CS23333-Object Oriented Programming Using Java-2023

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Status	Finished
Started	Tuesday, 12 November 2024, 11:45 AM
Completed	Tuesday, 12 November 2024, 12:17 PM
Duration	32 mins 42 secs

Question **1**

Correct

Marked out of 1.00

Flag question

Java HashSet class implements the Set interface, backed by a hash table which is actually a HashMap instance.

No guarantee is made as to the iteration order of the hash sets which means that the class does not guarantee the constant order of elements over time.

This class permits the null element.

The class also offers constant time performance for the basic operations like add, remove, contains, and size assuming the hash function disperses the elements properly among the buckets.

Java HashSet Features

A few important features of HashSet are mentioned below:

- Implements Set Interface.
- The underlying data structure for HashSet is Hashtable.
- As it implements the Set Interface, duplicate values are not allowed.
- Objects that you insert in HashSet are not guaranteed to be inserted in the same order. Objects are inserted based on their hash code.
- NULL elements are allowed in HashSet.
- HashSet also implements **Serializable** and **Cloneable** interfaces.
- `public class HashSet<E> extends AbstractSet<E> implements Set<E>, Cloneable, Serializable`

```
Sample Input and Output:
5
90
56
45
78
25
78
Sample Output:
78 was found in the set.
Sample Input and output:
3
2
7
9
5
Sample Input and output:
5 was not found in the set.
```

Answer: (penalty regime: 0 %)

Reset answer

```java
import java.util.HashSet;
import java.util.Scanner;
public class Prog {
  public static void main(String[] args) {
    Scanner sc = new Scanner(System.in);
    int n = sc.nextInt();
    HashSet<Integer> numbers = new HashSet<>();
    for (int i = 0; i < n; i++) {
      numbers.add(sc.nextInt());
    }
    int skey = sc.nextInt();
    if (numbers.contains(skey)) {
      System.out.println(skey + " was found in the set.");
    } else {
      System.out.println(skey + " was not found in the set.");
    }
    sc.close();
  }
}
```

	Test	Input	Expected	Got	
✓	1	5 90 56 45 78 25 78	78 was found in the set.	78 was found in the set.	✓
✓	2	3 -1 2 4 5	5 was not found in the set.	5 was not found in the set.	✓

Passed all tests! ✓

Question **2**

Correct

Marked out of 1.00

Flag question

Write a Java program to compare two sets and retain elements that are the same.

Sample Input and Output:

5

Football

Hockey

Cricket

Volleyball

Basketball

7 // **HashSet 2:**

Golf

Cricket

Badminton

Football

Hockey

Volleyball

Handball

SAMPLE OUTPUT:

Football

Hockey

Cricket

Volleyball

Basketball

Answer: (penalty regime: 0 %)

```
import java.util.HashSet;
import java.util.Scanner;
public class CompareSets {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n1 = sc.nextInt();
        sc.nextLine();
        HashSet<String> set1 = new HashSet<>();
        for (int i = 0; i < n1; i++) {
            set1.add(sc.nextLine());
        }
        int n2 = sc.nextInt();
        sc.nextLine();
        HashSet<String> set2 = new HashSet<>();
        for (int i = 0; i < n2; i++) {
            set2.add(sc.nextLine());
        }
        set1.retainAll(set2);
        for (String item : set1) {
            System.out.println(item);
        }
        sc.close();
    }
}
```

	Test	Input	Expected	Got	
✓	1	5 Football Hockey Cricket Volleyball Basketball 7 Golf Cricket Badminton Football Hockey Volleyball Throwball	Cricket Hockey Volleyball Football	Cricket Hockey Volleyball Football	✓
✓	2	4 Toy Bus Car Auto 3 Car Bus Lorry	Bus Car	Bus Car	✓

Passed all tests! ✓

Question **3**

Correct

Marked out of 1.00

Flag question

Java HashMap Methods

containsKey() Indicate if an entry with the specified key exists in the map

containsValue() Indicate if an entry with the specified value exists in the map

putIfAbsent() Write an entry into the map but only if an entry with the same key does not already exist

remove() Remove an entry from the map

replace() Write to an entry in the map only if it exists

size() Return the number of entries in the map

Your task is to fill the incomplete code to get desired output

Answer: (penalty regime: 0 %)

Reset answer

```java
import java.util.HashMap;
import java.util.Map.Entry;
import java.util.Set;
import java.util.Scanner;
public class Prog {
    public static void main(String[] args) {
        HashMap<String, Integer> map = new HashMap<String, Integer>();
        String name;
        int num;
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        sc.nextLine();
        for (int i = 0; i < n; i++) {
            name = sc.nextLine();
            num = sc.nextInt();
            map.put(name, num);
            sc.nextLine();
        }
        Set<Entry<String, Integer>> entrySet = map.entrySet();
        for (Entry<String, Integer> entry : entrySet) {
            System.out.println(entry.getKey() + " : " + entry.getValue());
        }
        System.out.println("----------");
        HashMap<String, Integer> anotherMap = new HashMap<String, Integer>();
        anotherMap.put("SIX", 6);
        anotherMap.put("SEVEN", 7);
        anotherMap.putAll(map);
        entrySet = anotherMap.entrySet();
        for (Entry<String, Integer> entry : entrySet) {
            System.out.println(entry.getKey() + " : " + entry.getValue());
        }
        map.putIfAbsent("FIVE", 5);
        Integer value = map.get("TWO");
        System.out.println(value);
        System.out.println(map.containsKey("ONE"));
        System.out.println(map.containsValue(3));
        System.out.println(map.size());
        sc.close();
    }
}
```

	Test	Input	Expected	Got	
✓	1	3 ONE 1 TWO 2 THREE 3	ONE : 1 TWO : 2 THREE : 3 ---------- SIX : 6 ONE : 1 TWO : 2 SEVEN : 7 THREE : 3 2 true true 4	ONE : 1 TWO : 2 THREE : 3 ---------- SIX : 6 ONE : 1 TWO : 2 SEVEN : 7 THREE : 3 2 true true 4	✓

Passed all tests! ✓

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◄ Lab-11-MCQ

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TreeSet example ►