# Lecture 4: Conditionals 

CS 5IG<br>Spring 2018<br>Kim Bruce

## Announcements

- Discuss Exercise 3.Io. 3
- New lab is posted on-line. Read it over carefully by Friday.
- Part I is very simpilar to example done this week!
- Must bring a design for part I of the program to beginning of lab.
- Mentors and I will take a look and give feedback.


## What is in a design?

- The design should include a picture of the screen when the game starts, labeling the coordinates of each rectangle on the screen.
- Provide names for all constants and instance variables and what their types are.


## What is in a design?

- For each method, write out (in English, not Grace), what it will do when executed.
- The important part is to say what happens.
- If you have a good description then you should have no trouble translating it to Grace.
- Example at end of laundry assignment!


## From Last Time

- Basketball with dragging
- http://www.cs.pomona.edu/classes/cso5IG/demos/BetterBasketBall/BetterBasketBall.grace


## Nested Conditionals

- Nested if statements in BetterBasketball

```
if (dragging) then {
    if (hoop.contains (point)) then {
                score := score + 2
                        display.contents := "Your score is {score}"
    }
}
```

- Can have any statements in block
- See simpler way for this when discuss booleans


## Random Numbers

- Generator in standard Grace library
- import "random" as randomGenerator
- File random.grace holds code - must import \& give name
- Can ask randomGenerator for new random numbers in range:
- randomGenerator.integerIn ( I ) to (4)
- Generates new value each time evaluate!
- Sample: Scribble in 4 colors
- http://www.cs.pomona.edu/classes/cso ${ }_{51}$ G/demos/Scribble4Color/Scribble 4 Color.grace


## Conditionals with elseif

- What if more than two choices to be made?

```
if (cond) then {
} elseif {cond2} then {
    .0.
} elseif {cond3} then {
} else {
```

    Final else is optional
    - Condition after elseif is in curly braces, not parentheses


## Parentheses vs curly braces

- Code in parens is always evaluated
- Code in curly braces need not be evaluated at all or may be evaluated many times.
- E.g., body of methods, then-else blocks


## Example

- Pong Game uses complex conditionals
- http://www.cs.pomona.edu/classes/cso5IG/demos/PatheticPong/
- Talk about bouncing ball next week!
- How can we keep paddle in boundaries?
- http://www.cs.pomona.edu/classes/cso5IG/demos/Pong/Pong.grace


## Questions?

