

## CS50 Reference Sheet

### Command Line

```
cd          // change directory
ls          // list
mkdir       // make directory
rm          // remove file
make        // compiles .c file
```

### Escape Sequences

```
\n          // new line
\r          // return
\t          // horizontal tab
\"          // double quote
\\          // backslash
```

### Variables

```
int         // Integer 32 bits
long long   // Long integer 64 bits
float       // Floating point number (uses decimal) 32 bits
double      // Double precision floating point number 64 bits
char        // Character 1 byte
string      // a collection of characters - this is actually an array and so can vary in size
```

### cs50.h Variables

```
bool        // Boolean 1 byte
string      // String variable length
```

### cs50.h User Input Functions

```
get_int()   // These functions can be assigned
get_float() // to a variable to assign user
get_long_long() // input to that variable as in:
get_double() //
get_string() //
get_char()  //
```

### Format Strings (place holders)

```
%c          // char
%i or %d    // int
%lli        // long long
%f          // floating point or double
%.#f        // limit output to # decimal places
%s          // string
```

### **Arithmetic / operators**

```
+          // add
-          // subtract
*          // multiply
/          // divide
%          // modulo, remainder
```

### **math.h Functions**

```
pow(x, y)  // raises x to the power of y
sqrt(n)    // returns the square root of n
round(f)   // rounds f to the nearest integer value
```

### **Conditions / Relational Operators**

```
==         // equal
<          // less than
>          // greater than
>=         // greater than or equal to
<=         // less than or equal to
!=         // not equal to
```

### **Logical Operators**

```
&&         // and
||         // or
!          // not
```

### **Loops**

```
// countdown from 10 to 0
int i = 10;
while (i >= 0)
{
    printf("%i\n", i);
    i--;
}
```

### **// prints hi 10 times**

```
int i = 0;
for (i = 0; i < 10; i++)
{
    printf("hi\n");
}
```

**// prints numbers from 0 to 99**

```
int counter = 0;
```

```
do
```

```
{
```

```
    printf("%d\n", counter);
```

```
    counter++;
```

```
}
```

```
while (counter < 100);
```

### **Conditionals**

**// if, else if, else**

```
int x = 5;
```

```
int y = 2;
```

```
if (x < y)
```

```
{
```

```
    printf("x is less than y\n");
```

```
}
```

```
else if (x > y)
```

```
{
```

```
    printf("x is greater than y\n");
```

```
{
```

```
else
```

```
{
```

```
    printf("x is equal to y\n");
```

```
}
```