```java
/*Name : Ibrahim Elsayed Selim Mohmed
  ID   : 1600003
  Faculty of Electronic Engineering
*/
package sheet2;
// q1
import java.util.Scanner;

/**
 *
 * @author Ibrahim
 */
public class Sheet2 {

    /**
      * @param args the command line arguments
      */
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Enter a number : ");
        double x = input.nextDouble();
        System.out.println("Number is : " +
                ((x >= 0) ? "positive" : "negative"));
    }

}

//q2
import java.util.Scanner;
public class Sheet2 {

    /**
      * @param args the command line arguments
      */
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Input 1st number : ");
        double x = input.nextDouble();
        System.out.print("Input 2st number : ");
        double y = input.nextDouble();
        System.out.print("Input 3st number : ");
        double z = input.nextDouble();

        double greatest = x;
        greatest = (y > greatest) ? y : greatest;
        greatest = (z > greatest) ? z : greatest;

        System.out.println("The greatest : " + greatest);

    }

}

//q3
import java.util.Scanner;

/**
 *
 * @author Ibrahim
 */
public class Sheet2 {

    /**
      * @param args the command line arguments
```

```java
         */
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Input a number : ");
        short num = input.nextShort();
        String day = "";
        switch(num){
            case 1 : day = "Monday"; break;
            case 2 : day = "Tuseday"; break;
            case 3 : day = "Wednesday"; break;
            case 4 : day = "Thursday"; break;
            case 5 : day = "Friday"; break;
            case 6 : day = "Saturday"; break;
            case 7 : day = "Sunday"; break;
            default: day = "Number must be between 1 and 7";
        }
        System.out.println(day);
    }

}


//q4
import java.util.Scanner;

/**
 *
 * @author Ibrahim
 */
public class Sheet2 {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        System.out.print("Input floating-point number : ");
        float n1 = input.nextFloat();
        System.out.print("Input floating-point another number : ");
        float n2 = input.nextFloat();

        n1 *= 1000;
        n2 *= 1000;

        double d1 = n1 - (int) n1;
        double d2 = n2 - (int) n2;

        n1 = (int) n1;
        n2 = (int) n2;

        n1 = (d1 >= 0.5) ? (n1 + 1.0f) : n1;
        n2 = (d2 >= 0.5) ? (n2 + 1.0f) : n2;

        System.out.println("they are "
            + (((int)n1 == (int)n2) ? "" : "not ") + "equal");

    }

}


//q5
import java.util.Scanner;
```

```java
/**
 *
 * @author Ibrahim
 */
public class Sheet2 {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);

        // input data
        System.out.print("Input Input a month number : ");
        short monthNumber = input.nextShort();
        System.out.print("Input a year: ");
        int year = input.nextInt();

        short numberOfDaysInMonth;
        String monthName;

        switch(monthNumber){
            case 1 :
                monthName= "January";
                numberOfDaysInMonth = 31;
                break;

            case 2 :
                /*
                Rules:
                Every fourth year is a leap year.
                However, every hundredth year is not a leap year.
                Every four hundred years, there's a leap year after all.
                */
                monthName= "February";
                numberOfDaysInMonth =
                    (short) (((year%4 == 0)
                            || (year%400 == 0)
                            || (year%100 != 0))
                              ? (29) : (28));
                break;

            case 3 :
                monthName= "March";
                numberOfDaysInMonth = 31;
                break;

            case 4 :
                monthName= "April";
                numberOfDaysInMonth = 30;
                break;

            case 5 :
                monthName= "May";
                numberOfDaysInMonth = 31;
                break;

            case 6 :
                monthName= "June";
                numberOfDaysInMonth = 30;
                break;

            case 7 :
```

```java
                monthName= "July";
                numberOfDaysInMonth = 31;
                break;

            case 8 :
                monthName= "August";
                numberOfDaysInMonth = 31;
                break;

            case 9 :
                monthName= "September";
                numberOfDaysInMonth = 30;
                break;

            case 10 :
                monthName= "October";
                numberOfDaysInMonth = 31;
                break;

            case 11 :
                monthName= "November";
                numberOfDaysInMonth = 30;
                break;

            case 12 :
                monthName= "December";
                numberOfDaysInMonth = 31;
                break;
            default:
                numberOfDaysInMonth = 0;
                monthName = "Unknown";
        }
        System.out.println(monthName + " "
                + year + " has " + numberOfDaysInMonth + " days");
    }

}


//q6
import java.util.Scanner;

/**
 *
 * @author Ibrahim
 */
public class Sheet2 {

    /**
     * @param args the command line arguments
     */
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        System.out.print("Input an alphabet: ");
        String s = input.next();

        // validate the input
        if((s.length() > 1 )
                || (s.charAt(0) < 'a' && s.charAt(0) > 'z')
                || (s.charAt(0) < 'A' && s.charAt(0) > 'Z')){
            System.out.println("You must input only one character.");
            System.out.println("You must input only an alphabet character.");
            return;
        }
```

```java
        char ch = s.toLowerCase().charAt(0);
        switch(ch){
            case 'a' :
            case 'i' :
            case 'e' :
            case 'o' :
            case 'u' :
                System.out.println("Input letter is Vowel"); break;
            default: System.out.println("Input letter is Consonant");
        }
    }

}
```