

Lecture 02

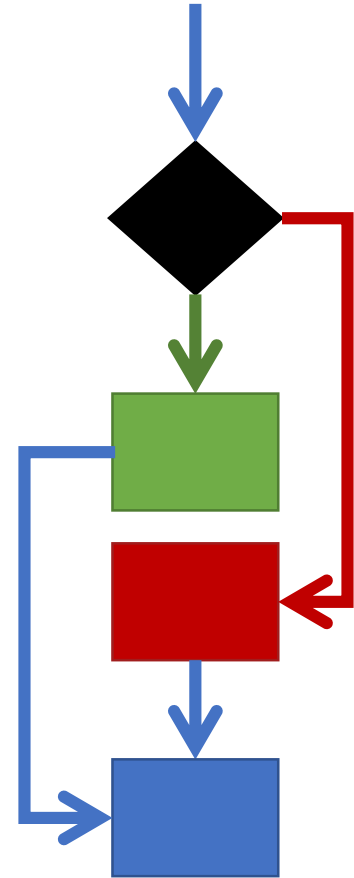
The "Moves" and Quiz 0

# Things to know about autograding...

- You can resubmit to the autograder without penalty before the due date
- After your 2<sup>nd</sup> commit there is a small waiting period enforced between subsequent submits to encourage you not to get into the vicious cycle of... tweak, submit, tweak, submit
- Stop and think about what might be causing a test to fail (on this next problem set it's usually minor differences in output where we require exact matches). Can't figure it out? Come see us in Office Hours!

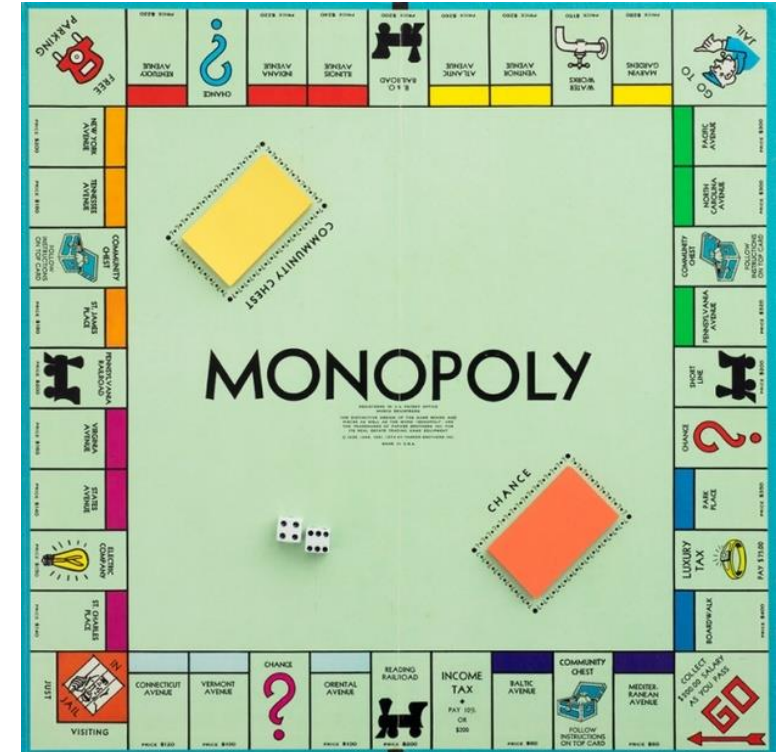
# Control Flow or "The Moves"

- The next unit will focus on **Control Flow**
- This refers to how the computer *moves* through processing your instructions
- We'll introduce these to you our own made up phrase: *the moves*.



# Think about a board game like **Monopoly**...

- Imagine you rolled a 1 every time.  
You **move** forward one space at a time.
- *Until* you reach a special square, i.e.:
  - **Chance Card Square**
    - A special move card can *jump* you around the board.
  - **Go to Jail Square**
    - Move all the way backwards to jail.
  - **How do you get out of jail?**
    - *If* you roll doubles, *then* you move forward by the number of spaces shown by the throw.

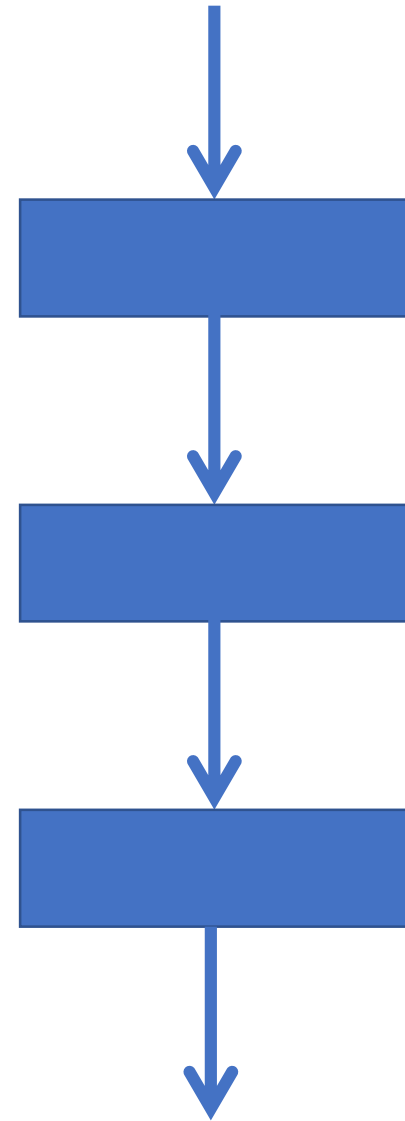


# The Moves

- Like a board game, special moves exist in programs
- In COMP110, there are **3 moves** you will learn in the upcoming unit:
  - ~~1. Step Forward~~
  2. Conditionals (`if-then-else`)
  3. Loops (`while`)
  4. Function Calls
- In COMP401, you'll only learn **1 other move: "Exception"**

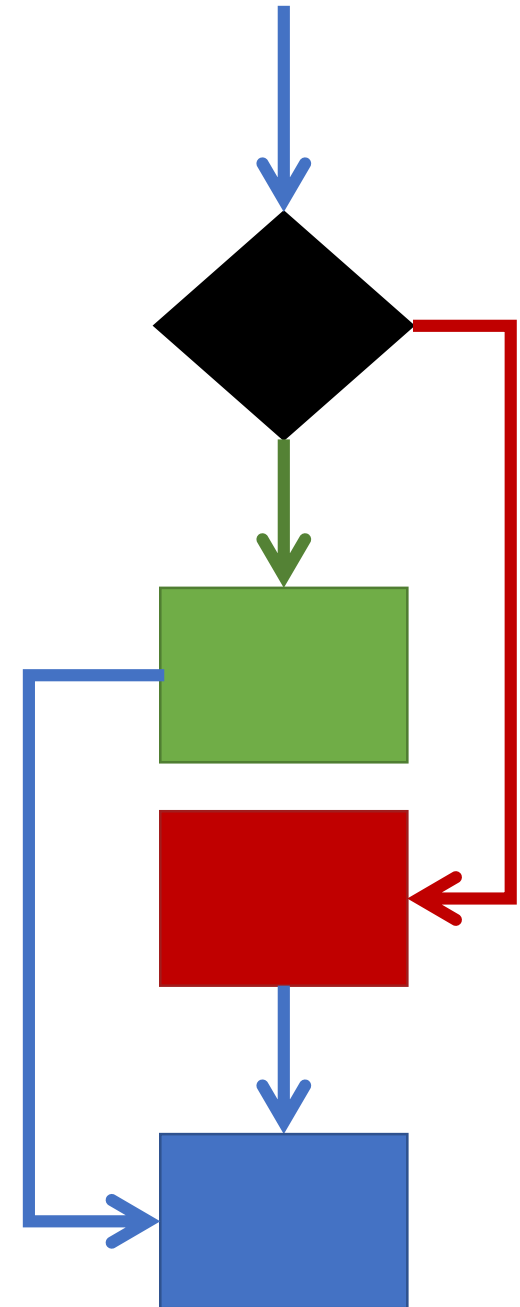
# Move #1 – Step Forward

- You already know this one!
- The computer will process one line of code. Then it will process the next right after it. And the next...
- **Until** it encounters a *special* move or the end of the program.



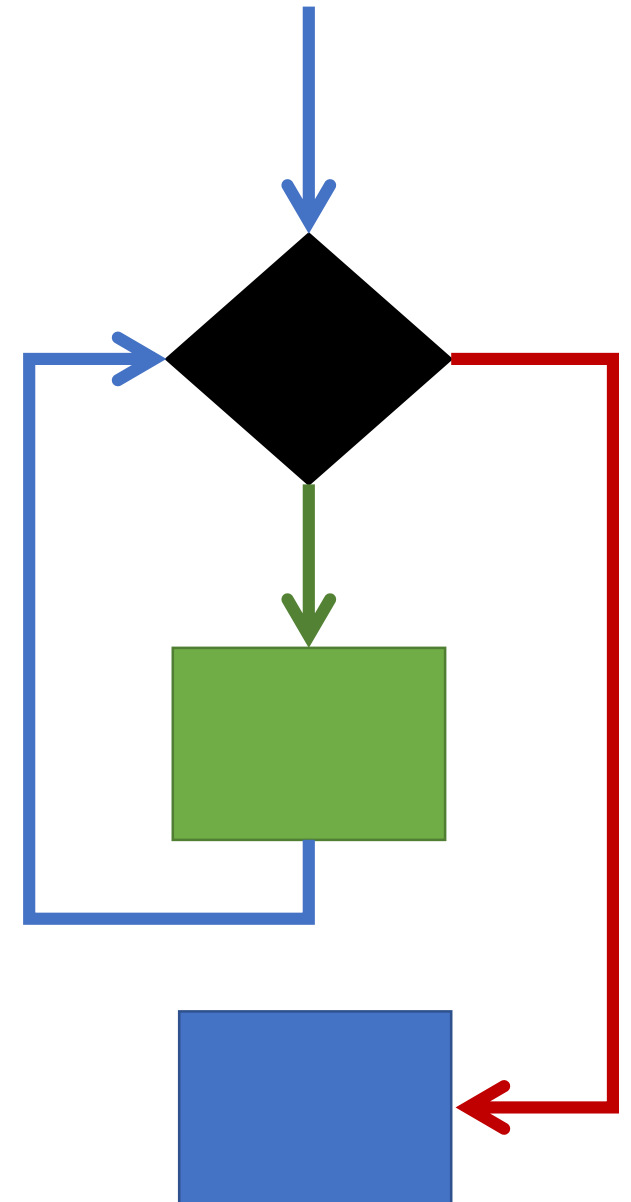
# Move #2 – Conditionals

- Based on some test (**boolean!**)...
- **if** the test is true
  - *then* the computer will continue to the next statement.
- **else** it will jump to a specific statement further down in your program
  - more on the exact rules next lecture



# Move #3 – Loops

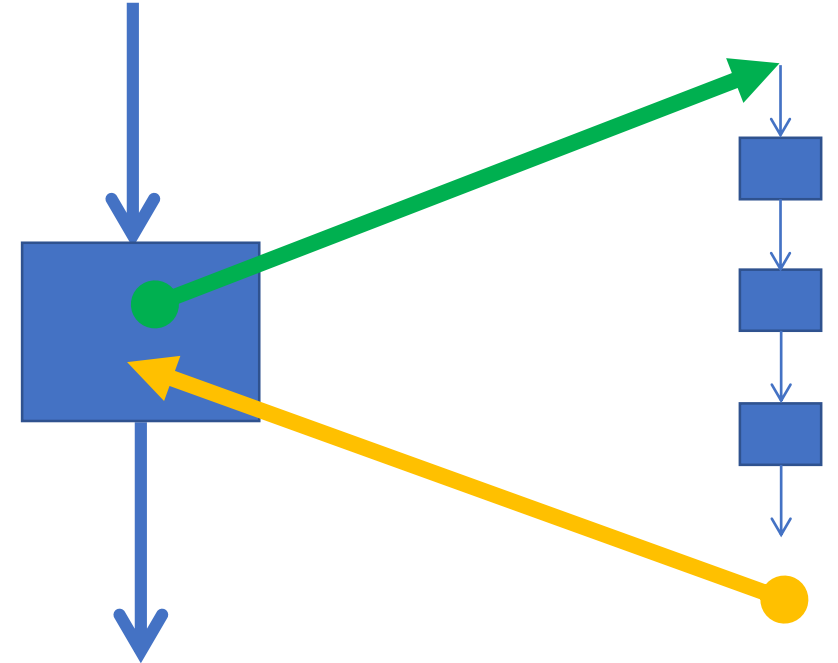
- Also based on some test (**boolean!**)...
- **if** the test is true
  - **then** the computer will continue to the next line.
  - at a specific point, the loop will **jump back up** to the test and run the test again.
- **else** it will jump to a specific line further down in your code
- You'll go loopy next week.





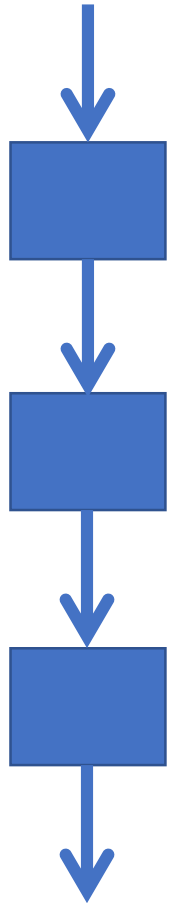
# Move #4 – Function Calls

- The **function call** move is beautiful and magical. It's the power move.
- The computer *drops a bookmark* where the function call occurs and *jumps* into the function... *magic happens*...
- ...the computer then **returns** right to *the bookmark it dropped*, often with some data and the program continues on, business as usual.
- You've *already* used some function calls!
  - `print("hello, world");`

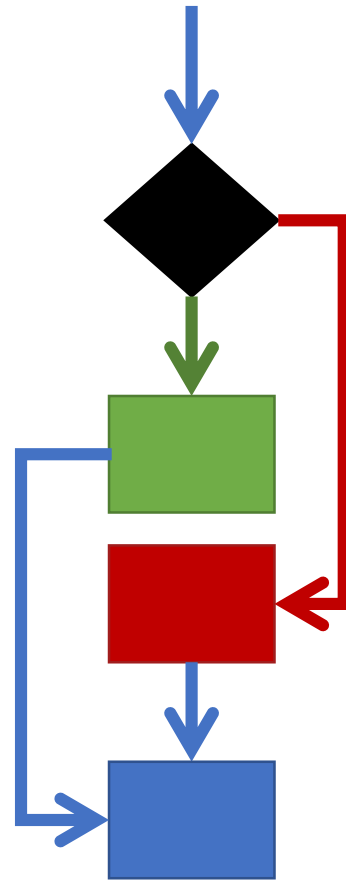


# The Moves

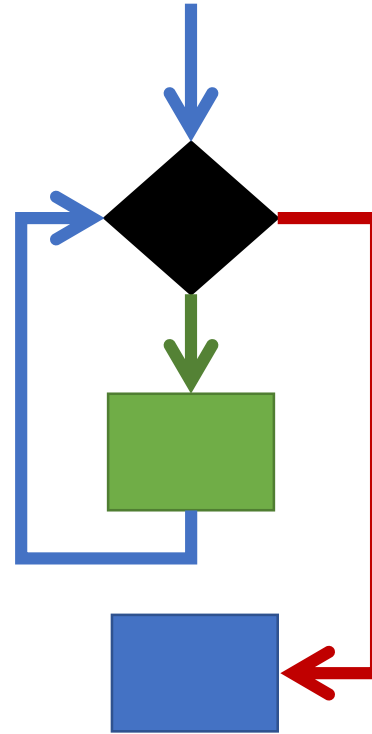
**Next Line**



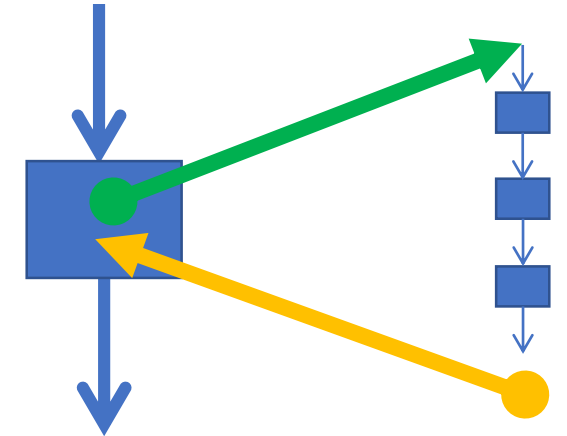
**Conditionals**



**Loops**



**Calls (to Functions)**



# Announcements

- Videos to watch before Tuesday's Lecture on 1/22
  - 06 – Boolean Expressions – Relational, Equality, and Logical Operators (6min)
  - 07 – if-then-else Conditional Control Statements (8min)
  - 08 – while Loop Control Statement (8min)
  - Reminder: 1 side of 1 page of hand-written notes for warm-up questions
- Videos to watch before Thursday's Lecture on 1/24
  - 09 – Functions: Overview (10m)
  - 10 – Functions: Parameters and Arguments (3m)
  - 11 – Functions: The return Statement (5m)
- Upcoming Assignments:
  - By Friday 1/18 at 11:59pm - Problem Set 0 – A Card for Someone Special
  - By Friday 1/25 at 11:59pm – Problem Set 1 – Dwight's Beet Farm (Requires Tuesday's Videos)
  - By Monday 1/28 at 11:59pm – Worksheet 0 – While Loops and Functions (Requires Thursday's Videos)

# Quiz Procedures

## Before Handout

Note: In the next quiz there will be assigned seats.

Pack up your notes and belongings and put your bookbag under your seat *not in front of you*.

Turn off cell phone and put away. Take off or turn around hats.

## During Handout

Take one off the top and pass it down.

CLEARLY and LEGIBLY write name and PID.

If your row was handed quizzes and you did not get one, raise your hand.

## During Quiz

Keep your eyes down, look to the heavens, or stare into a UTAs eyes.

Restroom emergency? Raise hand and give TA phone and quiz.

You will hand-in your quiz as you exit through the rear of the classroom. Get out your ONECard and take your stuff with you