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LAB-2 :-

Q2) Write a java program to create a class student with members USN, name, marks (6 subjects). Include methods to accept student details and marks. Also include method to calculate the percentage and display appropriate details.

→
```
import java.util.Scanner;
class var_1 {
    String name, USN;
    int[] marks = new int[6];
    float grade = 0;
    Scanner sc = new Scanner(System.in);
    void input() {
        System.out.println("Enter student name:");
        name = sc.next();
        System.out.println("Enter USN");
        USN = sc.next();
        for (int i = 1; i <= 6; i++) {
            System.out.println("Enter mark of "+i);
            marks[i] = sc.nextInt();
        }
    }
    void grade() {
        for (int i = 0; i < 6; i++) {
            grade += marks[i];
        }
        grade /= 6;
        System.out.println("Student name: " +
        "name + "\n USN:" \n Grade = "+ grade);
    }
}
```

```
public class Student {
    public static void main(String args[]) {
        System.out.println("Enter no. of students");
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        vars_1[] students = new vars_1[n];
        for(int i = 0; i<n ; i++) {
            students[i] = new vars_1();
            student[i].input();
        }
        System.out.println("Results");
        for(int i=0 ; i<n ; i++) {
            students[i].grade();
        }
    }
}
```

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LAB-2

Q2.) Create a class book that contains 4 members: name, author, price, and numpages. Include a constructor to set values for the members. Include methods to set and get the details of the objects. Include a toString() method that could display the complete details of the book.

```
import java.util.*;
class books {
  String author, name;
  int price, numpages;
  books() { }
  books (String name, String author, int price, int numpages)
  {
    this.name = name;
    this.author = author;
    this.price = price;
    this.numpages = numpages;
  }
  public String toString()
  {
    String author, name, price, numpages;
    name = "Book name: " + this.name + "\n";
    author = "Author name: " + this.author + "\n";
    price = "price: " + this.price + "\n";
    numpages = "no. of pages " + this.numpages + "\n";
    return name + author + price + numpages;
  }
}
```

```
class main{
    public static void main()
    {
        Scanner s = new Scanner(System.in);
        int n;
        String author, name;
        int numpages, price;
        System.out.print("enter the no. of books:");
        n = s.nextInt();
        books b[];
        b = new books[n];
        for(int i=0; i<n; i++)
        { System.out.println("Books"+(i+1)+":");
          System.out.print("Enter name");
          name = s.next();
          System.out.print("Enter author");
          author = s.next();
          System.out.print("Price:");
          price = s.nextInt();
          System.out.print("no. of pages");
          numpages = s.nextInt();
          b[i] = new books(name, author, price, numpages);
        }
        for(int i=0; i<6; i++)
          System.out.print("Book:"+(i+1)+"\n"+b[i]);
    }
}
```

Program 5:-

```
Abstract class shape {
    double a;
    double b;
    shape(double a, double b) {
        this.a = a;
        this.b = b;
    }
    abstract double printArea();
}
class Rectangle extends shape{
    Rectangle(double a, double b) {
        super(a, b);
    }
    double printArea() {
        return (a*b);
    }
}
class triangle extends shape {
    Triangle(double a double b) {
        super(a, b);
    }
    double printArea() {
        return (a*b * 0.5);
    }
}
class circle extends shape {
    circle(double a, double b) {
        super(a, b);
    }
    double printArea() {
        return(a * a * 3.14);
    }
```

```
public class Run {
    public static void main() {
        Rectangle R = new Rectangle (10, 20);
        Triangle T = new Triangle(20, 10);
        Circle C = new Circle (10, 5);
        Shape S;
        S = R;
        S.O.P ("The area of rect.." + S.printArea);
        S = T;
        SO.PE.println("The area of treangle is" + S.printArea());
        S = C;
        SOP ("The area of circle is: " + S.printArea());
    }
}
```

Op:-

Area of rectangle = 200.
Area of triangle = 100
Area of circle = 314

Program 6:-

```
import java.util.Scanner;
class Account{
    String cname;
    long accno;
    String acctype;
    double bal;
    public void deposit(double amt) {
        bal += amt;
        sop("Deposited Balance = " + balance);
    }
    Public void displayBal() {
        sop("Balance = " + bal);
    }
}
class current extends Account {
    double servicecharge, minBal;
    Public void deposit(double amt) {
        super.deposit(amt);
        minBal()
    }
    Public void displayBal() {
        super.displayBal();
        minBal();
    }
    Public void minBal() {
        if (bal < minbal) {
            bal -= servicecharge;
            sop(balance);
        }
    }
}
```

```
class SavAccount extends Account {
    double interestRate;
    public void deckInterest() {
        double interest = bal * interestRate;
        bal += interest;
        Sop(balance);
    }
    public void displayBal() {
        super.displayBal(); }
    public void withdraw(double amt) {
        if( amt <= bal) {
            bal -= amt;
            Sop(bal); }
        else {
            Sop("insufficient");
        }
    }
}

Public class Bank {
    PSVM(String[] args) {
        Scanner S = new Scanner(System.in);
        WorkAcct C1 = new WorkAcct( , );
        d.deposit(2000);
        d.displayBal();
        SavAcct S1 = new SavAcct( , );
        d.deposit(2000);
        d.displayBal();
        Sop("enter withdrawal amt:");
        double withdrawal_amt = Scanner.nextDouble();
        S1.withdraw(withdrawal_amt);
        S1.displayBal;
    }
}
```

Program 7:-

```
Package CIE;
Public class Student {
    String USN;
    String name;
    int sem;
}

Package CIE;
    Public class Internals extends Student {
        int[] internalMarks = new int[5];
    }

Package SEE;
import CIE.Student;
Public class External extends Student {
    int[] semMarks = new int[5];
}

import CIE.Internals
import SEE.Externals
Public class main {
    Public static void main() {
        InternalsStudent.USN = "1BM22CS001";
        InternalsStudent.name = "Jonny";
        InternalsStudent.sem = 5;
        InternalsStudent.internalMarks = new[]
                                {80,75,95,90,70};
        External entstud = new External();
        entstud.USN = "1BM22CS002";
        entstud.name = "Jane";
        entstud.sem = 5;
        entstud.entmarks = new int[] {70,65,75
                                80,85};
    }
}
```

Program 8:-

```
import java.util.Scanner
class WrongAge extends Exception
    public WrongAge (String message) {
        super (message);
    }
}
class Father{
    int age;
    Public Father (int age) throws WrongAge {
        if (age < 0) {
            throw new WrongAge
                ("Age cannot be -ve");
        }
        this.age = age;
    }
    Public int getAge () {
        return age;
    }
}
class Son extends Father {
    int son age;
    Public Son (int FatherAge, int sonAge) throws
                WrongAge {
        super (FatherAge);
        if (sonAge >= FatherAge) {
            throw new WrongAge ("Son's age
                can't be greater or equal to
                father's age");
        }
        this.sonAge = sonAge;
    }
    Public getSonAge () {
        return sonAge;
    }
}
Public class Main {
    Public static void main ()
        try {
            sopln ("Name: Mandaar");
            Father F = new Father (45);
            sopln ("Father's age: " + F.getAge());
            Son s = new Son (45, 50);
            System.out.println ("Son's age: "
                s.getSonAge());
        }
        catch (WrongAge e) {
            sopln ("Exception caught: " + e.
                getMessage());
        }
    }
}
```

Program 9

```
class DispMessage extends Thread {
    String message;
    int interval;
    Public DispMessage(String message, int
                       interval) {
        this.message = message;
        this.interval = interval;
    }
    Public void run() {
        while (true) {
            System.out.println(message);
            try {
                Thread.sleep(interval); }
            catch (InterruptedException e) {
                e.printStackTrace();
            }
        }
    }
Public class Main{
    Public static void main (String[] args) {
        DispMessage bmsce = new DispMessage
                            ("BMSCE", 1000);
        DispMessage cse = new DispMessage("CSE"
                          ,2000);
        bmsce.start();
        cse.start();
    }
}
```

Program 10a :-

```
import java.awt.*;
import java.awt.event.*;
public class AWTExample extends WindowAdapter
    Frame f;
    AWTExample(){
    f.addWindowListener(this);
    Label l = new Label("Employee id: ");
    Button b = new Button("Submit");
    TextField t = new TextField();
    l.setBounds(20, 80, 80, 30);
    t.setBounds(20, 100, 80, 30);
    b.setBounds(100, 100, 80, 30);
    f.add(b);
    f.add(l);
    f.add(t);
    f.setSize(400, 300);
    f.setTitle("Employee info");
    f.setLayout(null);
    f.setVisible(true);
}
Public void windowClosing(WindowEvent e) {
        System.exit(0);
}
Public static void main() {
    AWTExample awt_obj = new AWTExample();
}
}
```