Lab 4 – MEL scripting

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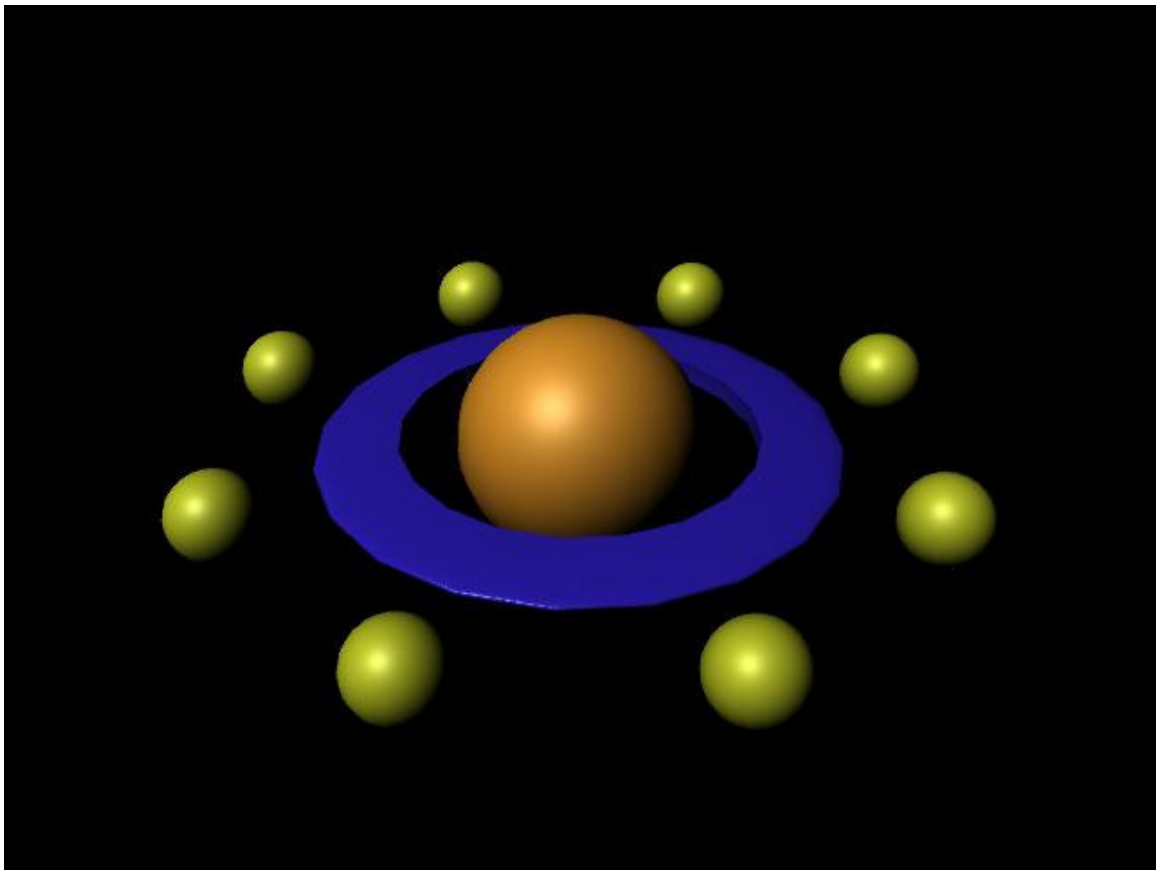
Today you'll learn about Maya scripting language – MEL. Try to create any object in Maya (cube for example) and you will see MEL instruction in the gray box on the bottom of the screen, which was used to construct the object.

Click on the button  next to the gray box to start the MEL editor. Try typing `sphere` and press `Ctrl+Enter` . As you see you can type commands straight into MEL editor but generally it is easier to use text editor and then load the script.

Strange planet



Your task is to create image as above using MEL scripting. Start by creating a file planet.mel and opening it in a text editor. Now follow the directions below and after every step copy the instruction displayed in top window of MEL editor to your script. Look at the commands but you don't have to understand all the options

- We start with a ring - create a sphere of radius 5
  - Flatten it so it looks like a cookie (use scale tool)
  - Create another sphere of radius 3
  - Now you will create the ring around the planet by subtracting the sphere from the cookie using Boolean operations. Select the cookie first, then select the sphere and choose Polygons->Booleans->Difference from the menu
  - Create the sphere of radius 2 – this will be the planet
- At this point save your work and your script, then open a new scene, load your script (in MEL editor File-> Open Script…) and run it (Ctrl+Enter) to check if it works correctly
- Now we create the moons:
  - Create a sphere of radius 1 – this will be one of the moons
  - Move the sphere outside of the ring along the X axis
  - Group the moon under it's origin to allow rotation around the center of the scene. From the menu select Edit->Group  (make sure the sphere is selected) and choose group under Parent and group pivot Origin
  - Now you will duplicate the moon but only ONCE – so you can practice loops on your own. Select Edit->Duplicate  , then reset settings and set rotation to 45 degrees along Y axis
  - In your script create a loop that performs the duplication above 7 times:

```
for ($i=1; $i<=7; ++$i) {
//duplication instructions here
}
```

- Now save your script, open a new scene and load your script to see if it creates a planet with a ring and 8 moons
- The final step is to add variables that will control the number of the moons and the size of the scene. Declare the variables on the beginning of your script:

```
int $number_of_moons=10;
float $scale_factor=1.5;
```

  You now have to use these variables in your script. All moons should be placed symmetrically around the planet so the angle of rotation will change with the number of the moons. Multiply all radiuses as well as all transformations by scale factor to control the size of the scene.