

Lecture 4

Classes, Objects, Methods, Parameters, Functions, Variables

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Discussion

1. How does decomposing a user story into scenes and shots help you organize the components of an Alice program?
2. What is the difference between a world method and an object method?
3. What is the value of adding comments to a program?
4. How does the use of dummy markers simplify the process of changing the **camera object's point of view**?
5. What is meant by the assertion that an Alice object has six degrees of freedom?

Reminders

1. You should have finished the first three chapters of the text by now (reading not writing).
2. You should be reading chapter 4.

Classes

What is a class?

a Class

- is a blueprint for building objects
- defines a particular kind of object

Ex. Person, Dog, Tree, House

Objects

What is an object?

an Object

- is an instance of a class

all objects of the same class share some commonality



Variables

What is a variable?

a Variable is

- a named container for storing/retrieving data

there are:

- world variables (**global**)
- method variables (**local**)
- parameter (**variables passed to a method/function**)
- object property (**stores the object's property**)

Methods

What is a method?

a Method

- is a coordinated sequence of statements that will be carried out when requested

object methods are used to pass messages to that object
world methods are used to divide and structure programs

- defined in a class
- called upon (or used) through an object

The World

Q: Is the World an object?

A: Yes

Q: Then why do we distinguish between world methods and object methods?

A: Object methods define the object's behavior;
World methods define the world's behavior & structure in which all of our objects are created.

Functions

What is a function?

a Function

- is similar to a method
- allows you to check a certain condition within
 - a world while an animation is running
 - an object
- returns a value

We will explore functions deeper in Ch.6

Parameters

What is a parameter?

a Parameter

is a variable passed to a method or a function

we want to generalize methods and functions so that we can reuse them multiple times

```
object.method(parameter);  
dragon.takeOff() vs. dradon.fly(up);
```

Over to you

Open Alice and load your lab 2 exercises

Identify at least two and their location in Alice:

objects
classes
variables
methods (world & object)
functions
parameters

