

# 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
```

## cs50.h Variables

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

## cs50.h User Input Functions

```
GetInt()    // These functions can be assigned
GetFloat()  // to a variable to assign user
GetLongLong() // input to that variable as in:
GetDouble() //
GetString() // n = GetInt();
GetChar()   //
```

## 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
for (int 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
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");
}
```