

IF184202 Data Structure (IUP)

Quiz 1

Starting date: 21 February 2020
Deadline: 28 February 2020, 23:59 WIB. **Penalty: 0.15% of grade/minute of tardiness.**
Exam type: Open
Send to: MM Irfan Subakti <yifana@gmail.com>
CC to Irham Muhammad Fadhil <irham.mfadhil@gmail.com>
with the subject: IF184202_DATAST_IUP_Q1_StudentID_Name
File type and format: A zip file containing all of the .cpp source files & the declaration
Filename format: IF184202_DATAST_IUP_Q1_StudentID_Name.ZIP

Instruction

Please do these steps as in the following.

1. Complete a program below in C++, namely `01_stack_class[your_name].cpp`. **[25 points]**

Implement the following functions.

- a. The `pop()` function, this function has a function to pop the most upper item in the stack.
- b. The `push()` function, this function is to push an item to the stack
- c. The `peek()` function, this function is to peek or see the most upper item in the stack, not removing it.
- d. The `isEmpty()` function, this function is for checking whether the stack is empty or not.

Code:

```
#include <bits/stdc++.h>
using namespace std;
#define MAX 1000

class Stack {
    int top;

public:
    int a[MAX]; // Maximum size of Stack

    Stack() { top = -1; }
    bool push(int x);
    int pop();
    int peek();
    bool isEmpty();
};

int main()
{
    class Stack s;
    s.push(10);
    s.push(20);
    s.push(30);
    cout << s.pop() << " Popped from stack\n";

    return 0;
}
```

2. Create a program that sort word on alphabetical order namely 02_sort_word_[your_name].cpp. **[25 points]**
3. Find the first duplicate character in a string. Give the program's name: 03_find_dup_[your_name].cpp. **[25 points]**

Input:

- string

Output:

- a single character which satisfies the condition.

E.g.:

Input:

- abbcbbca

Output:

- a

Input:

- abbcc

Output:

- b

Tips: the optimal solution is $O(n)$

4. Make a program in C++ that can search the number of moneys owned by someone. Print the number of money if there are any people in the data and print "Not found" if there are

no people in the data. Give the program's name: 04_search_money_[your_name].cpp [25 points]

Data:

People	Money
Gilbert	50
Irham	35
Agung	20
Puja	45
Jason	60

Input 1

Irham

Output 1

35

Input 2

Aidil

Output 2

Not found

5. To avoid plagiarism/cheating, every student needs to pledge and declare, then she/he must submit her/his **signed pledge and declaration** as in the following. Failed to do so will be resulted in getting 0 (zero) grade. Attach the **scanned/photo** of your *declaration* in your report.

"By the name of Allah (God) Almighty, herewith I pledge and truly declare that I have solved quiz 1 by myself, didn't do any cheating by any means, didn't do any plagiarism, and didn't accept anybody's help by any means. I am going to accept all of the consequences by any means if it has proven that I have been done any cheating and/or plagiarism."

[Place, e.g., Surabaya], [date, e.g., 28 February 2020]

<Signed>

[Full name, e.g., Lestari Kusumawati]

[StudentID, e.g., 05111840000xxx]

6. ZIP the files of 01_stack_class_[your_name].cpp, 02_sort_word[your_name].cpp, 03_find_dup_[your_name].cpp, 04_search_money_[your_name].cpp and your declaration (e.g., Declaration.PDF) into 1 (one) only .ZIP file, namely IF184202_DATAST_IUP_Q1_StudentID_Name.ZIP. Send this .ZIP file to yifana@gmail.com and CC-ed to Irham Muhammad Fadhil <irham.mfadhil@gmail.com>.

7. Have a wonderful day, fellas! Good luck! 😊