PL, Spring 2023, Homework #3,陳煒博, 110261035

Problem 1:

(a)printf: OUTPUT, scanf: INPUT

(b)printf: standard output scanf: from, stdin

(c)printf: can, scanf: can't

(d)printf: can, scanf: can't

(e) printf: can't, scanf: can

Problem 2:

(a)ANS:127

(b)yippee = 127

(c)oyvey = 128

(d)The code can be compiled. However, the output was not defined because the " ldeedah " variable was not initialized. So, the number of the output was picked randomly by the compiler. For instance, I ran the code twice. The first number is 374046721, and the second is 604766209.

Problem 3:

In general, include <filename> usually is for searching files in the STL (Standard Library), and these files are pre-defined by the compiler. However, we can also include "filename" to find the files in the STL, such as include <stdio.h>, include <vector>, etc. Regarding including <filename>, the method is usually used when there is a self-defined header file. BUT we CANNOT use include <filename> to find the self-defined header file.

Problem 4:

(a)

```
1.700000 2.100000
1073741824 2.100000
1073741824 -858993459 0.000000
0.000000 0.000000
Program ended with exit code: 0
```

Explanation:

The first printf is the regular output.

The second one has the undefined behavior because the "%d" is for an integer but 1.7 is a float or double which didn't match. But WHY is 1073741824? In my opinion, because the compiler separates the process of float/double and integer. And the address of 2.1 is the same as 1073741824. When we misuse the %d, the compiler tries to find the address in Memory which is 1073741824. (Reference: StackOverflow)

The third one outputs two integers and just like the second paragraph explanation. And the %f, in my opinion, is the default value. And the fourth printf has a similar output because it cannot find the float number in the first and second numbers.

All of the mistakes would be warned by the IDE usually.

(b) Only the _____A: B case won't get normal results.

```
A: B
the first character is 'A'
the second character is 'B'
Program ended with exit code: 0
```

```
A:     B
the first character is 'A'
the second character is 'B'
Program ended with exit code: 0
```

```
A:                                                              B
the first character is 'A'
the second character is 'B'
Program ended with exit code: 0
```

```
A: B
the first character is 'A'
the second character is 'B'
Program ended with exit code: 0
```

```
      A: B
the first character is ' '
the second character is '\200'
Program ended with exit code: 0
```

Problem 5: see the attachment.