# CS50 Supersection

# The IDE

- Instructions for setting up the IDE can be found in the specification for pset 1

- Get started early!

# Basic Linux Commands

- ls
- cd [PATH]
- clear
- mkdir [DIRECTORY_NAME]
- mv [FILE_NAME] [DIRECTORY_PATH]
- rm [FILE], rm -rf [DIRECTORY]

# Hello, World!

```c
#include <stdio.h>

int main(void)
{
    printf("Hello, world!");
}
```

# Data Types

| Type | Size (bytes) |
|---|---|
| int | 4 |
| float | 4 |
| double | 8 |
| long long | 8 |
| char | 1 |
| short | 2 |
| bool | 1 |

# Operators

add          +                    4 + 2 = 6

subtract     -                    4 - 2 = 2

multiply     *    (not x)         4 * 2 = 8

divide       /    (not ÷)         4 / 2 = 2

modulo       %                    4 % 2 = 0

                                  4 % 3 = 1

                                  4 % 5 = 4
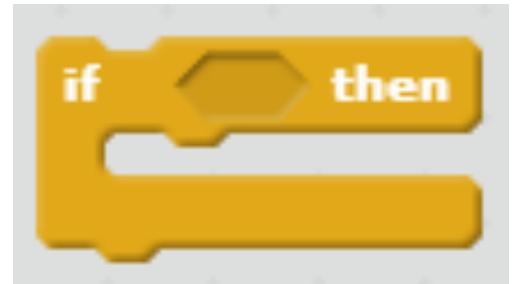
PEMDAS

# Boolean Expressions

| equal | == |
|---|---|
| not equal | != |
| less than | < |
| less than or equal to | <= |
| greater than | > |
| greater than or equal to | >= |
| logical AND | && |
| logical OR | \|\| |
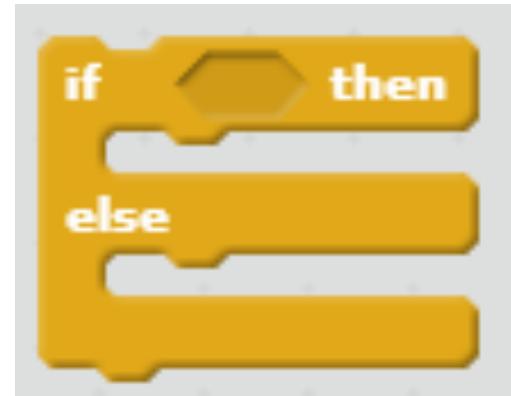
# Conditionals

```
if (condition)
{
    // do if condition is true
}
```
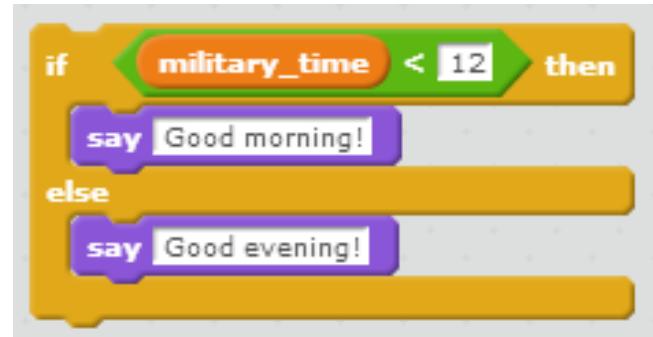
# Conditionals

```
if (condition)
{
    // do if condition is true
}
else
{
    // do if condition is false
}
```

# Conditionals

```
if (military_time < 12)
{
    printf("Good morning!\n");
}
else
{
    printf("Good evening!\n");
}
```

# Conditionals: Switch Statement

**general form:**

```
switch (n)
{
    case constant1:
        // do if n is equal to constant1
        break;
    case constant2:
        // do if n is equal to constant2
        break;
    ...
    default:
        // do if n is not equal to any of the above constants
        break;
}
```

# Conditionals: Switch Statement

```
switch (n)
{
    case 50:
        printf("CS50 is Introduction to Computer Science I\n");
        break;
    case 51:
        printf("CS51 is Introduction to Computer Science II\n");
        break;
    default:
        printf("Sorry, I'm not familiar with that class!\n");
        break;
}
```

# Conditionals: Ternary Operator

**general form:**

condition ? (*do if condition is true*) : (*do if condition is false*);


**example:**

string professor = (class_num == 50) ? "David Malan" : "not David Malan";
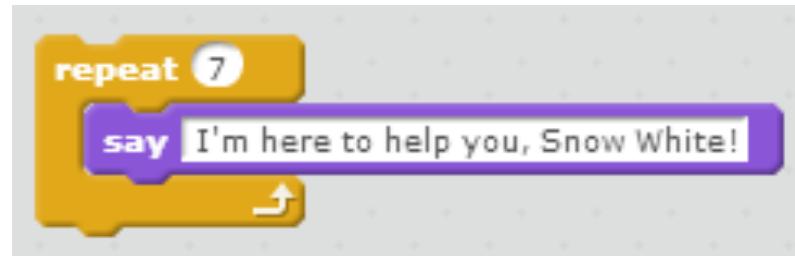
# While Loops

| | |
|---|---|
| ```
while (condition)
{
    // do this again and again
}
``` | ```
do
{
    // do this again and again
}
while (condition);
``` |

# For Loops

```
for (int dwarves = 0; dwarves < 7; dwarves++)

{

    printf("I'm here to help you, Snow White!\n");

}
```

```
// print a table of x's
for (int row = 0; row < 3; row++)
{
    for (int column = 0; column < 4; column++)
    {
        printf("x");
    }
    printf("\n");
}
```

```
xxxx
xxxx
xxxx
```

# Problem Set 1: C



- `water.c`
  - `prompt user for input`
- `mario.c`
  - nested for loop (for loop within a for loop)!
- `greedy.c`
  - conditionals!
  - be careful of floating-point values! (covered in lecture and walkthrough)





```
       ##
      ###
     ####
    #####
   ######
  #######
 ########
#########
```