# Lecture 4: Conditionals

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#### Announcements

- Discuss Exercise 3.10.3
- New lab is posted on-line. Read it over carefully by Friday.
  - Part 1 is very simpilar to example done this week!
- Must bring a design for part 1 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
  - $\bullet \quad \underline{http://www.cs.pomona.edu/classes/cso51G/demos/BetterBasketBall/BetterBasketBall.grace}$

## 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 (1) to (4)
    - Generates new value each time evaluate!
- Sample: Scribble in 4 colors
  - http://www.cs.pomona.edu/classes/cso51G/demos/Scribble4Color/Scribble4Color.grace

## Conditionals with elseif

• What if more than two choices to be made?

 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/cso51G/demos/PatheticPong/
- Talk about bouncing ball next week!
- How can we keep paddle in boundaries?
  - http://www.cs.pomona.edu/classes/cso51G/demos/Pong/Pong.grace

Questions?