

CS 161, Lecture 3: Conditionals – 17 January 2018



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Quick Recap

- Constants
 - Macros -> `#define MAX_SIZE 100`
 - Const Keyword -> `const int MAX_SIZE = 100; //have to assign value here`
 - Cannot be changed later
- Precedence of Operators
 - Function call
 - `*`, `/`, `%`
 - `+`, `-`
 - Can be changed with parentheses
 - More details here:
http://en.cppreference.com/w/cpp/language/operator_precedence

Quick Recap

- Integer Division -> dividing two ints gets an int
- Float Division -> dividing a float with anything else gets a float
- Type Casting
 - Temporarily changing a variable to act as another type
 - Common
 - Int to char
 - Int to float
 - Ex:

```
int a = 5;  
int b = 6;  
cout << (float) a/b << endl;
```

Some Notes on Size

- Size is finite in computers
 - Ints = 4 bytes
 - Char = 1 byte
 - Floats = 4 bytes
 - Doubles = 8 bytes
 - Bool = 1 byte
- Byte = 8 bits
- Signed and Unsigned impact size
 - Signed = positive and negative, Unsigned = positive
- What is the max value in an unsigned system? $2^x - 1$
- What happens if we add one to that value?

Taking Input

- cout prints to the screen
- cin takes input from the keyboard and stores in a variable
- Example

```
int user_ans = 0;
```

```
cout << "What is 2+2? ";
```

```
cin >> user_ans;
```

```
cout << "You answered: " << user_ans << endl;
```

Decisions

- When do we make decisions?

- Ex: What to eat for breakfast?

— what's available

→ Bacon & eggs

→ Banana

→ Oatmeal

→ French toast

if fridge contains bacon

if fridge contains eggs

then make bacon and eggs

else

check for other options

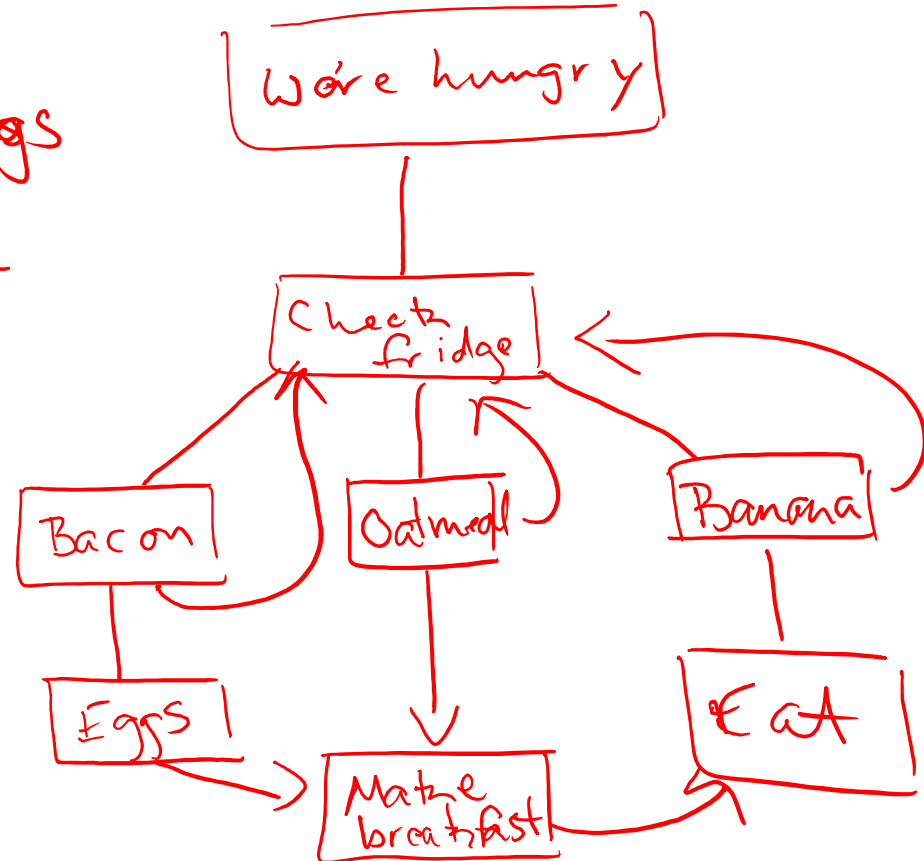
How do we represent decisions?

breakfast

if fridge contains bacon
if fridge contains eggs

if fridge contains . . .

else
go to store



How do we code decisions? -> Conditionals

```
if (some condition) {  
    //then execute this code
```

```
}  
elif (the next condition to check) {  
else if //this one does not have to exist or there can be many  
}  
else {  
    //this is the default, it does not need to be included  
}
```


Demo