OOP Lab 2: Data Variables and Arrays.

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General Instructions: -

1.) Please read the question carefully.

2.) Indent your code to make it readable and easier to debug.

The college administration has decided to appoint a team of 3 co-ordinators (Pratik, Milan, Mayur) to look after the execution of the annual college fest. In order to test whether the team of co-ordinators is competent enough to handle the fest the administration wants your help. You will be given an array of strings which will basically represent the different tasks that need to be performed during a fest. You will also be provided with the capacities of each of the co-ordinators.

Now on the basis of the strings you have to decide if either one of the co-ordinators is capable enough of doing the task or not.

You have to write the function **cordi** which takes 4 inputs in the order mentioned.

1.) arr[] – array of strings (representing the various tasks).

1.) capPratik - capacity of Pratik.

2.) capMayur – capacity of Mayur.

3.) capMilan – capacity of Milan

In this function (cordi) itself you have to check if ***the tasks*** can be performed by either of the co-ordinators .

The final output that has to be returned is the number of tasks that can be performed by the co-ordinators(i.e by any one of the co-ordinators).Let's call it counter at the moment.

If a particular task can be performed by any one of the co-ordinators then increment counter by 1. If a particular task cannot be performed by any of the co-ordinators (i.e not by Pratik and not by Mayur and not by Milan) then decrement the counter by 1. (i.e 1 unit penalty for not being able to perform the task).

At the end return the integer counter from the function cordi.

You will have to write three other functions

1.) canPratik

2.) canMayur

3.) canMilan

To check if the task can be performed by Pratik, Mayur and Milan respectively. These functions take two inputs each , capacity of the particular person and the task string itself :-

Information :-

1.) Pratik can perform a task if the ((factorial of the length of the task string is greater than or equal to 29*capPratik)).

i.e if length of the task string is 5 and capPratik is 6 then ,

factorial (length) = 5! = 120 and 29 * capPratik = 174 , since 120 < 174 , Pratik can't do it .

However if the capPratik = 4 then 29 * capPratik = 116 and since 120 >= 116 hence Pratik can do it.

2.) Mayur can perform a task if ((capMayur + 5 * length of the task string)) >= 17 .

3.) Milan can perform the task if ((length of the task string is divisible by 2 ***and*** the length of the task string is divisible by capMilan)).

An example to make it all a little clear: -

arr [] --- {"Life", "Without", "Engineer", "Impossible"}.

capPratik = 8

capMayur = 7

capMilan = 6

Life ::-
canMilan? false
canMayur? true
canPratik? false

Without ::-
canMilan? false
canMayur? true
canPratik? true

Engineer ::-
canMilan? false
canMayur? true
canPratik? true

Impossible ::-
canMilan? false
canMayur? true
canPratik? true

Final Answer (counter) – 4

Here since all the tasks can be performed by atleast one co-ordinator , hence the final output from the function cordi will be 4. However, consider if one of the tasks could not be performed by any (i.e if none of the co-ordinators could perform the task) of the co-ordinators then the final output should be 2, i.e 1 + 1 + 1 – 1 (three tasks increment and 1 task decrement).

Few pointers :-

1.) Make sure you import java.io. * and java.util.*

2.) length of a string can be calculated using the length () function. Eg in order to calculate the length of string str you have to use str.length().

3.) length of an array named arr can be calculated using arr.length . (No brackets at the end)

Evaluation Process: You will place your solution (in this case Fest.java) in a directory named 'java'. Your working directory should now contain both the 'java' folder and test.jar file. Now, execute the test cases by running the command:

java -jar test.jar .

Function wise test cases

1-7 - cordi function

8 - canMilan

9 - canPratik

10 - canMayur

It is recommended (strongly) that you should write the cordi function only after you finish the other three functions.

Best of luck for your lab.