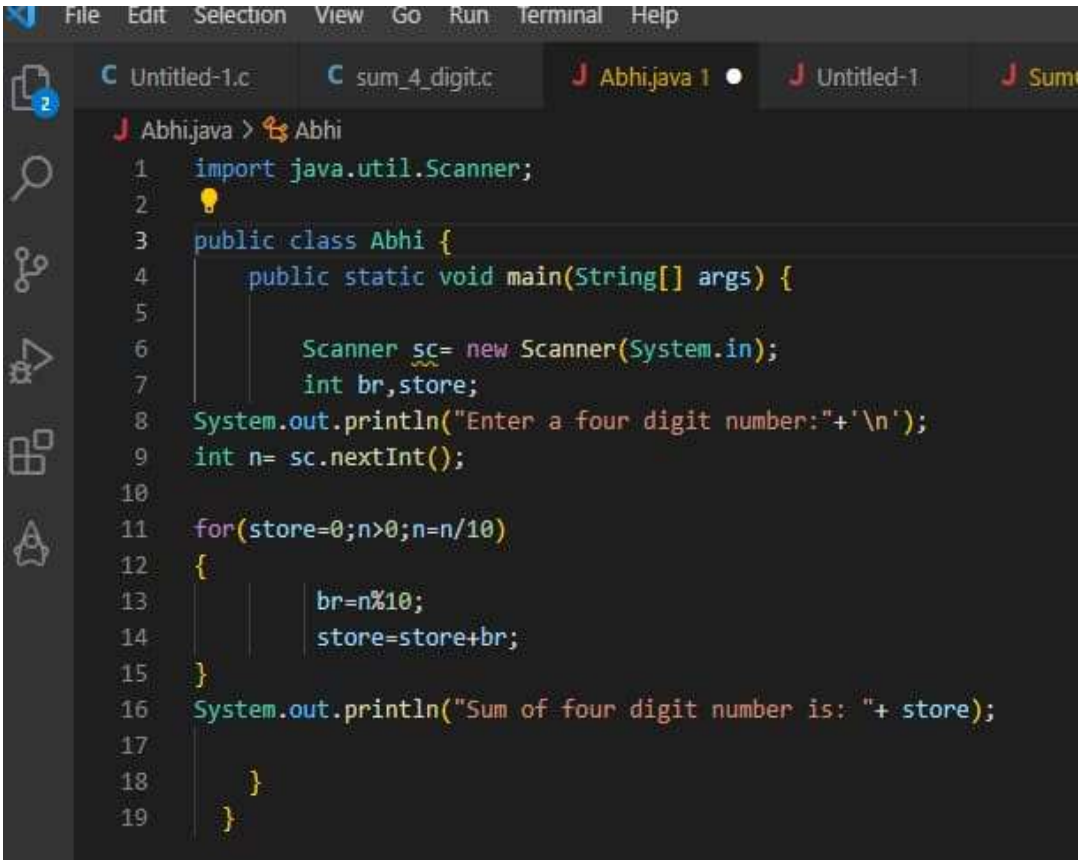
Object Oriented Programming in JAVA

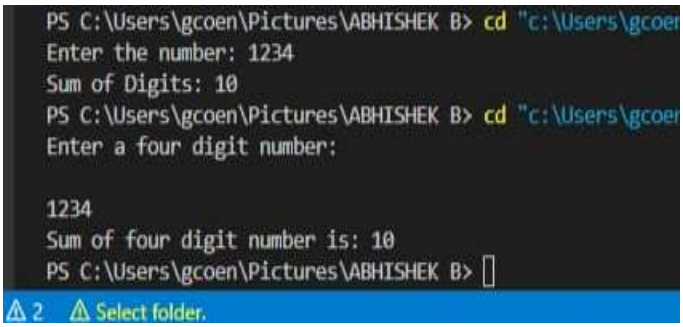
Practical No. :- 1

Q.1) Write a program to find sum of digits of four-digit number.

CODE :-



OUTPUT :-



Object Oriented Programming in JAVA

Practical No. : - 2

Q.2) Create a student result database in Java. Calculate the grades of students. Decide criteria for best student and short-list students who satisfy the criteria.

a) A student has a roll No, name, marks in five courses and a grade. A student list has many students. If a student has grade equal or beyond 8, he is considered as a top band student.

b) Create at least ten students. From these, find all such students which satisfy the criteria of top band student. Create a list of such students and display the students in the list.

CODE : -

```
import java.util.*;

public class Main {

   public static void main(String[] args) {

      Student Abhishek = new Student(03,98,97,96,95,98,"Abhishek");
      Student Max = new Student(78,78,87,86,55,98,"Max");
      Student Kai = new Student(45,88,77,56,35,48,"Kai");
      Student Tyson = new Student(01,87,97,96,65,88,"Tyson");
      Student Brooklyn = new Student(02,28,57,26,75,24,"Brooklyn");
      Student Richie = new Student(04,81,64,85,78,57,"Richie");
      Student Alex = new Student(5,98,73,65,24,81,"Alex");
      Student Alexa = new Student(6,98,84,95,86,89,"Alexa");
      Student Robin = new Student(07,23,67,34,67,83,"Robin");
      Student Sherlock = new Student(8,92,83,56,34,34,"Sherlock");

      ArrayList<Student> students = new ArrayList<>();
      students.add(Abhishek);
      students.add(Max);
      students.add(Kai);
      students.add(Tyson);
      students.add(Brooklyn);
      students.add(Richie);
      students.add(Alex);
      students.add(Alexa);
      students.add(Robin);
      students.add(Sherlock);


      Percentage f = new Percentage(students);
      TopBand finder = new TopBand(students);
      System.out.println("Top Band Students are: ");
      finder.getTopBandStudent();

   }
      }
```

```
import java.util.ArrayList;


public class TopBand {

   ArrayList<Student> students;


   public TopBand(final ArrayList<Student> students){
      this.students = students;
   }

   public void getTopBandStudent(){
      for (Student student : students){
         if(student.getGrade() >= 8){
            System.out.println("Name: " + student.getName()+ ", Roll No: "
+ student.getRollNo() + ",Grade: " + student.getGrade());
         }
      }
   }
}




class Student {

   int rollNo,sub1,sub2,sub3,sub4,sub5;
   String name;
   float grade;
   float per;


   public int getRollNo(){
      return rollNo;
   }

   public void setRollNo(int rollNo){
      this.rollNo = rollNo;
   }

   public String getName() {
      return name;
   }

   public void setName(String name) {
      this.name = name;
   }

   public Student(int rollNo,int sub1,int sub2, int sub3,int sub4,int
sub5,String name){
      this.rollNo = rollNo;
      this.name = name;
      this.sub1 = sub1;
      this.sub2 = sub2;
      this.sub3 = sub3;
      this.sub4 = sub4;
      this.sub5 = sub5;
   }
```

```
    public float getGrade() {
        return grade;
    }

    public void setGrade(float grade) {
        this.grade = grade;
    }

    public float getPer() {
        return per;
    }

    public void setPer(float per) {
        this.per = per;
    }

    public int getsub1() {
        return sub1;
    }

    public void setSub1(int sub1) {
        this.sub1 = sub1;
    }

    public int getsub2() {
        return sub2;
    }

    public void setSub2(int sub2) {
        this.sub2 = sub2;
    }

    public int getsub3() {
        return sub3;
    }

    public void setSub3(int sub3) {
        this.sub2 = sub2;
    }

    public int getsub4() {
        return sub4;
    }

    public void setSub4(int sub4) {
        this.sub2 = sub2;
    }

    public int getsub5() {
        return sub5;
    }

    public void setSub5(int sub5) {
        this.sub2 = sub2;
    }
}
```

```
import java.util.ArrayList;

class Percentage {

   public Percentage(ArrayList<Student> students) {
      for(Student student : students) {
         student.setPer(
              (student.getsub1() + student.getsub2() + student.getsub3() +
student.getsub4() + student.getsub5() )/5);
         student.setGrade((float) (student.getPer()/9.5));
      }
   }
}
```

OUTPUT :

```
"C:\Program Files\Java\jdk1.8.0_212\bin\java" ...
Top Band Students are:
Name: Abhishek, Roll No: 3,Grade: 10.105263
Name: Max, Roll No: 78,Grade: 8.421053
Name: Tyson, Roll No: 1,Grade: 9.052631
Name: Alexa, Roll No: 6,Grade: 9.473684

Process finished with exit code 0
```