Experiment1.4

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Subject Name: AP Lab 2 **Subject Code: 21CSP-351**

1. **Aim:** To demonstrate the concept of Hashing.
2. **Objective:**
   (a) Missing number
   (b) Word pattern
3. **Script and Output:**
   (a)

```
package AP_rohan;
import java.util.*;
public class Exp1_4b {
    public static void main(String[] args) {
        int[] arr={9,6,4,2,3,5,7,0,1};
        System.out.println("Missing number is :
"+missingNumber(arr));
    }
    public static int missingNumber(int[] nums)
{
        int n=nums.length;
        int ans=0;
        Set<Integer> set=new HashSet<>();
        for(int i:nums){
            set.add(i);
        }
        for(int i=0;i<=n;i++){
            if(!set.contains(i)){
                ans=i;
            }
        }
        return ans;
    }
}
```

Output

```
Missing number is : 8
```

(b)
```
package AP_rohan;
import java.util.*;
public class Exp1_4a {
    public static void main(String[] args) {
        String p1="abba";
        String s1="dog cat cat dog";
        System.out.println(wordPattern(p1,s1));

        String p2="abba";
        String s2="dog cat cat fish";
        System.out.println(wordPattern(p2,s2));

    }
    public static boolean wordPattern(String
pattern, String s) {
        String[] words=s.split(" ");
        if(words.length!=pattern.length())
return false;

        Map<Character,String> charPattern=new
HashMap<>();
        for(int i=0;i<words.length;i++){
            char c=pattern.charAt(i);
            String word=words[i];

            if(!charPattern.containsKey(c)){

if(charPattern.containsValue(word)) return
false;
                charPattern.put(c,word);
            }
            else
if(!charPattern.get(c).equals(word)) return
false;

        }
        return true;
    }
}
```

Output:

```
true
false
```