TUTORIAL 1

1.

Student: Class

NTU: Object, Universities as Class

Book: Class

MichealJackson: Object

Age: Attribute

Color: Attribute

Work: Attribute

Person: Class

Person1: Object

Result: Attribute

Transformer: Object, Car as Class

Engine: Object

Liquid: Attribute, assumed as Engine Liquid

Force: Behaviour

Shoot: Behaviour

2.

SCSE School as Class

Students, Tutors, Rooms, Stalls, Cleaners

-Students: age, cca, name, study year, gpa, walk,run, read

-Tutors: age, years taught, walk, teach

-Cleaners: age, name, wash, dry

-Stalls: stall name, number of employees, returnChange

-Rooms: number of chairs, number of tables, location

3.

import java.util.Scanner;

public class bubblesort{

    public static void main(String[] args){

        int i,n;

        int []a = new int [100];

        System.out.print("\n\n Enter number of Integer elements to be sorted: ");

        Scanner sc = new Scanner(System.in);

        n = sc.nextInt();

        for(i=0;i<=n-1;i++){

            System.out.print("\n\n Enter integer value for element no." + i+1 + " : ");

            a[i] = sc.nextInt();

        }

        bubble(a, n);

        System.out.print("\n\n Finally sorted array is: ");

        for(i=0;i<=n-1;i++){

            System.out.print(a[i] + " ");

        }

    }

    public static void bubble(int a[],int n){

        int i,j,t;

        for(i=n-2;i>=0;i--){

            for(j=0;j<=i;j++){

                if(a[j]>a[j+1]){

                    t=a[j];

                    a[j]= a[j+1];

                    a[j+1] = t;

                }

            }

        }

    }

}

TUTORIAL 2

Q1. Make a folder eg. cciirrccllee with all the java files in it eg. Circle.java, CircleApp.java

In Circle.java and CircleApp.java, put package cciirrccllee

Circle.java

package cciirrccllee;

public class Circle {

    private double radius;

    private static final double PI = 3.14159;

    //constructor

    public Circle(double rad){

        this.radius = rad;

    }

    //mutator method - set radius

    public void setRadius(double rad){

        this.radius = rad;

    }

    //accessor method - get radius

    public int getRadius(){

        return radius;

    }

    //calculate area

    public double area(){

        return PI \* this.radius \* this.radius;

    }

    //calculate circumference

    public double circumference(){

        return 2 \* PI \* this.radius;

    }

    //print area

    public void printArea(){

        System.out.println("Area of circle");

        System.out.println("Radius:" + this.radius);

        System.out.println("Area: " + this.area());

    }

    //print circumference

    public void printCircumference(){

        System.out.println("Circumference of circle");

        System.out.println("Radius:" + this.radius);

        System.out.println("Area: " + this.circumference());

    }

}

CircleApp.java

package cciirrccllee;

import java.util.Scanner;

public class CircleApp {

    public static void main(String[] args){

        System.out.println("==== Circle Computation =====");

        System.out.println("|1. Create a new circle     |");

        System.out.println("|2. Print Area              |");

        System.out.println("|3. Print Circumference     |");

        System.out.println("|4. Quit                    |");

        System.out.println("=============================");

        int choice;

        Scanner sc = new Scanner(System.in);

        System.out.println("Choose option (1-3):");

        choice = sc.nextInt();

        double r = 0;

        Circle circle1 = new Circle(0);

        while(choice!=4){

            switch(choice){

                case 1:

                    System.out.println("Enter the radius to compute the area and circumference");

                    r = sc.nextDouble();

                    circle1 = new Circle(r);

                    System.out.println("A new circle is created");

                    System.out.println("Choose option (1-3):");

                    choice = sc.nextInt();

                    break;

                case 2:

                    circle1.printArea();

                    System.out.println("Choose option (1-3):");

                    choice = sc.nextInt();

                    break;

                case 3:

                    circle1.printCircumference();

                    System.out.println("Choose option (1-3):");

                    choice = sc.nextInt();

                    break;

                case 4:

                    break;

                default:

                    System.out.println("Enter a valid option, 4 to quit");

                    choice = sc.nextInt();

                    break;

            }

        }

        System.out.println("Thank you!!");

    }

}

Q2. Folder/package: ddiiccee, java files: Dice.java, DiceApp.java

Dice.java

package ddiiccee;

public class Dice{

    private int valueOfDice;

    public Dice(){

        this.valueOfDice = 0;

    }

    public void setDiceValue(){

        this.valueOfDice = (1 + (int)(Math.random() \* 5 ));

    }//(min + (int)(Math.random()\*((max-min)+1))

    public int getDiceValue(){

        return valueOfDice;

    }

    public void printDiceValue(){

        System.out.println("Current Value is " + valueOfDice);

    }

}

DiceApp.java

package ddiiccee;

import java.util.\*;

import java.io.\*;

public class DiceApp{

    public static void main(String[] args){

        int total = 0;

        System.out.println("Press <key> to roll the first dice");

        Scanner sc = new Scanner(System.in);

        sc.nextLine();  //waits for user to press enter

        Dice dice1 = new Dice();

        dice1.setDiceValue();

        dice1.getDiceValue();

        dice1.printDiceValue();

        System.out.println("Press <key> to roll the first dice");

        sc.nextLine();

        Dice dice2 = new Dice();

        dice2.setDiceValue();

        dice2.getDiceValue();

        dice2.printDiceValue();

        total = dice1.getDiceValue() + dice2.getDiceValue();

        System.out.println("Your total number is: " + total);

    }

}