SKILL- 5

ID.NO: 2100033187

Sec: 13

Subject: AOOP

1.

You are given a set S of N elements. You are supposed to form an array A such as: S = {1,2,3} then we have its subsets as {},{1},{2},{3},{1,2},{2,3},{1,3},{1,2,3}.
Then A consists of the largest number(0 for empty set) from each subset.
A = {0,1,2,3,2,3,3,3}
Now the actual task comes here.
there are three types of queries such as :
m is an integer.
< m , no. of elements in A that are < m.
> m , no. of elements in A that are > m.
= m , no. of elements in A that are = m.

Code:

```
package skill5;
public class SetsandMaps
{ public static void main(String[]args)
	{    int    set[]=    {1,2,3};    int
	  count=0,c=0,t=0,p=0,n=0;   int
	  arr[]=      {0,1,2,3,2,3,3,3};
	  for(int i=0;i<8;i++)
	  { if(arr[i]==3)
	  	{ count++;
	  	}
	  	if(arr[i]>3)
	  	{ c++;
	  	}
	  	if(arr[i]==2)
	  	{ t++;
	  	}
	  	if(arr[i]>1)
	  	{ p++;
	  	}
	  	if(arr[i]<1)
	  	{ n++;
	  	}
	  }
	  System.out.println(c);
	  System.out.println(t);
	  System.out.println(count);
	  System.out.println(p);
	  System.out.println(n);
	}

}
```

2. EXAM SETS

Given N question papers with their difficulty levels as A0,A1,A2….AN-1. A subset is something that includes two question papers with different difficulty levels. Each question paper will appear at most 1 time among all the subsets.Find number of subsets that can be made.

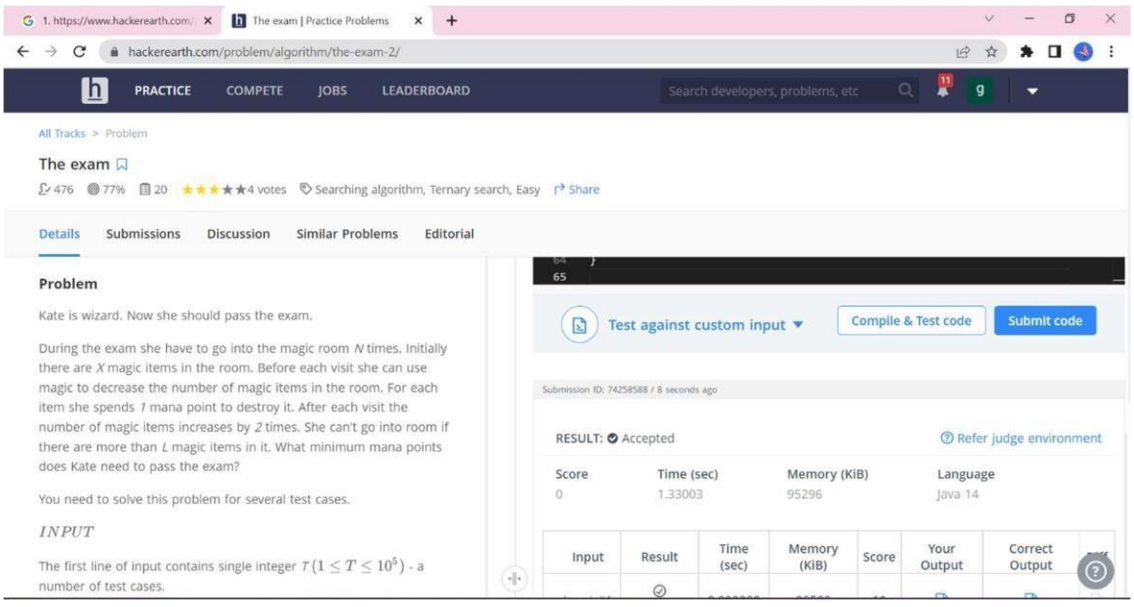
CODE:

```
import java.util.*


class TestClass { public static void main(String args[] )
    throws Exception {
        Scanner s = new Scanner(System.in);
        String name = s.nextLine();
        System.out.println("Hi, " + name + "."); try
    {
            Scanner s = new Scanner(System.in);
            int count = s.nextInt(); for (int i = 0; i <
            count; i++) {
                long magicItems = s.nextLong();
                long itemLimit = s.nextLong();
                long visits = s.nextLong(); if
                (visits == 0)
               {
                    System.out.println(0);
                }
                Else
                {
                    long mana = itemLimit >> (visits-1); if
                    (visits > 58) {
                        System.out.println(magicItems);
```

```
                }
                else if (mana >= magicItems) {
                    System.out.println(0);
                }
                else {
                    System.out.println(magicItems - mana);
                }
    catch (Exception e) {
            System.out.println(e);
        }
    }
}
```

Output:



3. Attendance

Chef is teaching a cooking course. There are NN students attending the course, numbered 11 through NN.

Before each lesson, Chef has to take attendance, i.e. call out the names of students one by one and mark which students are present. Each student has a first name and a last name. In order to save time, Chef

wants to call out only the first names of students. However, whenever there are multiple students with the same first name, Chef has to call out the full names (both first and last names) of

all these students. For each student that does not share the first name with any other student, Chef may still call out only this student's first name.

Help Chef decide, for each student, whether he will call out this student's full name or only the first name.

CODE:

```
import    java.util.*;
import java.lang.*;
import     java.io.*;
class Codechef
{
public static void main (String[] args) throws java.lang.Exception  {
    Scanner sc = new Scanner(System.in);
    int  T  =  sc.nextInt();
    for(int  z=0;z<T;z++){
    int N = sc.nextInt();
        String A[] = new String[N];
        String B[] = new String[N];
 for(int j=0;j<N;j++){
            A[j] = sc.next();
            B[j] = sc.next();
}
for(int k=0;k<N;k++){ int count
        =0; for(int l=0;l<N;l++){
```

```
        if(A[k].equals(A[l])){
        count++;
}
}  if(count>1){
                System.out.println(A[k]+" "+B[k]);
            }
else{
                System.out.println(A[k]);
}
        }
     }
   }
 }
```

OUTPUT: