EN 001203 Computer Programming

L001: Warm Up Exercises 2

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Submission: https://autolab.en.kku.ac.th

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* Submit an answer to a question with a file with `txt` extension. E.g., an answer for Q1 should be submitted in a text file "`Q1.txt`"

* Submit a program to a (programming) problem with a file with `cpp` extension. E.g., a program for P2 should be named "`P2.cpp`"

* All answers and programs must be packaged together in a tar file.

    Windows: use tar utilities, e.g., 7-zip, PeaZip.

    Mac: there usually is a tar utility, e.g., `tar -cvf myfiles.tar *` on terminal.

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Q1. What are the most valued characters in Eastern philosophy? Answer each a line and have them in order.

[Hint: they are `compassion` and `wisdom`.]

Q2. What is the name of a program generally used to manage processes, memories, and I/O?

[Hint: it is the operating system (`OS`).]

Q3. What is the name of a program to compile our program (source) file into a machine code?

[Hint: `compiler`.]

Q4. Write a command line of the GNU C++ compiler to compile `test.cpp` and have its output named `test.exe`.

[Hint: `g++ test.cpp -o test.exe`]

Q5. What is a program providing facilities (including a text editor, a compiler, and output terminal) to a computer programmer for software development?

[Hint: integrated development environment]

P6. Write a program to get two numbers from a user and add them together and print out the result.

[Hint: "a + b" is a string, while a + b is an expression.]

Example:

==========

a: ***24***

b: ***8***

a + b = *32*

==========

A ***bold-italic*** font indicates what a user might type in. An *italic* is what the program reflects from what a user typed in.

! Noting that, a font effect using above is to emphasize the input and its corresponding effect. The program is not expected to produce any of these font effects. See Figure 1 along.

```
a: 24
b: 8
24 + 8 = 32
```

Figure 1

P7. Write a program to get two numbers from a user, then minus the second term out of the first one, and print out the result.

Example:

==========

a: ***24***

b: ***8***

a - b = *16*

==========

P8. Write a program to get two numbers from a user and print out their product.

Example:

==========

```
a: 24
b: 8
a * b = 192
```

==========

P9. Write a program to get two numbers from a user and print out the quotient of dividing the first term by the second.

Examples:

==========

```
a: 24
b: 8
a / b = 3
```

==========

```
a: 28
b: 8
a / b = 3
```

==========

```
a: 31
b: 8
a / b = 3
```

==========

```
a: 32
```

```
b: 8
a / b = 4
```

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! Notice that, it gives out the quotient, not a fraction or a decimal number.

P10. Fuel efficiency (revisited). Write a program to estimate fuel efficiencies (in km/ℓ). The program asks a user for the distance (in km) traveled and the amount of gasoline the vehicle consumed (in ℓ).

[Hint: don't forget to have computation in float-point-operation mode. Check out `4 / 3` vs `4.0 / 3.0` and see keyword `float`.]

Example:

==========

```
distance: 700
gasoline: 50
fuel efficiency = 14 km/l.
```

==========

```
distance: 725
gasoline: 50
fuel efficiency = 14.5 km/l.
```

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```
distance: 355
gasoline: 50
fuel efficiency = 7.1 km/l.
```

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