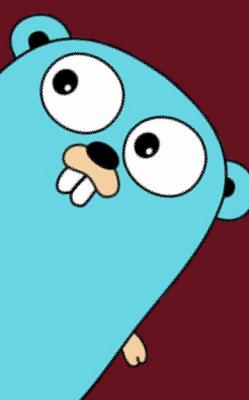


Please fill out the survey so I can tell how fast to go over the content! (link in the emails)

Week 2!

CLASS SEMESTER



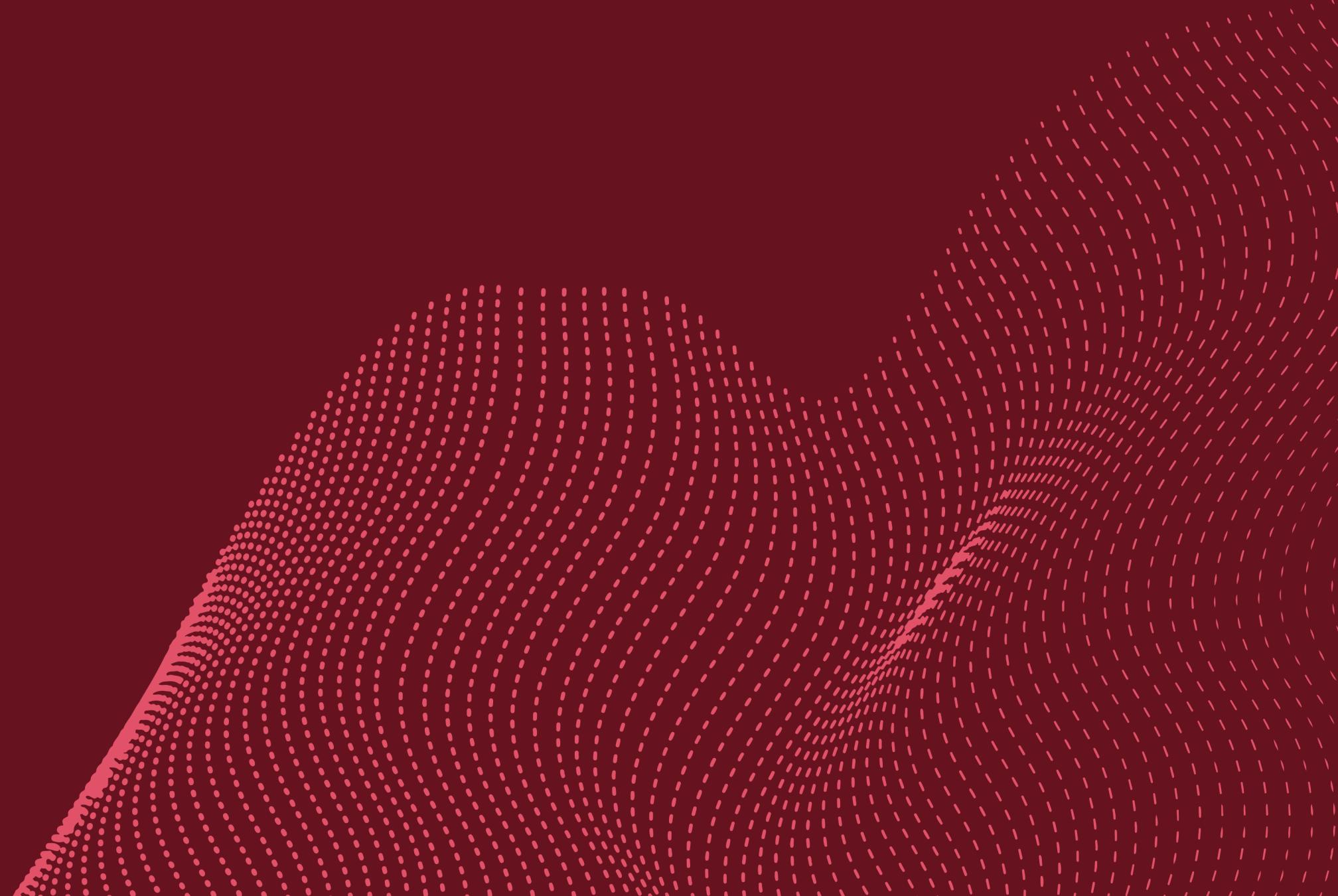
Overview

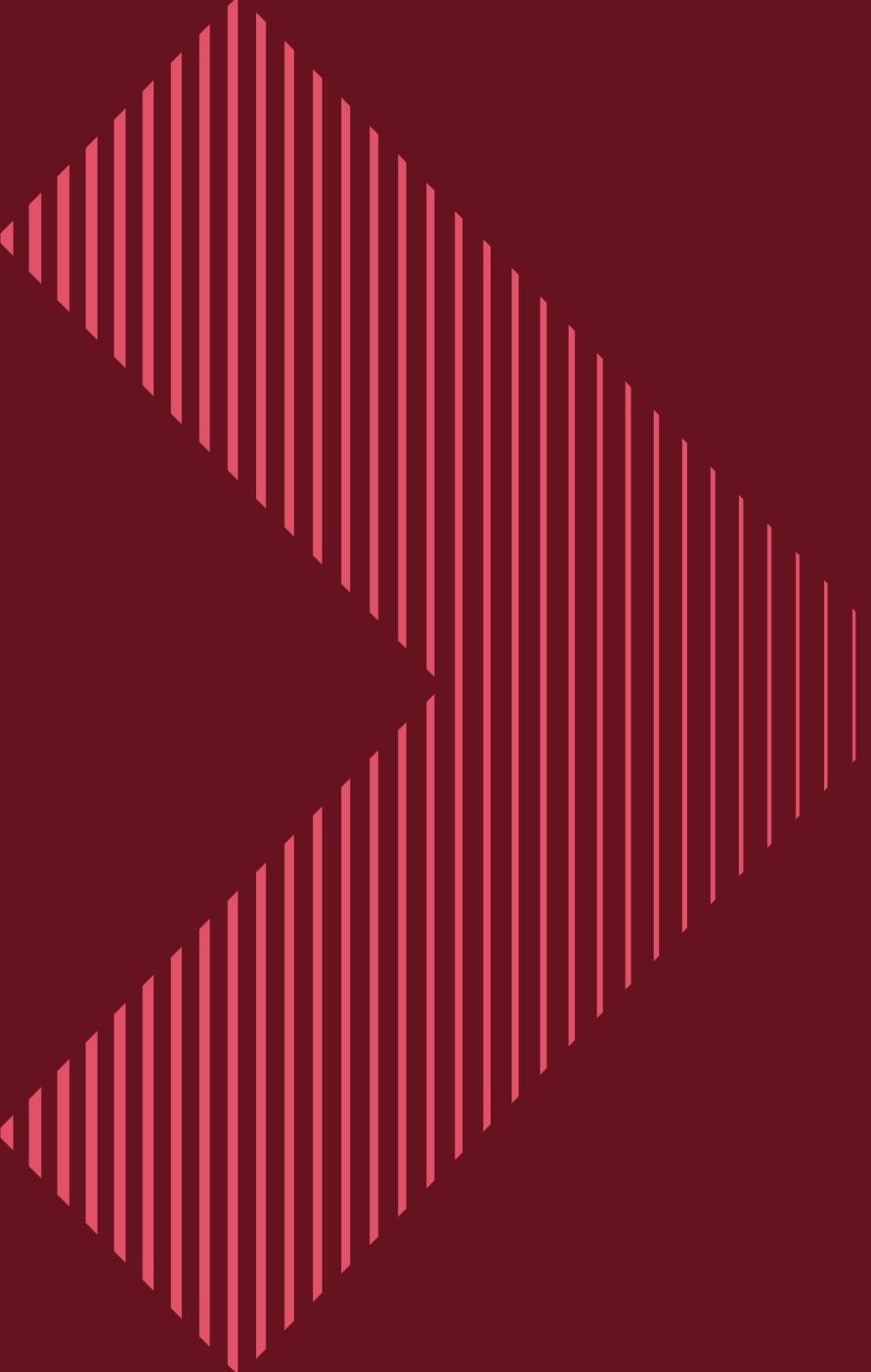
Calculating Values in Programs

Weird Data Types and Arithmetic

Diagramming

Programming Practice





Calculating Values in Problems

In your groups: Write down as many operators of your allocated type as you can

Group 1: Arithmetic

Group 2: Logic

Group 3: Comparison

Operators

Arithmetic

+ - * / %

Logic

&& || !

Comparison

< > <= >= != ==

Operators

Arithmetic + - * / % ++ -- += -= *= /= %=

Logic && || !

Comparison < > <= >= != ==

Operators

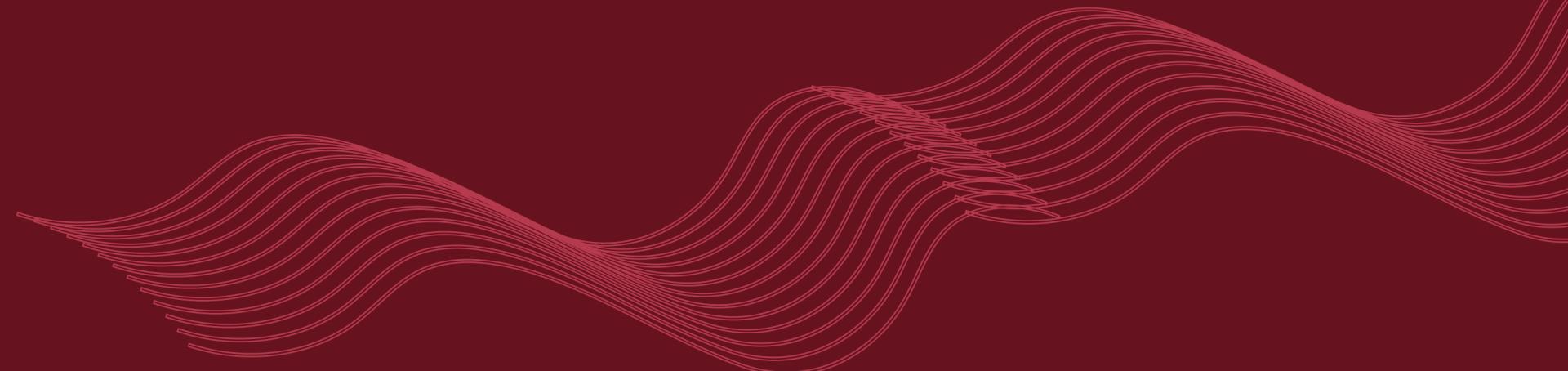
Arithmetic + - * / % ++ -- += -= *= /= %=

Logic && || !

Comparison < > <= >= != ==

Bitwise & | ^ << >> ~

Ternary
expressions cond ? if_true : if_false



Weird Data Types and Arithmetic

**What types of storage have
we seen so far?**

double

int

char

Reminder

integer / integer == integer

char + integer == char

Exercise

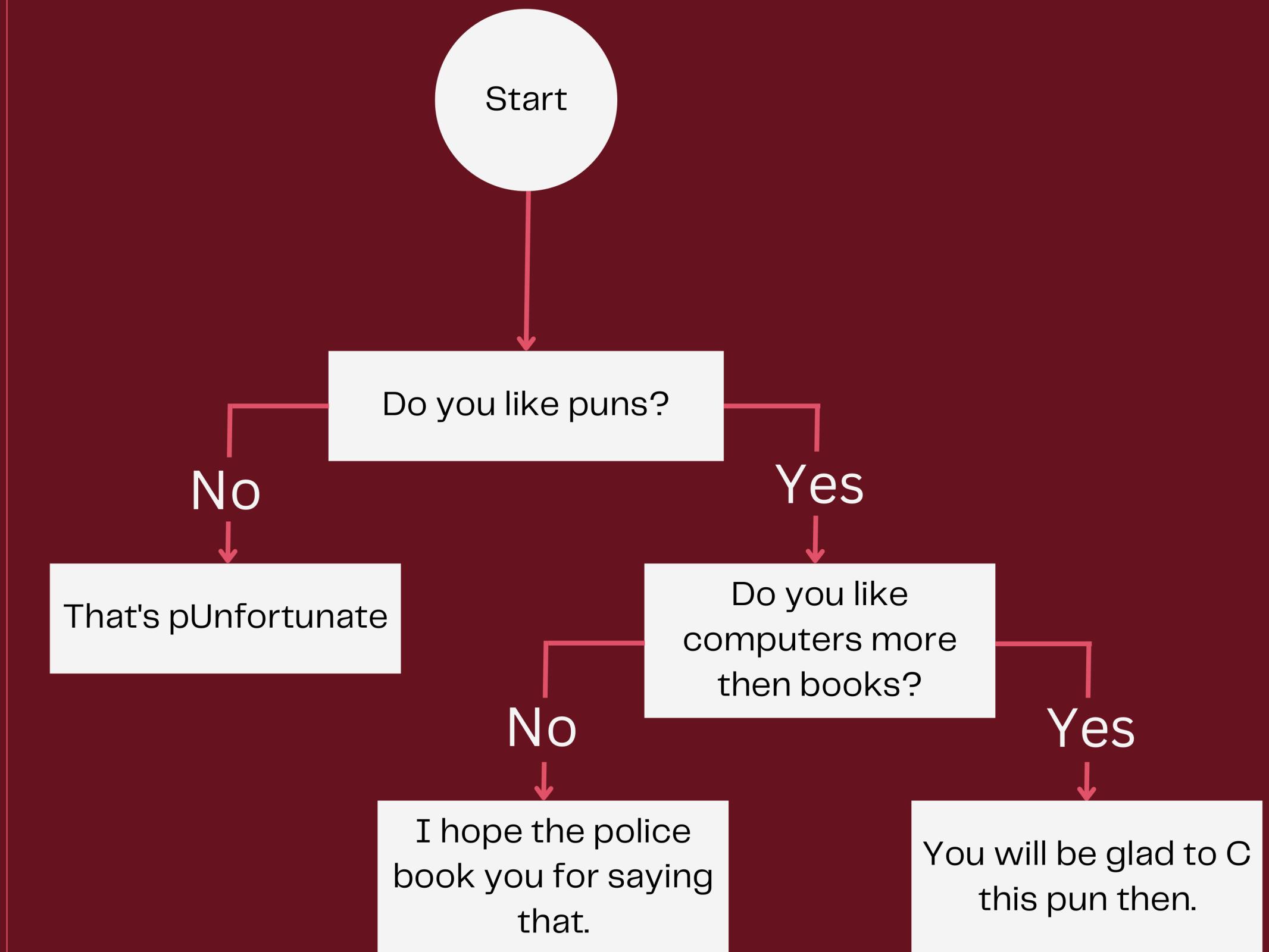
Group 1: $(7 / 2)$

Group 2: $(3.0 / 2) + 1$

Group 3: $'a' + 5$

Group 4: $'F' - 'A' + 'a'$

Diagramming!

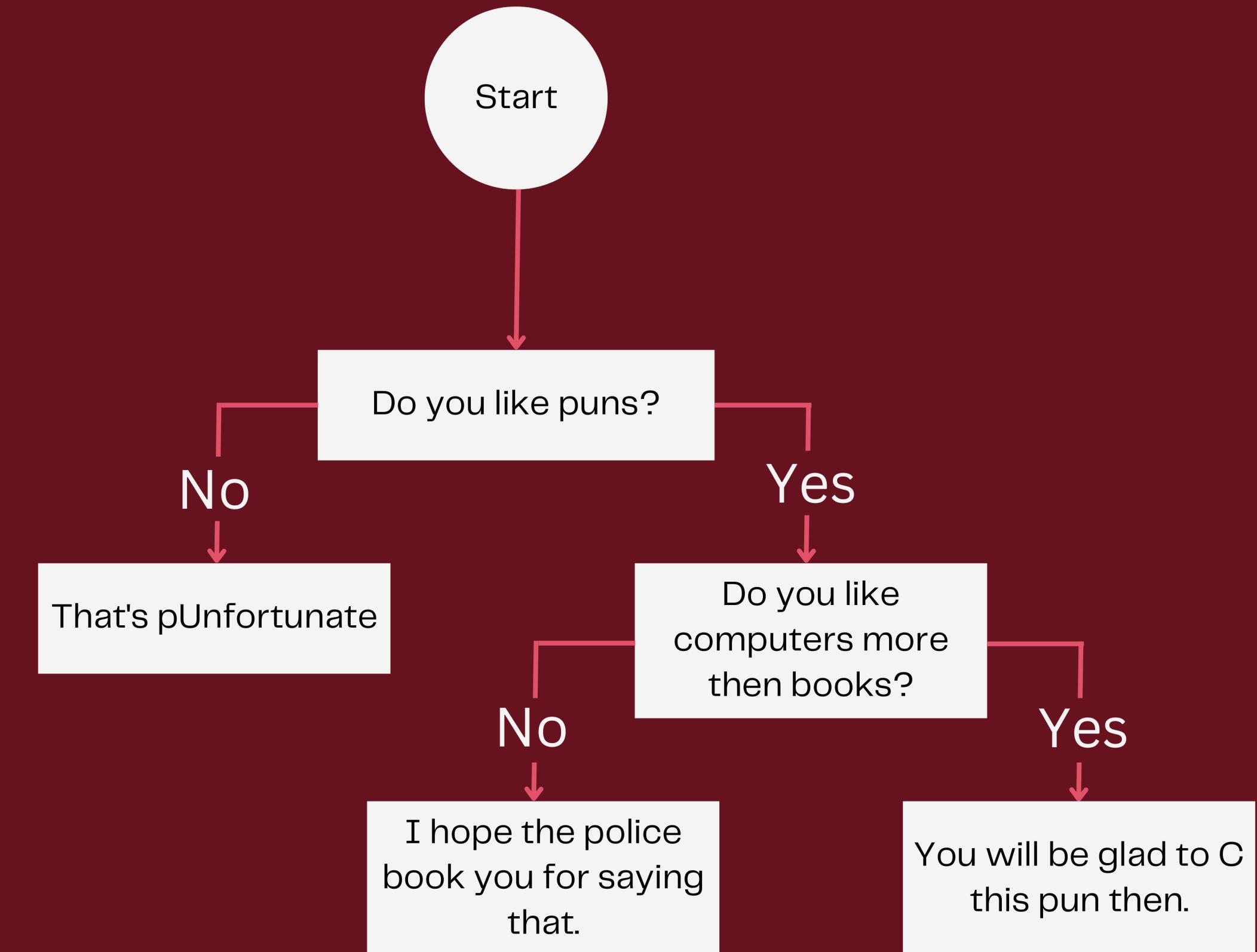


Parts of the flow chart

Circle - Start of the diagram

Boxes - Question/decision

Arrows - Answer to the previous question, directs you to the next question or result



Let's Build a Flow Chart!

(to work out whether a year is a leap year)

Leap Year Conditions

- Years divisible by 4 are leap years
 - e.g. 1904 was a leap year
- Except, years divisible by 100 are not leap years
 - e.g. 1900 was NOT a leap year
- Except, years divisible by 400 are always leap years
 - e.g. 2000 was a leap year

Building a Program in Steps

Make the diagram (flow chart)

Convert the instructions into a flow chart

Convert the diagram to pseudocode

Convert the flow chart into pseudocode

Convert the pseudocode to C code

Convert the pseudocode into working C code
(and test it works)

Building a Program in Steps

Make the diagram (flow chart)

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Convert the flow chart into pseudocode

Convert the pseudocode to C code

Convert the pseudocode into working C code
(and test it works)

Your program should:

- scan in two integers a and b
- if the first integer is less than the second, print out a short error message using a procedure
- if the second integer is 0, print out a different short error message
- if the first integer is larger than the second, print a / b and $(a * 0.1) / (b * 0.1)$



Questions



Lab Time