Lab 2

C Programing Basics

Control Flow and Looping Statements

- if – else / if – else if – else

  (expression) ? Statement 1: Statement 2

  e.g. (a > b) ? a : b
- switch
- while / do – while
- for loops

Type Casting

```
int         num_in = 5;
float       num1_out;
double      num2_out;

num_out = (float)num_in / 2;
num2_out = sqrt((double)num_in);
```

Variable Size

- unsigned short

  2 bytes = 16 bits = 2^16 - 1 = 65535
- unsigned int

  4 bytes = 32 bits = 2^32 - 1 = 4294967295
- unsigned long

  8 bytes = 64 bits = 2^64 - 1 = 18446744073709551615

- It also depends on the particular machine(32 bits/64 bits)

  Run ***./L2_Ex1_Types*** from blackboard to check

Shift Operator

- Shift Right **>>**

  4(D) >> 2 = 1(D)

  100(B) >> 2 = 1(B)

- Shift Left **<<**

  4(D) << 2 = 16(D)

  100(B) << 2 = 10000(B)

Bit Masking

- Masking bits to 1

  10010101 10100101 OR

  11110000 11110000

  = 11110101 11110101

- Masking bits to 0

  10010101 10100101 AND

  00001111 00001111

  = 00000101 00000101

- How to check the state of a individual bit?