Computer Programming 1 Lab

2022-09-29

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rev.2

TA Hour

- 洪畯宸、吳武峰、陳弈玄： 16:10 ~ 17:00 Wed. @ 大仁402
- 簡傑： 17:10 ~ 18:00 Tue. @ 大仁402

Outline

- decision-making in C

- While loop

- oj-cli

- ex02

- Hint of hw02

decision-making in C

- If

- Conditional Operator

- Switch

decision-making in C - If

Basic usage

```
if (statement1) {
    // do something if statement1 is true
} else if (statement2) {
    // do something else if statement2 is true
} else {
    // do something if none of the above is true
}
```

decision-making in C - What is statement

In C:

- None zero is true.
- `bool` type: `true` or `false` . (By including `stdbool.h`)

In other languages:

- `bool` type may include in the language itself.

decision-making in C - Conditional Operator

```
statement ? things when true : things when false
```

As value

```
printf("%d", ((1 + 1 == 2) ? 1 : -1));
```

As command

```
(1 + 1 == 2) ? printf("%d", 1) : printf("%d", -1);
```

decision-making in C - Conditional Operator

Combination

```c
int A, B;
printf("%d", (A > B ? 1 : (A < B ? -1 : 0)))
```

decision-making in C - Switch

Basic usage

```c
char variable;
switch(variable) {
    case 'A':
        // do something when variable == 'A'.
    case 'B':
        // do something when variable == 'B'.
    default:
        // do something when none of the above statements is true.
}
```

decision-making in C - Switch

Always use `break`, unless you know what you are doing

```c
char variable = 'C';
switch(variable) {
    case 'A':
        printf("variable is 'A'.");
    case 'B':
        printf("variable is 'B'.");
    default:
        printf("variable is not 'A' or 'B'.");
}
```

decision-making in C - Switch

Tricky usage

```c
char variable = 'A';
switch(variable) {
    case 'A':
    case 'B':
        printf("variable is 'A' or 'B'.");
    case 'C':
    case 'D':
        printf("variable is 'C' or 'D'.");
        break;
    default:
        printf("variable is something else");
}
```

While loop

While loop

Basic usage

```
while (statement) {
    // Do something when statement is true.
}
```

While loop

Common mistake

```c
int counter = 0;
while (counter < 1) {
    printf("%d\n", counter);
}
```

This will cause infinite loop, be careful!

oj-cli

oj-cli

Installation in ghost

```
echo 'alias oj="python2.7 ~s10940/oj-cli/oj.py"' >> ~/.profile
source ~/.profile
```

Installation in oop

```
echo 'alias oj="~s10815/python2.7/bin/python2.7 ~s10940/oj-cli/oj.py"' >> ~/.profile
source ~/.profile
```

oj-cli

Installation from source code (not avaliable in ghost or oop)

- Required python2.7

```
git clone https://github.com/andyjjrt/oj-cli.git
cd oj-cli
echo "alias oj='python2.7 $PWD/oj'" >> ~/.bashrc
source ~/.bashrc
```

oj-cli

Login

```
[s10940] ~ $ oj login
Username: 109703040
Password:
Succeeded!!
```

```
[s10940] ~ $ oj login
Username: andyjjrt
Password:
TFA code: ******
Succeeded!!
```

oj-cli

Update contest problem

```
[s10940] ~ $ oj update
Target Contest: 1111CP1
Found HomeWork: hw01 [Body Mass Index (BMI)]
Found HomeWork: ex01 [Rectangle Area]
Updated assign successfully!
```

oj-cli

Upload homework or exercise

```
[s10940] ~/1091cp1/Assign1 $ oj submit hw01 main.c
Submit successfully!
Getting submission status...
=======================================================
Result: AC(Accept)                        Score: 100
|ID |Status                        |    Time|   Mem| Score|
|#1 |AC(Accept)                    |     1ms|   2MB|    20|
|#2 |AC(Accept)                    |     1ms|   2MB|    20|
|#3 |AC(Accept)                    |     1ms|   2MB|    20|
|#4 |AC(Accept)                    |     1ms|   2MB|    20|
|#5 |AC(Accept)                    |     1ms|   2MB|    20|
=======================================================
```

oj-cli

Upload homework or exercise

```
[s10940] ~/1091cp1/Assign1 $ oj submit ??? main.c
Invalid Assign Number!
Available names are:
- hw01 [Body Mass Index (BMI)]
- ex01 [Rectangle Area]
If you want to update latest homework assignment, type: [oj update] to update.
```

oj-cli

Show problem status

```
[s10940] ~/1091cp1/Assign1 $ oj status hw01
==============================================================
|  Problem Name: hw01 [Body Mass Index (BMI)]                |
==============================================================
|User         |Status                    |    Time|   Mem|        When|
|andyjjrt     |AC(Accept)                |     0ms|   2MB|2022-09-27 15:49:50|
|110207413    |AC(Accept)                |     0ms|   2MB|2022-09-27 14:09:51|
|110207413    |WA(Wrong Answer)          |     0ms|   2MB|2022-09-27 14:09:30|
|110207413    |WA(Wrong Answer)          |     0ms|   2MB|2022-09-27 14:06:52|
|111703053    |AC(Accept)                |     0ms|   2MB|2022-09-27 13:08:48|
.....
==============================================================
```

oj-cli

Show problem rank

```
[s10940] ~/1091cp1/Assign1 $ oj rank hw01
Your status of hw01 : Accepted
=================================================
  1~ 10 :  2  |   AC(Accept)                  : 105
 11~ 20 :  0  |   RE(Runtime Error)       : 5
 21~ 30 :  0  |   PAC(Partial Accepted)   : 4
 31~ 40 :  0  |   WA(Wrong Answer)        : 163
 41~ 50 :  0  |   CE(Compilation Error)   : 61
 51~ 60 :  0  |   TLE(Time Limit Exceeded) : 0
 61~ 70 :  0  |---------------------------------
 71~ 80 :  0  |   Total submissions       : 338
 81~ 90 :  0  |
 91~100 : 86  |
=================================================
For real time score ranking, please go to the website.
```

oj-cli

Other guides

- Github

- FB Post

ex02

ex02

Some thing you may need

```c
while(scanf("%d", &variable) != EOF) {
    // Do something with variable.
}

// Do something when the input ends.
```

Hint of hw02

Hint of hw02

- Use double

- What is integer

- Use `gcc -lm` if tyou include `math.h`

Hint of hw02

$158 \div 10 = 15 \ldots 8$

$158 = 15 \times 10 + 8$

Hint of hw02

$150 \div 10 = 15 \ldots 0$

$150 = 15 \times 10 + 0$

Any Question?

Course? Assignment? Exercise? TA?