



DIU Take-Off Programming Contest

Fall 2019

[Mock Round]

Organized By



Problem Analysis

Platform Support



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Department of CSE

Daffodil International University

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Tanima Hossain

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Umme Rukaya Suny

Judge

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Farjana Akter

Judge

6th Semester

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A. Papan Al Hasan

Category: Giveaway

Problem Setter: Kaniz Fatima Mim

Reviewer: Umme Rukaya Suny

Alternate Solution Writer:

Special Thanks: Shah Habibul Imran

Analysis:

Just copy and paste the given code and **replace** “Take-off Fall-2019 is on 6th December” with
“I am Papan Al Hasan, your new allrounder.”

B. The Unfortunate Gamble

Category: Basic Math

Problem Setter: Shah Habibul Imran

Reviewer: Md. Erfanul Islam

Alternate Solution Writer: Md. Erfanul Islam

Special Thanks:

Analysis:

This is a simple percentage calculation problem. Subtract **k** from **n**. Then multiply it by 100 and divide by **n**. It's the desired answer.

C. PaapOn On Bullseye

Category: If-Else

Problem Setter: Farjana Akter

Reviewer: Nazmus Sakib

Alternate Solution Writer: Umme Rukaya Suny

Special Thanks: Nesar Ahammed, Shah Habibul Imran

Analysis:

There are given two coordinate points (x_1, y_1) (x_2, y_2) . For determining the PaapOn slope use the given formula and then compare the given slope with determined slope. If both are equal then print Fortune favors on Papi PaapOn (without quotes) otherwise print Fortune doesn't favor on Papi PaapOn (without quotes)

D. Hacker In Casino

Category: Observation and If-Else

Problem Setter: Md. Erfanul Islam

Reviewer: Farjana Akter

Alternate Solution Writer: Tanim Hossain

Analysis:

In this problem you have given values for three booths (assume a, b, c) and a number X which indicates a booth in which a player will definitely lose. Except X he will win in other two booths. So you just have to check if your profit maximize by playing in all three booths or quit playing before the losing booth X . Initially you have 0 tk.

If X is 1 , you have to check if $(-a)+b+c$ is maximum or the value before first booth is maximum, which is 0 . (most of the submission missed this)

If X is 2 , you have to check if $a+(-b)+c$ is maximum or the value before second booth a is maximum.

If X is 3 , it is always maximum to quit playing before c , that is $a+b$.

E. The Casino Beauty

Category: Loop , Observation

Problem Setter: Umme Rukaya Suny

Reviewer: Tanima Hossain

Alternate Solution Writer: Tanima Hossain

Analysis:

- **Observation:** As he can choose only one price, he will get the maximum profit if he chooses a price where summation of all the products of that price are maximum.
- **Solution Idea:** Calculate the sum of all 1,2,3,4,5,6,7,8,9 and 10 one by one separately from the given N integers and then find out the maximum sum among these

F. Habibi's Cricket Craze

Category: String Processing

Problem Setter: Mehedi Hasan Shesher

Reviewer: Shah Habibul Imran

Alternate Solution Writer:

Special Thanks:

Analysis:

You have to find out all substrings starting with character C. Then output the length of maximum substring. To do this, iterate over given string. When you get character C, start another iteration. In this second iteration, form the substring. Before adding a character to substring check if the ascii distance of that character and previous character is smaller than X or not. Otherwise the substring ends. Then continue the first iteration. After getting each substring just store the maximum length. At the end, output the maximum value.

G. Amar Iccha Moto! 😊

Category: Number Theory

Problem Setter: Tanima Hossain

Reviewer: Nazmus Sakib

Alternate Solution Writer: Nazmus Sakib

Special Thanks: Saiful Islam, Mahmud Sajjad Abeer

Analysis:

Initially, Can assign $X=0$.

Then have to check the digits of N one by one if that exists in given K digits. For that, Do $num=N\%10$, here in num is the last digit of N then have to check if that exists in K digits if that does, have to add that with X . Then do $N=N/10$ (Integer Division/ Round down), this will delete the last digit from N and will shift every digit one place right. we can repeat this process until N becomes zero. finally print the value of X .

You can also use string for N . Try that yourself.

Source Codes: [Mock Solutions](#)