

CSE2040

Drone Applications, Components and Assembly

Lab L43+L44

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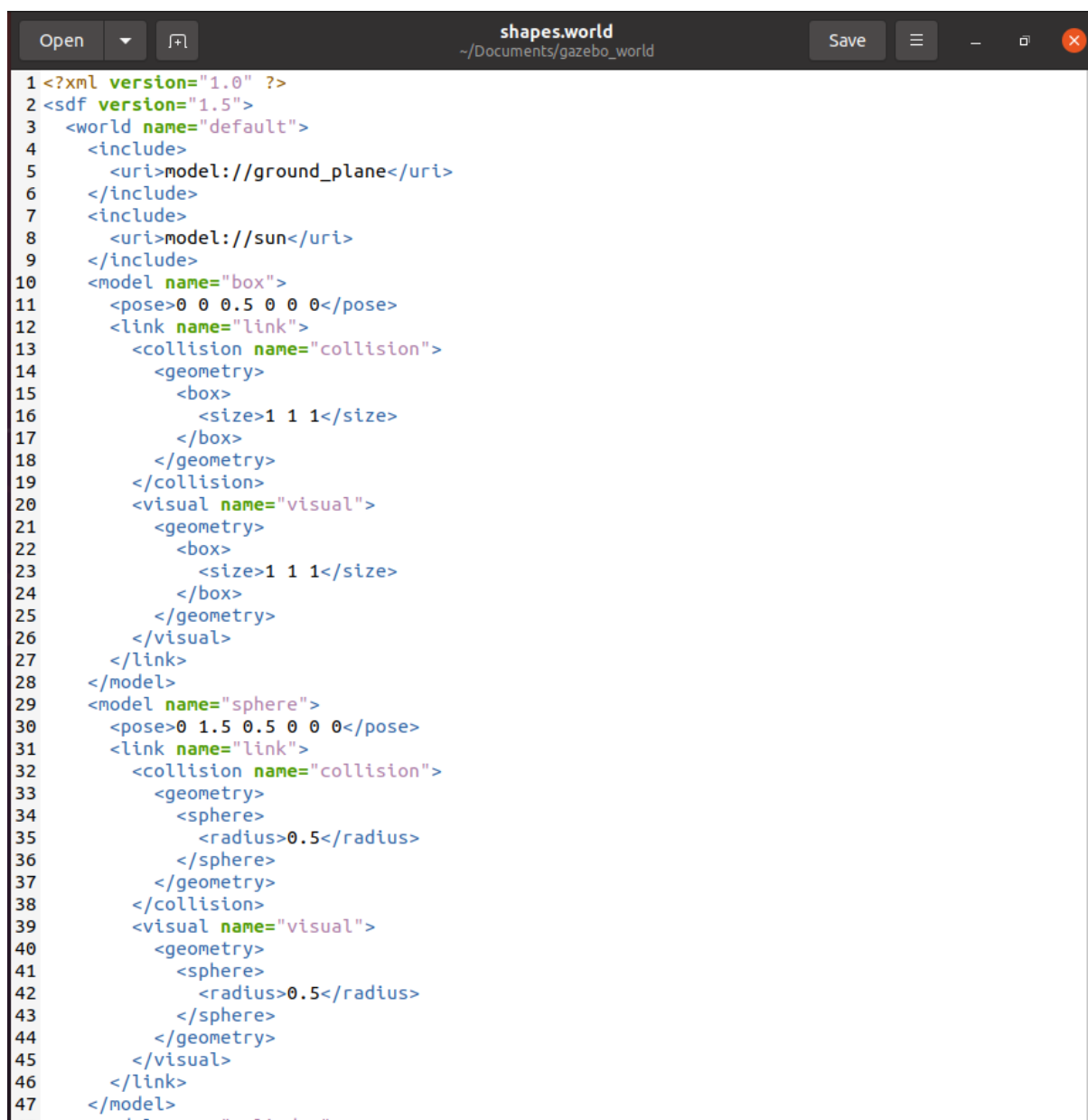
Lab Assignment 4

Aim: To change the world in Gazebo

Steps:

1. Create a new world or duplicate on of the existing worlds:

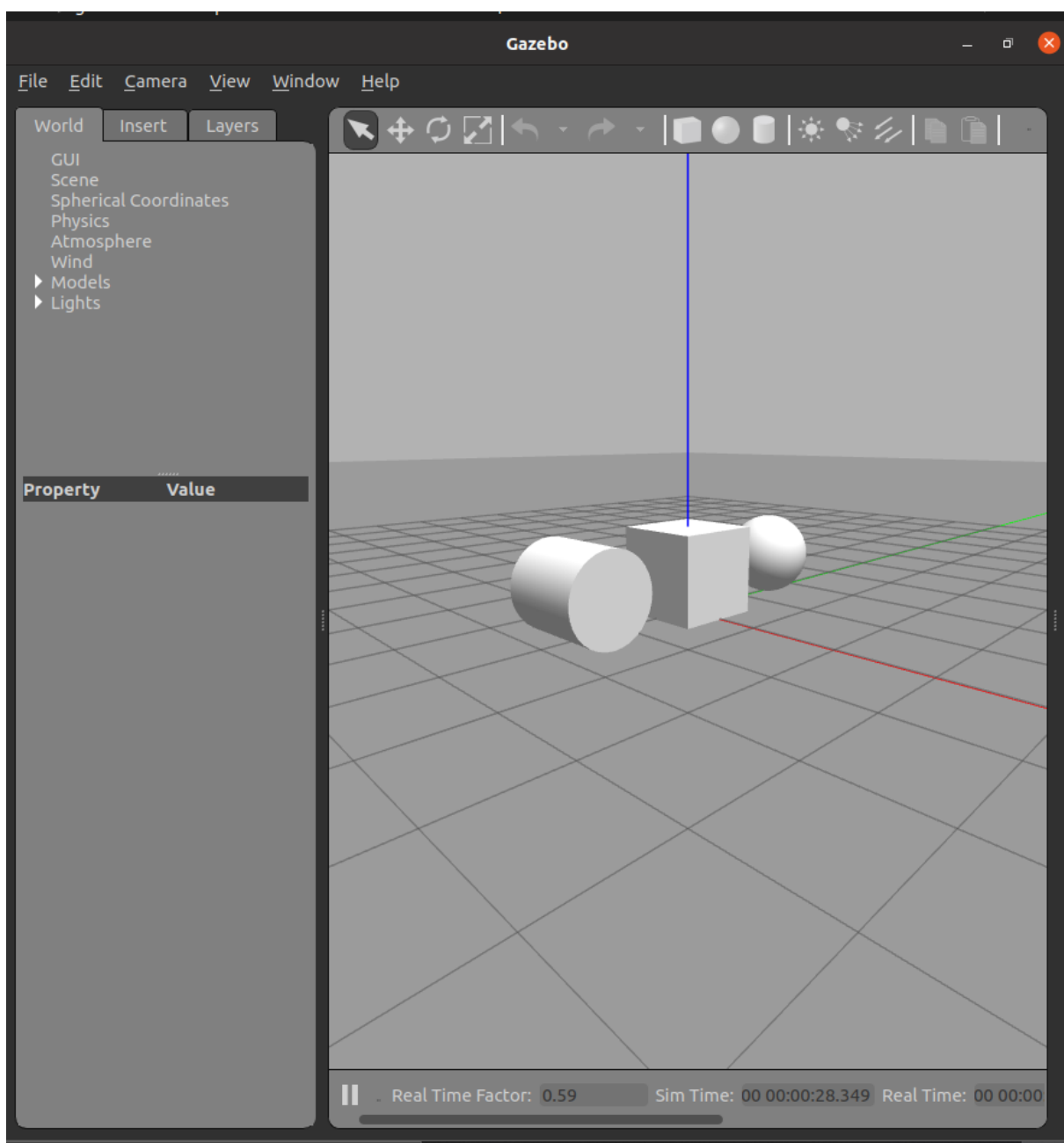
shapes.world file:

A screenshot of a text editor window titled 'shapes.world' with a file path '~/.Documents/gazebo_world'. The editor contains XML code for a Gazebo world. The code defines a world named 'default' which includes a ground plane and a sun. It also defines two models: a 'box' and a 'sphere'. The 'box' model has a collision link named 'collision' with a box geometry of size 1x1x1, and a visual link named 'visual' with a box geometry of size 1x1x1. The 'sphere' model has a collision link named 'collision' with a sphere geometry of radius 0.5, and a visual link named 'visual' with a sphere geometry of radius 0.5. The code is as follows:

```
1 <?xml version="1.0" ?>
2 <sdf version="1.5">
3   <world name="default">
4     <include>
5       <uri>model://ground_plane</uri>
6     </include>
7     <include>
8       <uri>model://sun</uri>
9     </include>
10    <model name="box">
11      <pose>0 0 0.5 0 0 0</pose>
12      <link name="link">
13        <collision name="collision">
14          <geometry>
15            <box>
16              <size>1 1 1</size>
17            </box>
18          </geometry>
19        </collision>
20        <visual name="visual">
21          <geometry>
22            <box>
23              <size>1 1 1</size>
24            </box>
25          </geometry>
26        </visual>
27      </link>
28    </model>
29    <model name="sphere">
30      <pose>0 1.5 0.5 0 0 0</pose>
31      <link name="link">
32        <collision name="collision">
33          <geometry>
34            <sphere>
35              <radius>0.5</radius>
36            </sphere>
37          </geometry>
38        </collision>
39        <visual name="visual">
40          <geometry>
41            <sphere>
42              <radius>0.5</radius>
43            </sphere>
44          </geometry>
45        </visual>
46      </link>
47    </model>
```

```
meher@ubuntu: ~$ cp /usr/share/gazebo-11/worlds/shapes.world Documents/gazebo_world/shapes.world
meher@ubuntu: ~$
```

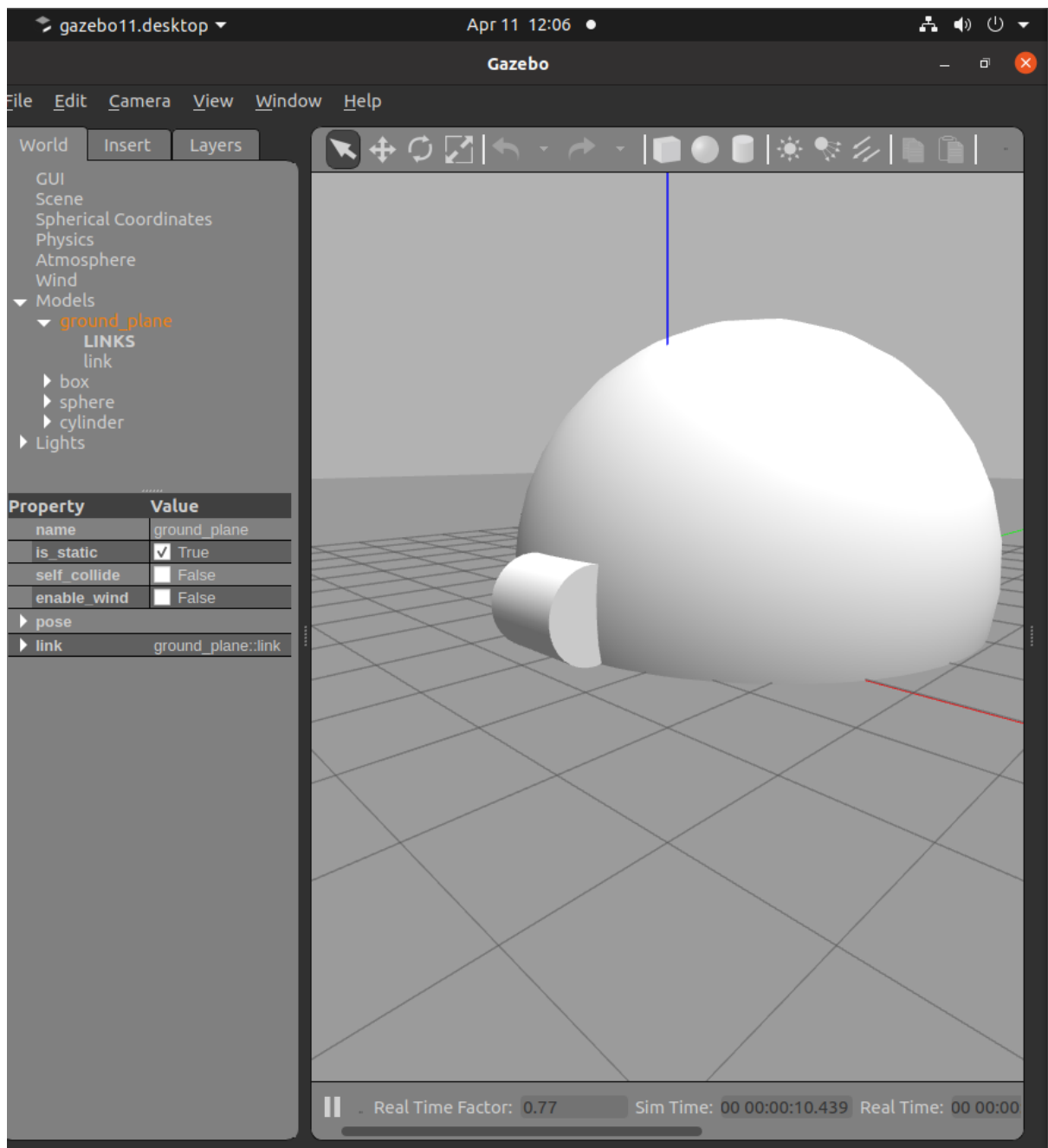
```
meher@ubuntu: ~/Documents/gazebo_world$ gazebo shapes.world
```



2. We can make changes to the file, for example, lets increase the size of the sphere in the world file.

```
31     <link name="link">
32       <collision name="collision">
33         <geometry>
34           <sphere>
35             <radius>0.5</radius>
36           </sphere>
37         </geometry>
38       </collision>
39       <visual name="visual">
40         <geometry>
41           <sphere>
42             <radius>3</radius>
43           </sphere>
44         </geometry>
45       </visual>
46     </link>
47 </model>
```

3. We can see the size of sphere has increased in gazebo



Conclusion:

Gazebo SDFWorld was changed by changing a few parameters within the world file.