Learn
For
Cause

DATA STRUCTURES WITH C++
INTERNSHIP TRAINING - ASSIGNMENT 1

MCQ QUESTIONS

1. What is the range of character buckets acquire?

0.1 Byte
1.4 Byte
2.8 Byte
3.16 Byte

2. What is the order of precedence for int, float, char, and bool?

0.char>float>int>bool
1.float>int>char>bool
2.bool>float>int>char
3.int>float>char>bool

3. Predict Output 1
"/* The output of the following program is ? */
```
1)      #include<iostream>
2)      using namespace std;
3)      int main(){
4)      signed CodingBlocks = 9;
5)      signed Nagarro = A;
6)      signed char HackerBlocks = 'A';
7)      cout<<CodingBlocks<<endl;
8)      cout<<HackerBlocks<<endl;
 9)      return 0;
       }
```
"

0.A 9
1.Error in line 4
2.Error in line 5
3.9 A

4. Predict Output 2
"/* What will be the output of the following program ? */
```cpp
#include<iostream>
using namespace std;

int main(){
    signed CodingBlocks = 9;
    short double Nagarro = 8.8;
    signed char HackerBlocks = 'A';
    cout<<CodingBlocks<<endl;
    cout<<Nagarro<<endl;
    cout<<HackerBlocks<<endl;


    return 0;
    }"
```

0.9   8.8   A
1."Run Time Error "
2.Error due to Nagrro
3.Error Due to Coding Blocks

5. Predict Output 3
```CPP
"/* Output ? */
#include<iostream>
```

```
using namespace std;

int main(){
   long signed CodingBlocks = 2017;
   short unsigned BOSS1     = -2018;
   unsigned BOSS2           = -2019;
   int      BOSS3           = -2020;
   long long unsigned BOSS4 = -2021;
   short unsigned Nagarro   = 2018.9;
   long signed HackerBlocks = 'A';
   cout<<CodingBlocks<<endl;
   cout<<BOSS1<<endl<<BOSS2<<endl<<BOSS3<<endl<<BOSS4<<endl;
   cout<<Nagarro<<endl;
   cout<<HackerBlocks<<endl;


   return 0;
   }"
```

```
0.2017    2^16 - 2018    2^32 -2019    -2020    2^64 - 2021   2018    65
1.2017    2018    2019    2020    2021    2018.9    A
2.2017  2^32 - 2018  2^32 -2019  -2020  2^32 - 2021 2018  65
3.2017    2^32 - 2018    2^32 -2019    -2020    2^64 - 2021   2018    64
```

PROBLEM-SOLVING QUESTIONS

A) Name: Simple Input
Difficulty: 1
Constraints: All numbers input are integers between -1000 and 1000.

Description:
Given a list of numbers, stop processing input after the cumulative sum of all the input becomes negative.

Input Format: A list of integers to be processed

Sample Input: 1
2
88
-100
49

Output Format: Print all the numbers before the cumulative sum become negative.

Sample Output: 1
2
88

B) Name: Odd and Even back in Delhi
Difficulty: 1
Constraints: N<=1000
Car No >=0 && Car No <=1000000000

Description:
Due to an immense rise in Pollution, Kejriwal is back with the Odd and Even Rule in Delhi. The scheme is as follows, each car will be allowed to run on Sunday if the sum of digits that are even is divisible by 4 or the sum of digits that are odd in that number is divisible by 3. However, to check every car for the above criteria can't be done by the Delhi Police. You need to help Delhi Police by finding out if a car numbered N will be allowed to run on Sunday?

Input Format: The first line contains N, then N integers follow each denoting the number of the car.

Sample Input: 2
12345
12134

Output Format: N lines each denoting "Yes" or "No" depending upon whether that car will be allowed on Sunday or Not!

Sample Output: Yes
No

C) Name: Pythagoras Triplet
Difficulty: None
Constraints: N <= 10^9

Description:
Given a number N (denoting one of the legs of the triangle), Print its Pythagoras pair in increasing order if they exist. Otherwise, print "-1".

Input Format: A single integer N

Sample Input: 3
Output Format: Two numbers X and Y denoting the rest of the numbers of the Pythagorean triplet in increasing order.

Sample Output: 4 5