

# CompSci 94

## Random Numbers

September 24, 2024

Prof. Susan Rodger



## Exam 1 Sept 26

- On 9/26 calendar page for Exam 1
  - Covers topics through 9/19!
  - Exam 1 study guide with sample problems
  - Old tests, practice exam
  - Exam 1 reference sheet
- Practice writing code on paper!!!!
- Should have heard from me if you sent me an SDAO letter

## Announcements

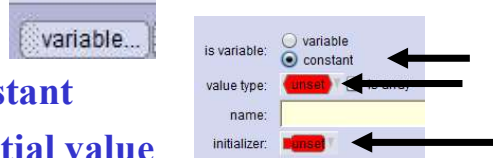
- Assignment 3 out today –Oct 8 due
  - Can do some as practice for exam! Not required
- NO QZ for Thursday
  - QZ09 due Tuesday Oct 1– 10:05am
- *Don't get behind*, be sure to check your grades on Canvas for Classwork
- Exam 1 is Thursday!
  - Exam does not cover the topic today, random numbers!

## Q1 Constant Variable

- What is a constant variable?
- How do you create a constant variable in Alice?
- How do you use a constant variable?

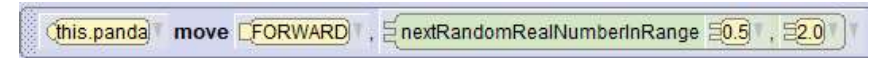
## Q1 Constant Variable

- What is a constant variable?
  - Storage location
  - Can only store one value there
- How do you create a constant variable in Alice?
  - Drag in **variable** tile
  - Be sure to select **constant**
  - Give it a **type** and **initial value**
- How do you use a constant variable?
  - Use it in place of anything of the same type



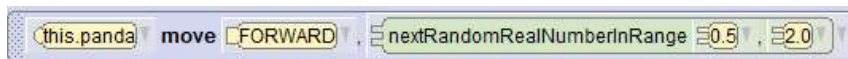
## Q2 Random Numbers

- What is a random number?
- In Alice, how does one get the random number in this instruction?
- Give examples of numbers in this range?



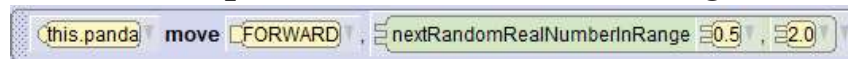
## Q2 Random Numbers

- What is a random number?
  - Some number from a range of numbers
  - Don't know which number until it is generated
- In Alice, how does one get the random number in this instruction?



- Put in a number first, then can select “random”

- Give examples of numbers in this range?



- 0.5, 0.79, 1.3, 1.98

## Q3 Random Integers

- How many different integers are a possibility with this statement?



## Q3 Random Integers

- How many different integers are a possibility with this statement?

constant WholeNumber someNumber ← nextRandomIntegerFromAUpToButExcludingB 2, 5

- 3 possible numbers. They are: 2, 3, 4
- Note this says ...UpToButExcluding

## Q4 Code with Random

- After this code runs, is the Panda in the same place it started in?



```
do in order
  this.panda move FORWARD, nextRandomRealNumberInRange 2.0, 5.0
  this.panda move BACKWARD, nextRandomRealNumberInRange 2.0, 5.0
```

## Q4 Code with Random

- After this code runs, is the Panda in the same place it started in?
- Probably not. Those are two DIFFERENT random numbers



```
do in order
  this.panda move FORWARD, nextRandomRealNumberInRange 2.0, 5.0
  this.panda move BACKWARD, nextRandomRealNumberInRange 2.0, 5.0
```

## Q4 Code with Random

- To randomly move forward and then come back to the same place, generate one random number, store it in a variable, and use it twice!



```
constant DecimalNumber value ← nextRandomRealNumberInRange 2.0, 5.0
this.panda move FORWARD, value add detail
this.panda move BACKWARD, value add detail
```

# Class Today

- Working with random numbers

