

# CompSci 94

## Random Numbers

### September 21, 2021



Prof. Susan Rodger

9/21/21

CompSci 94 Fall 2021

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## Announcements

- Exam 1 is Sept 28
- Review on Thursday
- Assignment 3 due Sept 30
  - Best to complete before the exam!
- NO QZ for Thursday
  - QZ09 due Thursday Sept 30 – 10:15am
- Don't get behind, be sure to check your grades on Sakai for Classwork

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## Q1 Constant Variable

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

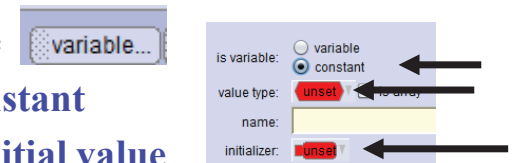
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## Q1 Constant Variable

- 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



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## Q2 Random Numbers

- What is a random number?
- In Alice, how does one get the random number in this instruction?

```
this.panda move FORWARD , nextRandomRealNumberInRange 0.5 , 2.0
```

- Give examples of numbers in this range?

```
this.panda move FORWARD , nextRandomRealNumberInRange 0.5 , 2.0
```

## 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?

```
this.panda move FORWARD , nextRandomRealNumberInRange 0.5 , 2.0
```

- Put in a number first, then can select "random"
- Give examples of numbers in this range?

```
this.panda move FORWARD , nextRandomRealNumberInRange 0.5 , 2.0
```

- 0.5, 0.79, 1.3, 1.98

## Q3 Random Integers

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

```
constant WholeNumber someNumber ← nextRandomIntegerFromAUpToButExcludingB 2 , 5
```

## 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

