

CompSci 94

Undetermined Repetition with While loop

October 14, 2021



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10/14/21

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Announcements

- QZ and videos for next time

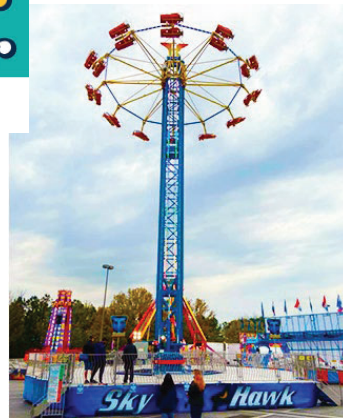
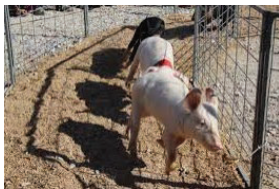
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Ezzell's Somethin' Good
Shrimp & Grits on a Stick



At the Raleigh Fair Grounds

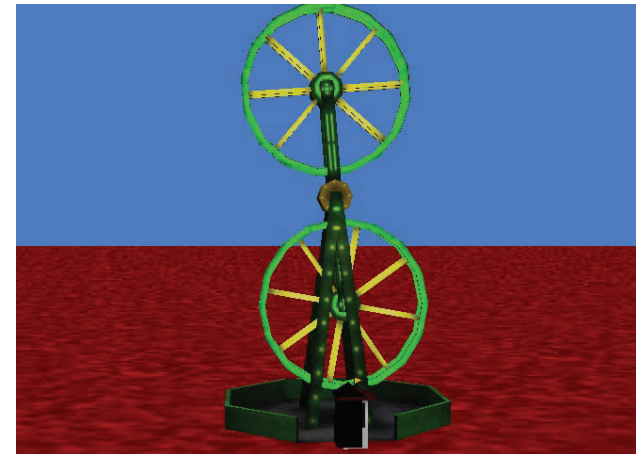
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Alice 2 Fair Rides as objects

Double Ferris Wheel

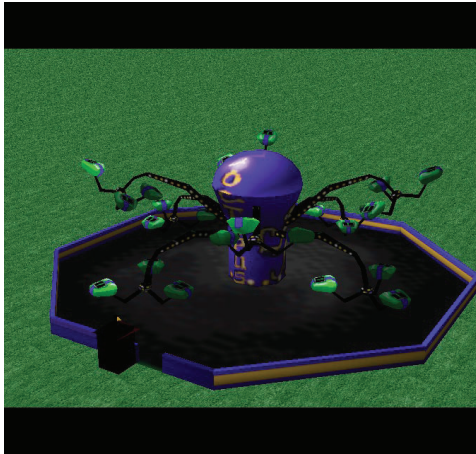


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Alice 2 - Octopus Ride



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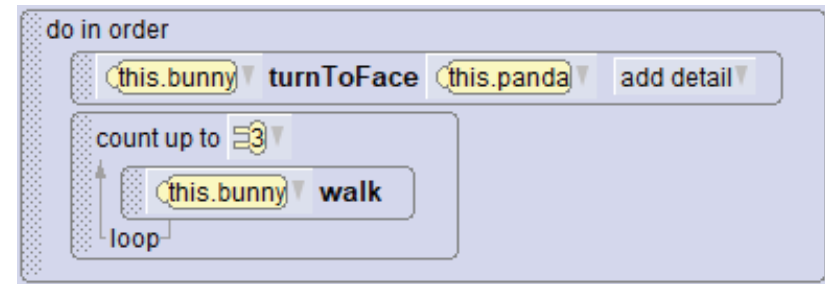
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Looping – exact number of times



- Count loop



- How many steps to get to the panda?

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Repetition

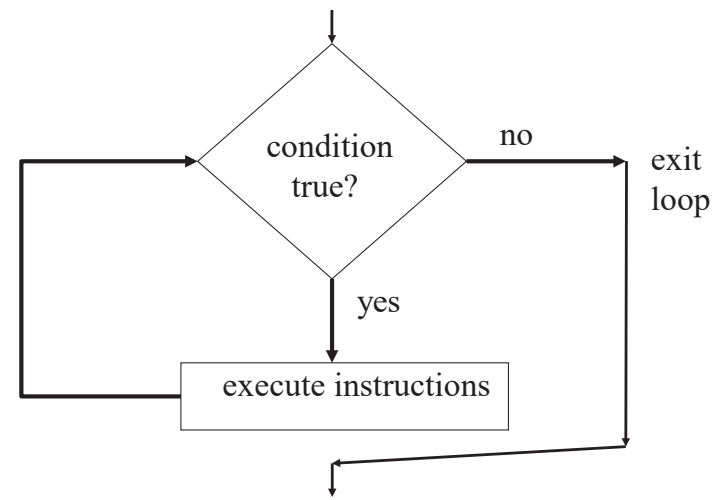
- Sometimes don't know exactly how many times a set of instructions are repeated.
- Stopping is based on a condition
- Example:
 - Game of Chess, how many moves until win
 - Stop: when markers are in check mate position
- Indefinite Repetition
 - Where number of repetitions not known in advance
 - Use **while** statement

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While statement



- While some condition is true
 - execute instructions

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General “Rule of Thumb”

- As a general rule, a While loop should be written so the loop will eventually end
 - Requires statements inside the loop change the conditions of the world such that condition for While eventually becomes false
- If While loop never ends
 - Infinite while loop

Q1 Compare – What is difference?

```
do in order
  this.bunny turnToFace this.panda add detail
  count up to 3
  this.bunny walk
loop
```

```
do in order
  this.bunny turnToFace this.panda add detail
  while this.bunny getDistanceTo this.panda - this.panda getWidth > 1.0 is true
  this.bunny walk
loop
```

Q2. What happens when run?

```
while this.falcon isAbove this.ground add detail is true
  this.falcon move DOWN, 0.25 add detail
loop

while this.pig isAbove this.ground add detail is true
  this.pig move DOWN, 0.25 add detail
loop
```



Q3 What happens, when does the loop stop?



```
while this.hare getDistanceTo this.panda > 1.0 is true
  do together
    this.hare moveTo this.panda, 0.25 add detail
    this.panda moveTo this.hare, 0.25 add detail
  loop
loop
```

Q4 What happens, when does the loop stop?
(numbers different)



```

while (this.hare.getDistanceTo(this.panda) > 1.0) is true
do together
  this.hare.moveTo(this.panda, 3.0) add detail
  this.panda.moveTo(this.hare, 3.0) add detail
loop
  
```

Q5 What happens when this runs?



```

do in order
  this.bunny.setPaint(GREEN) add detail
while (this.bunny.getPaint() != RED) is true
  this.bunny.setPaint(BLUE) add detail
  this.bunny.setPaint(RED) add detail
  this.bunny.setPaint(YELLOW) add detail
loop
  
```

Q6 What code could I use to stop this loop?

```

do in order
  //How do I stop this loop? What do I put in place of true?
while (true) is true
  this.bunny.resize(1.3) add detail
loop
  
```

Class Today

- Catching dinner

