Introduction to Programming

Week 02
Input Output 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_W02

Project Name: P10, P13, P15, P16, P17, P18, P19, P23, P24, P25

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

A: YY: 03 => P10, P15, P18.

H: YY: 10 => P10, P13, P15, P16, P17, P18, P19, P23, P24, P25.

2.1 Assignment 01

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;
}
```

P01 – SUM OF 2 NUMBERS

Write a program that allows user to enter 2 integer numbers. Compute the sum of them and output to the console.

Input

3 5

Output

3 + 5 = 8

P05 – DIVISION OF 2 NUMBERS

Write a program that allows user to enter 2 integer numbers a, b. Divide a by b and output the result to the console.

Input:

9 2

Output:

9 / 2 = 4.50

P06 – SIN OF AN ANGLE

Write a program that allows user to a angle (in degree). Use the built-in sin function to find the sin of this angle.

Input

30.0

Output

0.50

P10 – ELECTRICITY

Write a program that allows user to enter 2 electricity indices of last month and this month in a household. How many electricity power in KWh that the household consumed?

Input

1000 1211

Output

211

P13 – TRIANGLE

Write a program that allows user to enter 3 edges of a valid triangle. Compute the perimeter and area of the triangle.

Input

3.00 4.00 5.00

Output

12.00 6.00

P16 – VEHICLE PLATE NUMBER

Write a program that allows user to compute the lucky number of a vehicle plate number. Assuming that a vehicle plate number has 5 digit.

Input

12345

Output

5

Explanation

(1 + 2 + 3 + 4 + 5) % 10 = 15 % 10 = 5

P17 – CASH CHANGE

Write a program that allows user to enter an amount of money. Which money sheets are received.

Assuming that we have the following sheets: 500.000, 200.000, 100.000, 50.000, 20.000, 10.000, 5.000, 2.000 and 1.000.

Prefer a bigger-value sheet rather than a smaller-value ones.

Input

2361000

Output

500000: 4

200000: 1

100000: 1

50000: 1

20000: 0

10000: 1

5000: 0

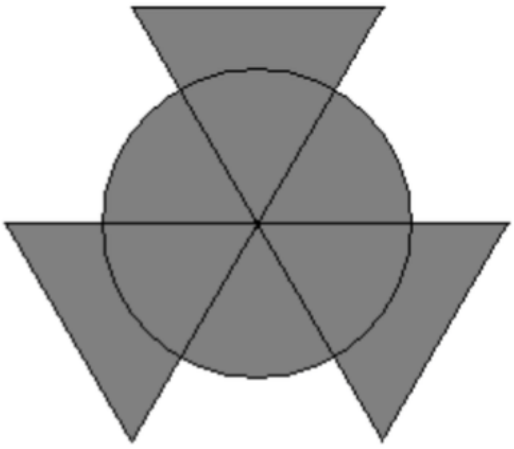
2000: 0

1000: 1

P23 – AREA OF SHAPE

Write a program that allows user to enter an edge of the equilateral triangle and the radius of the circle.

Compute the area of the following gray shape. Assuming that PI = 3.14.



P24 – REFUND DISCOUNT

A shopping promotion states that the customer will be refunded X = 40% of transaction amount, maximum Y = 100.000. How much should the client pay to get the maximum discount?

Input

40

100000

Output

250000

P25 – PACE AND SPEED

On 2019-10-12, Eliud Kipchoge, finished his marathon of 42.195km on 1 hours, 59 minutes and 40.2 seconds, a world record at this time.

Write a program that allows user to enter to the length in km and the time. Compute the athlete space and speed.