Hashmap

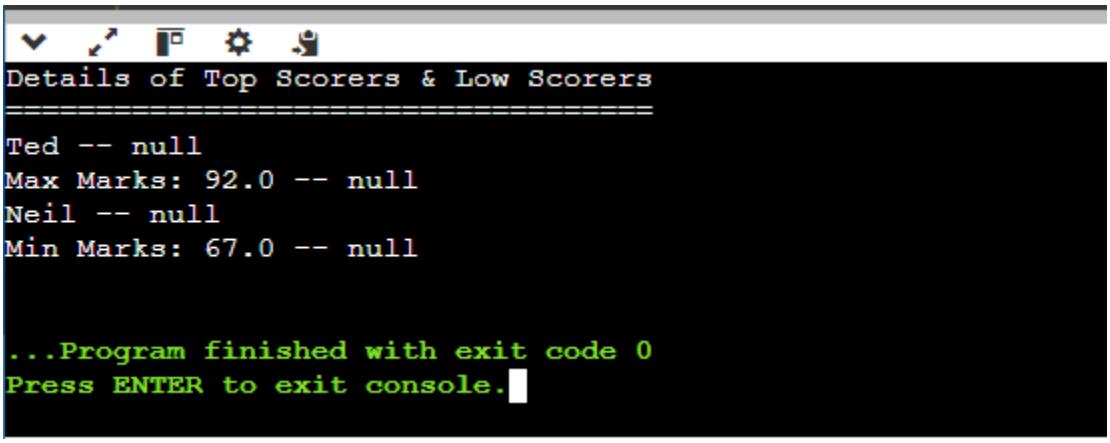
Exercise

```
import java.util.HashMap;
import java.util.Map;
import java.util.ArrayList;
import java.util.List;

class Student {

   public static Map<String, Double> findMaxMinScorers(Map<String, Double> studentMarks)
{
      // Initialize variables to store maximum and minimum scores
      double maxMarks = Double.MIN_VALUE;
      double minMarks = Double.MAX_VALUE;

      // Initialize lists to store students with maximum and minimum marks
      List<String> maxScorers = new ArrayList<>();
      List<String> minScorers = new ArrayList<>();

      // Iterate through the studentMarks map to find max and min scores
      for (Map.Entry<String, Double> entry : studentMarks.entrySet()) {
         double marks = entry.getValue();
         String name = entry.getKey();

         // Update max marks and corresponding student names
         if (marks > maxMarks) {
            maxMarks = marks;
            maxScorers.clear(); // Clear previous max scorers
```

```
        maxScorers.add(name);
    } else if (marks == maxMarks) {
        maxScorers.add(name);
    }

    // Update min marks and corresponding student names
    if (marks < minMarks) {
        minMarks = marks;
        minScorers.clear(); // Clear previous min scorers
        minScorers.add(name);
    } else if (marks == minMarks) {
        minScorers.add(name);
    }
}

// Create a new HashMap to store the result
Map<String, Double> resultMap = new HashMap<>();

// Add maximum marks and corresponding student names to resultMap
resultMap.put("Max Marks: " + maxMarks, null); // Using null to separate max and min
for (String scorer : maxScorers) {
    resultMap.put(scorer, null);
}

// Add minimum marks and corresponding student names to resultMap
resultMap.put("Min Marks: " + minMarks, null); // Using null to separate max and min
for (String scorer : minScorers) {
```

```
            resultMap.put(scorer, null);
        }

        return resultMap;
    }

}

class Tester {

    public static void main(String args[]) {
        Map<String, Double> studentMarks = new HashMap<String, Double>();
        studentMarks.put("Lily", 90.0);
        studentMarks.put("Robin", 68.0);
        studentMarks.put("Marshall", 76.5);
        studentMarks.put("Neil", 67.0);
        studentMarks.put("Ted", 92.0);

        Map<String, Double> maxMinScorers = Student.findMaxMinScorers(studentMarks);

        System.out.println("Details of Top Scorers & Low
Scorers\n==================================");
        for (Map.Entry<String, Double> entry : maxMinScorers.entrySet()) {
            System.out.println(entry.getKey() + " -- " + entry.getValue());
        }
    }
}
```

Output-


Details of Top Scorers & Low Scorers
==========
Ted -- null
Max Marks: 92.0 -- null
Neil -- null
Min Marks: 67.0 -- null
...Program finished with exit code 0
Press ENTER to exit console.