Assignment Solutions

PW SKILLS

Q1. Implement a Map in java which takes the input and print the list in sorted order based on key.
Input: 5- Rahul, 7 Lakshman, 1 Ram, 4 Krrish, 2 Lakshay
Output: {1=Ram, 2=Lakshay, 4=Krrish, 5=Rahul, 7=lakshman}
ASS_Code1.java
We would simply use TreeMap in java and put numbers as the key

Q2.Implement a Map in java which takes the input and print the list in sorted order based on value.
Input: 5- Rahul, 7 Lakshman, 1 Ram, 4 Krrish, 2 Lakshay,
Output: {Krish=4,Lakshay=2,Lakshman=7,Rahul=5,Ram=1}
ASS_Code2.java
We would simply use TreeMap in Java and will put Strings as key

Q3. Detect if an Array contains a duplicate element. At Most 1 duplicate would be there.
Input: 1,2,3,4
Output: No
ASS_Code3.java

```
Enter the number of elements of array: 5
Enter the elements of array: 1 2 3 4 1
Yes
```

Approach:
1. We would start traversing the array.
2. As me move ahead, we would keep adding the element in map.
3. If we found any element is already added in the map that means we have found our duplicate.
4. If no element is found then there is no duplicate.

Q4. Given an array nums of size n, return the majority element.
Input: 4,2,7,1,9
Output: 9
ASS_Code4.java
Hint use: .lastEntry().getKey() method:
This method provides reference to the last stored key of map. Use .getKey () to get key and .getValue() to get value of that reference.

```
Enter the number of elements of array: 5
Enter the elements of array: 2 4 1 7 9
Largest Element of Map is : 9
```

Approach:
1. We would start traversing the array and will store each element into the TreeMap.
2. We would simply return the last key of map.

Q5. Given two strings ransomNote and magazine, return true if ransomNote can be constructed by using the letters from magazine and false otherwise.
Each letter in magazine can only be used once in ransomNote.
Input: ransomNote = "a", magazine = "b"
Output: false
Input: ransomNote = "aa", magazine = "ab"
Output: false

Input: ransomNote = "aa", magazine = "aab"
Output: true

ASS_Code5.java

```
Enter the RansomNote String: aa
Enter the Magazine String: aab
True
```

Approach:
1. We would store both words in two different maps one by one and update each character frequency.
2. Then we would start iterating over ransomNote map and would check that for each key in ransomNote map,the same key should be present in magazineMap and value > ransomNote map's value.
3. If we find any element not following this condition we would return false.
4. If we iterate the map completely the answer is Yes.