

Java Homework1

Total score: 100

Deadline: 3/3(Thu) 17:30

1. (30%, test data: 2, requirement: 2, Questions and Answers: 2)

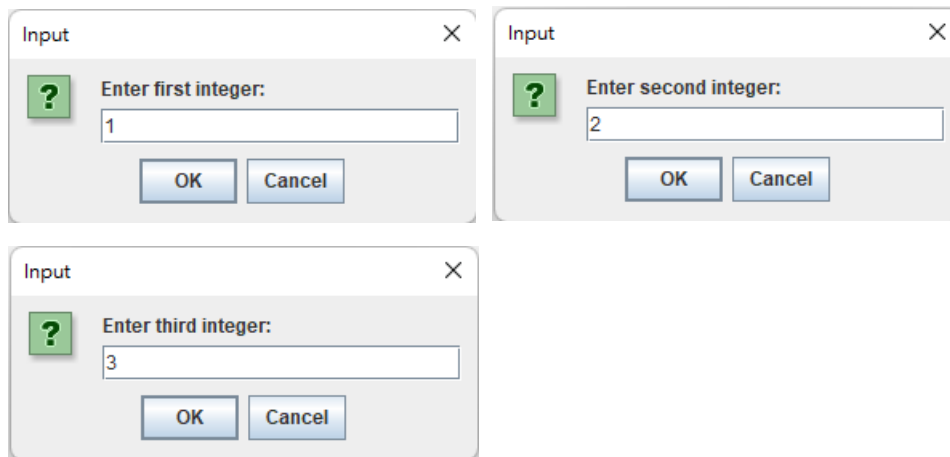
Write a **Java application program** that inputs three integers from the user by using **input dialog** and displays the **sum**, **average**, **product**, **smallest** and **largest** of the numbers on the **message dialog**.

(1) Case I: without defining any function in your program except the main function.

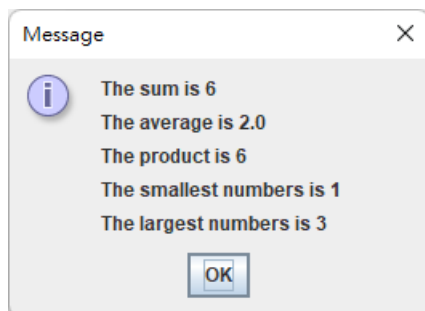
(2) Case II: define “smallest” and “largest” function in your program.

(3) Please write two java programs. One is for Case I, the other is for Case II.

Sample Input



Sample Output



Questions and Answers

- (1) (5%)

(a) Why is method main declared **static**?

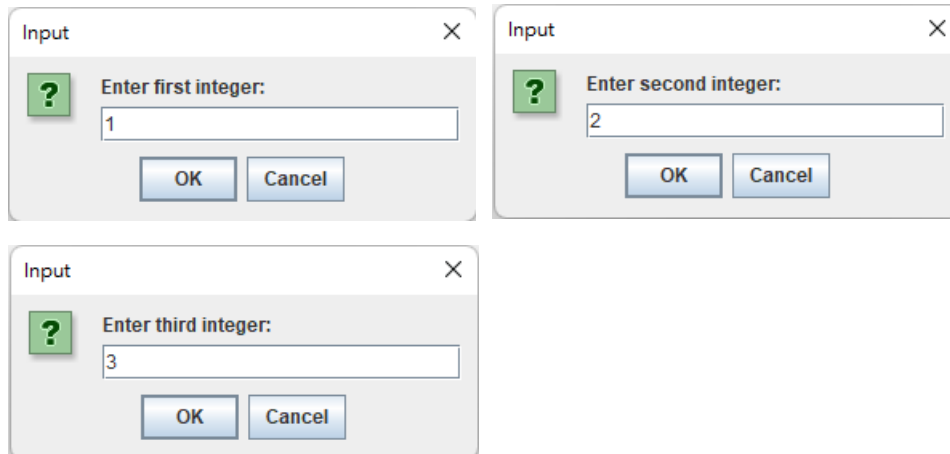
(b) Why must the name of application file match the name of the public class?

- (2) (5%) Why are two methods “smallest” and “largest” declared **static**?

2. (20%, test data: 1, requirement: 1, Questions and Answers: 1)

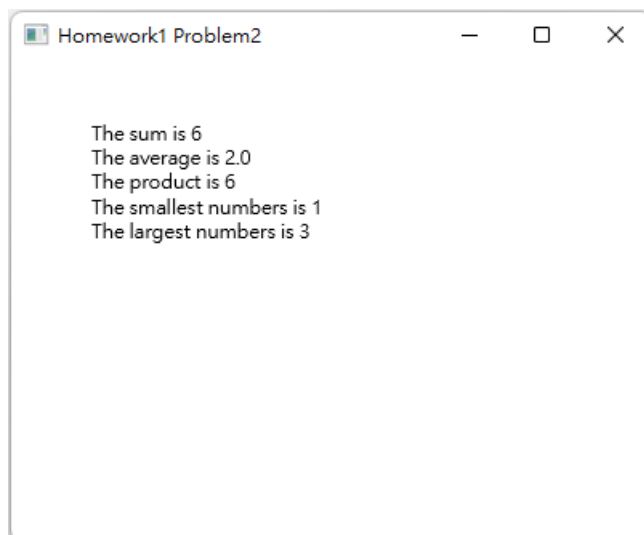
Redo Problem 1 Case II by using **JavaFX program**. Input data from the input dialog, Output the result on the stage.

Sample Input



The sample input consists of three separate 'Input' dialog boxes. Each dialog box has a title bar with 'Input' and a close button. Inside each dialog, there is a green square icon with a white question mark, followed by a text label and a text input field. The first dialog is labeled 'Enter first integer:' and contains the number '1'. The second dialog is labeled 'Enter second integer:' and contains the number '2'. The third dialog is labeled 'Enter third integer:' and contains the number '3'. Each dialog also has 'OK' and 'Cancel' buttons at the bottom.

Sample Output



The sample output is a window titled 'Homework1 Problem2'. It displays the following text:

```
The sum is 6
The average is 2.0
The product is 6
The smallest numbers is 1
The largest numbers is 3
```

Questions and Answers

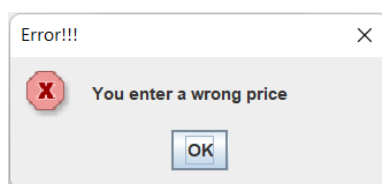
- (1) (10%) Please describe JavaFX program five execution sequences in this problem.

3. (20%, test data: 2, requirement: 2)

Write an **application program** that determines the change to be dispensed from a vending machine. An item in the machine can **cost from 25 cents to one dollar**, in 5-cent increments (25, 30, 35, ...90,95,100), and the machine accepts only one single dollar bill to pay for the item. For example, a possible sample dialog might be:

- (1) Enter price of item: (from 25 cents to one dollar, in 5-cent increments): 45
- (2) You bought an item for 45 cents and gave me one dollar, so your change is 2 quarters, and 1 nickel.

If the user enters a wrong price, the program must show error message and the user can enter the price of item again.



Note

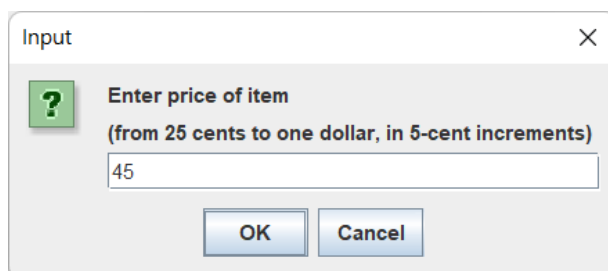
Quarter=25 cents=0.25 dollar

Dime=10 cents=0.1 dollar

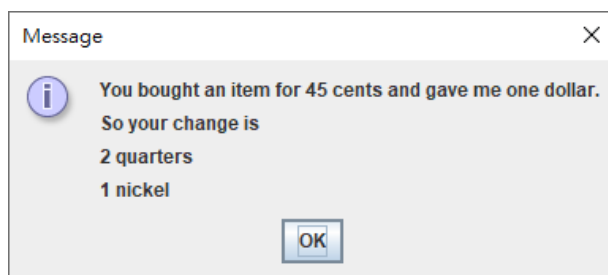
Nickel=5 cents=0.05 dollar

Penny=1 cent= 0.01 dollar

Sample Input



Sample Output



4. (15%, test data: 2, requirement: 1)

Write a **JavaFX program** that read a file name from the input dialog. The file name should has one . (dot) character in it, separating the file name from the file extension.

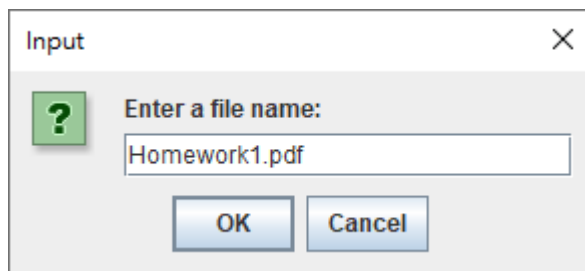
Retrieve the file extension and display the result on the stage.

For example:

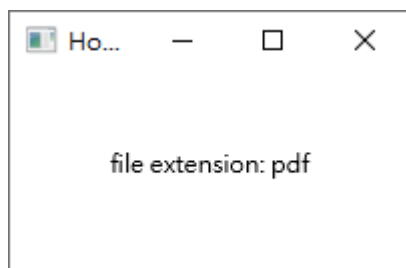
If the user inputs JavaTest1.html, you should output the file extension is html.

If the user inputs Test2.java you should output the file extension is java.

Sample Input



Sample Output



5. (15%, test data: 2, requirement: 1)

Write an **application program** that inputs from the user the radius of a circle as an integer and prints the circle's diameter, circumference, and area. Use the command window input and output. Please reference Lecture I-28~I-31.

Sample Input and Output

```
Radius: 4
Diameter: 8
Circumference: 25.132741228718345
Area: 50.26548245743669
```