C Programming I
2020 Fall
Homework 01

Instructor: Po-Wen Chi

Due: 2020.10.08 PM 11:59

Policies:

- Zero tolerance for late submission.
- You need to prepare a README file about how to make and run your program. Moreover, you need to provide your name and your student ID in the README file.
- For the writing assignment, I only accept pdf. MS. doc/docx format is not acceptable. Moreover, please use Chinese instead of English.
- Do not forget your Makefile. For your convenience, each assignment needs only one Makefile.
- The executable programs should be hw0101, hw0102 ....

1 Printf (20 pts)

Please write a program as follows. Note that you should fill your student ID and your name as XXXXXXXX and YYYY.

```
$ ./hw0101
My student ID is XXXXXXXX
My Name is YYYY
```

2 5-digits integer (20 pts)

Please write a program to take a 5-digits integer. You need to out put the product of each digit. There is an example.

```
$ ./hw0102
Please enter a 5-digits integer: 12345
Result: 120
```

The reason is

$$1 \times 2 \times 3 \times 4 \times 5 = 120.$$

Currently, you do not need to care the case that the input is not a 5-digits integer. I will show you how later in this class.

3 Free fall

In Newtonian physics, free fall is any motion of a body where gravity is the only force acting upon it. In the context of general relativity, where gravitation is reduced to a space-time curvature, a body in free fall has no force acting on it.

Please develop a program to calculate the final velocity and the altitude with respect to time.

```
$ ./hw0103
Please enter the acceleration due to gravity: 9.8
Please enter the time (s): 1.2
Final velocity: 11.76 m/s
The altitude: 7.056 m
```

4 Where is the header file? (20 pts)

In this class, I have told you why we use <stdio.h> in your codes. This implies that there is a file called <stdio.h> in your computer. Please find its location and write down how you find it. Please remove this file and re-make your code and see what happens. For your own good, I suggest you to move the file to another directory so that you can push the file back.

This is a writing assignment.

5 Decimal to Hex (20 pts)

Please write a program to show a 32-bit integer in hex.

```
$ ./hw0105
Please enter an integer: 1
1: 00000001
```

Please test a negative integer and explain how to convert a negative integer from decimal to hex. So this is not only the coding problem, but also a writing assignment.

6 Bonus: Where is my cd ? (10 pts)

In this class, I have told you that we use linux as our development environment. **cd** is a popular command in linux. Please find the location of the command **cd**. If you cannot find its location, please explain why you can use this command when there is no program in your computer.