

BASICS II: ELECTRIC BOOGALOO

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CS 211**

INTRODUCTION

- Wrap up basics of C++

AGENDA

- Flow of Control
- Quick notes on style

FLOW OF CONTROL

CONTROL

- Programs often need to take different actions based on input or conditions
- The order in which a program executes its statements, or which statements get executed, is the flow of control

AN EXAMPLE

- A program that calculates gross pay of hourly employees
 - Seems simple, $\text{pay} = \text{rate} * \text{hours_worked}$
 - But overtime hours and time and a half needs to be considered
- Is it possible to handle this with a single equation?
 - Nope
 - We need two different formulas

NOTES ON IF-ELSE

- Else is not required
- Curly braces are not required if a branch only contains a single statement
- Curly braces create what is called a compound statement
 - Many statements within curly braces
 - Compiler treats it as a single statement

MORE THAN TWO PATHS

- What if there are more than two possible actions to take?
- We can use `else if` to create as many branches as we need

REPETITIVE WORK

- Computers are amazing at the same work over and over and over and ...
- How do we code that kind of repetition?
 - Loops!

LOOP NOTES

- What is the major difference between while and do-while loops
 - While loops can be executed a minimum of zero times
 - Do-while loops can be executed a minimum of one time
- For loops are great when we know the number of iterations ahead of time
- When writing Boolean expressions, it is important to NOT mix up = and ==

C₁₂H₂₂O₁₁

- The while loop is really all we need
 - Once a while and do-while are in the middle of their iterations, they are essentially indistinguishable
 - But sometimes the syntax doesn't gel as cleanly as we would like
 - These extra ways to do the same thing are called 'syntactic sugar'
 - I prefer to take advantage if I feel it suits me
- Discuss a new loop syntax

SPEAKING OF SUGAR

- A switch statement is another way to handle multi-way branching
- It has some restrictions when compared to if/else
- More elegantly handles the scenarios it was designed for