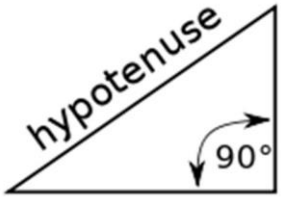
King Saud University College of Computer and Information Sciences Computer Science Department	
CSC 111 Introduction to Programming with Java	First Semester 1440-1441

Self-check

Q1) Write method isHypotenuse that takes 3 numbers and return true if the first number is hypotenuse and false if it is not. Your method should work for both integer and double numbers. Write Java program to test your methods. (Hint: the square of the length of the hypotenuse equals the sum of the squares of the lengths of the other two sides).




```java
import java.util.Scanner;
public class SelfCheck {
    public static Scanner input = new Scanner(System.in);
    public static void main(String args[]) {
    //Q1.
        System.out.println("Enter three numbers: ");
        double c = input.nextDouble();
        double a = input.nextDouble();
        double b = input.nextDouble();
        if (isHypotenuse(c,a,b))
            System.out.println("Right angle triangle");
        else
            System.out.println("Not a right angle triangle");
    }

    public static boolean isHypotenuse (double c, double a, double b) {
        boolean check = false;
        if (Math.pow(c,2)== (Math.pow(a,2))+(Math.pow(b,2)))
            check = true;
        return check;
    }
}
```

Q2) Write body of method substitute1 that can substitute the first occurrence of char with another char and another method substitute2 that replace the first occurrence of String with another String, then return updated String. Your methods should take String to replace its char/String with another char/String. Write Java program to test your

```
import java.util.Scanner;
import java.lang.String;
public class SelfCheck{
    static Scanner input = new Scanner(System.in);
    public static void main(String args[]){
    //Q2.
        char choice;
        System.out.println("Enter your sentence: ");
        String str = input.nextLine();
        menu();
        choice = input.next().charAt(0);
        switch(choice) {
            case'a': case'A':
                System.out.println("enter the character you would like to replace and the
one to replace it with: ");
                char ch1 = input.next().charAt(0);
                char ch2 = input.next().charAt(0);
                System.out.println(Substitute1(str,ch1,ch2));
                break;
            case'b': case'B':
                System.out.println("enter the string you would like to replace and the one
to replace it with: ");
                String s1 = input.next();
                String s2 = input.next();
                System.out.println(Substitute2(str,s1,s2));
            }
    }
    public static void menu() {
        System.out.println("Choose one of the following:\na. to replace a character with
anothe\nb. to replace a string with another");
    }

    public static String Substitute1(String str, char ch1, char ch2) {
        str = str.replace(ch1,ch2);
        return str;
    }

    public static String Substitute2(String str,String s1 ,String s2) {
        String s = str.replace(s1,s2);
        return s;
    }
}
```

Q3) Write a program that prompts the user to input the x-y coordinate of a point in a Cartesian plane, The program calls a method checkPoin that output a message indicating whether the point is the origin, is located on the x-axis, is located on the y-axis, or appears in a particular quadrant.
For example:
(0,0) is the origin
(4,0) is on the x-axis
(0,-3) is on the y-axis
(-2,3) is on the second quadrant

```java
import java.util.Scanner;
public class SlelfCheck{
    public static void main (String [] args){
    //Q3.
        Scanner input = new Scanner(System.in);
        System.out.println("Enter your coordinates: ");
        double x = input.nextInt();
        double y = input.nextInt();
        checkPoint(x,y);
    }
    public static void checkPoint(double x, double y){
        if (x==0 && y==0)
            System.out.println("Origin");
        else if (x==0)
            System.out.println("x-axis");
        else if (y==0)
            System.out.println("y-axis");
        else if (x>=0 && y>=0)
            System.out.println("First quadrant");
        else if (x<=0 && y>=0)
            System.out.println("Second quadrant");
        else if (x<=0 && y<=0)
            System.out.println("Third quadrant");
        else if (x>=0 && y<=0)
            System.out.println("Fourth quadrant");
    }
}
```