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CLASS: TY\_CS\_D

BATCH: 2

ROLL NO: 37

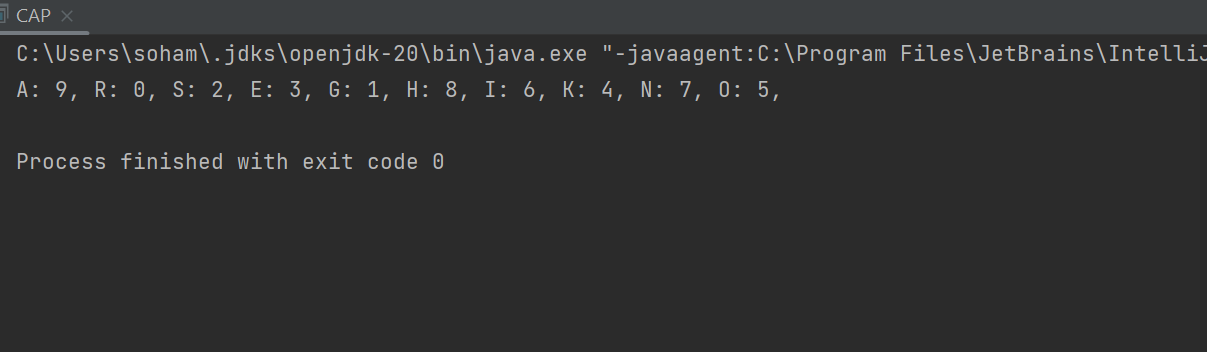
PRN NO: 12111222

**ASSIGNMENT 4**

**Problem Statement:** CSP: KANSAS + OHIO = OREGON

**Code:**

import java.util.\*;  
  
public class CAP {  
  
 public static void main(String[] args) {  
 Scanner scan = new Scanner(System.*in*);  
  
 String s1 = "KANSAS";  
 String s2 = "OHIO";  
 String s3 = "OREGON";  
 Map<Character, Integer> map = new HashMap<>();  
  
 for(int i=0; i<s1.length(); i++){  
 if(!map.containsKey(s1.charAt(i)))  
 map.put(s1.charAt(i), -1);  
 }  
  
 for(int i=0; i<s2.length(); i++){  
 if(!map.containsKey(s2.charAt(i)))  
 map.put(s2.charAt(i), -1);  
 }  
  
 for(int i=0; i<s3.length(); i++){  
 if(!map.containsKey(s3.charAt(i)))  
 map.put(s3.charAt(i), -1);  
 }  
  
 char[] unique = new char[map.size()];  
 int k=0;  
 for (char c: map.keySet()){  
 unique[k++] = c;  
 }  
  
 boolean[] visited = new boolean[10];  
  
 *solution*(0, map, unique, visited, s1, s2, s3);  
 }  
  
 public static void solution(int ind, Map<Character, Integer> map, char[] unique, boolean[] visited, String s1, String s2, String s3){  
  
 if(ind >= unique.length){  
 int n1 = *convert*(map, s1);  
 int n2 = *convert*(map, s2);  
 int n3 = *convert*(map, s3);  
  
 if(n1 + n2 == n3){  
 for(char c:map.keySet()){  
 System.*out*.print(c + ": " + map.get(c) + ", ");  
 }  
 System.*out*.println();  
 }  
 return;  
 }  
  
  
 for(int i=0; i<=9; i++){  
 if(visited[i] == false) {  
 map.put(unique[ind], i);  
 visited[i] = true;  
 *solution*(ind+1, map, unique, visited, s1, s2, s3);  
 visited[i] = false;  
 map.put(unique[ind], -1);  
 }  
 }  
 }  
  
 public static int convert(Map<Character, Integer> map, String s) {  
 int num = 0;  
 for (int i = 0; i < s.length(); i++) {  
 num = num \* 10 + map.get(s.charAt(i)); // Updated numeric conversion  
 }  
 return num;  
 }  
  
}

**Output:  
**