Aditya Degree Colleges

Java Online Training Coding Test_11 Key

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Program – 1:

Valentina is looking for a new game to play with her friends. She asks her mom Marcia for an idea. After a moment Marcia described to girls the following simple game.

Girls are divided into n teams, indexed 1 through n. Each girl chooses a lowercase letter, one of 'a' - 'z'. Of course, some girls can choose the same letter. Then, Marcia, as a judge, shows a string s, consisting of lowercase letters.

For each letter in s, each girl with the same letter gets one point. We define the score of a team as the total number of points of its members.

Your task is to find the winning team, determined according to the following rules:

1) The winning team is the one with the largest score.
2) In case of a tie between two or more teams, the one with the fewest members wins.
3)If there is still a tie between two or more teams then the one with the lowest index wins.

Given all the information about the game, find the index of the winning team.

Input format

The first line contains an integer n and a string s denoting the number of teams and a string showed by Marcia.
The i-th of the next n lines contains one non-empty string containing letters chosen by girls in the i-th team.
The length of a string is equal to the number of members in a team.
All strings in the input consist of lowercase letters only.

Output format

For the given input, output a single line containing the 1-based index of the winning team.

Constraints

2<=n<=10000
1<=|s|<=100000
1<=size of a team<=10

Sample Input1:
2 qwopwasp
wdw
abco

Sampel Output1:
1

Sample Input2:
5 eeeessaa
valentina
esta
jugando
con
marcia

Sample Output2:
2

Sample Input3:
5 ahi
valentina
esta
jugando
con
susamigas

Sample output3:
1
EXPLAINATION
The string showed by Marcia is s="qwopwasp"
There are two letters 'w' in s, so two points are given to every girl who has chosen a letter 'w'.
Team 1 has three members. Two of them has chosen a letter 'w', and the other one has chosen a letter 'd'.
The two girls get two points each, but the other girl has zero points because a letter 'd' doesn't occur in s at all.
The score of team 1 is 2+2=4
Team 2 has four members. A girl who has chosen a letter 'a' gets one point, and so does a girl who has chosen a letter 'o'.
The score of team 2 is 1+1=2
So, in the first sample test case there is no tie and team 1 clearly wins.

Testcase1:
Input:
2 qwopwasp
wdw
abco
Output:
1

Testcase2:
Input:
5 eeeessaa
valentina
esta
jugando
con
marcia

Output:
2

Testcase4:
Input:
5 ahi
valentina
esta
jugando
con
susamigas
Output:
1
Testcase4:
Input:
6 surampalem
adityaengineeringcollege
adityacollegeofengineering
collegeengineeringaditya
adityadegreecollege
adityawomensdegreecollege
adityapgstudies
Output:
5

Source Code:

```
import java.util.*;
class Prog11_1
{
	public static void main(String args[])
	{
		Scanner sc=new Scanner(System.in);
		int num,score[],count,i,j,max=0,index=0;
		String s,str[];
		char ch[];
		num=sc.nextInt();
		s=sc.next();
		score=new int[num];
		str=new String[num];
		for(i=0;i<num;i++)
		{
			str[i]=sc.next();
		}
		for(i=0;i<num;i++)
		{  count=0;
			ch=str[i].toCharArray();
			for(j=0;j<ch.length;j++)
			{
				if(s.contains(ch[j]+""))
				count++;
			}
			score[i]=count;
		}
		for(i=0;i<num;i++)
		{
			if(max==0)
			{
				index=i;
				max=score[i];
			}
			if(score[i]>=max)
			{
				if(score[i]==max)
				{
					if(str[i].length()<str[index].length())
						index=i;
				}
```

```
                    else
                    {
                        max=score[i];
                        index=i;
                    }
                }
            }
            System.out.println(index+1);

        }
}
```

Program – 2:

The girl Taylor has a beautiful calendar for the year y. In the calendar all days are given with their days of week: Monday, Tuesday, Wednesday, Thursday, Friday, Saturday and Sunday.

The calendar is so beautiful that she wants to know what is the next year after y when the calendar will be exactly the same. Help Taylor to find that year.

Note that leap years has 366 days. The year is leap if it is divisible by 400 or it is divisible by 4, but not by 100.

Input Format:

You will be given an integer y - the year of a calendar.

Output:

Return the only integer y the next year after y when the calendar will be the same. Note that you should find the first year after y with the same calendar.

Input:

2018

Output:

2029

Input:

2017

Output:

2023

Testcase1:

Input:

2018

Output:

2029

Testcase2:

Input:

2017

Output:

2023

Testcase3:

Input:

2020

Output:

2048

Source Code:

```
import java.util.*;
class Prog11_2
{
	public static void main(String args[])
	{
		Scanner sc=new Scanner(System.in);
		int year=sc.nextInt();
		int nextIdenticalYear=0;
		if(year%4==0)
			nextIdenticalYear=year+28;
		else if(year%4==1)
		{
			nextIdenticalYear=year+6;
		}
		else if(year%4==2 || year%4==3)
			nextIdenticalYear=year+11;

		System.out.println(nextIdenticalYear);


	}
}
```

MCQ_Day11_KEY:

What is the priority of the thread in the following Java Program?

```
class multithreaded_programing
{
    public static void main(String args[])
    {
        Thread t = Thread.currentThread();
        System.out.println(t);
    }
}
```

A) 4
B) 5
C) 0
D) 1
Answer: B

2.To change the priority of the thread
A) setPriority(int)
B) setPriority(float)
C) setPriority(long)
D) setPriotity(double)
Answer: A

3.What will be the output of the program?

```
class Test extends Thread {
public void run()
   {
      System.out.println("Run");
   }
}
class Myclass {
public static void main(String[] args)
   {
      Test t = new Test();
      t.start();
   }
```

A) One thread created
B) Two threads created
C) Depend upon system
D) No thread created
Answer: B

4.class Test implements Runnable {
public void run()
    {
        System.out.println("Run");
    }
}
 class Myclass {
public static void main(String[] args)
    {
        Test t = new Test();
        t.start();
        System.out.println("Main");
    }
}
A) Main Run
B) Run Main
C) Compile time error
D) Depend upon JVM
Answer: C

5.What is the output of this program?
class Example {
private int x;
public static void main(String args[])
    {
        Example obj = new Example();
    }
public void Example(int x)
    {
        System.out.println(x);
    }
}

A) 0
B) Garbage value
C) Compile time error
D) No output : Blank Screen
Answer:D

6.Find the output

```
class A extends Thread
{
public void run()
{
        for(int i=0;i<=3;i++)
        {
                Thread.sleep(1000);
                System.out.println("Hello");
        }
 }
public static void main(String args[])
{
        A o=new A();
        o.start();
  }
}
```

A) 4 times Hello printed
B) 3 times Helloprinted
C) Compile time error due to unreported /caught interrupted exception
D)Compile time error due to to unreported /caught interstate exception
Answer:C

7.Which of the following interface is used to create Thread?
A) Thread
B) ThreadSynchronization
C) Synchronized
D) Runnable
Answer: D

8.Predict the output

```
abstract class A implements Runnable
{

}
class B extends A
{
   public void run()
   {
      System.out.println("Hello");
   }
public static void main(String args[])
{
   B b=new B();
   Thread t=new Thread(b);
   t.start();
}
}
```

A) Compile time error due to abstract class can't implements Runnable
B) Compile time error due to start() not belong to B class
C) Hello
D) No Error and No output
Answer: C

9.What is the name of the method used to start a thread execution?
A) init();
B) start();
C) run();
D) resume();
Answer: B

10.Which class or interface defines the wait(), notify(),and notifyAll() methods?
A) Object
B) Thread
C) Runnable
D) Class
Answer:A

11.Predict the output?

```
class T {
  int t = 20;
}
class Main {
   public static void main(String args[]) {
      T t1 = new T();
      System.out.println(t1.t);
   }
}
```

A) 20
B) 0
C) Compiler Error due to InvalidClassName
D) @123
Answer: A

12. What will be the output of the following Java program?

```
   final class A
    {
         int i;
    }
    class B extends A
    {
        int j;
        System.out.println(j + " " + i);
    }
```

```
class inheritance
  {
     public static void main(String args[])
     {
        B obj = new B();
        obj.display();
     }
  }
```

A) 2 2
B) 3 3
C) Runtime Error
D) Compilation Error
Answer:D

13. What will be the output of the following Java program?

```
class Abc
{
   public static void main(String[]args)
   {
      String[] elements = { "for", "tea", "too" };
      String first = (elements.length > 0) ? elements[0]: null;
   }
}
```

A) Compilation error
B) An exception is thrown at run time
C) The variable first is set to null
D) The variable first is set to elements[0]
Answer:D

14.

```
class Vehicle
{
   int maxSpeed = 120;
}

class Car extends Vehicle
{
   int maxSpeed = 180;

   void display()
   {
      System.out.println("Maximum Speed: " + super.maxSpeed);
   }
}
```

```
class Test
{
    public static void main(String[] args)
    {
        Car small = new Car();
        small.display();
    }
}
```
A) 120
B) 180
C) 0
D) 300
Answer: A

15.Which of the following instance variables of Test class is persisted?

```
class Test implements Serializable
{
     private transient String password;

    transient int age;

   String username, email;


    // other code
}
```
A) Password
B) age
C) username,password
D) username,email
Answer:D

16.When two or more threads need access to a shared resource there should be some way that the resource will be used only by one resource at a time. The process to achieve this is called synchronization.
A) True
B) False
C) can't say
D) None of the above
Answer:A

17.class ThreadTwiceExample implements Runnable {

```
  @Override
  public void run(){

       System.out.println("I am executing.");

  }
  public static void main(String args[]){
     ThreadTwiceExample te=new ThreadTwiceExample();
       Thread th1 = new Thread(te);
       th1.start();
       th1.start();
  }
}
```

A) two times I am executing is printed
B) java.lang.IllegalThreadStateException
C) java.lang.InterrruptedException
D) annonation @Override error
Answer: B

18.threadobject.setDaemon(true) -method is used
A) Create the thread with highest priority
B) Make the thread as low priority thread
C) Make the thread as Normal priority thread
D) Nu such method Exception
Answer:B

19.If you call the setDaemon() method after starting the thread (start() method), it would throw
A) IllegalStateException
B) IllegalMethodStateException
C) InterruptedException
D) IllegalThreadStateException
Answer: D

20.Which of the following methods are Invalid for inter thread communication
A) wait()
B) notify()
C) notifyAll()
D) Noneof the mentioned
Answer:D