1. Write a function to count the number of times each word appears in a given paragraph.

Input: "the cat and the hat"
Output: {"the": 2, "cat": 1, "and": 1, "hat": 1}

CODE:

```
import java.util.*;
public class WordCounter {
    public static Map<String, Integer> countWords(String paragraph) {
        Map<String, Integer> wordCount = new HashMap<>();
        // Split paragraph into words using whitespace as delimiter
        String[] words = paragraph.split("\\s+");
        for (String word : words) {
            wordCount.put(word, wordCount.getOrDefault(word, 0) + 1);
        }
        return wordCount;
    }
    public static void main(String[] args) {
        String input = "the cat and the hat";
        System.out.println(countWords(input));
    }
}
```

OUTPUT:

{the=2, and=1, cat=1, hat=1}

2. Write a function to remove duplicate characters from a string and return the modified string.Input: "banana"
Output: "ban"

CODE:

```
import java.util.LinkedHashSet;
public class RemoveDuplicates {
```

```
    public static String removeDuplicateChars(String input) {
        LinkedHashSet<Character> seen = new LinkedHashSet<>();
        StringBuilder result = new StringBuilder();
        for (char c : input.toCharArray()) {
            if (seen.add(c)) { // Adds only if not already present
                result.append(c);
            }
        }
        return result.toString();
    }
    public static void main(String[] args) {
        String input = "banana";
        System.out.println(removeDuplicateChars(input)); // Output: "ban"
    }
}
```

OUTPUT:

ban