



# CPSC203 – Introduction to Problem Solving and Using Application Software

Winter 2010

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# Introduction

- Alice in Wonderland
- Do in order control statement
- Do together control statement
- Nesting blocks

# Project Progress Reports

- Starting from **NOW**, project pairs will be sitting next to each other.
- Each team member is required to submit a progress report at the end of each week:
  - report 1: March 26th, 2010. 11:59 pm.
  - report 2: April 2nd, 2010. 11:59 pm.
  - report 3: April 9th, 2010. 11:59 pm.
- The suggested outline for the report is available under Alice Material section on the Blackboard.

# Alice in Wonderland

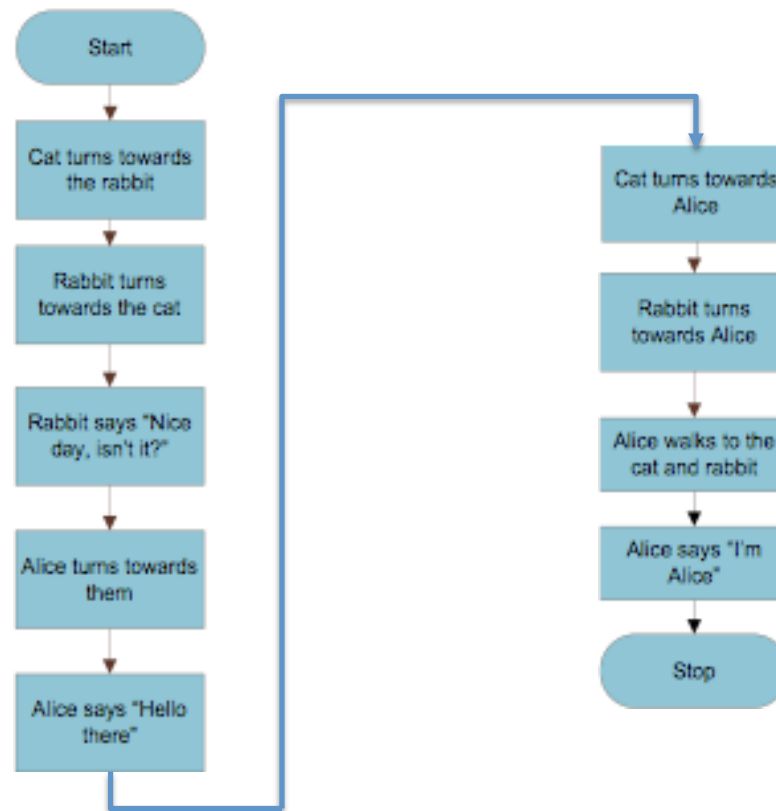
- Grab the file lab2.a2w from:  
<http://pages.cpsc.ucalgary.ca/~kawash/peeking/tutorials/lab2.a2w>
- There are three characters in the scene: Alice, the rabbit, and the cat.



# Scenario

- We want to create an animation in which:
  1. The cat to turns towards the rabbit and the rabbit turns towards the cat.
  2. The rabbit then says “Nice day isn’t it?”.
  3. Alice then turns towards them and says “Hello there”.
  4. The cat and the rabbit turn to her.
  5. She then walks towards them and says “I’m Alice”.

# Flowchart



# Do in order

- Each step in the flowchart can be translated to an instruction in the program.
- Each of these instructions needs to be done in order, i.e. one instruction is completed, before the following one begins.
- The **Do in order** control statement is used to tell Alice to do a number of instructions in sequential order.

# Exercise

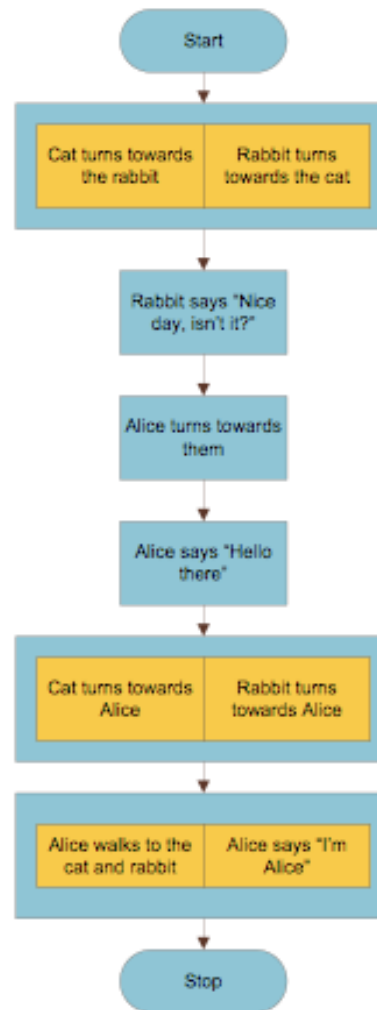
- Using the flowchart, fill in the rest of the instructions into the *Do in order* block.



# Do together

- Instead of the cat turning to face the rabbit then the rabbit turning to face the cat, it would be more meaningful if they both turn to each other at the same time.
- The **Do together** control statement is used to tell Alice to do a number of instructions in parallel.

# Modified Flowchart



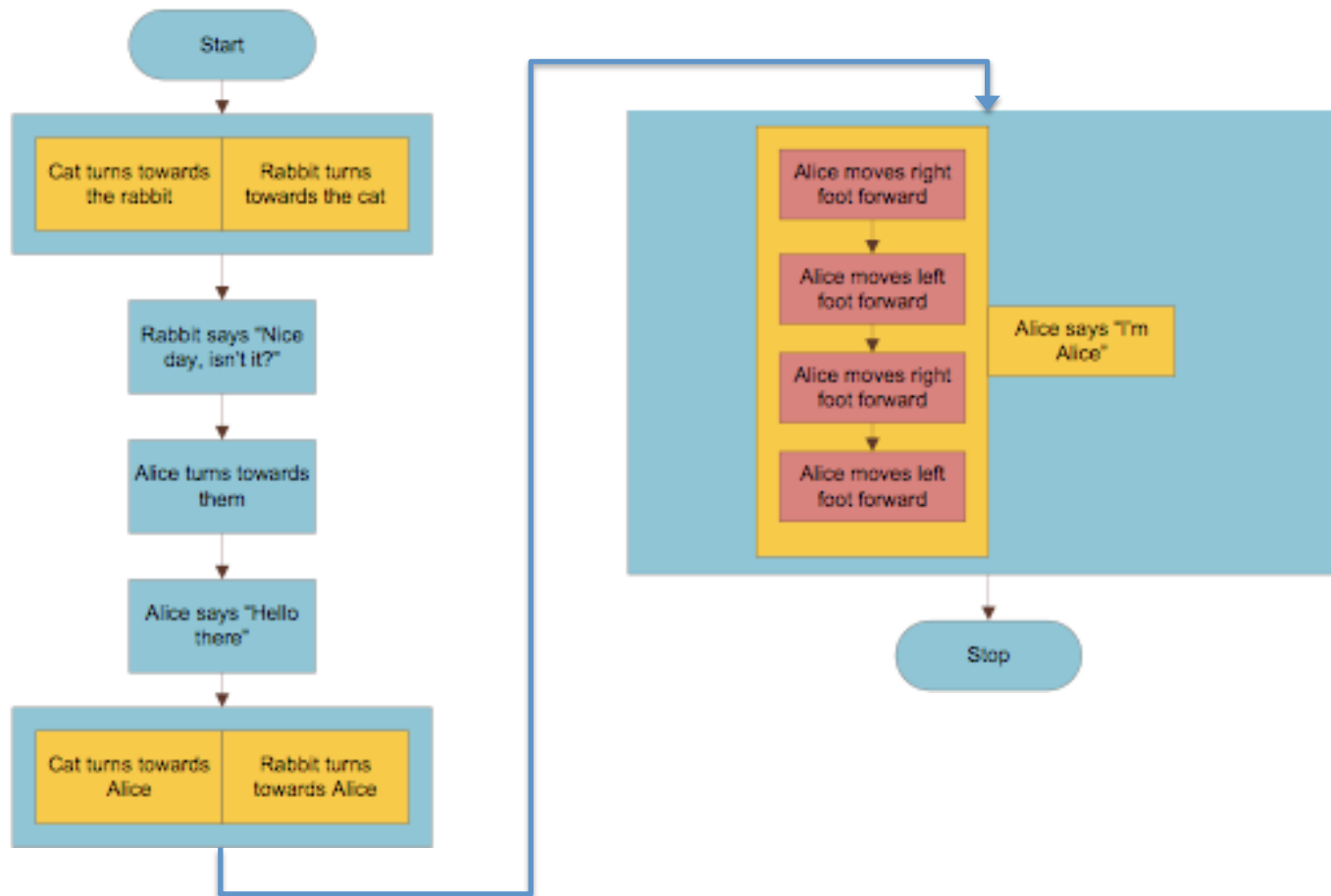
# Exercise

- Using the new flowchart, modify the program and move required instructions into appropriate *Do together* blocks.

# Nesting

- We can have as many levels of *do together* and *do in order* blocks nested into each other as we need.
- We can make Alice's walking more realistic. Instead of her whole body moving at once, we can program it so that her right leg moves first, then her left leg, and so on.

# Modified Flowchart



# Exercise

- Using the new flowchart, modify the program so that Alice walks towards the cat and rabbit by taking individual steps (a *do in order* block).
- Hint: The *aliceLiddell* character has the *lowerBody* object that is made up of *rightLeg* and *leftLeg* objects.

# Exercise

- You may have noticed that Alice's legs move on their own, without the rest of the body following! This is a mistake or *bug in our code*.
- Modify the flowchart and the program so that Alice's legs do not walk on their own.
  - Use *aliceLiddell's* move method to move her along with her legs.
  - Use the legs' turn method instead of move.
  - Use the duration parameter in the methods you call to time the actions together (the default time for each action is 1 second).

# Exercise

- Create a new world using the grass template. Add a hawk to the scene. Add instructions to the scene so that the hawk flaps its wings twice while flying forward, and then does a complete rotation in the sky.