Should you submit a paper to that conference?

- Is the conference in an exotic location?
  - Yes: Do you have new data to present?
    - No: Is it relevant to your field?
      - Yes: Can you make it sound like it's relevant to your field?
        - Yes: How much can you re-use data from a previous paper?
          - Yes: You can do that?
            - Yes: Do you have money in the budget?
              - Yes: Do it!
              - No: Does your boss want you to go?
                - Yes: I need a job
                - No: I don't like talking to other human beings
      - No: Are your colleagues going?
        - Yes: Is this a good "networking" opportunity?
          - Yes: I need a job
          - No: I don't like talking to other human beings
  - No: Can you use the trip to visit a good friend you haven't seen in a long time that lives in the same continent as the conference location?
    - Yes: Forget it.
    - No: How much can you re-use data from a previous paper?
      - Yes: You can do that?
        - Yes: Do you have money in the budget?
          - Yes: Do it!
          - No: Does your boss want you to go?
            - Yes: I need a job
            - No: I don't like talking to other human beings
  - No: Doesn't matter!
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
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 = 4 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? \(2^x \sim 1\)

• 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

```cpp
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
    else
      go to store
How do we code decisions? -> Conditionals

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

else if (the next condition to check) {
    //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