



COMP1511

Tutorial 3

while loops | structs | enums



What are the 4 stages of a while loop?

- **Evaluating the condition** - first evaluate condition in brackets
- **Executing loop body** - if condition is true, run code within the loop (inside curly braces)
- **Re-evaluating condition** - Evaluate condition again and execute code in loop if true
- **Termination** - once loop condition is false, skip to the end of the loop and continue from there



2D While Loops

- Nesting a while loop inside another while loop gives a 2D while loop
- Each time the outer while loop repeats, the inner while loop runs its entire cycle
- Useful of printing out rows and columns of characters, as well as looping through a 2D grid of objects



scanf loops

What does *scanf* return?

How can we use this result to check whether a user presses `ctrl-d` to signal the end-of-file?

This lets us use *scanf* in a loop to scan in multiple values!



Enums and Structs

Enum: Custom data type that specifies a set of possible values for a variable to take (similar to having multiple `#defines`)

Struct: Custom data type that groups together different (usually related) variables



Coffee Shop

- Take in inputs for a coffee order and stores them in a `struct coffee`
- Calculate the cost of the coffee:
 - Base cost: \$4.50
 - Large size: + \$0.50
 - Latte, cappuccino or matcha: + \$0.50
 - Sugar: + \$0.50 per sugar
- Print the total cost of the order