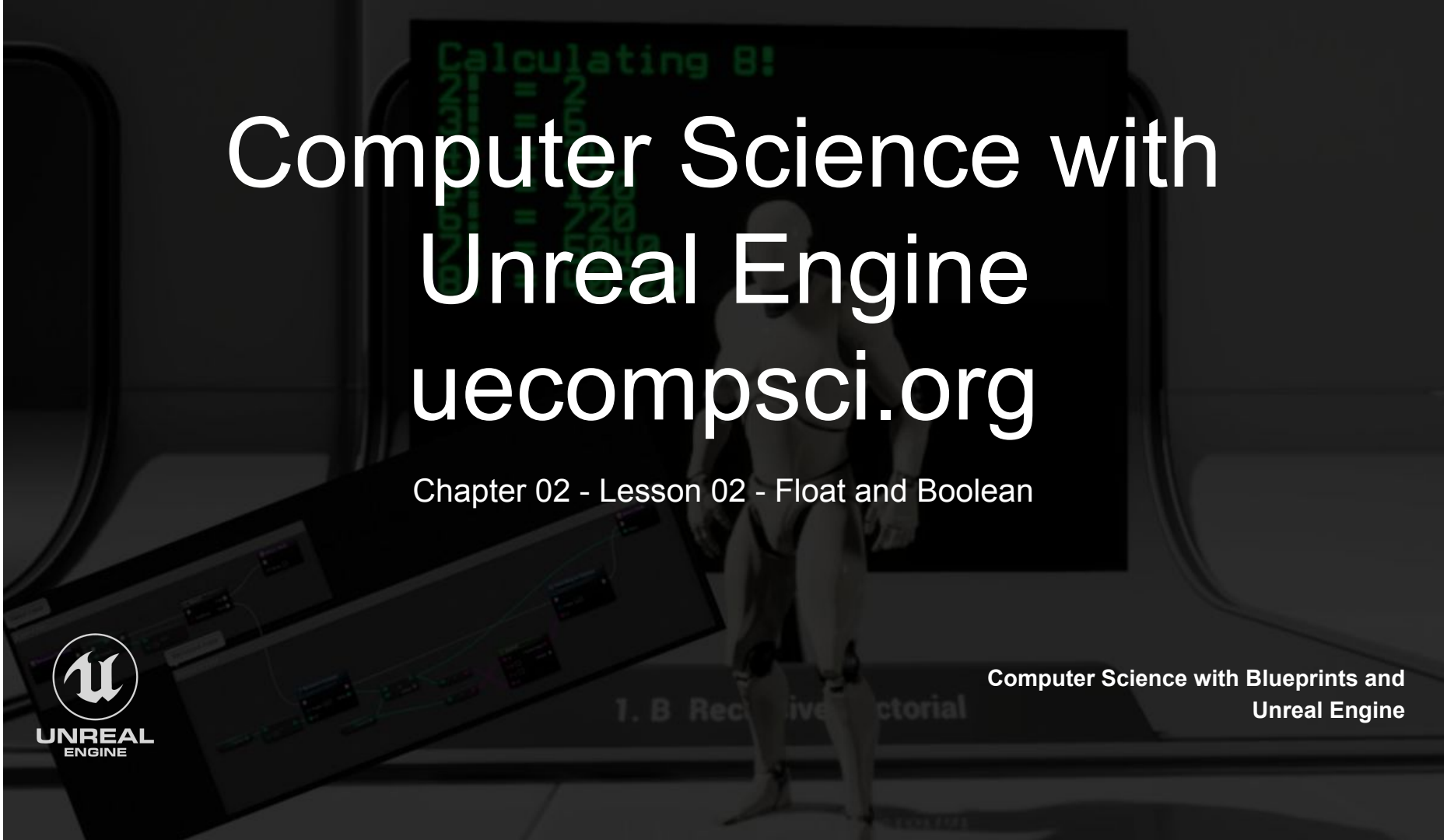

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Chapter 02 - Lesson 02 - Float and Boolean

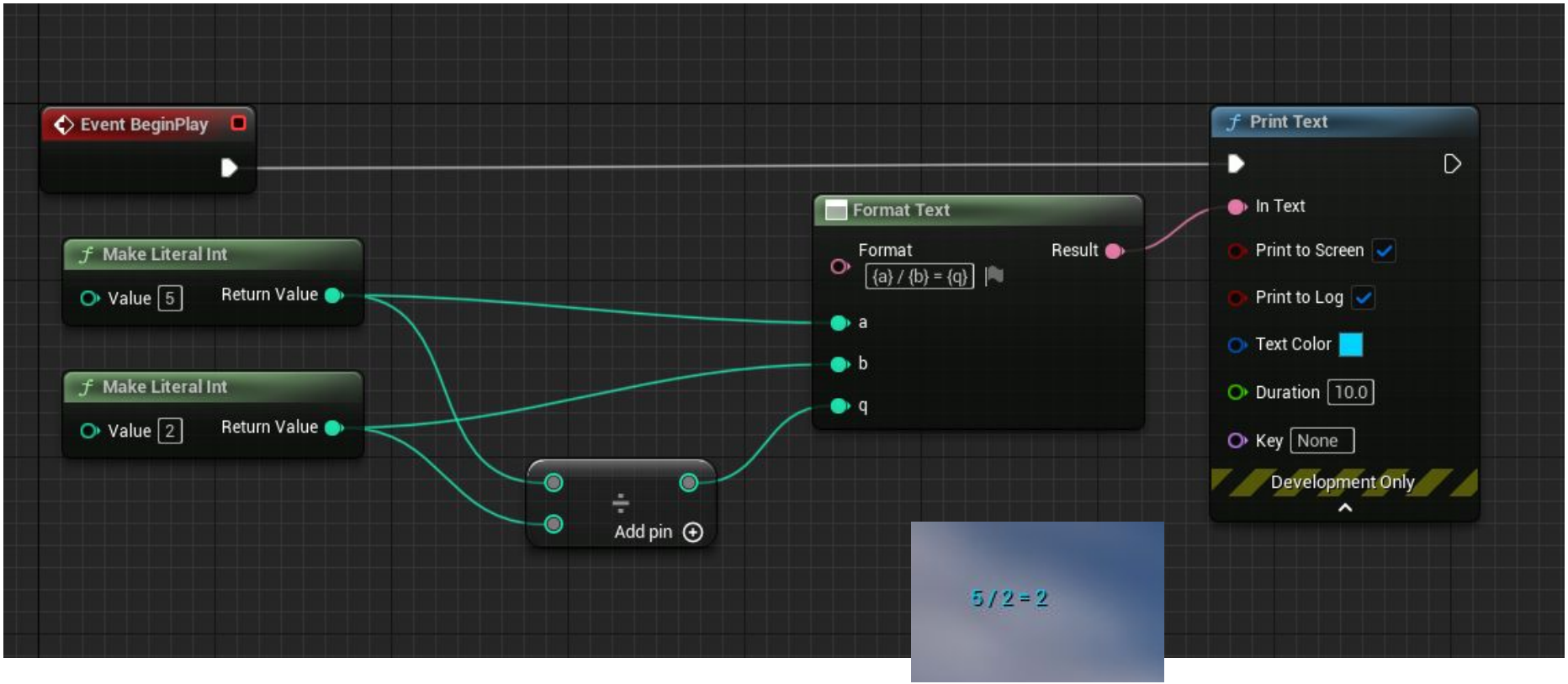
Learning targets

- Describe the difference between Integer and Float variables
- Identify appropriate instances to use each type
- Use floating point numbers in calculations
- Describe the effects of truncation
- Describe Boolean variables
- Utilize Boolean variables to control program flow

Integer review

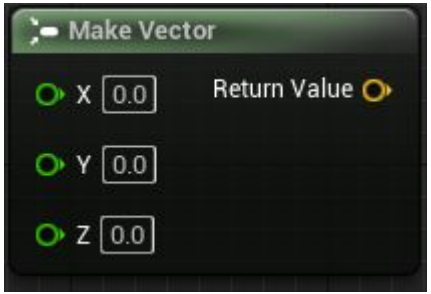
- Integers are whole numbers, such as -3, 0, 12, 1032, -56079, 3254 etc...
- Integers do not have floating point values.
  - Gaming examples:
    - Score
    - Level
    - XP
- Math operations on integers that would result in floating point values (example: 5/2) result in the answer being **truncated** (not rounded).

Integer example



Float variables

- Have a decimal.
  - Used when more exact calculations are required
    - Gaming examples:
      - Distance
      - Location
      - Direction
      - Percent complete
  - Examples: 1.3234, -10.389284, 10093.23223
  - The Unreal type Vector consists of three floating point values

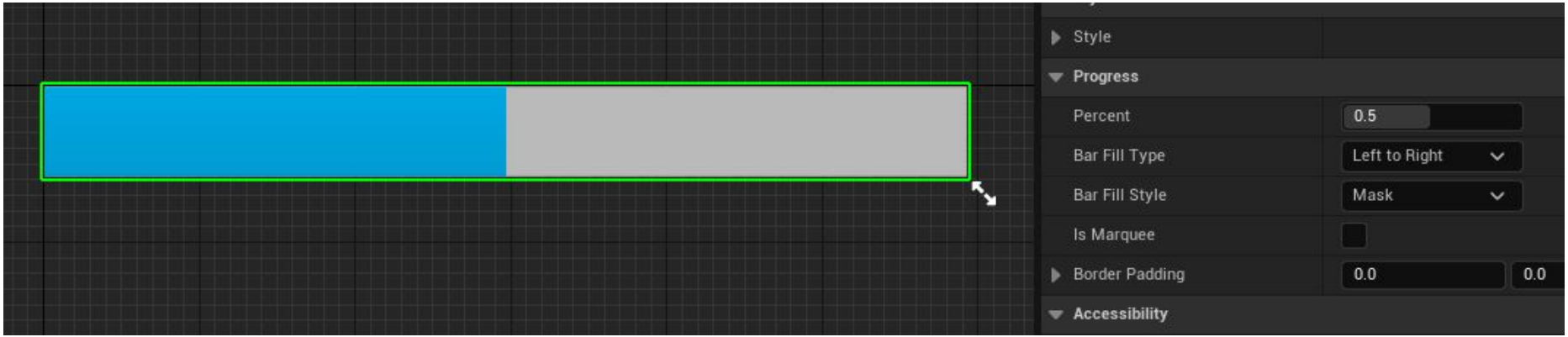


Example using Float in UE

The Progress Bar control uses a value between 0.0 and 1.0 to control how full the progress bar is.

0.0 is empty, 1.0 is full, and anywhere in between represents a percentage.

For example, 0.5 is 50% full.



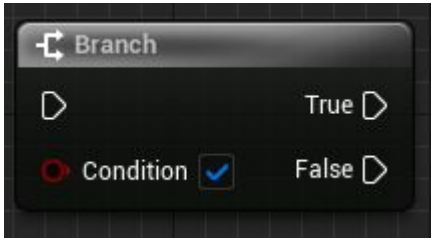
Boolean values

- Booleans can be True or False - there are no other values. i.e. there is no “sort of true” or something between False and True.
- This can be also thought of as on or off.
- Booleans are often used to control program flow using a Branch node.
    - In other languages, this is an “if” conditional statement.

The UE Branch

The UE Branch node uses the value of a “Condition” to determine program flow.

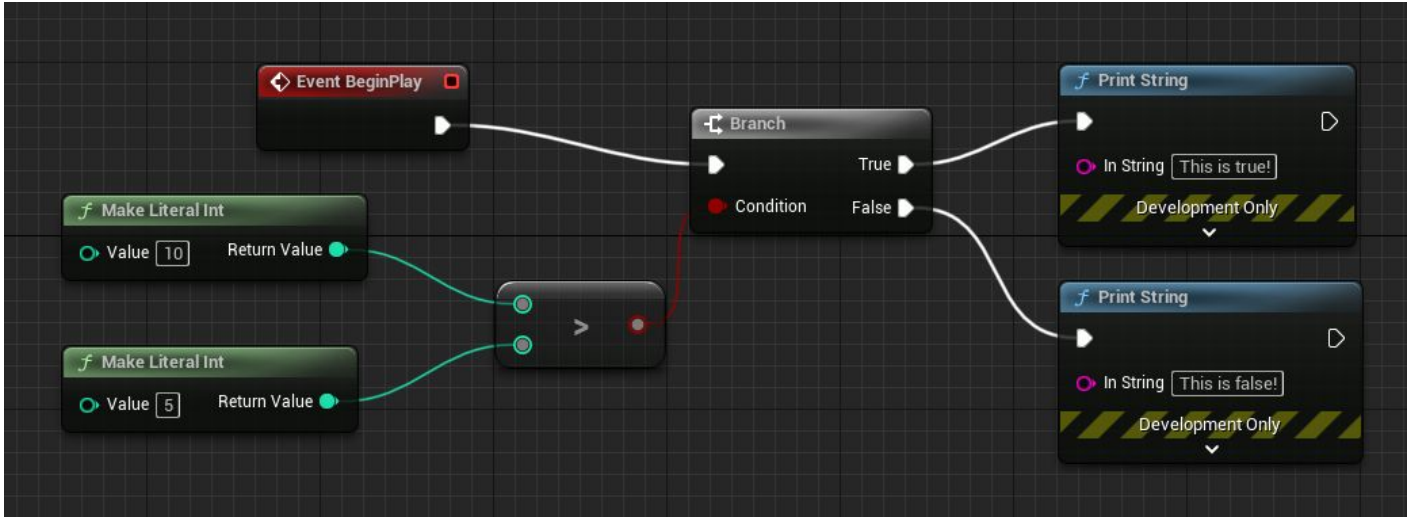
- If the Condition is True, the program flows out the True Execution pin. If the value is False, the program flows out the False pin.
- Usually, but not always, the Condition is the result of some kind of comparison operator using numbers, such as <, >, <=, >=, ==, !=



Branch continued

Chapter 03 - Conditional statements will cover the Branch instruction and Boolean operations in more detail.

In the example below, 10 is compared to 5 - if it is greater than 5 (it is), the program will print “This is true”.

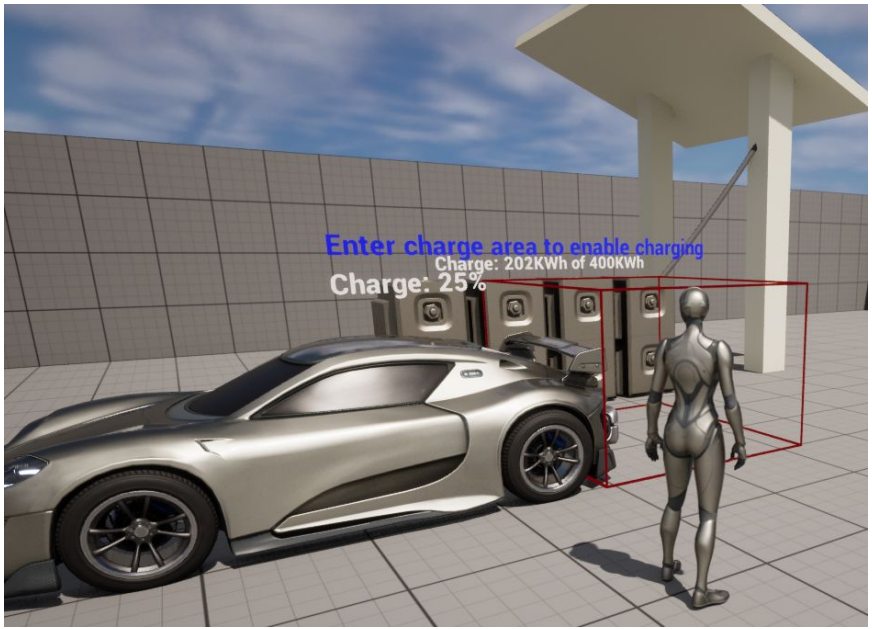


Summary

- In this section we described the difference between Integer and Float variables
- Identify instances of what type of variable to use - variables such as “score” would use an Integer variable and “distance” would use a Float.
- Using floating point numbers in calculations results in floating point values.
- When dividing Integers, the values are truncated.
- Boolean variables have a value of True or False.
- Boolean variables are often used to control program flow.

Now it’s your turn

- Use what you’ve learned here in the Lesson Chapter 02 Lesson 02 to build a Solar Charging station for an electric vehicle.



Version information

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