Introduction to Programming

Week 03
Conditional Statement

Department of Software Engineering-FIT-VNU-HCMUS

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Content

Programming is the process to write a program / an application.

Specifically, programming includes 4 steps:

- Step1: Understanding your problem.
- Step 2: Designing an algorithm.
- Step 3: Writing source code.
- Step 4: Packaging source code files into an executable file, a website, an apk, or an ipa file.

In this lab, we practice to write source code in C++.

2 Assignments

Solution Name: 19127001_W03

Project Name: P03, P08, P09, P13, P14, P15, P16, P21, P27

If you create wrong names, DO NOT RENAME, just delete and create a new one.

A: YY: 03 => P03, P09, P14.

H: YY: 09 => P03, P08, P09, P13, P14, P15, P16, P21, P27.

Draw flowcharts and write source codes in C++.

Design at least 3 test cases for each program.

```
// <YOUR STUDENT ID>
// <YOUR FULL NAME>
// <YOUR CLASS>

// Test case 1
// Input:
// Output:

// Test case 2
// Input:
// Output:

// Test case 3
// Input:
// Output:


int main(){
        return 0;
}
```

P03 – PASSED OR FAILED

Write a program that allows a teacher to enter detail scores of a student, including assignment score (30%), lab score (30%), and final exam (40%). Compute the total score and print out whether that student is passed or failed the course. But if the teacher says that student is cheating, he/she will be failed and the final score is 0 point.

Input

9.5

8.5

8.0

0

Output

8.6 PASSED

P08 – EQUATION

Write a program to solve the following equation given a, b

ax + b = 0

Input

2 1

Output

-0.50

P09 – EQUATION

Write a program to solve the following equation given a, b

ax^2 + bx + c = 0

Input

2 -7 5

Output

1.00 2.50

P13 – MAX, MIN

Write a program to find the maximum value and the minimum value between 4 integer numbers.

Input

2 7 5 12

Output

12 2

P14 – LEAP YEAR

Write a program to check whether a year is a leap year or not.

Input

2019

Output

Normal year

Input

2020

Output

Leap year

Input

1800

Output

Normal year

P15 – NUMBER DAYS IN A MONTH

Write a program to find the number days in a given month of a year.

Input

2019 1

Output

31

Input

2019 2

Output

28

Input

2020 2

Output

29

Input

1999 11

Output

30

P16 – TOMORROW

Write a program to find the tomorrow of a given (valid) date.

Input

2019 10 1

Output

2029 10 2

Input

2019 10 31

Output

2019 11 1

Input

2019 12 31

Output

2020 1 1

P21 – ROUNDED NUMBER

Write a program to round a floating point number to 0.5-scale.

Input

4.74

Output

4.5

P27 – INTEREST

Assuming that the interest rate of a month is q = 1%. User deposits an amount of money to the bank. After a month the current amount and the interest is deposit again to the bank.

After n months, with a given interest rate q and an amount of money m, how much money the bank has to pay?

Input

1500000 1 2

Output

1530000

Input

1500000 2 2

Output

1560600