType()) {
                    case Cell.CELL_TYPE_STRING:
                        rowData.add(cell);
                        break;
                    case Cell.CELL_TYPE_NUMERIC:
                        rowData.add(cell);
                        break;
                    }
                }

                    testdata.add(rowData);
                }
            }
            catch(IOException e)
            {
                e.printStackTrace();
            }

            return testdata;

    }

```

c. Use Collections concept to store the reading data and display it in console.

```
73      // "print_data" method is used to print the arraylist
74      public static void print_data(ArrayList<List> data)
75      {
76          for(int i=0;i<data.size(); i++) {
77              List<Object> x = new ArrayList<>();
78              x=data.get(i);
79
80              for (int j=0;j<x.size(); j++){
81                  System.out.println(x.get(j));
82              }
83              System.out.println();
84          }
85      }
86
87  }
88
```

Output:



When additional data added to the excel,

	A	B	C	D	E
1	Name	courses	Fee	Rank	
2	Kirk	Java	$100	2	
3	Dan	Python	$100	1	
4	Vajintha	Java	$50	3	
5					
6					

```
<terminated> ReadAnWriteDate (1) [Java Application] C:\Program Files\Java\jdk-20\bin\javaw.exe  (Sep 29, 2023, 11:49:30 AM – 11:49:31 AM) [pid: 17900]
Kirk
Java
100.0
2.0

Dan
Python
100.0
1.0

Vajintha
Java
50.0
3.0
```

Entire code:

```
package queation1;

import java.io.FileInputStream;
import java.io.IOException;
import java.lang.*;
import java.util.*;

import org.apache.poi.ss.usermodel.Cell;
import org.apache.poi.ss.usermodel.FormulaEvaluator;
import org.apache.poi.xssf.usermodel.XSSFCell;
import org.apache.poi.xssf.usermodel.XSSFRow;
import org.apache.poi.xssf.usermodel.XSSFSheet;
import org.apache.poi.xssf.usermodel.XSSFWorkbook;

public class ReadAnWriteDate { //Question 01-a

    public static void main(String[] args)  {

        ArrayList<List> a=new ArrayList<List>();
        a=read_data (".\\Resources\\StudentDetails.xlsx", "Sheet1"); //Question 01 -b
        print_data(a);  //Question 01 -c
    }


    //"read_data" method will read the data from the excel file and return the data in arrayList
    public static ArrayList<List> read_data(String workbookPath, String sheetName){

        ArrayList<List> testdata = new ArrayList<List>();

        try
        {
            FileInputStream inputStream = new FileInputStream(workbookPath);

            XSSFWorkbook workbook = new XSSFWorkbook(inputStream);
            XSSFSheet sheet = workbook.getSheet(sheetName);

            FormulaEvaluator formulaEvaluator = workbook.getCreationHelper().createFormulaEvaluator();

            int rowCount=sheet.getLastRowNum();
            int columnCount=sheet.getRow(0).getLastCellNum();


            for(int i=1; i<=rowCount; i++) {
                List <Object> rowData=new ArrayList<Object>();
                XSSFRow row = sheet.getRow(i);

                for(int j=0; j<columnCount;j++) {

                    XSSFCell cell=row.getCell(j);
                    switch(formulaEvaluator.evaluateInCell(cell).getCellType()) {
                    case Cell.CELL_TYPE_STRING:
                        rowData.add(cell);
                        break;
                    case Cell.CELL_TYPE_NUMERIC:
                        rowData.add(cell);
                        break;
                    }
                }

                testdata.add(rowData);
            }
        }
        catch(IOException e)
        {
            e.printStackTrace();
        }

        return testdata;

    }


    // "print_data" method is used to print the arraylist
    public static void print_data(ArrayList<List> data)
    {
        for(int i=0;i<data.size(); i++) {
            List<Object> x = new ArrayList<>();
            x=data.get(i);
```

```
            for (int j=0;j<x.size(); j++){
                System.out.println(x.get(j));
            }
            System.out.println();
        }
    }

}
```