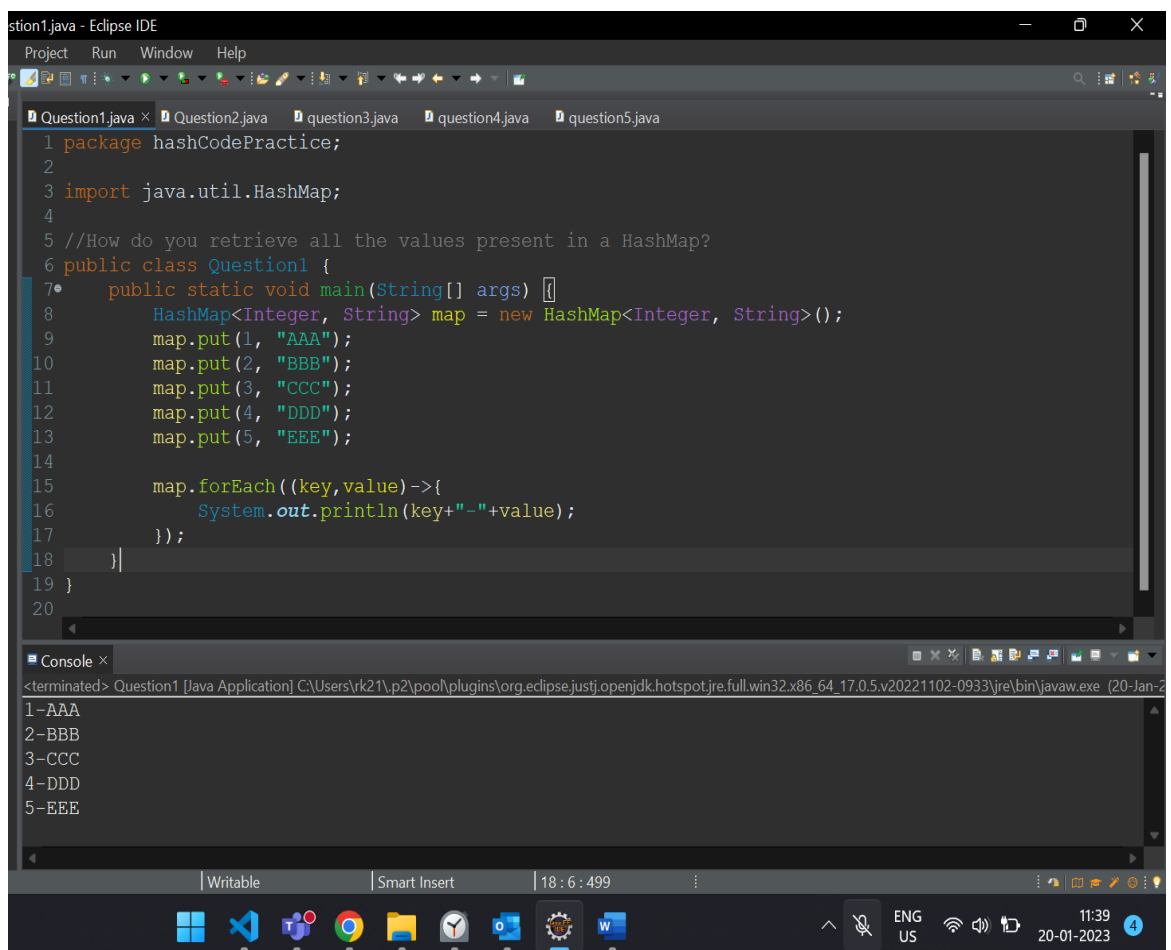


Task 3

HashMap Practice Problems

- 1) How do you retrieve all the values present in a HashMap?



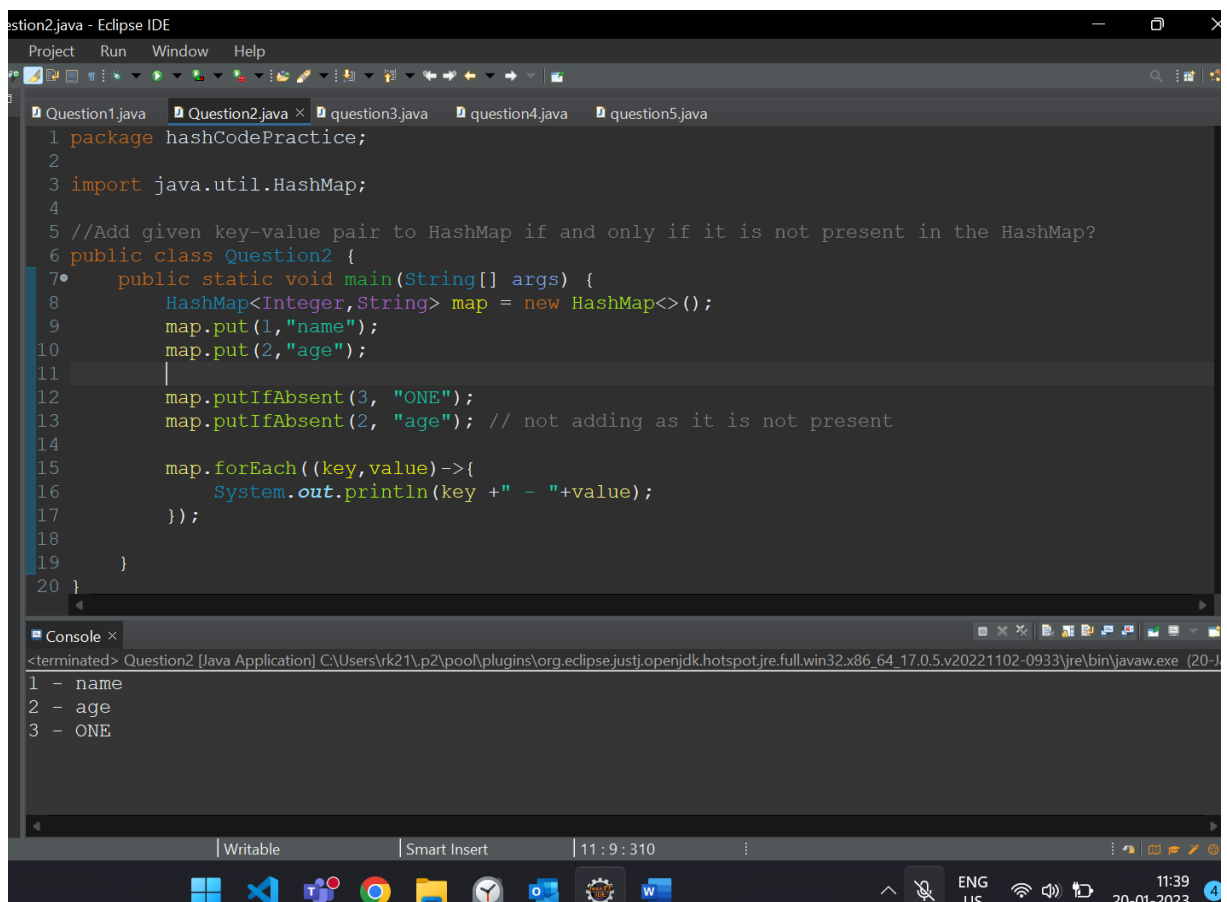
The screenshot shows the Eclipse IDE with a Java project named 'hashCodePractice'. The main file, 'Question1.java', contains the following code:

```
1 package hashCodePractice;
2
3 import java.util.HashMap;
4
5 //How do you retrieve all the values present in a HashMap?
6 public class Question1 {
7     public static void main(String[] args) {
8         HashMap<Integer, String> map = new HashMap<Integer, String>();
9         map.put(1, "AAA");
10        map.put(2, "BBB");
11        map.put(3, "CCC");
12        map.put(4, "DDD");
13        map.put(5, "EEE");
14
15        map.forEach((key, value) -> {
16            System.out.println(key+"-"+value);
17        });
18    }
19 }
20
```

The console output shows the following lines:

```
<terminated> Question1 [Java Application] C:\Users\rk21\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.5.v20221102-0933\jre\bin\javaw.exe (20-Jan-2
1-AAA
2-BBB
3-CCC
4-DDD
5-EEE
```

- 2) Add given key-value pair to HashMap if and only if it is not present in the HashMap?



The screenshot shows the Eclipse IDE with a project named 'hashCodePractice'. The 'Question2.java' file is open, displaying the following code:

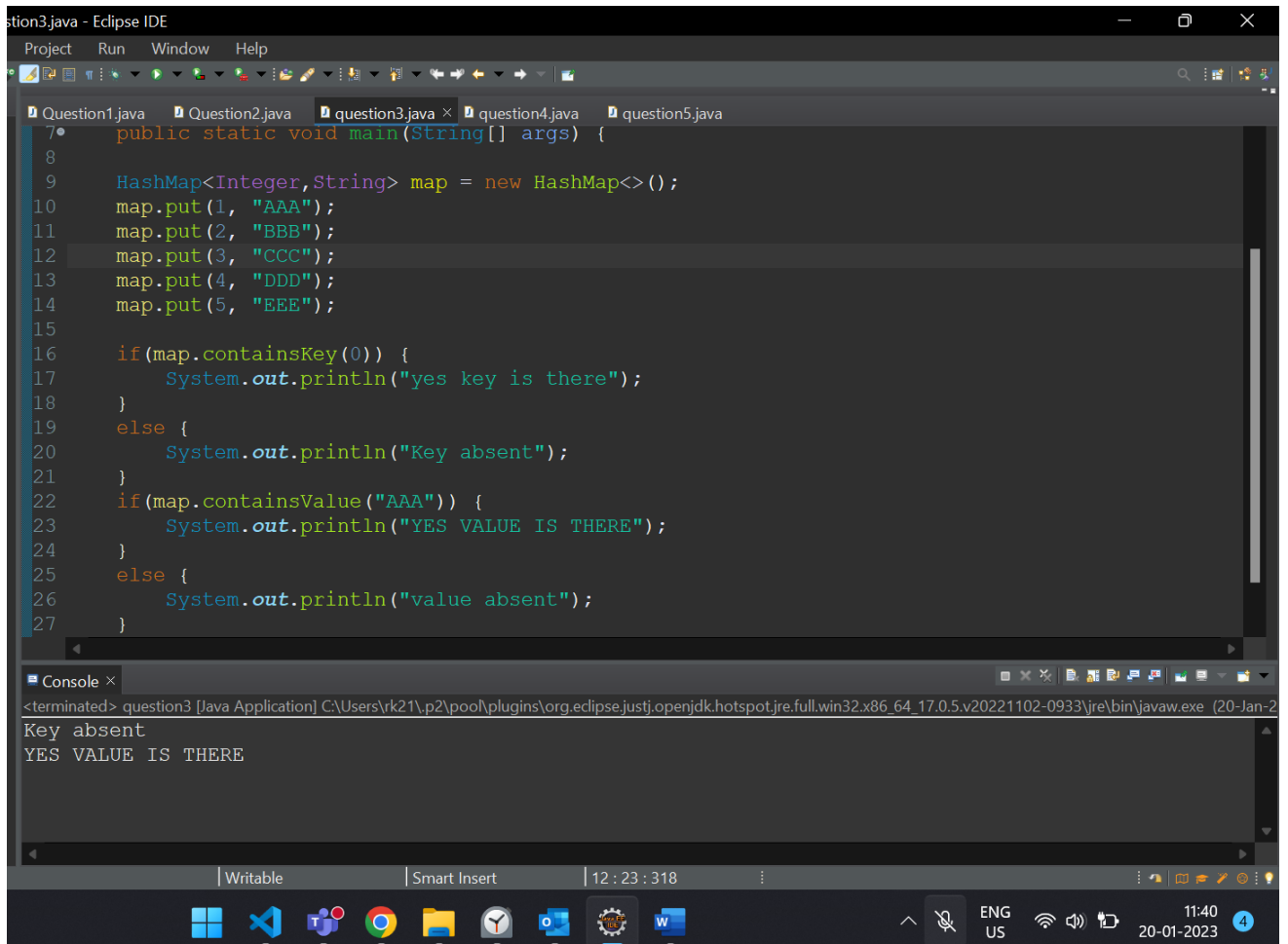
```
1 package hashCodePractice;
2
3 import java.util.HashMap;
4
5 //Add given key-value pair to HashMap if and only if it is not present in the HashMap?
6 public class Question2 {
7     public static void main(String[] args) {
8         HashMap<Integer,String> map = new HashMap<>();
9         map.put(1,"name");
10        map.put(2,"age");
11
12        map.putIfAbsent(3, "ONE");
13        map.putIfAbsent(2, "age"); // not adding as it is not present
14
15        map.forEach((key,value)->{
16            System.out.println(key + " - " +value);
17        });
18    }
19 }
20 }
```

The console output shows the result of the program execution:

```
<terminated> Question2 [Java Application] C:\Users\rk21\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.5.v20221102-0933\jre\bin\javaw.exe (20-)
1 - name
2 - age
3 - ONE
```

The bottom status bar of the IDE shows 'Writable', 'Smart Insert', and the time '11:9:310'. The system tray at the bottom indicates the date '20-01-2023' and time '11:39'.

3) How do you check whether a particular key/value exist in a HashMap?



The screenshot shows the Eclipse IDE with a Java file named `question3.java`. The code defines a `HashMap<Integer, String>` and populates it with five entries. It then checks for the presence of a specific key (0) and a specific value ("AAA"). The console output shows that the key 0 is absent but the value "AAA" is present.

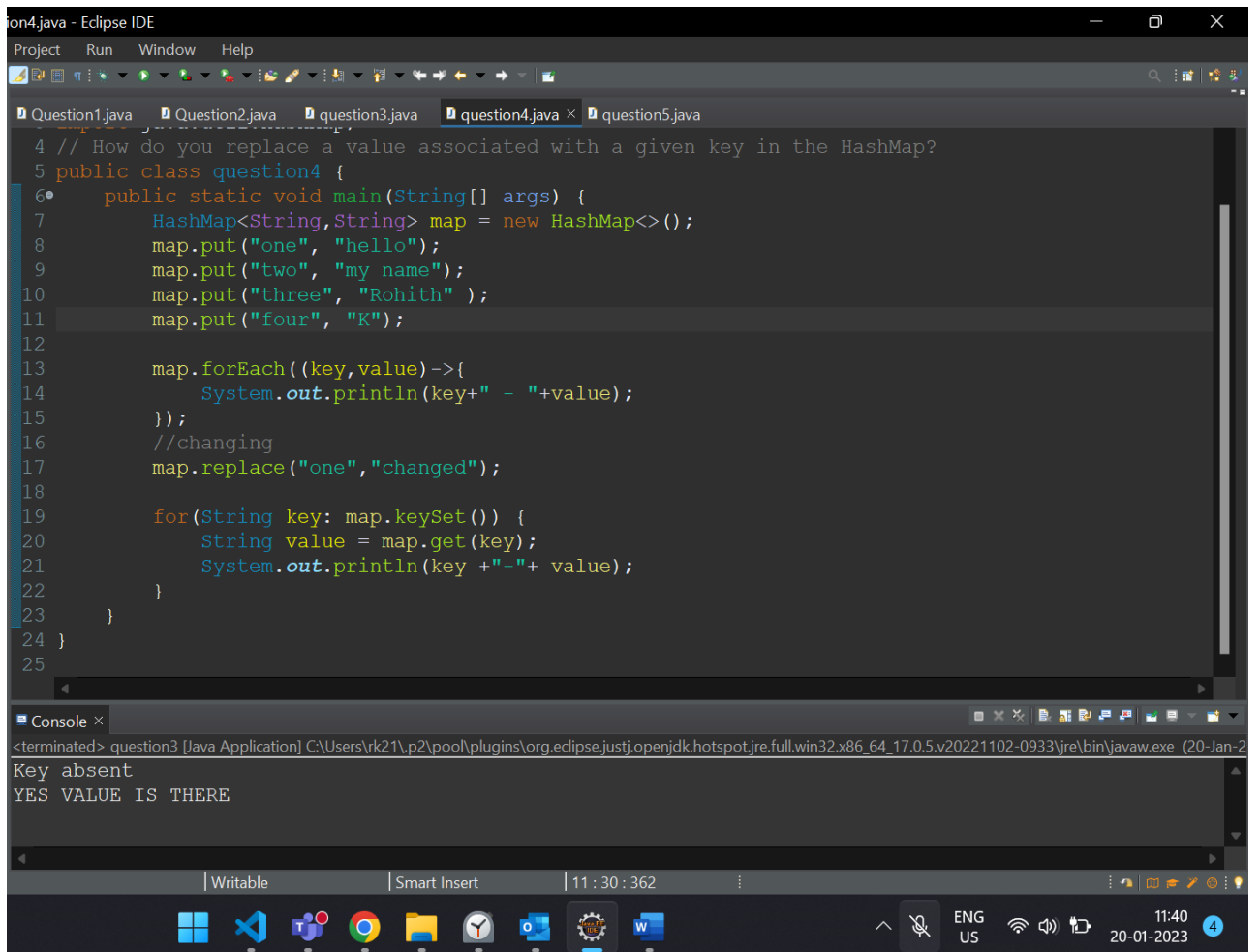
```
public static void main(String[] args) {
    HashMap<Integer,String> map = new HashMap<>();
    map.put(1, "AAA");
    map.put(2, "BBB");
    map.put(3, "CCC");
    map.put(4, "DDD");
    map.put(5, "EEE");

    if(map.containsKey(0)) {
        System.out.println("yes key is there");
    }
    else {
        System.out.println("Key absent");
    }
    if(map.containsValue("AAA")) {
        System.out.println("YES VALUE IS THERE");
    }
    else {
        System.out.println("value absent");
    }
}
```

Console Output:

```
<terminated> question3 [Java Application] C:\Users\rk21\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.5.v20221102-0933\jre\bin\javaw.exe (20-Jan-2023)
Key absent
YES VALUE IS THERE
```

- 4) How do you replace a value associated with a given key in the HashMap?



The screenshot shows the Eclipse IDE with a Java project. The main editor displays the code for `question4.java`. The code creates a `HashMap` with four entries: ("one", "hello"), ("two", "my name"), ("three", "Rohith"), and ("four", "K"). It then iterates over the map and prints each key-value pair. After the iteration, it uses `map.replace("one", "changed");` to update the value for the key "one". Finally, it iterates over the map again to print the updated state.

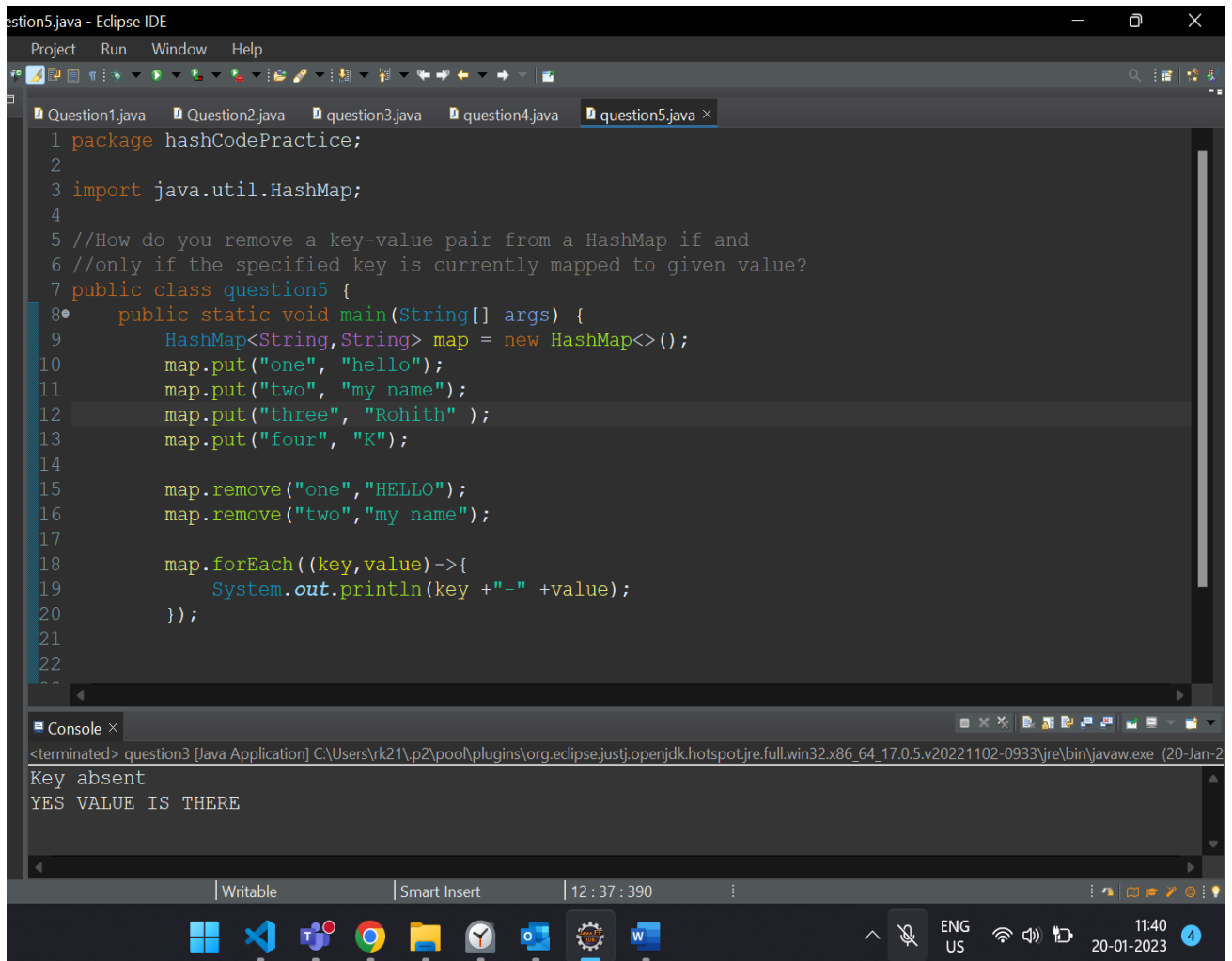
```
4 // How do you replace a value associated with a given key in the HashMap?
5 public class question4 {
6     public static void main(String[] args) {
7         HashMap<String,String> map = new HashMap<>();
8         map.put("one", "hello");
9         map.put("two", "my name");
10        map.put("three", "Rohith");
11        map.put("four", "K");
12
13        map.forEach((key,value)->{
14            System.out.println(key+" - "+value);
15        });
16        //changing
17        map.replace("one","changed");
18
19        for(String key: map.keySet()) {
20            String value = map.get(key);
21            System.out.println(key + "-" + value);
22        }
23    }
24 }
25
```

The Console window at the bottom shows the output of the program:

```
<terminated> question3 [Java Application] C:\Users\rk21\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.5.v20221102-0933\jre\bin\javaw.exe (20-Jan-2
Key absent
YES VALUE IS THERE
```

The status bar at the bottom indicates the file is writable, smart insert is enabled, and the current time is 11:30:362 on 20-01-2023.

5) How do you remove a key-value pair from a HashMap if and only if the specified key is currently mapped to given value?



The screenshot shows the Eclipse IDE with a Java file named `question5.java`. The code defines a `HashMap` and removes entries where the value is "HELLO" or "my name". The console output shows that the key "one" is absent and the value "my name" is present.

```
1 package hashCodePractice;
2
3 import java.util.HashMap;
4
5 //How do you remove a key-value pair from a HashMap if and
6 //only if the specified key is currently mapped to given value?
7 public class question5 {
8     public static void main(String[] args) {
9         HashMap<String,String> map = new HashMap<>();
10        map.put("one", "hello");
11        map.put("two", "my name");
12        map.put("three", "Rohith" );
13        map.put("four", "K");
14
15        map.remove("one", "HELLO");
16        map.remove("two", "my name");
17
18        map.forEach((key,value)->{
19            System.out.println(key + "-" +value);
20        });
21    }
22}
```

Console Output:

```
<terminated> question3 [Java Application] C:\Users\rk21\p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.5.v20221102-0933\jre\bin\javaw.exe (20-Jan-2
Key absent
YES VALUE IS THERE
```