Adding a CountDown Timer

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Class Today

• How to setup a countdown timer.

Similar to Score
Need a number and 3D-Text

• Create a number variable, timerNumber
• Create a 3D text to display the value of the number, timer - has a string value
• Create a procedure to initialize both
• Create a procedure to update the timer – Timer counts down!

Proc – InitializeTimer, updateTimer

- Declare procedure InitializeTimer
- Do in order
  - timer = setTimerNumber timerNumber = 10.0
  - this timer setValue

- Declare procedure updateTimer
- Do in order
  - this timer setValue
Properties

• May also want to add a Boolean variable to turn on when playing game and turn off when game is over

![Diagram of unmanaged properties: timerNumber = 10.0, gameOn = false]

Create a Timer Event Listener

• Create the event

![Image showing the creation of a timer event listener]

Resulting Event

• Note the time chosen means this event will repeat in that amount of time
  – In this case the event repeats every 1.0 sec

![Diagram showing a timer event with time elapsed set to 1.0]

What question do you want to ask each time in the event?

![Diagram showing a procedure with time elapsed and setGameOn]

Stops at 0.0!
Decimal numbers are not stored exactly in a computer

- $1/3 = .3333333333333333333$
- $.25$ might be $.250000000145$

- So NEVER compare if a decimal number is equal to a number, such as:
  - `timerNumber == 0.0`
- INSTEAD ask if `timerNumber >= 0.00001`

Whole Numbers are stored exactly in the computer

- Ok to compare if a whole number is equal to 5 or 0…

This lecture covered

- Setting up a timer to count down
- Event – `TimeListener`
  - Given a time increment, the event happens over and over in that time increment
- Decimal numbers are not stored exactly in the computer, so should never check if they are equal to a decimal number but instead check if $> \text{ or } <$ to values.