

Check-Up Questions for Exam 1 of CS 202

Lecture: Algorithms

1. What is an algorithm?
2. Which of the following are examples of algorithms?
 - a recipe
 - a maze
 - a solution for solving a rubix cube
 - a zipcode
 - programming languages such as Scratch
3. True or False:
 - An algorithm can return different output in different circumstances?

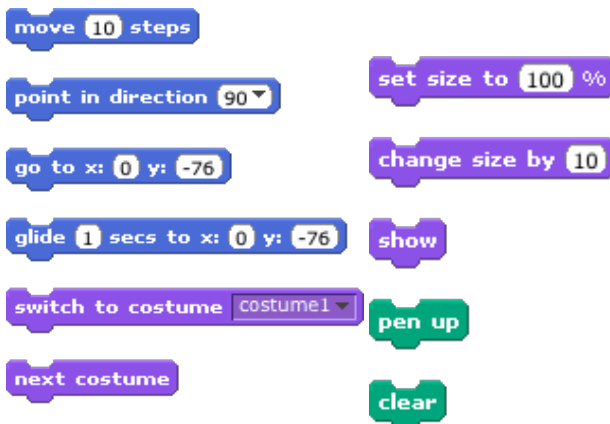
Lecture: Programming Languages

1. In Scratch, what is the difference between a block and a script?
2. What is the difference between a Sprite and a costume?
3. Under what category would you find the following blocks:
“move x steps”? “next costume”? “repeat”?
4. How many total steps will a Sprite running this script move?



Lecture: Art

1. What happens if you don't specify the initial state of your program?
2. Which are likely to be used for initialization?



Lecture: Animation and Abstraction

1. In your animated story all the scripts are running at the same time. What did you do wrong?
2. Can a Sprite receive a message it broadcast?
3. When will this code work correctly? when not?



Lecture: Decision Trees

1. Can you draw the corresponding decision tree for these scripts?

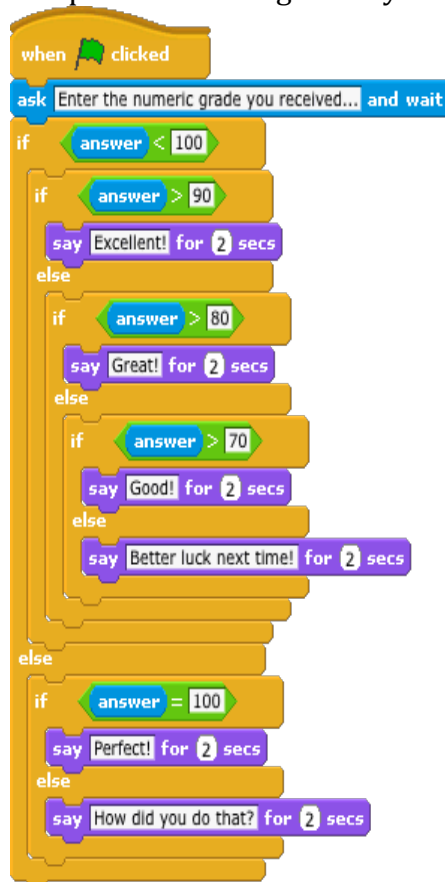


Lecture: Remember with Variables

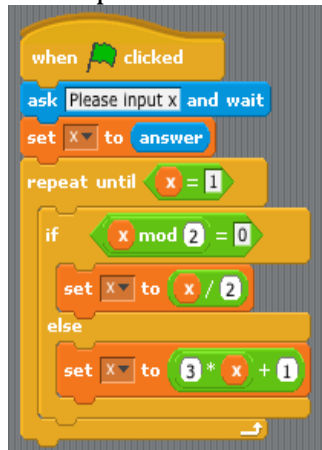
1. For the following script, what is the output if user enters:

- 95?
- 100?
- 105?
- 63?

2. What input could have given if you see the output “Great”?



3. For the following script, what happens to the value of x over time if x is initially 2? Input x = 8? Input x = 5?



Lecture: Races

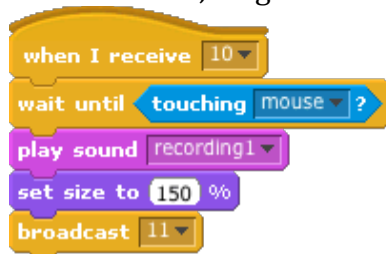
Consider the following two scripts.

1. Will two scripts run concurrently?
2. Will cat turn while Cave music is playing?
3. Will cat move while Cave music is playing?
4. Will cat change colors while Cave music is playing?

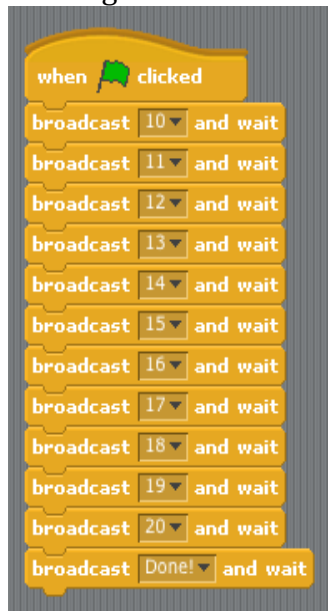


Lecture: Simple Games

In one version, Stage broadcasts to 10, then each Number broadcasts to next:



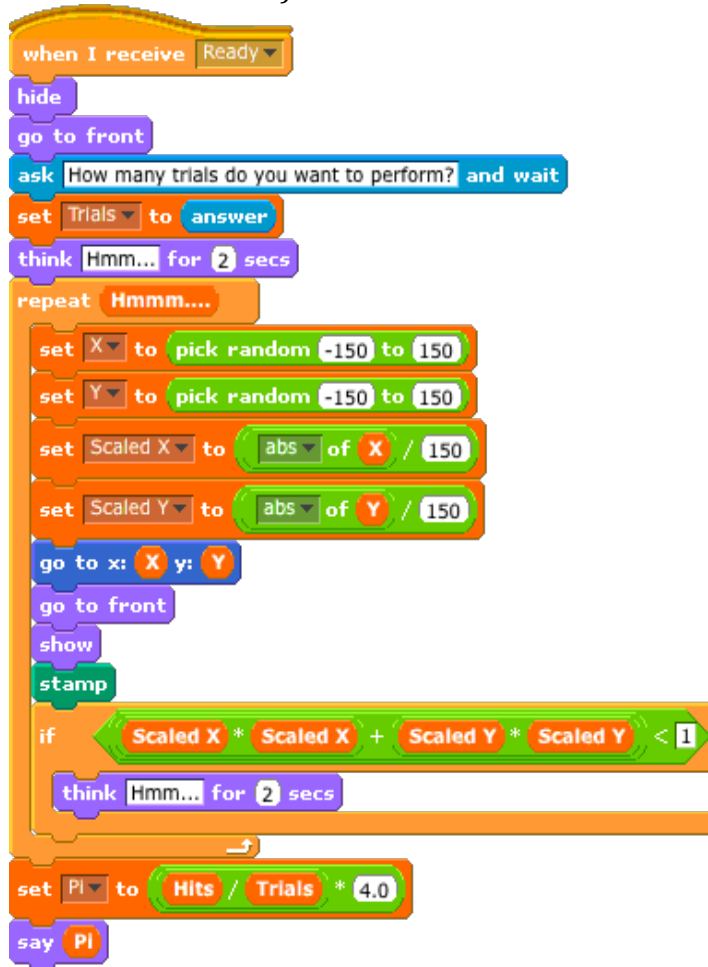
1. If the Stage runs the following script, could this result in the same behavior?



2. Could the Stage just broadcast instead of broadcast and wait?

Lecture: Probability Trials

1. What 3 things are missing in the following script? (Look for “think” blocks or “Hmmm...” variables)



Lecture: Strategy Games

Which are true for the minimax algorithm?

- Uses psychology to guess what a human will do
- Uses probability to make the best decisions
- Used for games of chance
- Allows the computer to win every game
- Will find a winning move if it exists
- Assumes human opponent makes best possible moves
- Assigns “1” to end states where computer wins
- Propagates min value when it is human’s turn next
- Can result in a huge number of states for complex games like chess
- Humans can use minimax algorithm