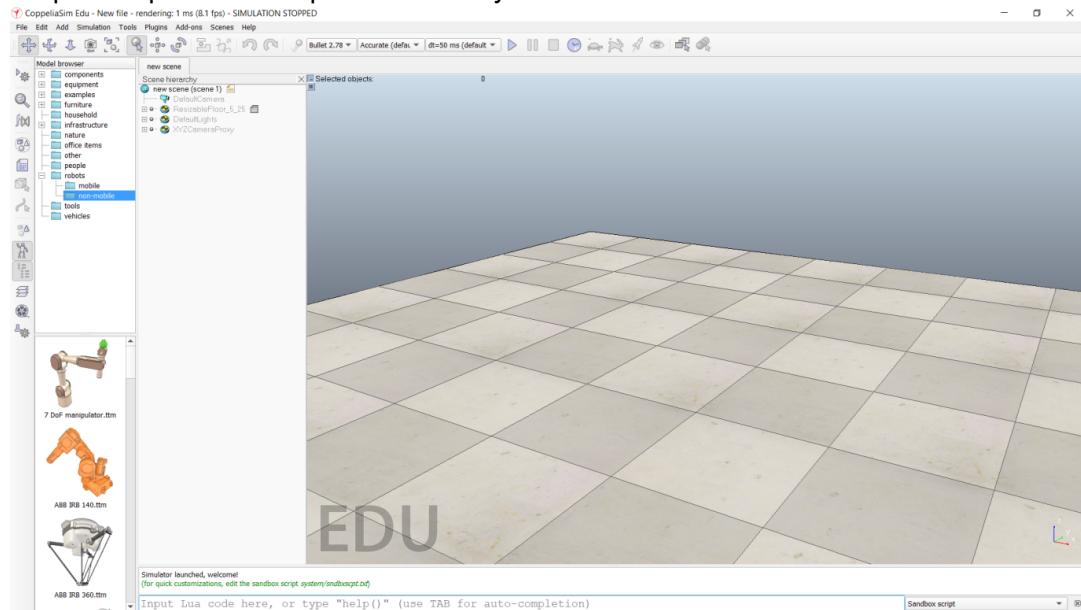


V-REP SIMULATION OF SPRING MASS DAMPER SYSTEM

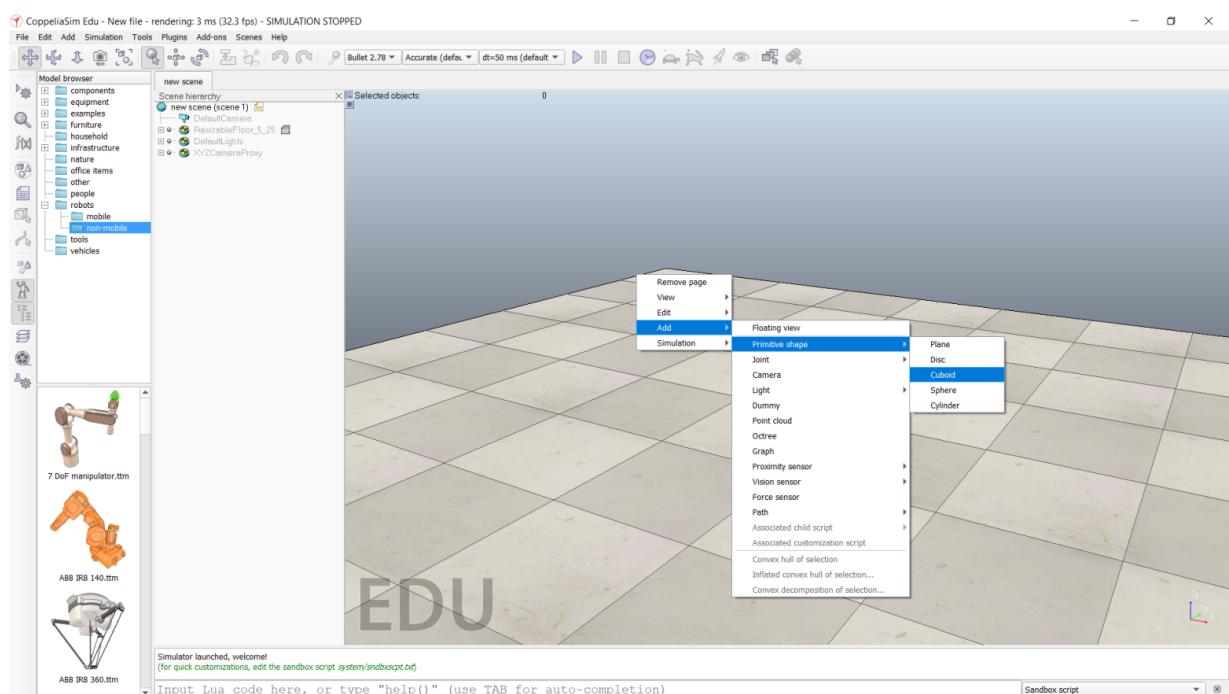
May 26, 2020

Task 5: Simulate this system in V-rep simulator and plot time domain graph there also.

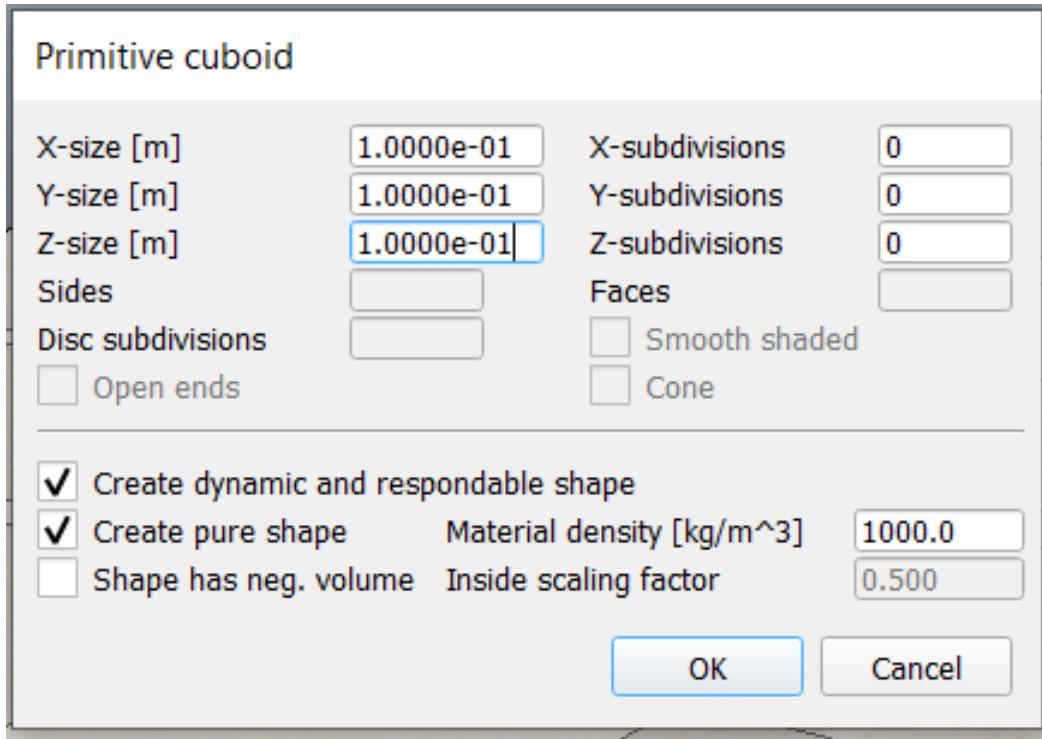
Step 1. Open the v-rep software in your device. You will see the user interface like this...



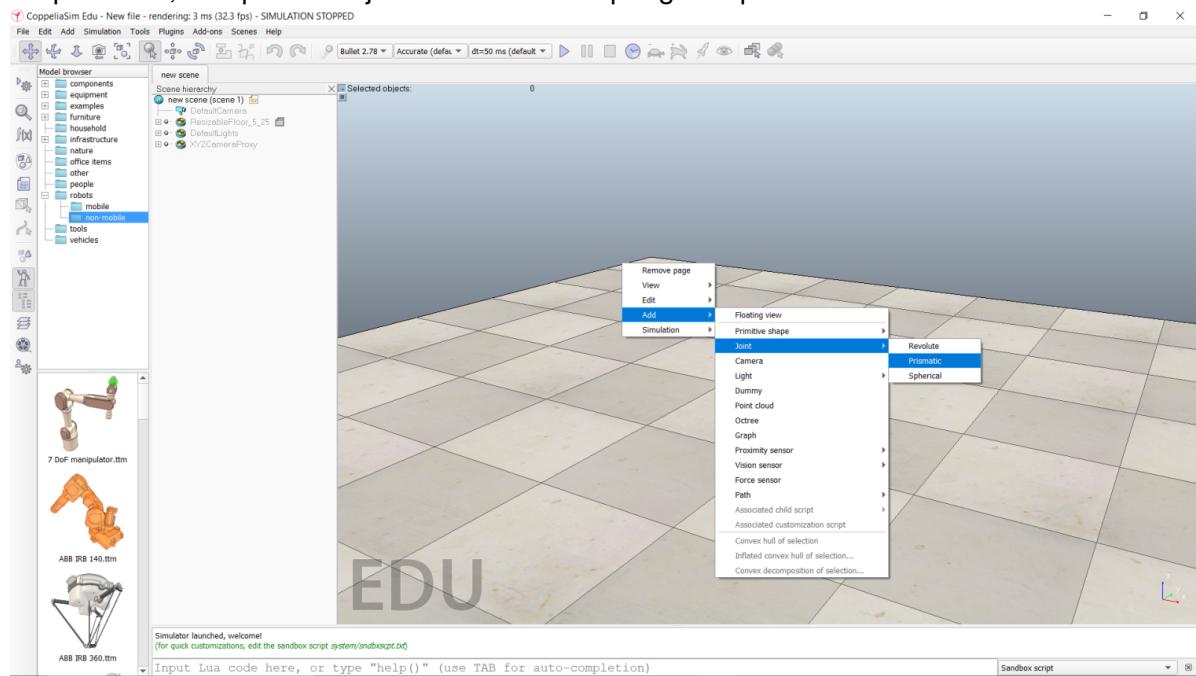
Step 2. Now , to add any object right click the mouse »add»primitive shape»cuboid...



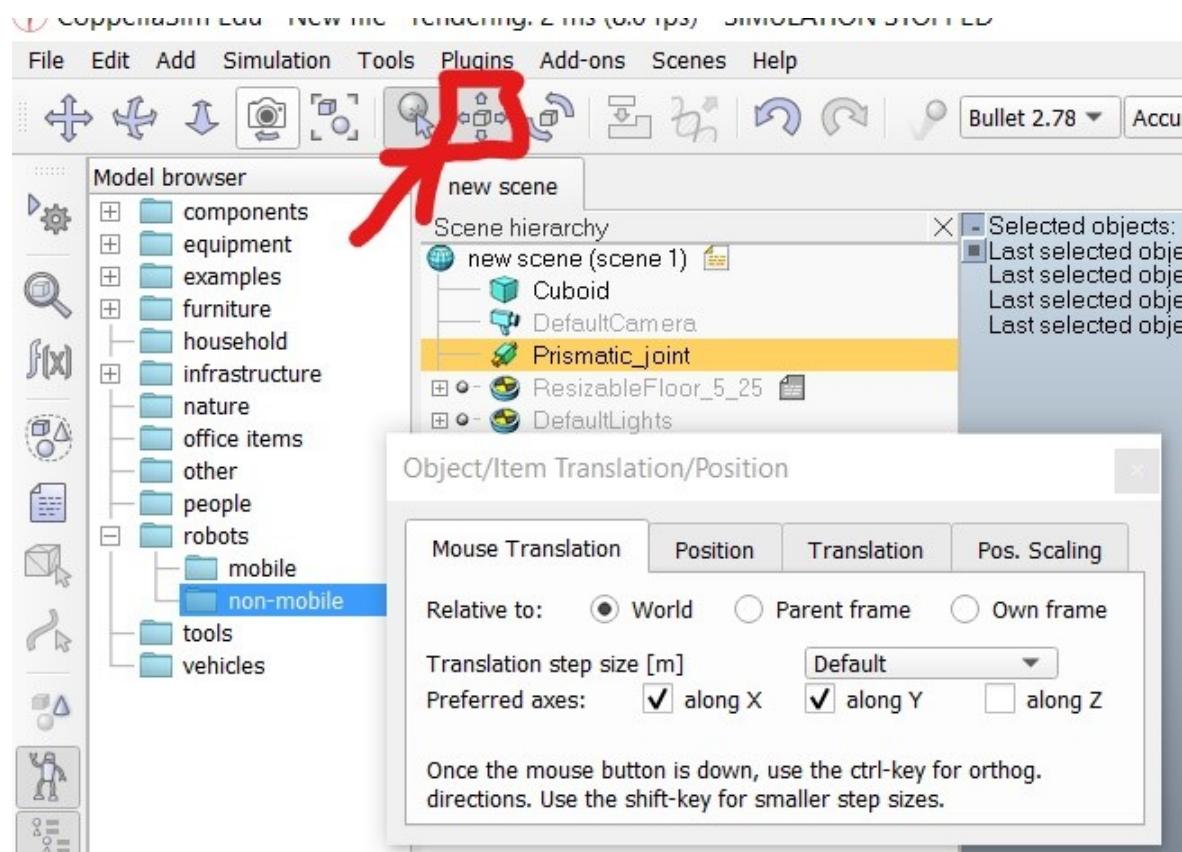
Set the dimension of the cuboid..



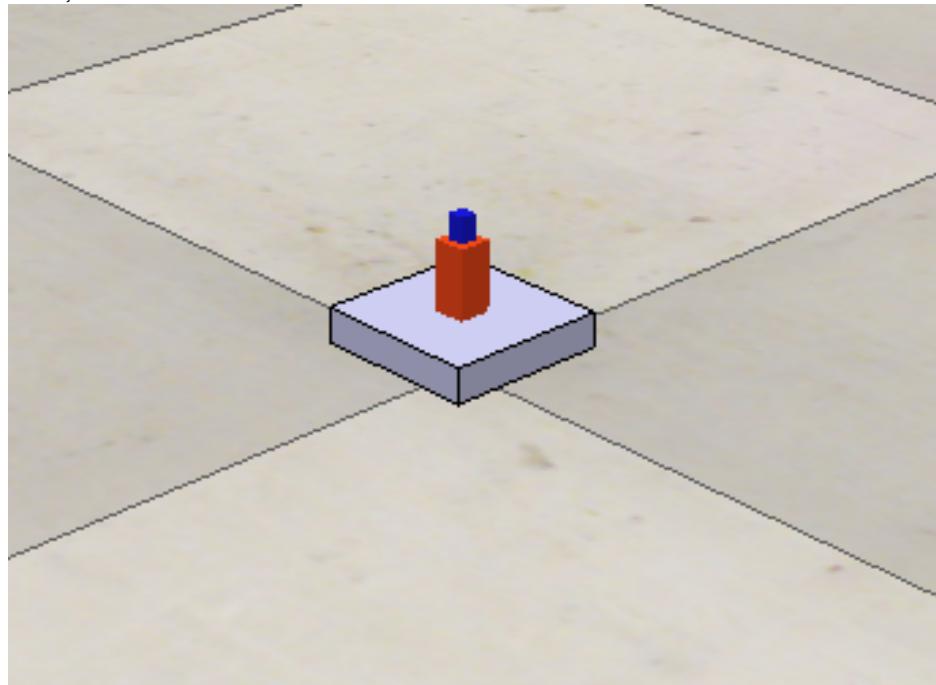
Step 3. Now, add prismatic joint which act as spring damper in our case...



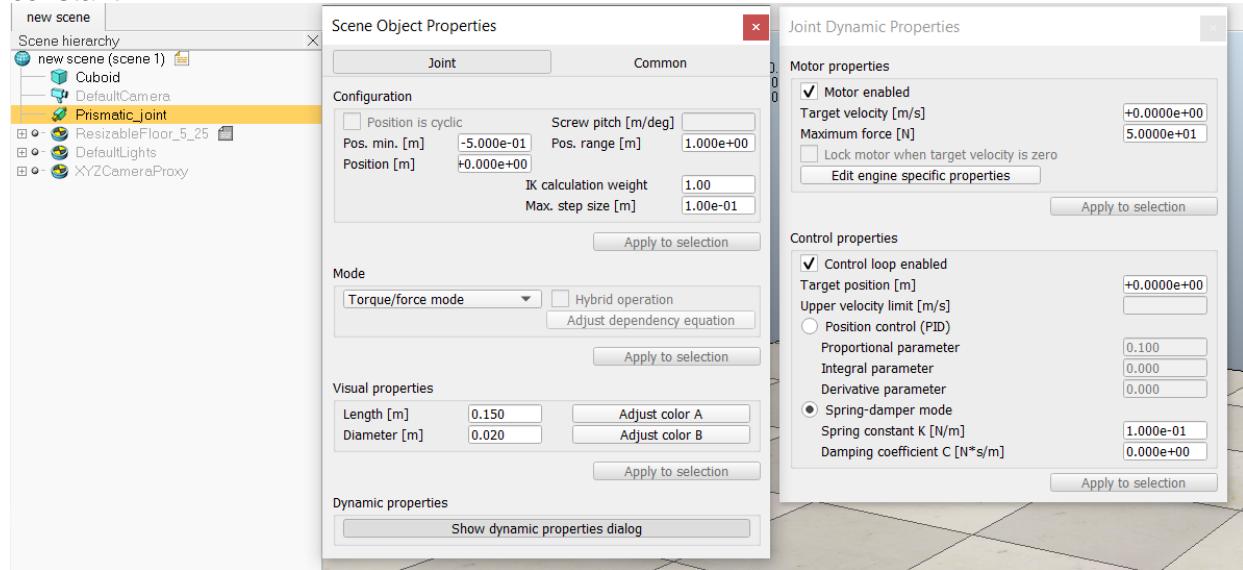
Align the cuboid and prismatic joint by translation function in top left corner by clicking on object



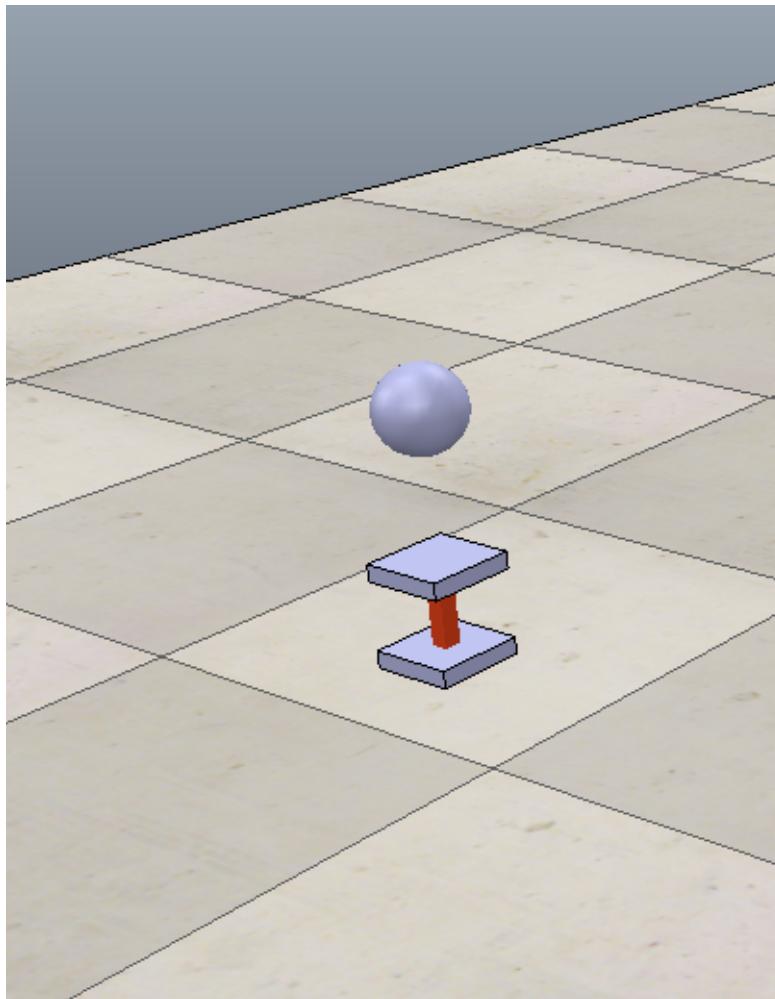
Now, our model will be look like this



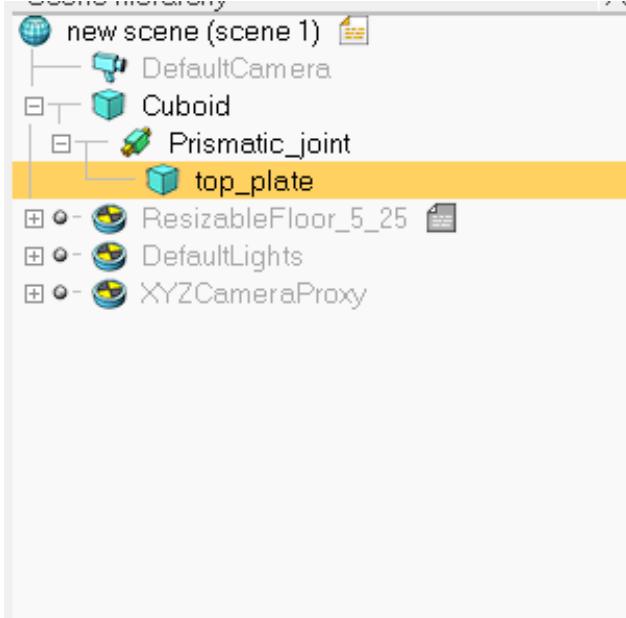
Step 4. This is the main step, now, we have to make prismatic joint as a spring damper for that double click on object » show dynamic properties » enable motor(set the configuration)»enable control» choose Spring Damper(configure various constant like spring constant and damping constant



Step 5. Add another cuboid follow the step 1 and then add one sphere as shown in the figure and also align it properly as shown in the figure.



Step 6. Now we have to establish parent-child relationship for all the body so, it should move in correct manner. Set base cuboid as a parent of the prismatic joint and top cuboid as a child of prismatic shape in scene hierarchy as shown in the figure...

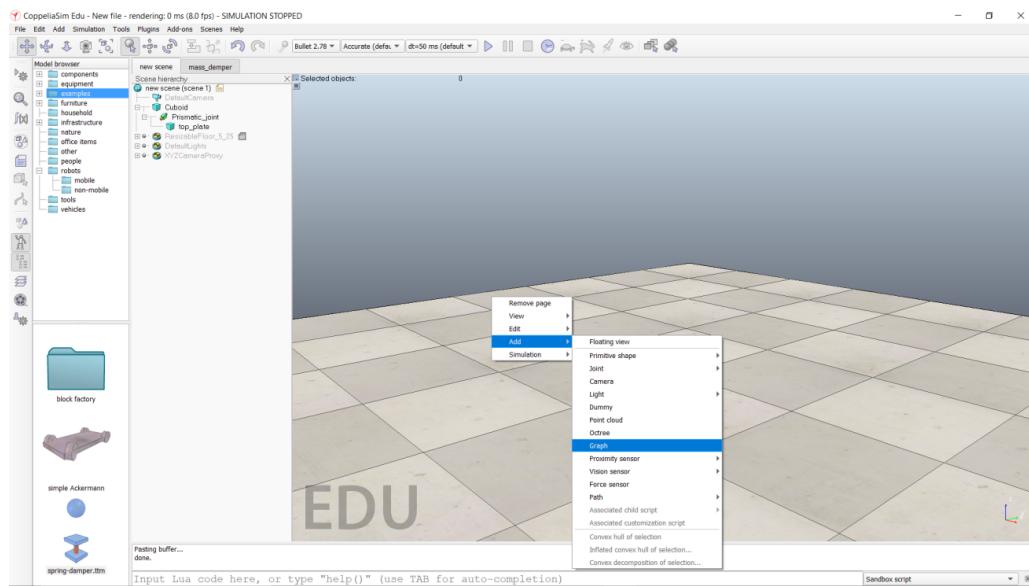


Now, we simulate the model by clicking this icon at top middle bar as shown in the figure...



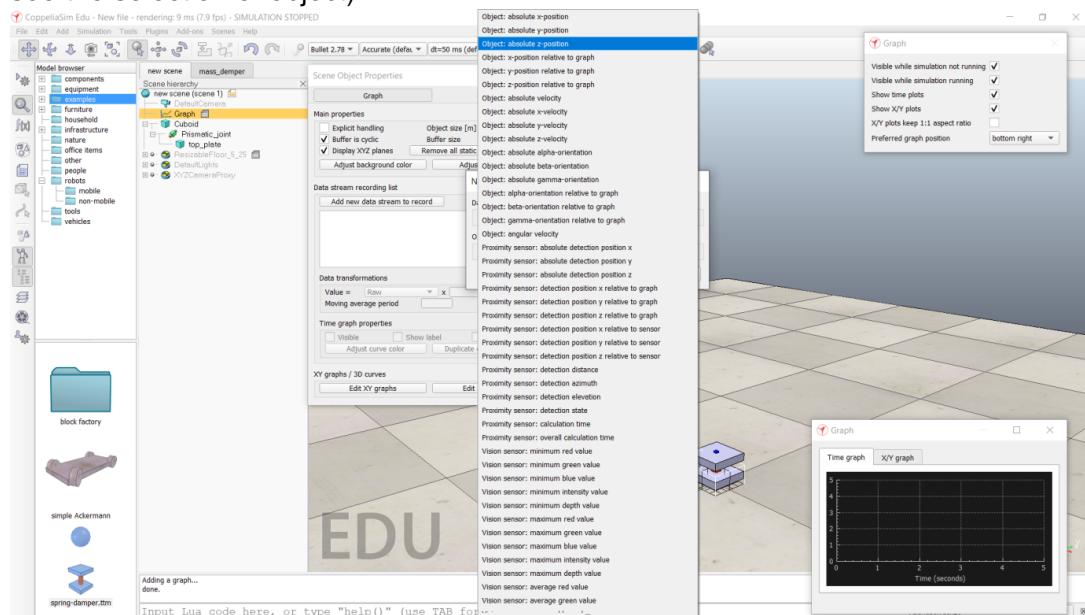
You can see that, when you click it simulation starts and sphere hit the surface of the top cuboid and there some displacement in the z-axis of the top plate.

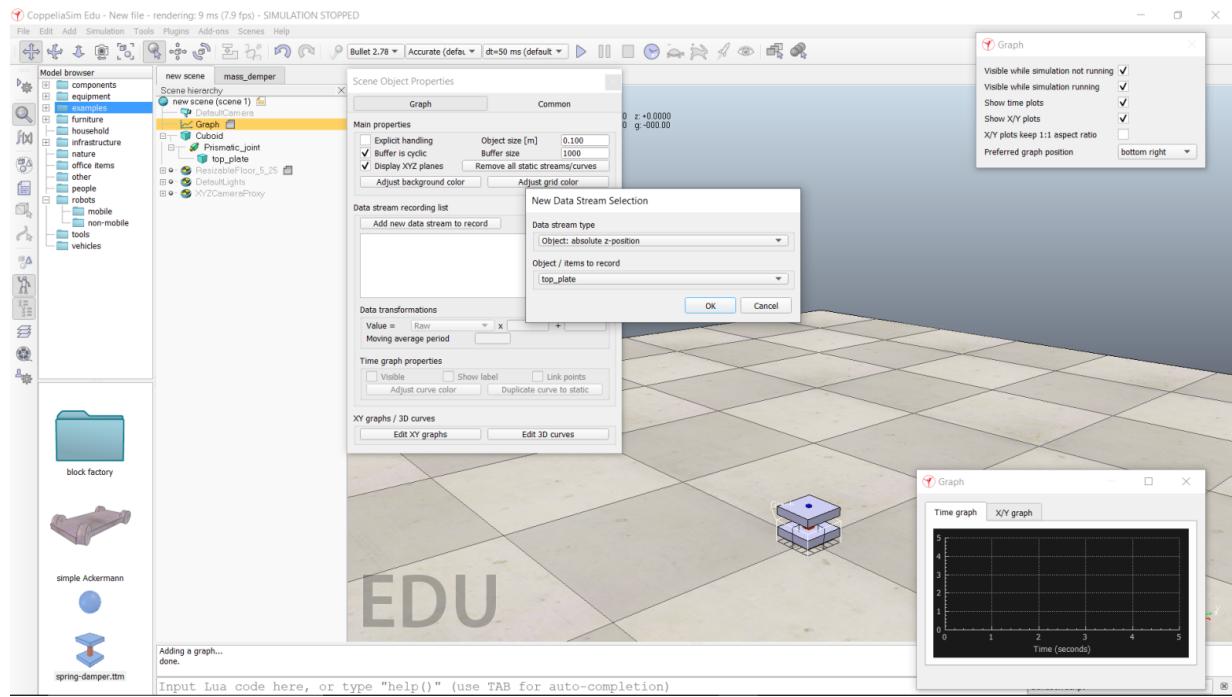
So, we will have to plot graph to see its behavior.....



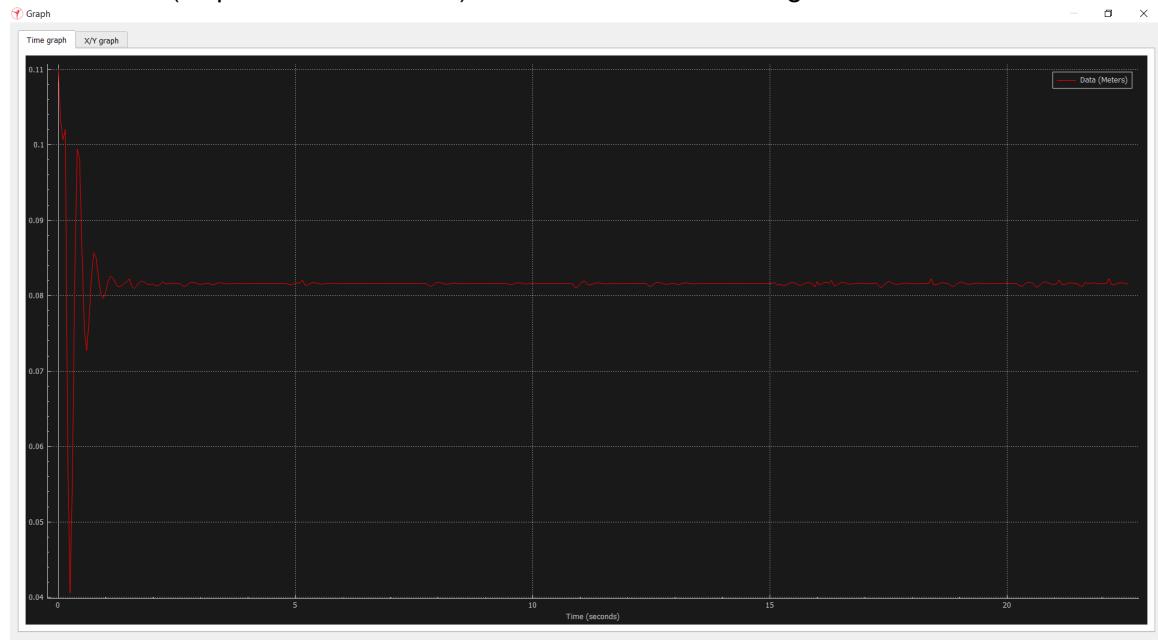
Step 7 Right click mouse and follow step 1 and you can see there is graph option in it...

Now, you have to add the axis and the object whose behavior you want to see. So, double click on graph at scene hierarchy then select axis and object by clicking on add new data stream to record as shown in the image(in this you can see the selection of axis and in the next image you will see the selection of object)





Select ok. Now all the thing is set then, select simulate option to see its behavior. And the graph of the model(displacement v/s time) is shown in the next image...



And that's all for the v-rep for Spring mass damper system.