Name : Jaya Surya S
Reg No : 192011329

- Develop an Event Handling Applet Program in Java to print a message When the button is clicked.

  Solution:

  ```
   import java.awt.*;
   import java.awt.event.*;
   import java.applet.*;

  public class MyEventHandlingApplet extends Applet implements ActionListener {
  Button myButton;

  public void init() {
  myButton = new Button("Click me!");
  add(myButton);
  myButton.addActionListener(this);
  }

  public void actionPerformed(ActionEvent e) {
  System.out.println("Button clicked!");
   }
   }
  ```

- Generate a Java Code to Write and Read the String “WELCOME TO SSE” using FileOutputStream and FileInputStream class.

Solution:

```
import java.io.*;

public class FileStreamExample {
public static void main(String[] args) {
String str = "WELCOME TO SSE";
byte[] bytes = str.getBytes();

 try {
   // Write the string to a file using FileOutputStream
   FileOutputStream fileOut = new FileOutputStream("output.txt");
   fileOut.write(bytes);
   fileOut.close();

   // Read the string from the file using FileInputStream
   FileInputStream fileIn = new FileInputStream("output.txt");
   byte[] readBytes = new byte[bytes.length];
   fileIn.read(readBytes);
   fileIn.close();

   // Convert the byte array back to a string and print it
```

```
            String readStr = new String(readBytes);
            System.out.println(readStr);
        } catch (IOException e) {
            System.out.println("An error occurred: " + e.getMessage());
        }
    }
}
```

Debugging

- We define the usage of capitals in a word to be right when one of the following cases holds:
  All letters in this word are capitals, like "USA".
  All letters in this word are not capitals, like "leetcode".
  Only the first letter in this word is capital, like "Google".
  Given a string word, return true if the usage of capitals in it is right.
  Example 1:
  Input: word = "USA"
  Output: true
  Example 2:
  Input: word = "FlaG"
  Output: false
  Constraints:
  1 <= word.length <= 100
  word consists of lowercase and uppercase English letters.

```
class Solution {
    bool detectCapitalUse(string word) {
        
    }
}
```

```
Solution:
class Solution {
    public boolean detectCapitalUse(String word) {
        int count = 0;
        for (int i = 0; i < word.length(); i++) {
            if (Character.isUpperCase(word.charAt(i))) {
                count++;
            }
        }
        return count == 0 || count == word.length() || (count == 1 && 
Character.isUpperCase(word.charAt(0)));
    }
}
```

- You are given an array of characters letters that is sorted in non-decreasing order, and a character target. There are at least two different characters in letters.
  Return the smallest character in letters that is lexicographically greater than target. If such a character does not exist, return the first character in letters.
  Example 1:
  Input: letters = ["c","f","j"], target = "a"
  Output: "c"

Explanation: The smallest character that is lexicographically greater than 'a' in letters is 'c'.
Example 2:
Input: letters = ["c","f","j"], target = "c"
Output: "f"
Explanation: The smallest character that is lexicographically greater than 'c' in letters is 'f'.
Example 3:
Input: letters = ["x","x","y","y"], target = "z"
Output: "x"
Explanation: There are no characters in letters that is lexicographically greater than 'z' so we return letters[0].

Constraints:
2 <= letters.length <= 104
letters[i] is a lowercase English letter.
letters is sorted in non-decreasing order.
letters contains at least two different characters.
target is a lowercase English letter.

```
class Solution {

    char nextGreatestLetter(vector<char>& letters, char target) {

 }
}
```

```
Solution:
class Solution {
    public char nextGreatestLetter(char[] letters, char target) {
        int n = letters.length;
        int left = 0;
        int right = n - 1;

        while (left <= right) {
            int mid = left + (right - left) / 2;
            if (letters[mid] <= target) {
                left = mid + 1;
            } else {
                right = mid - 1;
            }
        }
        return left < n ? letters[left] : letters[0];
    }
}
```

- Program to show syntax of conditional and looping statement by menu choice **: Find/Debug** erron in following code

```
import java.util.Scanner;
public class Menusel
{
  public static void main(String args[])
  {

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

```
        charchoice;

        do
        {
            System.out.println(Help on : ");
            System.out.println("1. if");
            System.out.println("2. switch");
            System.out.println("3. while");
            System.out.println("4. do-while");
            Syste.out.println("5. for\n");

            System.out.println("Choose any one : ");
            choice = scan.next().charAt(0);
        }while(choice < '1' && choice > '5');

        System.out.println("\n");

        switch(choice)
        {
            case  1' : System.out.println("The if :\n");
                System.out.println("if(condition)\n{\n\tstatement\n}");
                System.out.println("else\n{\n\tstatement\n}");
                break;

            case '2' : System.out.println("The switch :\n");
                System.out.println("switch(expression)\n{");
                System.out.println("\tcase constant: statement sequence\n\tbreak;");
                System.out.println("\t//...\n}");
                break;

            case '3' : System.out.println("The while :\n");
                System.out.println("while(condition)\n{");
                System.out.println("\t// body of loop\n}");
                break;

            case '4' : System.out.println("The do-while :\n");
                System.out.println("do\n{");
                System.out.println("\t// body of loop\n\n}while(condition);");


            case '5 : System.out.println("The for :\n");
                System.out.println("for(initialization; condition; iteration)\n{");
                System.out.println("\t// body of loop\n}");
                break;
        }

    }
}
```

Solution:

```
import java.util.Scanner;

public class Menusel {
    public static void main(String args[]) {
        Scanner scan = new Scanner(System.in);
        char choice;
        do {
            System.out.println("Help on : ");
            System.out.println("1. if");
            System.out.println("2. switch");
            System.out.println("3. while");
            System.out.println("4. do-while");
            System.out.println("5. for\n");

            System.out.println("Choose any one : ");
            choice = scan.next().charAt(0);
        } while (choice < '1' || choice > '5');

        System.out.println("\n");

        switch(choice) {
            case '1':
                System.out.println("The if :\n");
                System.out.println("if(condition)\n{\n\tstatement\n}");
                System.out.println("else\n{\n\tstatement\n}");
                break;

            case '2':
                System.out.println("The switch :\n");
                System.out.println("switch(expression)\n{");
                System.out.println("\tcase constant: statement sequence\n\tbreak;");
                System.out.println("\t//...\n}");
                break;

            case '3':
                System.out.println("The while :\n");
                System.out.println("while(condition)\n{");
                System.out.println("\t// body of loop\n}");
                break;

            case '4':
                System.out.println("The do-while :\n");
                System.out.println("do\n{");
                System.out.println("\t// body of loop\n\n}while(condition);");
                break; // added break statement here

            case '5':
                System.out.println("The for :\n");
                System.out.println("for(initialization; condition; iteration)\n{");
                System.out.println("\t// body of loop\n}");
                break;

            default:
                System.out.println("Invalid choice!");
        }
    }
}
```