

Assignment-1. Write a Java program that demonstrates the following operations on a HashSet: • Create a HashSet of integers. • Add the numbers 5, 10, 15, 20, and 25 to the set. • Display the elements of the set. • Check if the set contains the number 10. • Remove the number 15 from the set. • Display the size of the set.

Program:

```
package Collections;
import java.util.HashSet;
public class HashCode
{
    public static void main(String[] args) {

        HashSet<Integer> numberSet = new HashSet<>();
        numberSet.add(5);
        numberSet.add(10);
        numberSet.add(15);
        numberSet.add(20);
        numberSet.add(25);

        System.out.println("Elements of the set: " +
numberSet);

        if (numberSet.contains(10)) {
            System.out.println("The set contains the number
10.");
        } else {
            System.out.println("The set does not contain the
number 10.");
        }
        numberSet.remove(15);

        System.out.println("Size of the set after removing 15:
" + numberSet.size());
    }
}
```

Output:

```
@ Javadoc Declaration Console × Terminal
<terminated> hashCode [Java Application] C:\Users\yella\.p2\pool\plugins\org.eclipse
Elements of the set: [20, 5, 25, 10, 15]
The set contains the number 10.
Size of the set after removing 15: 4
```

Assignment 2: Write a Java program to simulate the "Hot Potato" game using a queue. In this game, players stand in a circle and pass a potato (or any other object) while music plays. When the music stops, the player holding the potato is out. ● Create a queue to represent the circle of players. ● Enqueue player names. ● Dequeue players one by one and enqueue them again to simulate passing the potato. ● Repeat the dequeue and enqueue process, simulating the music stopping and players being eliminated until only one player remains.

```
package Collections;
import java.util.LinkedList;
import java.util.Queue;

public class HotPotatoGame {

    public static void main(String[] args) {

        Queue<String> playersQueue = new LinkedList<>();

        // player names
        playersQueue.add("Alice");
        playersQueue.add("Bob");
        playersQueue.add("Charlie");
        playersQueue.add("David");
        playersQueue.add("Eva");

        while (playersQueue.size() > 1) {

            System.out.println("Current Circle: " +
playersQueue);

            int passCount = 3;
```

```

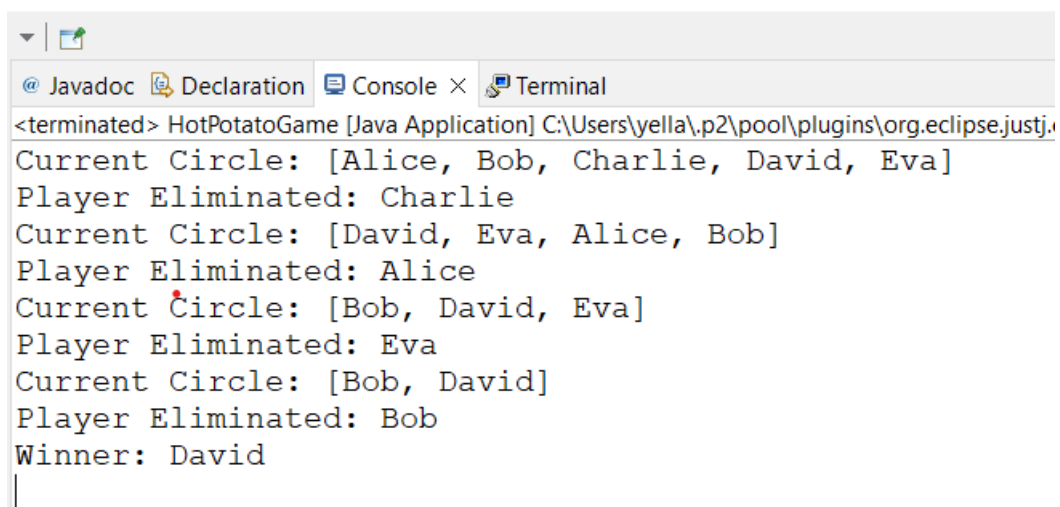
    for (int i = 0; i < passCount - 1; i++) { String currentPlayer
    = playersQueue.poll();
        playersQueue.offer(currentPlayer);
    }

    String eliminatedPlayer = playersQueue.poll();
    System.out.println("Player Eliminated: " +
    eliminatedPlayer);
    }

    System.out.println("Winner: " + playersQueue.poll());
    }
}

```

Output:



```

<terminated> HotPotatoGame [Java Application] C:\Users\yella\.p2\pool\plugins\org.eclipse.justj
Current Circle: [Alice, Bob, Charlie, David, Eva]
Player Eliminated: Charlie
Current Circle: [David, Eva, Alice, Bob]
Player Eliminated: Alice
Current Circle: [Bob, David, Eva]
Player Eliminated: Eva
Current Circle: [Bob, David]
Player Eliminated: Bob
Winner: David

```