

Alice: a 3D programming environment

Alice is an “object-oriented” programming environment.

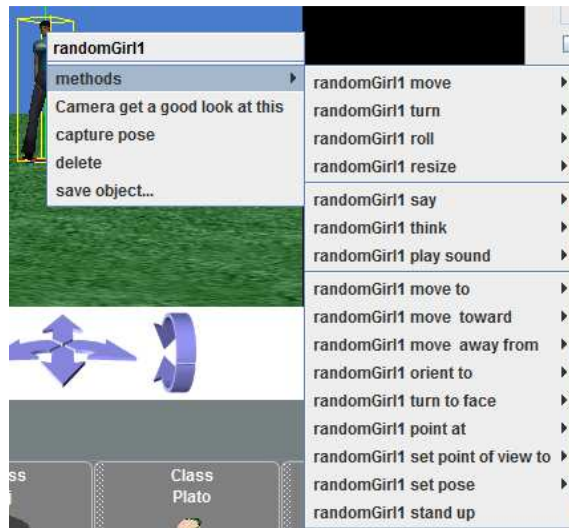
Object-oriented programming is based on the idea that the world is made up of objects. You are an object, your chair is an object, your leg is an object, your backyard is an object, etc.



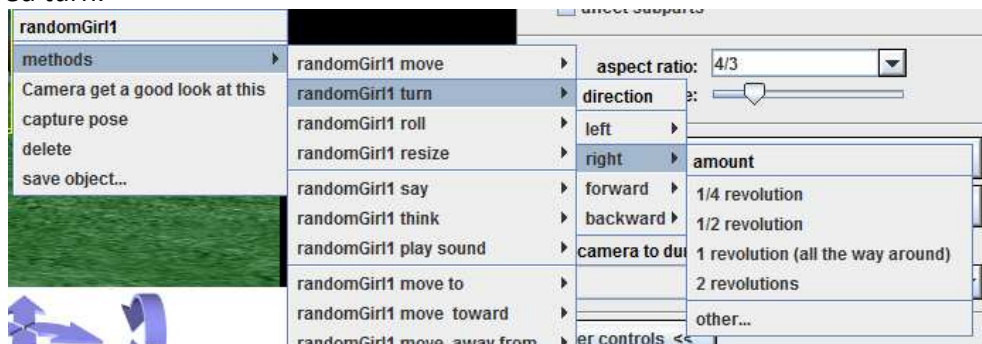
Objects of the same type make up a class. Thus, we might have a class called “people” with objects Mary, Jennifer, etc.

In Alice we focus on individual objects and the actions they perform.

Actions typically take the form of movements in space and speaking. The actions provided by Alice are called “**methods**.” The girl in this example, named “randomGirl1” can turn in place, move to a different location, or speak. Similarly, the girl’s arm or leg can move or rotate independent of the movement in the rest of her body (for example, when kicking a nearby cat).



Each **method** requires further details, or “**arguments**” to perform the desired action. For example, the turning method for randomGirl1 requires information about the direction and magnitude of the desired turn.

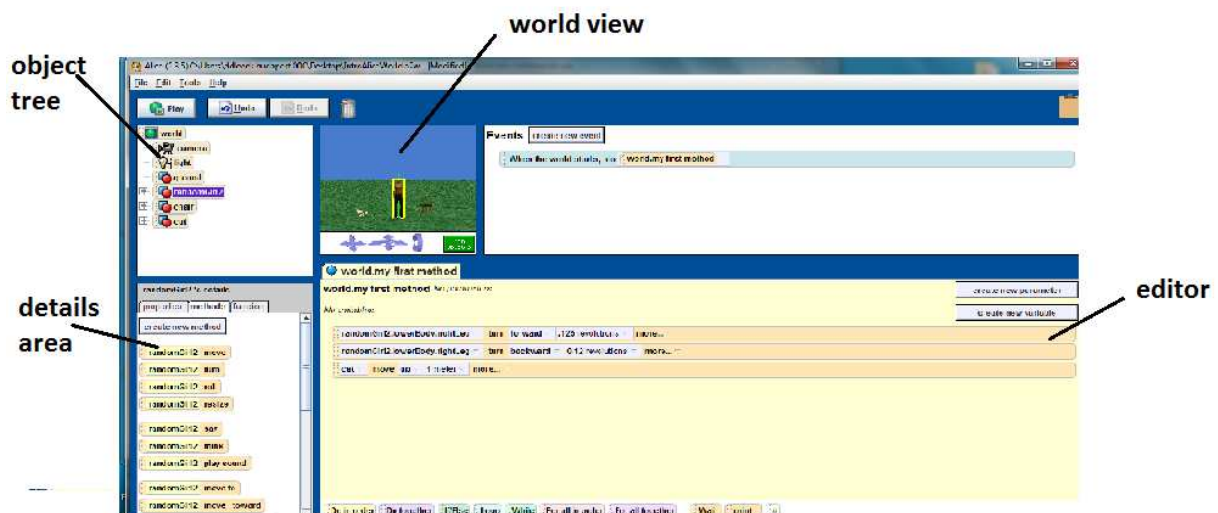


Several basic methods can be placed together to be performed at the same time, or to be performed in a certain order, thus defining a more complex method. (This relates to the idea of function composition we covered in class.)

We will use Alice 2.3, available from <http://www.alice.org/index.php>.

In the programming environment, there are four main windows:

- **World view** shows the present visual state of the virtual world
- **Object tree** shows the objects present in this world
- **Details area** provides actions that can be performed by the currently select object (and other information)
- **Editor** allows us to specify a combination of actions



The following tutorials will show us how to build up a world of characters (objects), how to cause those objects to act in the world, and how to build up more complex actions from simpler ones.

- Tutorial 1 shows us how to place multiple actions together to be performed. It also introduces us to the Alice program in general.
- Tutorial 4 shows us how to place characters in a scene.
- Tutorial 2 shows us how to define a more complex action as a combination of simpler ones.