Input /Ouput Streams

Question 1: Count Character Occurrences in a File

- **Write a program to count how many times a character appears in a file.**
- **The character check should be case-insensitive (for example, 'a' and 'A' are treated the same).**
- **Sample Input and Output:**
    - **User enters the file name (e.g., Input.txt).**
    - **User enters the character to be counted (e.g., r).**
    - **Output: Display the number of occurrences, like 'Input.txt' has 99 instances of letter 'r'.**

Ans

```
import java.io.*;
import java.util.Scanner;


public class CountCharInFile {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter the file name: ");
      String fileName = sc.nextLine();


      System.out.print("Enter the character to be counted: ");
      char ch = sc.nextLine().charAt(0);
      int count = 0;


      try {
         FileReader fr = new FileReader(fileName);
         int c;
         while ((c = fr.read()) != -1) {
```

```
            if (Character.toLowerCase((char)c) == Character.toLowerCase(ch)) {
                count++;
            }
        }
        fr.close();

        System.out.println("'" + fileName + "' has " + count + " instances of letter '" +
         ch +    "'.");
      } catch (IOException e) {
        System.out.println("Error reading file: " + e.getMessage());
      }
    }
}
```

Question 2: Copy Contents of One File to Another

- **Write a program to copy the contents from one file to another file and check the output.**
- **Sample Input and Output:**
    - **User enters the input file name (e.g., Input.txt).**
    - **User enters the output file name (e.g., Output.txt).**
    - **Output: Display a confirmation message like**
      File is copied.

Ans

```
import java.io.*;
import java.util.Scanner;


public class CopyFile {
   public static void main(String[] args) {
      Scanner sc = new Scanner(System.in);
      System.out.print("Enter the input file name: ");
      String inputFile = sc.nextLine();


      System.out.print("Enter the output file name: ");
      String outputFile = sc.nextLine();


      try {
         FileReader fr = new FileReader(inputFile);
         FileWriter fw = new FileWriter(outputFile);


         int c;
         while ((c = fr.read()) != -1) {
            fw.write(c);
         }
```

```
            fr.close();
            fw.close();

            System.out.println("File is copied.");
        } catch (IOException e) {
            System.out.println("Error: " + e.getMessage());
        }
    }
}
```

3) Write a program to count the occurrences of each word in an input file and write the word along with its corresponding count in an output file.
The words should be sorted alphabetically in the output file.
Use a Map collection.

Ans

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

public class FileWordCount {
    public static void main(String[] args) {
        if (args.length < 2) {
            System.out.println("Usage: java FileWordCount inputFile.txt outputFile.txt");
            return;
        }

        String inputFile = args[0];
        String outputFile = args[1];
        Map<String, Integer> wordCountMap = new TreeMap<>();

        try (BufferedReader reader = new BufferedReader(new FileReader(inputFile))) {
```

```
            String line;
            while ((line = reader.readLine()) != null) {
                String[] words = line.split("\\s+"); // Split by whitespace
                for (String word : words) {
                    if (word.isEmpty()) continue;
                    wordCountMap.put(word, wordCountMap.getOrDefault(word, 0) + 1);
                }
            }
        } catch (IOException e) {
            System.out.println("Error reading file: " + e.getMessage());
            return;
        }

        try (BufferedWriter writer = new BufferedWriter(new FileWriter(outputFile))) {
            for (Map.Entry<String, Integer> entry : wordCountMap.entrySet()) {
                writer.write(entry.getKey() + " : " + entry.getValue());
                writer.newLine();
            }
        } catch (IOException e) {
            System.out.println("Error writing to file: " + e.getMessage());
        }

        System.out.println("Word counts written to " + outputFile);
    }
}
```