Programming Practice

2018-09-13

Week 2

NOTICE

- All class materials will be uploaded on mrl.snu.ac.kr (including lab session)
- Class announcements will also be posted on class website

- Entering SW/HW Lab with s-card : http://scard.snu.ac.kr
        (실습실 출입등록 신청)

- If you have any questions, feel free to ask TAs / send e-mail
                                pp20182ta@gmail.com

Running Environment

- Linux
  - Class PC
    - Use 'terminal'
  - Linux server (martini.snucse.org) (If you use your own laptop)
    - Windows: Use putty.exe
    - MAC: Use terminal, ssh martini.snucse.org

Log in with SNUCSE account

If you haven't got one yet, login to the Class PC with temporary account.

    ID: cseclass / PW: cseclass

    (Temporary account does NOT work with martini server.)

Last week recap – Shell commands

* Don't include the { } brackets!

```
ls
```
Show list of files & directories

```
mkdir {name}
```
Make a new directory

```
rmdir {directory}
```
Remove the directory

```
rm {filename}
```
Remove the file

```
cd {directory}
```
Change(Go) to this directory

```
./
```
Current directory

```
../
```
Parent directory

```
~/
```
Home directory

Last week recap – Shell commands

* Don't include the { } brackets!

```
mv {file1} {file2}
```
Move file / Change file name

```
cp {file1} {file2}
```
Copy file

```
man {command_name}
```
See manual for this command

Search google for more shell commands!

(Using shell commands example)

- Create a directory named 'PP2018'
  > `mkdir PP2018`

- Move a file 'test.c' into the directory 'PP2018'
  > `mv test.c ./PP2018/test.c`

- Rename the file (from 'test.c' to 'aaa.c')
  > `mv test.c ./aaa.c`

Last week recap – Using vim editor

- `vim {filename}.{extension}`
  - Open new/existing file
  - Choose file extension according to programming lang. (e.g. `test.c`)

- Vim editor modes:
  - Normal mode
    - Default mode when entering vim
  - Insert mode
    - Press 'i' to enter insert mode
    - Edit while at insert mode
    - 'esc' to escape back to normal mode

(vim normal mode commands)

:w   save

:q   quit

:wq   save & quit

:q!   quit without saving

u   undo

Ctrl+r redo

d{x}d delete {x} lines

y{x}y copy {x} lines

p   paste

If you opened vim without filename, you need to enter new name after :w
Ex) :w test.c

http://www.joinc.co.kr/w/Site/Vim/Documents/UsedVim for more

Last week recap – Your first c program

vim hello.c

```
#include <stdio.h>
int main(){
        printf("hello world!\n");
        return 0;
}
```
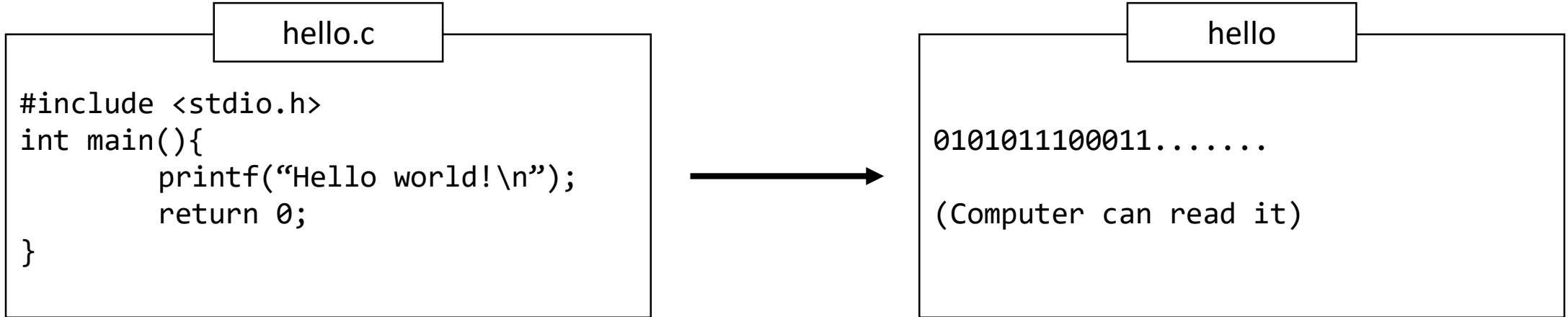
- Compile

  `gcc hello.c -o hello`

- Execute

  `./hello`

What is the **COMPILE** ?

```
hello.c

#include <stdio.h>
int main(){
        printf("Hello world!\n");
        return 0;

}
```

→

```
hello

0101011100011.......

(Computer can read it)
```

gcc hello.c -o hello

This means,

1. Use gcc compiler,
2. compile "hello.c" file,
3. to output file "hello"

vimrc

- File that holds the settings for vim editor
- Enter **vim ~/.vimrc** on the terminal
- Replace whatever is in the file with the following (copy & paste):

```
syntax on
set number
set autoindent
set smartindent
set cindent
set shiftwidth=4
set tabstop=4
set ruler
```

Search 'vimrc' on google for more settings

This week

- Last week we made an output with C program.
- Today, let's give an input to our program!

If 'program' doesn't get any input,

We have to make another program to make different result.

printf

The suffix 'f' means format.

```c
int x = 3;

printf("Hello");
printf("%d", x);
printf("IronMan%d", 2);
printf("Hour : %d, Minute : %d\n", 4, 30);
printf("pi equals to %f", 3.14);
```

scanf

The suffix 'f' means format.

```c
int x, y;

scanf("%d", &x);        // Read 1 input

scanf("%d%d", &x, &y);  // Read 2 input
```

Example 1

You can use **scanf** and **printf** functions like this.

```c
1 #include <stdio.h>
2
3 int main(void) {
4     int n;
5     scanf("%d", &n);
6     printf("%d\n", n * 2);
7     return 0;
8 }
```

Online Judge System

http://pp2018f.snucse.org:8888/

You can select language HERE

Programming Practice 2018 Fall   자동 (한국 ▼

환영합니다.

로그인하십시오

ID

비밀번호

로그인   리셋

[ID / PW]
We already sent to your e-mail.

It's hard to change PW. Please don't remove the email.
If you lose it, email us.

Online Judge System

Server will compile / execute your code immediately. You can check your score in few seconds.

All late submission should be submitted by email (pp20182ta@gmail.com)

Online Judge System

Server time: **09:07:45**

Time left: **173:52:14**

Overview
Communication

SCANF AND PRINTF

Statement

Submissions

AREA OF CIRCLE

Statement

Submissions

FIND THE MAXIMUM

Statement

Submissions

1 TO 10 - FOR

Statement

scanf and printf (scanf and printf) description

Statement

Download task statement

Description of each problem will be given in pdf form

Some details

Notice that each problem has it's own limitation.

Type	Batch
Time limit	1 second
Memory limit	64 MiB
Compilation commands	C11 / gcc	/usr/bin/gcc -DEVAL -std=c11 -O2 -pipe -static -s -o scanf and printf scanf and printf.c -lm

In this case,
Your program must print result and terminate normally in 1 second

This system tests your code by executing it with many inputs.
If your program prints correct answer for all test cases, you got 100% score.

Online Judge System

You can check details by each test cases by clicking 'details'

Online Judge System

1	**Correct**	Output is correct
2	**Not correct**	Output isn't correct

If your program uses too much memory

#	Outcome	Details	Execution time	Memory used
1	**Not correct**	Execution killed with signal 11 (could be triggered by violating memory limits)	0.002 s	128 KiB
2	**Not correct**	Execution killed with signal 11 (could be triggered by violating memory limits)	0.002 s	128 KiB

If your program enters into endless loop / not enough efficient…

#	Outcome	Details	Execution time	Memory used
1	**Not correct**	Execution timed out (wall clock limit exceeded)	1.407 s	128 KiB
2	**Not correct**	Execution timed out (wall clock limit exceeded)	1.281 s	128 KiB

Don't worry about efficiency at the first time.
For computer, 1 second is long term. (It can calculate more than 100,000,000 times per sec)

Filezilla
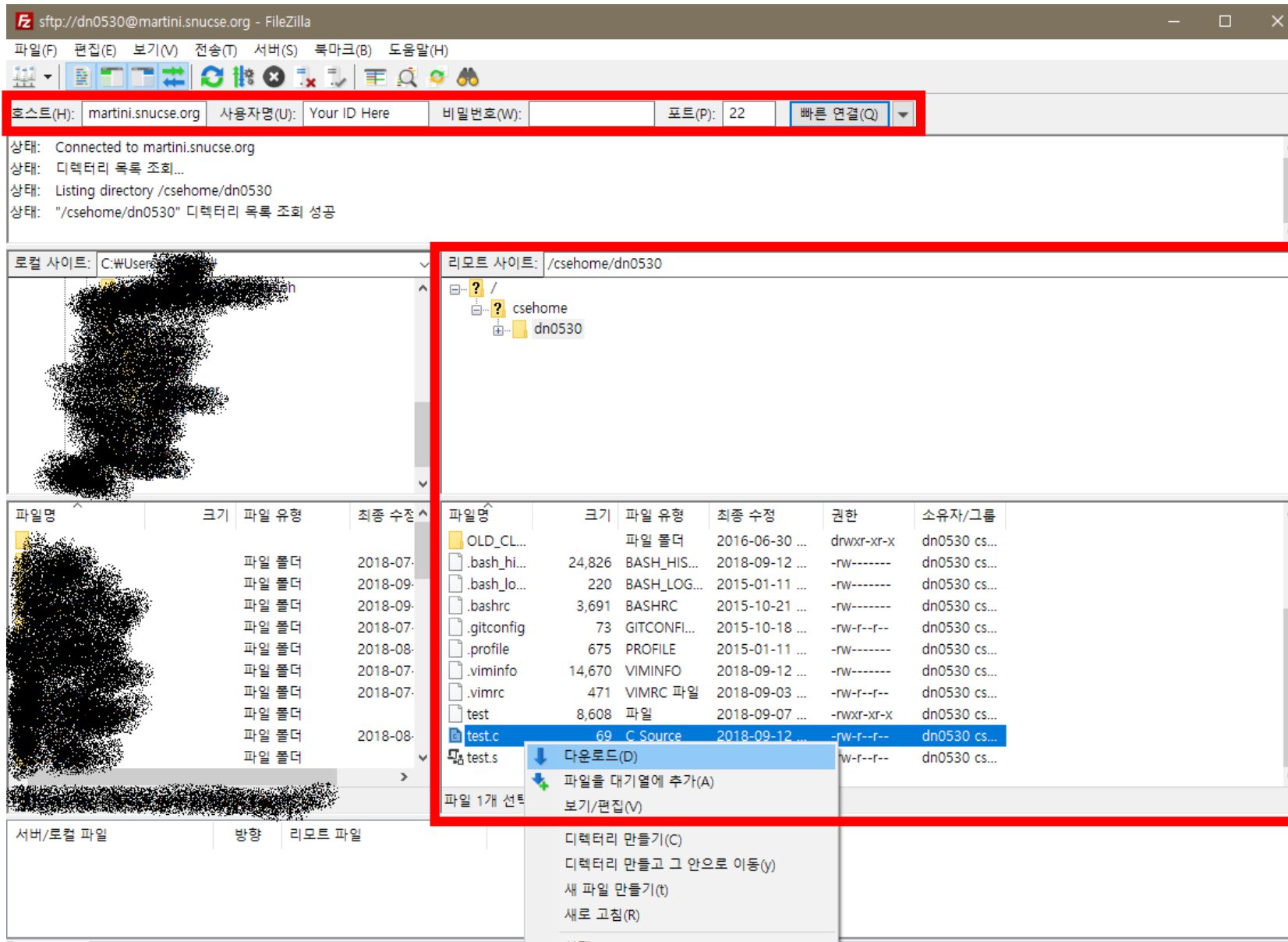
You can use this program to download / upload your code from / to **martini server**.
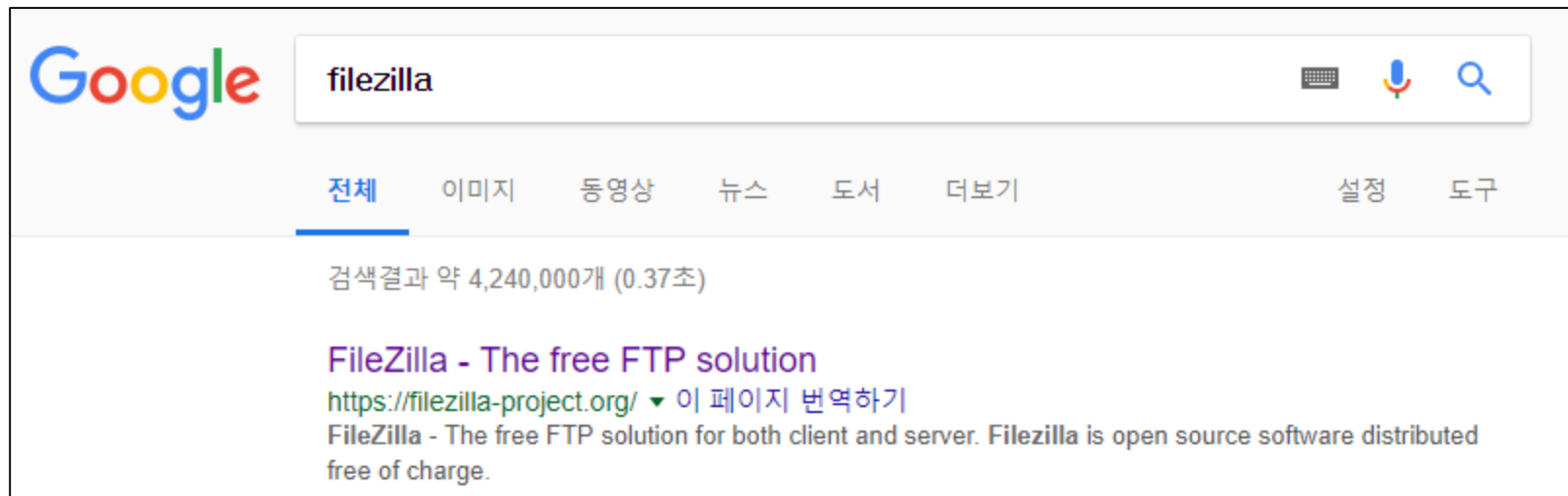
If you use local Linux terminal, you don't need this.

Filezilla

To download files

- You can right click (just like this pic)
  or
- Just drag & drop to left side
  (Left side shows your local)

Now,
It's your turn

scanf and printf

Description

Let's practice the **scanf** and **printf** functions!

Write a program that gets a single integer N as input and prints the following message

`You are N year(s) old.`

Input

A single Integer N ($0 < N \leq 100$) will be given.

Output

Use the input N to print the following message

`You are N year(s) old.`

Sample

`[Input]`

`20`

`[Output]`

`You are 20 year(s) old.`

Area of Circle

Description

Write a program that calculates the area of a circle.

The radius – which will be given as input – is guaranteed to be an integer value.

Calculate the area of this circle using the formula

(area) = (pi) * (radius) * (radius)

Assume that pi equals to exactly 3.14

Input

A single integer R (0 < R ≤ 1000)

Output

Print the area of this circle. Absolute error is allowed up to 10^-2

Sample

```
[Input]
4

[Output]
50.240000
```

Find the Maximum

Description

Write a program that gets 3 integer numbers as inputs and then finds the maximum value out of the 3 numbers.

Given numbers may contain duplicates.

Input

Three integer numbers X Y Z

(-2,147,483,648 < X, Y, Z < 2,147,438,647)

Output

Maximum value out of the three numbers.

Sample

```
[Input]
4 7 6
[Output]
7


[Input]
3 3 3
[Output]
3
```

4-1) 1 to 10 – FOR

Description

Print all natural numbers from 1 to 10 in ascending order on a single line.

Separate each number with single spaces in between.

You MUST use FOR loop to solve this problem.

Input

This problem has no input.

Output

1 2 3 4 5 6 7 8 9 10

Sample

[Output]

1 2 3 4 5 6 7 8 9 10

4-2) 1 to 10 – WHILE

Description

Print all natural numbers from 1 to 10 in ascending order on a single line.

Separate each number with single spaces in between.

You MUST use WHILE loop to solve this problem.

Input

This problem has no input.

Output

1 2 3 4 5 6 7 8 9 10

Sample

```
[Output]
1 2 3 4 5 6 7 8 9 10
```

FAQ

Q1. Can I use SW, HW Lab before / after class?

A1. Unless another class is on-going, you can use whenever you want.

Q2. I cannot open SW, HW Lab door with my student ID card..

A2. http://scard.snu.ac.kr

Q3. I forgot my SNUCSE id/pw. Could it be recovered?

A3. For SNUCSE account issues, send e-mail to server manager.　　(contact@bacchus.snucse.org)
(& martini login issues)

Q4. The Linux shell commands do not work for me..

A4. Do not include the brackets '{', '}' in the commands.　　(중괄호 기입하지 마세요.)

Q5. What's this?


```
E325: ATTENTION
Found a swap file by the name ".test.c.swp"
          owned by: dn0530    dated: Wed Sep 12 22:12:17 2018
          file name: ~dn0530/test/test.c
           modified: YES
          user name: dn0530    host name:
         process ID: 28
While opening file "test.c"

(1) Another program may be editing the same file.  If this is the case,
    be careful not to end up with two different instances of the same
    file when making changes.  Quit, or continue with caution.
(2) An edit session for this file crashed.
    If this is the case, use ":recover" or "vim -r test.c"
    to recover the changes (see ":help recovery").
    If you did this already, delete the swap file ".test.c.swp"
    to avoid this message.

Swap file ".test.c.swp" already exists!
[O]pen Read-Only, (E)dit anyway, (R)ecover, (D)elete it, (Q)uit, (A)bort:
```

A5. This warning text comes up when 'swap file' exist.   (swap file is usually hidden)

'swap file' is created when vim is terminated abnormally.   (don't turn putty / terminal off while vim is running.)

Press 'R' to recover your file.   (not 100%!!! Please save your file regularly.)

Press 'D' to abort all modification you made, and delete swap file.

To see hidden files (usually starts with .(dot)), use command **ls -al**   (All items in Listed view option)

You can delete swap file manually.