

# Classes and Objects



Classes are code templates providing a common place to store values and behaviors (functions).

Objects are variables that are created from a class.

Differently to many other languages, Lua does not have built-in classes, but you can easily define classes by putting variables and functions in lists.

## Creating a point class

```
local Point = {}  
function Point:create()  
    local point = {}  
  
    point.x = 0  
  
    function point:action()  
        -- code with the action  
    end  
  
    return point  
end
```

## Creating an object from a class

```
vertex= Point:create()  
vertex:action()
```

## The anatomy of a class

- The class is "contained" in a list (called here `Point`, with a capital "P"; in your code you will use a specific name for your class, instead of `Point`)
- The list only contains a constructor called `create`.
- The constructor first defines a new list (`point`), then adds the internal variables (`x`) and functions (`action`) to the list. Finally the constructor returns the local variable. It's this variable that will become the object in the "main" code.

## The object

- The object is created by calling the `create()` function of `Point`.

## Class modules

Most of the time you will put the class in a separate file: create a file containing a local definition of a class and returning the local variable at the end of the file.

## To be noted

- The name of the class starts with a capital letter;
- Per convention, we always call the "constructor" `create()`.
- The name of the variable containing the class implementation starts with a lowercase letter (`point`).
- the function in the class are defined and called by using a semi colon and not a dot.