Homework 10

The InClass is to be demonstrated (or mailed) to your group leader.

The Homework is to be submitted via Eagle. It is to be individual work. You may talk to other students in the course about your design and to get ideas, but you are to write the complete Alice programs by yourself. You may receive help from the Professor, CS Tutors, UTF’s or TA. In your comments, identify (by name) all those who helped you. Failure to do so is considered cheating.

Inclass (5 points)
Create two people (with outstretched arms). Move their arms to their sides. Create a "composite item" – consisting of three sprigs of mistletoe (WebGallery/Holidays/Christmas). Use variables, functions and a conditional to do the following:

a. (1 point) Treat the three parts of the mistletoe as one piece – so they move together.
b. (4 points) Compute the height of each of the people. Move the mistletoe above the head of the taller person. [Change the sizes of the people and verify that the mistletoe now goes to a different person.]
d. (1 point BONUS) Wait a second and then have the shorter person turn red and then disappear.

Hints:
• You will need to read about "conditionals" in chapter 12 to do part b.
• Use the vehicle property to get the composite object to behave as a unit.
• Moving above the head can be accomplished by moving to the head and then quickly moving up.
• You can change a property of an object at run time by dragging the property tile into the method edit area.

Homework (15 points)

For this assignment, we have a Beetle Band on stage. File beetlesSetup.a2w (from the class website) gives you the setup. [The beetles are georgeBeetle, ringoBeetle, lennonBeetle, and paulBeetle from Local Gallery/Animals/Bugs. The musical instruments are base, guitar, timbalesCowBell, and sax from the musical instruments folder. The stage is just a table (from furniture) which has been sunk.] For simplicity, you can remove your least favorite beatle.
1. (2 points) During the animation, a song (of your choosing) will play. The babyback ribs song (included with the project) is fairly short.

2. (7 points) Each band member will play a short solo. When it is their turn, they will jump up and down a number of times that is twice their height (rounded to the nearest integer) and spin around a random number of times (an integer). By random, I mean a genuine "random" number that changes each time you call it. You need to use variables and functions so that if the height changes, the actions change.

3. (5 points) After all solos, each beetle will strike a crazy pose.

4. (1 point) Control the duration of the actions to make the animation somewhat realistic.

Hints:
1. When you use the Screen Editor to put an object into position, you can capture that position as a "pose". Poses that have been captured can be restored during the animation. Use the "capture pose" method by selecting the object and "right clicking". Capture the pose at the object level (not the appendage level). The pose is stored in the object "properties" tab. You can rename the pose.
2. Display the pose by selecting the method "set pose".
3. Save your project often. Many times I get errors (and lose edits) in doing a copy operation. This is a "bug" in Alice.
4. Use the "vehicle" property of the musical instruments to get them to "move" with their musician.
5. For me doing turn/roll has been trial and error (spell that FRUSTRATION). Take a minute to understand roll/turn. Start by "orient to" the object to the camera. Otherwise "left" doesn't seem left. Right click on the object in the object tree and select "methods".
   - Turn left/right spins around vertical (green) axis counterclockwise/clockwise (as viewed from above).
   - Turn forward/backward spins around the horizontal (red)axis. If oriented to the camera, the object will spin toward you if you select backward.
   - Roll left/right spins about the "depth" (blue) axis. Rolling left is "counter clockwise" as blue axis point away from you.