

# **Assignment – 1 & 2**

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**Division : B**

**Subject : Java Practical**

## Q.1:

```
class Vehicle{
```

```
    String name;
```

```
    String manufacturer;
```

```
    Vehicle(String name, String manufacturer){
```

```
        this.name = name;
```

```
        this.manufacturer = manufacturer;
```

```
    }
```

```
    void startEngine(){
```

```
        System.out.println("The vehicle name "+ name +" engine is started which  
manufactur by "+ manufacturer);
```

```
    }
```

```
}
```

```
class Car extends Vehicle{
```

```
    int numDoors;
```

```
    Car(String name, String manufacturer, int numDoors){
```

```
        super(name,manufacturer);
```

```
        this.numDoors = numDoors;
```

```
}
```

```
void honkHorn(){
```

```
    System.out.println(name + " name Car honking its horn");
```

```
}
```

```
}
```

```
class SportsCar extends Car{
```

```
    int topSpeed;
```

```
    SportsCar(String name, String manufacturer, int numDoors,int topSpeed){
```

```
        super(name,manufacturer,numDoors);
```

```
        this.topSpeed = topSpeed;
```

```
}
```

```
void activateTurbo(){
```

```
    System.out.println("Turbo mode of the sports car "+ name +" activate");
```

```
}
```

```
}
```

```
class CarRentalSystem{
```

```
    public static void main(String[] args) {
```

```
        Vehicle v1 = new Vehicle("Bus","Tata");
```

```
        Car c1 = new Car("Thar","Mahendra",5);
```

```
        SportsCar sc1 = new SportsCar("Aventador","Lamborghini",2,200);
```

```
System.out.println("*****Vehicle Details*****");  
System.out.println("Name: "+ v1.name);  
System.out.println("Manufacturer: "+ v1.manufacturer);  
v1.startEngine();
```

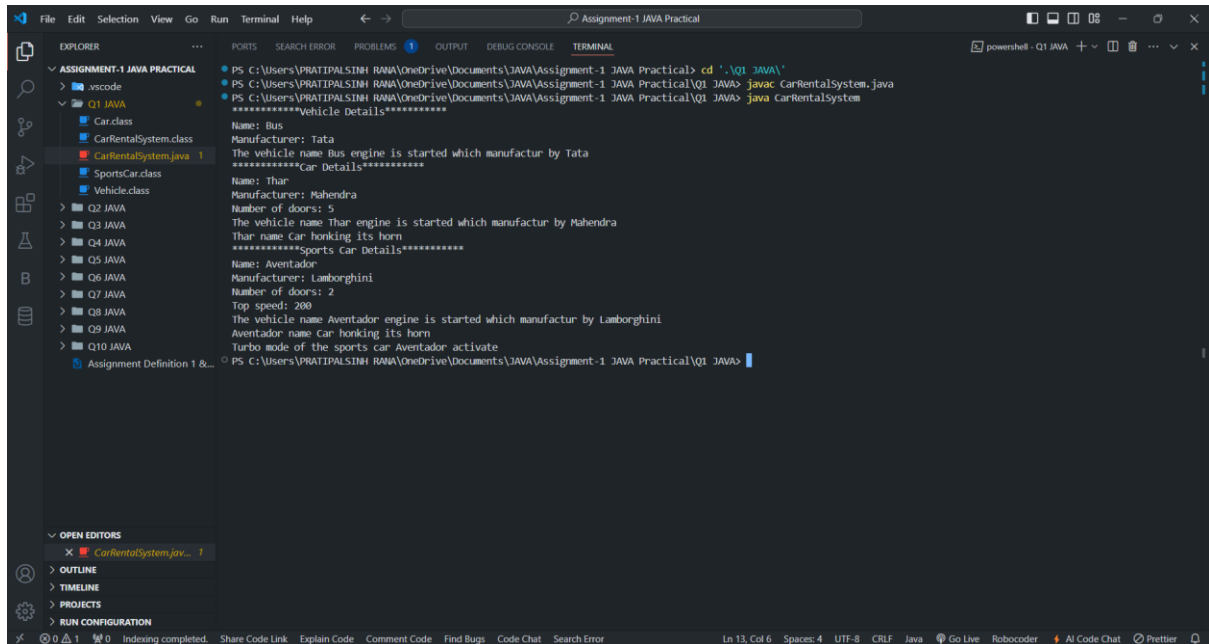
```
System.out.println("*****Car Details*****");  
System.out.println("Name: "+ c1.name);  
System.out.println("Manufacturer: "+ c1.manufacturer);  
System.out.println("Number of doors: "+ c1.numDoors);  
c1.startEngine();  
c1.honkHorn();
```

```
System.out.println("*****Sports Car Details*****");  
System.out.println("Name: "+ sc1.name);  
System.out.println("Manufacturer: "+ sc1.manufacturer);  
System.out.println("Number of doors: "+ sc1.numDoors);  
System.out.println("Top speed: "+ sc1.topSpeed);  
sc1.startEngine();  
sc1.honkHorn();  
sc1.activateTurbo();
```

```
}
```

```
}
```

# Output:



```
PS C:\Users\PRATIPALSI\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd ".\Q1 JAVA\"
PS C:\Users\PRATIPALSI\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q1 JAVA> javac CarRentalSystem.java
PS C:\Users\PRATIPALSI\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q1 JAVA> java CarRentalSystem
*****Vehicle Details*****
Name: Bus
Manufacturer: Tata
The vehicle name Bus engine is started which manufacture by Tata
*****Car Details*****
Name: Thar
Manufacturer: Mahendra
Number of doors: 5
The vehicle name Thar engine is started which manufacture by Mahendra
Thar name Car honking its horn
*****Sports Car Details*****
Name: Aventador
Manufacturer: Lamborghini
Number of doors: 2
Top speed: 200
The vehicle name Aventador engine is started which manufacture by Lamborghini
Aventador name Car honking its horn
Turbo mode of the sports car Aventador activate
PS C:\Users\PRATIPALSI\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q1 JAVA>
```

## Q.2:

abstract class Thali {

private double price;

Thali() {

    this.price = 0.0;

}

abstract void addSabji(double price);

abstract void addDal(double price);

```
abstract void addRice(double price);
```

```
abstract void addRoti(double price);
```

```
void makeThali() {  
    System.out.println("The Veg Thali will be ready in 30 minutes");  
}
```

```
public double getPrice() {  
    return this.price;  
}
```

```
protected void setPrice(double price) {  
    this.price += price;  
}  
}
```

```
class GujaratiThali extends Thali {
```

```
    public void addSabji(double price) {  
        System.out.println("Sabji : "+price);  
        setPrice(price);  
    }
```

```
    public void addDal(double price) {  
        System.out.println("Dal : "+price);
```

```
        setPrice(price);  
    }
```

```
    public void addRice(double price) {  
        System.out.println("Rice : "+price);  
        setPrice(price);  
    }
```

```
    public void addRoti(double price) {  
        System.out.println("Roti : "+price);  
        setPrice(price);  
    }  
}
```

```
class PunjabiThali extends Thali {
```

```
    public void addSabji(double price) {  
        System.out.println("Sabji : "+price);  
        setPrice(price);  
    }
```

```
    public void addDal(double price) {  
        System.out.println("Dal : "+price);  
        setPrice(price);  
    }
```

```
public void addRice(double price) {  
    System.out.println("Rice : "+price);  
    setPrice(price);  
}
```

```
public void addRoti(double price) {  
    System.out.println("Roti : "+price);  
    setPrice(price);  
}  
}
```

```
abstract class BaseThaliRestaurant {  
    public abstract Thali createThali(String type);  
}
```

```
class ThaliRestaurant extends BaseThaliRestaurant {  
  
    public Thali createThali(String type) {  
        if (type.equals("Gujarati")) {  
            return new GujaratiThali();  
        } else if (type.equals("Punjabi")) {  
            return new PunjabiThali();  
        } else {  
            return null;  
        }  
    }  
}
```



```
}
```

```
class FactoryDesignPattern {
```

```
    public static void main(String[] args) {
```

```
        ThaliRestaurant restaurant = new ThaliRestaurant();
```

```
        System.out.println("-----Gujarati Thali-----");
```

```
        Thali gujaratiThali = restaurant.createThali("Gujarati");
```

```
        gujaratiThali.addSabji(150.00);
```

```
        gujaratiThali.addDal(40.00);
```

```
        gujaratiThali.addRice(30.00);
```

```
        gujaratiThali.addRoti(20.00);
```

```
        gujaratiThali.makeThali();
```

```
        System.out.println("Total Price of Gujarati Thali: " +  
gujaratiThali.getPrice());
```

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

```
        System.out.println("-----Punjabi Thali-----");
```

```
        Thali punjabiThali = restaurant.createThali("Punjabi");
```

```
        punjabiThali.addSabji(200.00);
```

```
        punjabiThali.addDal(60.00);
```

```
        punjabiThali.addRice(40.00);
```

```
        punjabiThali.addRoti(30.00);
```

```
        punjabiThali.makeThali();
```

```

        System.out.println("Total Price of Punjabi Thali: " +
punjabiThali.getPrice());

    }

}

```

## Output:

```

PS C:\Users\PRATIPAL.SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd ".\Q2 JAVA\"
PS C:\Users\PRATIPAL.SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q2 JAVA> javac FactoryDesignPattern.java
PS C:\Users\PRATIPAL.SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q2 JAVA> java FactoryDesignPattern
-----Gujarati Thali-----
Sabji : 150.0
Dal : 40.0
Rice : 30.0
Roti : 20.0
The Veg Thali will be ready in 30 minutes
Total Price of Gujarati Thali: 240.0
-----Punjabi Thali-----
Sabji : 200.0
Dal : 60.0
Rice : 40.0
Roti : 30.0
The Veg Thali will be ready in 30 minutes
Total Price of Punjabi Thali: 330.0
PS C:\Users\PRATIPAL.SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q2 JAVA>

```

## Q.3:

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

```

interface PizzaOrderSystem{

    public void placeOrder(String pizzaType, int quantity);

    public String checkOrderStatus(int orderId);

    public boolean cancelOrder(int orderId);

    public double calculateOrderCost(int orderId);

    public void displayOrderDetails();
}

```

```
    public void listAvailablePizzas();
}

class PizzaOrderProcessor implements PizzaOrderSystem{

    int orderId=1;

    String[] listOfPizzas = {"Margherita Pizza","Cheese Pizza","Veggie Pizza","Non Veggie Pizza"};

    double[] listOfPizzasPrices = {90.00,150.00,100.45,400.85};

    String[][] orders = new String[5][3];

    public void placeOrder(String pizzaType, int quantity){

        System.out.println("Order ID "+this.orderId+" for Order of "+quantity+" "+pizzaType);

        orders[this.orderId-1][0] = Integer.toString(this.orderId);

        orders[this.orderId-1][1] = pizzaType;

        orders[this.orderId-1][2] = Integer.toString(quantity);

        this.orderId++;

    }

    public String checkOrderStatus(int orderId){

        for (int i = 0; i < orders.length; i++) {

            if(orderId == Integer.parseInt(orders[i][0])){

                return "New order placed successfully so it will be ready in 10 minutes";

            }

        }

    }

}
```

```
        return "Order is not placed";

    }

    public boolean cancelOrder(int orderId){
        for (int i = 0; i < this.orderId-1; i++) {
            if(orderId == Integer.parseInt(orders[i][0])){
                orders[orderId-1][1] = "";
                orders[orderId-1][2] = Integer.toString(0);
                return true;
            }
        }
        return false;
    }

    public double calculateOrderCost(int orderId){
        for (int i = 0; i < this.orderId-1; i++) {
            if(orderId == Integer.parseInt(orders[i][0])){
                return (getPrice(orderId)) * (Integer.parseInt(orders[i][2]));
            }
        }
        return 0.0;
    }

    public double getPrice(int orderId){
        for (int i = 0; i < listOfPizzas.length; i++) {
```

```
        if(orders[orderId-1][1] == listOfPizzas[i]){
            return listOfPizzasPrices[i];
        }
    }
    return 0.0;
}
```

```
public void displayOrderDetails(){
    System.out.println("\n-----Order Details-----");
    for (int i = 0; i < this.orderId-1; i++) {
        System.out.println("Order Id : "+orders[i][0]);
        System.out.println("Pizza Type : "+orders[i][1]);
        System.out.println("Pizza Quantity : "+orders[i][2]);
        System.out.println("");
    }
}
```

```
public void listAvailablePizzas(){
    System.out.println("List of available Pizzas and Its Prices");
    if((listOfPizzas.length) == (listOfPizzasPrices.length))
    {
        for (int i = 0; i < listOfPizzas.length; i++) {
            System.out.println(listOfPizzas[i]+" : "+listOfPizzasPrices[i]);
        }
    }
    System.out.println("");
}
```

```
}
```

```
}
```

```
class PizzaOrderSystemExample{
```

```
    public static void main(String[] args){
```

```
        PizzaOrderSystem order1 = new PizzaOrderProcessor();
```

```
        Scanner s = new Scanner(System.in);
```

```
        order1.listAvailablePizzas();
```

```
        order1.placeOrder("Margherita Pizza", 2);
```

```
        System.out.println("\nPlease Enter Order Id to check order status : ");
```

```
        int orderid = s.nextInt();
```

```
        System.out.println(order1.checkOrderStatus(orderid));
```

```
        order1.displayOrderDetails();
```

```
        System.out.println("\nPlease Enter Order Id to Calculate the total price of  
order for bill : ");
```

```
        orderid = s.nextInt();
```

```
        System.out.println("Total Cost of order :  
"+order1.calculateOrderCost(orderid));
```

```
        System.out.println("\nPlease Enter Order Id to cancel order : ");
```

```
        orderid = s.nextInt();
```

```
        if(order1.cancelOrder(orderid)){
```

```
            System.out.println("Order is Cancel Successfully");
```

```

    }

    else{

        System.out.println("Order is not Cancel Successfully");

    }

    order1.displayOrderDetails();

}

}

```

## Output:

```

PS C:\Users\PRATIPALSI\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd ".\Q3 JAVA\"
PS C:\Users\PRATIPALSI\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q3 JAVA> javac PizzaOrderSystemExample.java
PS C:\Users\PRATIPALSI\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q3 JAVA> java PizzaOrderSystemExample

List of available Pizzas and Its Prices
Margherita Pizza : 90.0
Cheese Pizza : 150.0
Veggie Pizza : 180.45
Non Veggie Pizza : 400.85

Order ID 1 for Order of 2 Margherita Pizza

Please Enter Order Id to check order status :
1
New order placed successfully so it will be ready in 10 minutes

-----Order Details-----
Order Id : 1
Pizza Type : Margherita Pizza
Pizza Quantity : 2

Please Enter Order Id to Calculate the total price of order for bill :
1
Total Cost of order : 180.0

Please Enter Order Id to cancel order :
1
Order is Cancel Successfully

-----Order Details-----
Order Id : 1
Pizza Type :
Pizza Quantity : 0

PS C:\Users\PRATIPALSI\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q3 JAVA>

```

```
PS C:\Users\PRATIPALSI\H RANA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd '.\Q3 JAVA\'
PS C:\Users\PRATIPALSI\H RANA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q3 JAVA> javac PizzaOrderSystemExample.java
PS C:\Users\PRATIPALSI\H RANA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q3 JAVA> java PizzaOrderSystemExample

List of available Pizzas and Its Prices
Margherita Pizza : 90.0
Cheese Pizza : 150.0
Veggie Pizza : 100.45
Non Veggie Pizza : 400.85

Order ID 1 for Order of 2 Margherita Pizza

Please Enter Order Id to check order status :
1
New order placed successfully so it will be ready in 10 minutes

-----Order Details-----
Order Id : 1
Pizza Type : Margherita Pizza
Pizza Quantity : 2

Please Enter Order Id to calculate the total price of order for bill :
1
Total Cost of order : 180.0

Please Enter Order Id to cancel order :
2
Order is not Cancel Successfully

-----Order Details-----
Order Id : 1
Pizza Type : Margherita Pizza
Pizza Quantity : 2
```

## Q.4:

```
class Person{
```

```
    String name;
```

```
    int age;
```

```
    Person(String name, int age){
```

```
        this.name = name;
```

```
        setAge(age);
```

```
    }
```

```
    String getName(){
```

```
        return this.name;
```

```
    }
```

```
    void setName(String name){
```



```
        this.name = name;
    }
```

```
int getAge(){
    return this.age;
}
```

```
void setAge(int age){
    if(age < 0){
        System.out.println("Please Enter age in positive value");
    }
    else{
        this.age = age;
    }
}
```

```
void introduce(){
    System.out.println("Person Name : "+name+" \nAge : "+age);
}
}
```

```
class Student extends Person{
    int studentId;

    Student(String name, int age,int studentId) {
        super(name, age);
    }
}
```

```
        this.studentId = studentId;  
    }
```

```
    int getStudentId(){  
        return studentId;  
    }
```

```
    void setStudentId(int studentId){  
        this.studentId = studentId;  
    }
```

```
    void introduce(){  
        System.out.println("-----Student Details-----");  
        super.introduce();  
        System.out.println("Student Id : "+studentId);  
    }
```

```
    void study(){  
        System.out.println("a student studying.");  
    }
```

```
}
```

```
class Teacher extends Person{  
    String subject;
```

```
Teacher(String name, int age, String subject) {  
    super(name, age);  
    this.subject = subject;  
}
```

```
String getSubject(){  
    return this.subject;  
}
```

```
void setSubject(String subject){  
    this.subject = subject;  
}
```

```
void introduce(){  
    System.out.println("-----Teacher Details-----");  
    super.introduce();  
    System.out.println("Subject : "+subject);  
}
```

```
void teach(){  
    System.out.println("a teacher teaching.");  
}  
}
```

```
class SchoolSystem{  
    public static void main(String[] args){  
        Student s1 = new Student("Pratipalsinh Rana",19,3161);
```

```

Teacher t1 = new Teacher("Jigar Sir",35,"MATHS");

s1.introduce();

s1.setAge(20);

s1.introduce();

s1.study();


t1.introduce();

t1.setSubject("CONM");

t1.introduce();

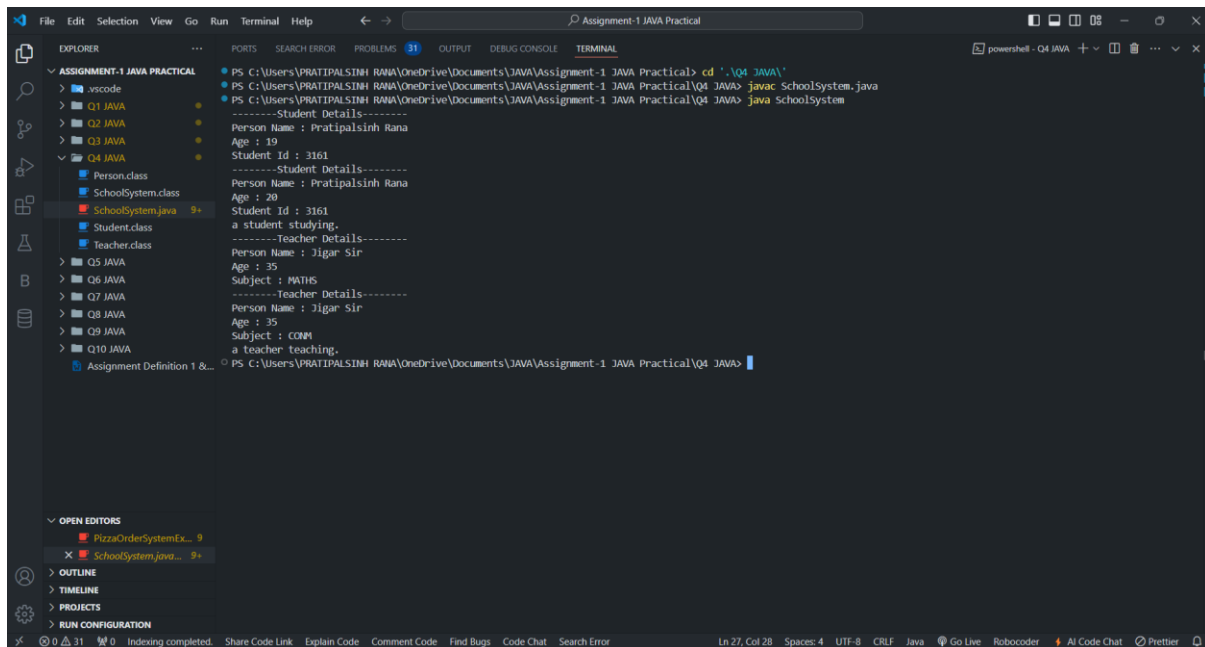
t1.teach();

}

}

```

## Output:



```

PS C:\Users\PRATIPAL.SINH\RAVA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd ".\Q4 JAVA\"
PS C:\Users\PRATIPAL.SINH\RAVA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q4 JAVA> javac SchoolSystem.java
PS C:\Users\PRATIPAL.SINH\RAVA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q4 JAVA> java SchoolSystem
-----Student Details-----
Person Name : Pratipalsinh Rana
Age : 19
Student Id : 3161
-----Student Details-----
Person Name : Pratipalsinh Rana
Age : 20
Student Id : 3161
a student studying.
-----Teacher Details-----
Person Name : Jigar Sir
Age : 35
Subject : MATHS
-----Teacher Details-----
Person Name : Jigar Sir
Age : 35
Subject : CONM
a teacher teaching.
PS C:\Users\PRATIPAL.SINH\RAVA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q4 JAVA>

```

## Q.5:

```
class User{

    String username;

    String email;


    User(String username, String email){

        this.username = username;

        this.email = email;

    }


    String getUsername(){

        return this.username;

    }


    String getEmail(){

        return this.email;

    }

}


class Professor extends User{

    String department;


    Professor(String username, String email,String department){

        super(username,email);

        this.department = department;

    }

}
```

```
}
```

```
String getDepartment(){  
    return this.department;  
}
```

```
}
```

```
class Course{  
    int code;  
    String courseName;  
    int creditHours;  
  
    Course(int code, String courseName, int creditHours){  
        this.code = code;  
        this.courseName = courseName;  
        this.creditHours = creditHours;  
    }  
  
    int getCode(){  
        return this.code;  
    }  
  
    String getCoursename(){  
        return this.courseName;  
    }  
}
```

```
int getCreditHours(){  
    return this.creditHours;  
}  
}
```

```
class Department{  
    String departmentName;  
    Professor professor1;  
    Course course1;  
  
    Department(String departmentName){  
        this.departmentName = departmentName;  
    }  
  
    String getDepartmentname(){  
        return this.departmentName;  
    }  
  
    Professor getProfessor1(){  
        return professor1;  
    }  
  
    void setProfessor1(P professor1){  
        this.professor1 = professor1;  
    }  
}
```

```
Course getCourse1(){  
    return course1;  
}
```

```
void setCourse1(Course course1){  
    this.course1 = course1;  
}  
}
```

```
class UniversityDepartmentSystem{  
    public static void main(String[] args) {  
        Professor p1 = new Professor("Pritesh Vyas  
sir","priteshvya123@gmail.com","Computer Science");  
  
        Course c1 = new Course(112,"Integrated M.Sc.(CA & IT)",250);  
  
        Department csDepartment = new Department("Computer Science  
Department");  
  
        csDepartment.setProfessor1(p1);  
        csDepartment.setCourse1(c1);  
  
        System.out.println("-----Details About Department-----");  
        System.out.println("Department name :  
"+csDepartment.getDepartmentname());
```



```

        System.out.println("Professor name :
"+csDepartment.getProfessor1().getUsername());

        System.out.println("Professor email :
"+csDepartment.getProfessor1().getEmail());

        System.out.println("Professor department :
"+csDepartment.getProfessor1().getDepartment());

        System.out.println("Course code :
"+csDepartment.getCourse1().getCode());

        System.out.println("Course name :
"+csDepartment.getCourse1().getCoursename());

        System.out.println("Course credit hours :
"+csDepartment.getCourse1().getCreditHours());

    }
}

```

## Output:

```

PS C:\Users\PRATIPAL.SINH RANA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd '.\Q5 JAVA\'
PS C:\Users\PRATIPAL.SINH RANA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q5 JAVA> javac UniversityDepartmentSystem.java
PS C:\Users\PRATIPAL.SINH RANA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q5 JAVA> java UniversityDepartmentSystem
-----Details About Department-----
Department name : Computer Science Department
Professor name : Pritesh Vyas sir
Professor email : priteshyas12@gmail.com
Professor department : Computer Science
Course code : 112
Course name : Integrated M.Sc. (CA & IT)
Course credit hours : 250
PS C:\Users\PRATIPAL.SINH RANA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q5 JAVA>

```

## Q.6:

```
import java.util.Scanner;

class Pattern{

    public static void main(String[] args) {

        Scanner s = new Scanner(System.in);

        System.out.print("Enter number of n : ");

        int n = s.nextInt();

        int size = (n*2)-1;

        int arr[][] = new int[size][size];

        int top = 0;

        int bottom = size-1;

        int left = 0;

        int right = size-1;

        while (n != 0) {

            // top-left to top-right

            for (int i = left; i < right; i++) {

                arr[top][i] = n;

            }

            //right-top to right-bottom

            for (int j = top; j < bottom; j++) {
```

```
        arr[j][right] = n;
    }

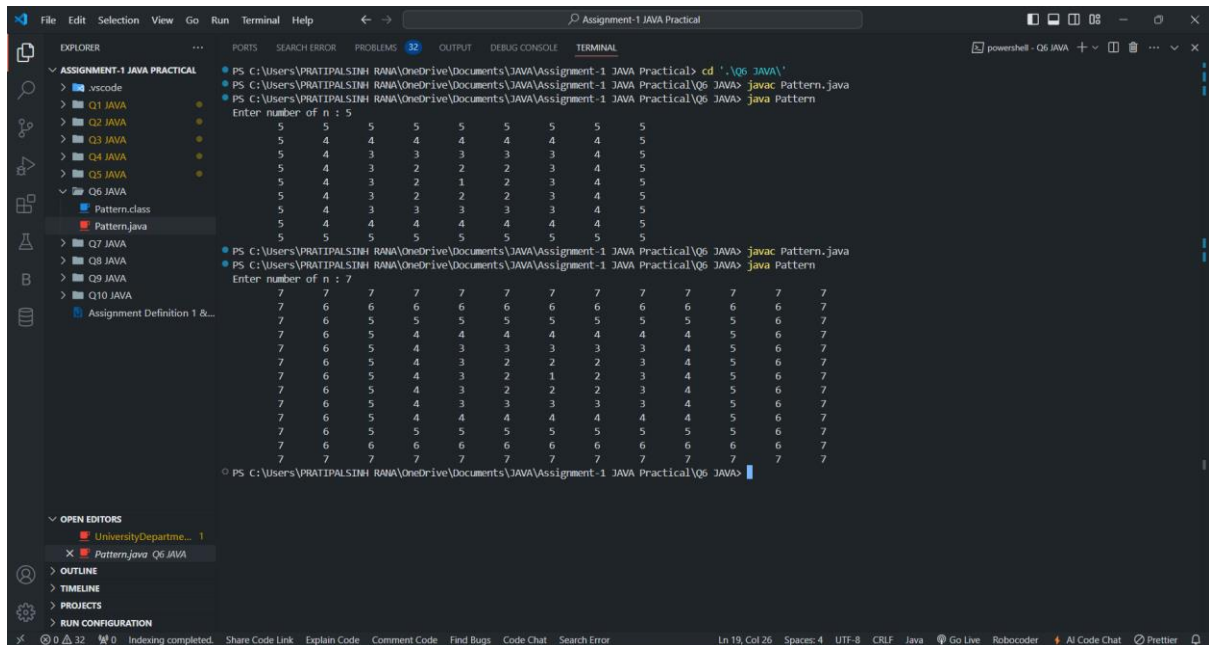
    //bottom-right to bottom-left
    for (int k = right; k >= left; k--) {
        arr[bottom][k] = n;
    }

    //left-bottom to left-top
    for (int l = bottom; l >= top; l--) {
        arr[l][left] = n;
    }
    top++;
    bottom--;
    left++;
    right--;
    n--;
}

for (int i = 0; i < size; i++) {
    for (int j = 0; j < size; j++) {
        System.out.print("\t"+arr[i][j]);
    }
    System.out.println("");
}
}
```

}

## Output:



```
PS C:\Users\PRATIPALSTINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd ".\Q6 JAVA\"
PS C:\Users\PRATIPALSTINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q6 JAVA> javac Pattern.java
PS C:\Users\PRATIPALSTINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q6 JAVA> java Pattern
Enter number of n : 5
5 5 5 5 5
5 4 4 4 4
5 4 3 3 3
5 4 3 2 2
5 4 3 2 1
5 4 3 2 2
5 4 3 3 3
5 4 4 4 4
5 5 5 5 5
PS C:\Users\PRATIPALSTINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q6 JAVA> javac Pattern.java
PS C:\Users\PRATIPALSTINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q6 JAVA> java Pattern
Enter number of n : 7
7 7 7 7 7 7 7
7 6 6 6 6 6 6
7 6 5 5 5 5 5
7 6 5 4 4 4 4
7 6 5 4 3 3 3
7 6 5 4 3 2 2
7 6 5 4 3 2 1
7 6 5 4 3 2 3
7 6 5 4 3 3 3
7 6 5 4 4 4 4
7 6 5 5 5 5 5
7 6 6 6 6 6 6
7 7 7 7 7 7 7
```

## Q.7:

```
import java.util.Scanner;
```

```
class GcdOfTwoNumbers{
```

```
    public static void main(String[] args) {
```

```
        int a;
```

```
        int b;
```

```
        Scanner s = new Scanner(System.in);
```

```
        System.out.print("Enter number a : ");
```

```
        a = s.nextInt();
```

```
System.out.print("Enter number b : ");
```

```
b = s.nextInt();
```

```
System.out.println("GCD between two numbers a : "+a+" and b : "+b+" is  
"+findGcd(a,b));
```

```
}
```

```
private static int findGcd(int x, int y){
```

```
    int SmallerValue;
```

```
    if (x < y) {
```

```
        SmallerValue = x;
```

```
    }
```

```
    else{
```

```
        SmallerValue = y;
```

```
    }
```

```
    int i = SmallerValue;
```

```
    while (i > 1) {
```

```
        if(x % i == 0 && y % i == 0){
```

```
            return i;
```

```
        }
```

```
        i--;
```

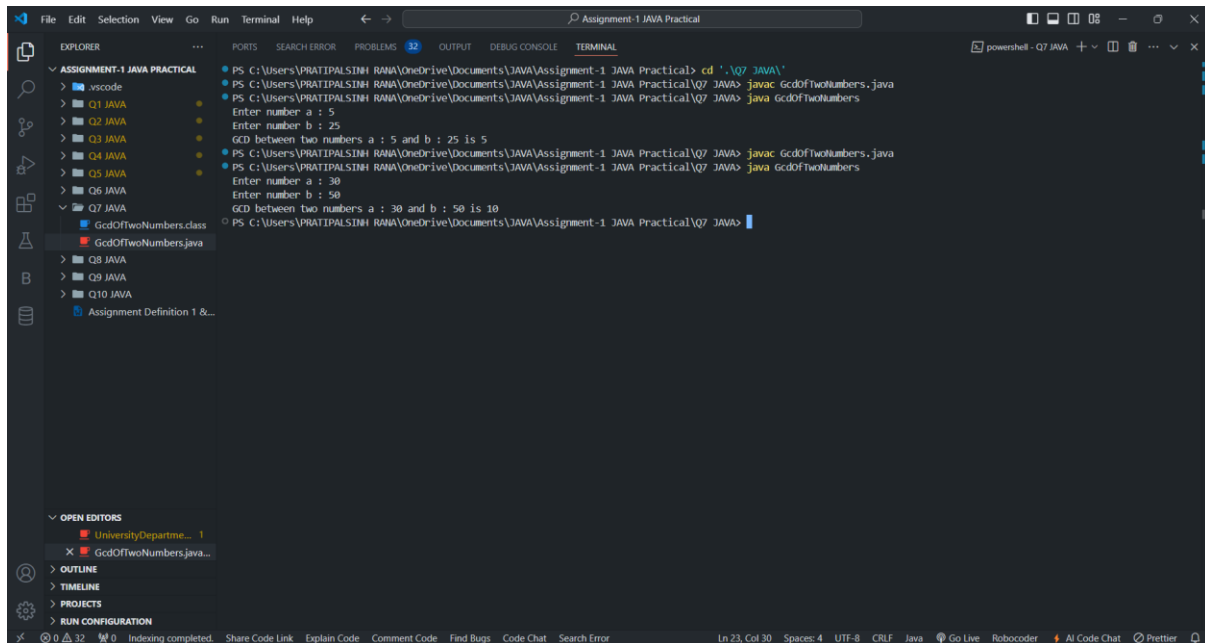
```
    }
```

```
    return 1;
```

```
}
```

```
}
```

# Output:



```
PS C:\Users\PRATIPAL.SINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd ".\Q7 JAVA\"
PS C:\Users\PRATIPAL.SINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q7 JAVA> javac GcdOfTwoNumbers.java
PS C:\Users\PRATIPAL.SINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q7 JAVA> java GcdOfTwoNumbers
Enter number a : 5
Enter number b : 25
GCD between two numbers a : 5 and b : 25 is 5
PS C:\Users\PRATIPAL.SINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q7 JAVA> javac GcdOfTwoNumbers.java
PS C:\Users\PRATIPAL.SINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q7 JAVA> java GcdOfTwoNumbers
Enter number a : 30
Enter number b : 50
GCD between two numbers a : 30 and b : 50 is 10
PS C:\Users\PRATIPAL.SINH\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q7 JAVA>
```

## Q.8:

```
import java.util.Scanner;
```

```
class AddTwoMatrix{
```

```
    public static void main(String[] args) {
```

```
        Scanner s = new Scanner(System.in);
```

```
        System.out.print("Enter row of matrix : ");
```

```
        int row = s.nextInt();
```

```
System.out.print("Enter column of matrix : ");  
int column = s.nextInt();  
  
int[][][] array = new int[2][row][column];  
  
for (int k = 0; k < 2; k++) {  
    for (int i = 0; i < row; i++) {  
        for (int j = 0; j < column; j++) {  
            System.out.print("Enter value of array["+k+"]["+i+"]["+j+"] : ");  
            array[k][i][j]=s.nextInt();  
        }  
    }  
}
```

```
int[][] arraysSum = new int[row][column];  
  
for (int k = 0; k < 2-1; k++) {  
    for (int i = 0; i < row; i++) {  
        for (int j = 0; j < column; j++) {  
            arraysSum[i][j] = array[k][i][j] + array[k+1][i][j];  
        }  
    }  
}
```

```
System.out.println("");  
for (int k = 0; k < 2; k++) {
```

```

System.out.println("-----Array : "+k+" -----");
for (int i = 0; i < row; i++) {
    for (int j = 0; j < column; j++) {
        System.out.print("\t\t"+array[k][i][j]);
    }
    System.out.println("");
}
}

System.out.print("-----Addition of Two Array-----");
for (int i = 0; i < row; i++) {
    System.out.println("");
    for (int j = 0; j < column; j++) {
        System.out.print("\t\t"+arraysSum[i][j]);
    }
}
}
}

```

**Output:**



```

PS C:\Users\PRATIPAL SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd ".\Q8 JAVA\"
PS C:\Users\PRATIPAL SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q8 JAVA> javac AddTwoMatrix.java
PS C:\Users\PRATIPAL SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q8 JAVA> java AddTwoMatrix
Enter row of matrix : 2
Enter column of matrix : 2
Enter value of array[0][0] : 1
Enter value of array[0][1] : 2
Enter value of array[0][1][0] : 3
Enter value of array[0][1][1] : 4
Enter value of array[1][0][0] : 5
Enter value of array[1][0][1] : 6
Enter value of array[1][1][0] : 7
Enter value of array[1][1][1] : 8

-----Array : 0 -----
1      2
3      4
-----Array : 1 -----
5      6
7      8
-----Addition of Two Array-----
6      8
10     12

PS C:\Users\PRATIPAL SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q8 JAVA> javac AddTwoMatrix.java
PS C:\Users\PRATIPAL SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q8 JAVA> java AddTwoMatrix
Enter row of matrix : 3
Enter column of matrix : 3
Enter value of array[0][0][0] : 1
Enter value of array[0][0][1] : 2
Enter value of array[0][0][2] : 3
Enter value of array[0][1][0] : 4
Enter value of array[0][1][1] : 5
Enter value of array[0][1][2] : 6
Enter value of array[0][2][0] : 7
Enter value of array[0][2][1] : 8
Enter value of array[0][2][2] : 9
Enter value of array[1][0][0] : 10
Enter value of array[1][0][1] : 11
Enter value of array[1][0][2] : 12
Enter value of array[1][1][0] : 13
Enter value of array[1][1][1] : 14

```

```

5      6
7      8
-----Addition of Two Array-----
6      8
10     12

PS C:\Users\PRATIPAL SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q8 JAVA> javac AddTwoMatrix.java
PS C:\Users\PRATIPAL SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q8 JAVA> java AddTwoMatrix
Enter row of matrix : 3
Enter column of matrix : 3
Enter value of array[0][0][0] : 1
Enter value of array[0][0][1] : 2
Enter value of array[0][0][2] : 3
Enter value of array[0][1][0] : 4
Enter value of array[0][1][1] : 5
Enter value of array[0][1][2] : 6
Enter value of array[0][2][0] : 7
Enter value of array[0][2][1] : 8
Enter value of array[0][2][2] : 9
Enter value of array[1][0][0] : 10
Enter value of array[1][0][1] : 11
Enter value of array[1][0][2] : 12
Enter value of array[1][1][0] : 13
Enter value of array[1][1][1] : 14
Enter value of array[1][1][2] : 15
Enter value of array[1][2][0] : 16
Enter value of array[1][2][1] : 17
Enter value of array[1][2][2] : 18

-----Array : 0 -----
1      2      3
4      5      6
7      8      9
-----Array : 1 -----
10     11     12
13     14     15
16     17     18
-----Addition of Two Array-----
11     13     15
17     19     21
23     25     27

PS C:\Users\PRATIPAL SINH RAMA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q8 JAVA>

```

## Q.9:

```
import java.util.Scanner;
```

```
class PrimeNumber{

    public static void main(String[] args){
```

```
Scanner s = new Scanner(System.in);

System.out.print("Enter number : ");
int n = s.nextInt();

if(chekcisPrimeNumber(n)){
    System.out.println("Number "+n+" is Prime Number");
}
else{
    System.out.println("Number "+n+" is not Prime Number");
}
}

public static boolean chekcisPrimeNumber(int n){
    int i = 2;

    if (n <= 2) {
        return n == 2;
    }

    if(n % i == 0){
        return false;
    }

    if(i < Math.sqrt(n)){
        return true;
    }
}
```

```

    }

    i++;

    return chekcisPrimeNumber(n);

}

}

```

## Output:

```

PS C:\Users\PRATIPAL.SINH\RAWA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd .\Q9 JAVA\
PS C:\Users\PRATIPAL.SINH\RAWA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q9 JAVA> javac PrimeNumber.java
PS C:\Users\PRATIPAL.SINH\RAWA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q9 JAVA> java PrimeNumber
Enter number : 5
Number 5 is Prime Number
PS C:\Users\PRATIPAL.SINH\RAWA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q9 JAVA> javac PrimeNumber.java
PS C:\Users\PRATIPAL.SINH\RAWA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q9 JAVA> java PrimeNumber
Enter number : 10
Number 10 is not Prime Number
PS C:\Users\PRATIPAL.SINH\RAWA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q9 JAVA> javac PrimeNumber.java
PS C:\Users\PRATIPAL.SINH\RAWA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q9 JAVA> java PrimeNumber
Enter number : 2
Number 2 is Prime Number
PS C:\Users\PRATIPAL.SINH\RAWA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q9 JAVA>

```

## Q.10:

```

class StringBufferExample{

    public static void main(String[] args) {

        StringBuffer stringBuffer = new StringBuffer("Hello, World!");

        System.out.println("String : "+stringBuffer);
    }
}

```

```
stringBuffer.append(" Welcome to Java!");
```

```
System.out.println("String after using append method : "+stringBuffer);
```

```
stringBuffer.insert(12, "from ");
```

```
System.out.println("String after using insert method : "+stringBuffer);
```

```
stringBuffer.replace(7, 12, "Universe");
```

```
System.out.println("String after using replace method : "+stringBuffer);
```

```
stringBuffer.setCharAt(0, 'h');
```

```
System.out.println("String after using setCharAt method : "+stringBuffer);
```

```
stringBuffer.delete(2, 5);
```

```
System.out.println("String after using delete method : "+stringBuffer);
```

```
stringBuffer.deleteCharAt(10);
```

```
System.out.println("String after using deleteCharAt method :  
"+stringBuffer);
```

```
stringBuffer.reverse();
```

```
System.out.println("String after using reverse method : "+stringBuffer);
```

```
String result = stringBuffer.toString();
```

```
System.out.println("String after using toString method : "+stringBuffer);
```

```
int length = stringBuffer.length();
```

```
int capacity = stringBuffer.capacity();
```

```

        System.out.println("Modified String: " + result);

        System.out.println("Length of StringBuffer: " + length);

        System.out.println("Capacity of StringBuffer: " + capacity);

    }

}

```

## Output:

```

PS C:\Users\PRATIPAL.SINH\RAHA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical> cd ".\Q10 JAVA\"
PS C:\Users\PRATIPAL.SINH\RAHA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q10 JAVA> javac StringBufferExample.java
PS C:\Users\PRATIPAL.SINH\RAHA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q10 JAVA> java StringBufferExample

String : Hello, World!
String after using append method : Hello, World! Welcome to Java!
String after using insert method : Hello, Worldfrom ! Welcome to Java!
String after using replace method : Hello, Universefrom ! Welcome to Java!
String after using setCharAt method : hello, Universefrom ! Welcome to Java!
String after using delete method : he, Universefrom ! Welcome to Java!
String after using deleteCharAt method : he, Universefrom ! Welcome to Java!
String after using reverse method : lava! ot emocleW ! morferevinU ,eh
String after using toString method : lava! ot emocleW ! morferevinU ,eh
Modified String: lava! ot emocleW ! morferevinU ,eh
Length of StringBuffer: 34
Capacity of StringBuffer: 60
PS C:\Users\PRATIPAL.SINH\RAHA\OneDrive\Documents\JAVA\Assignment-1 JAVA Practical\Q10 JAVA>

```