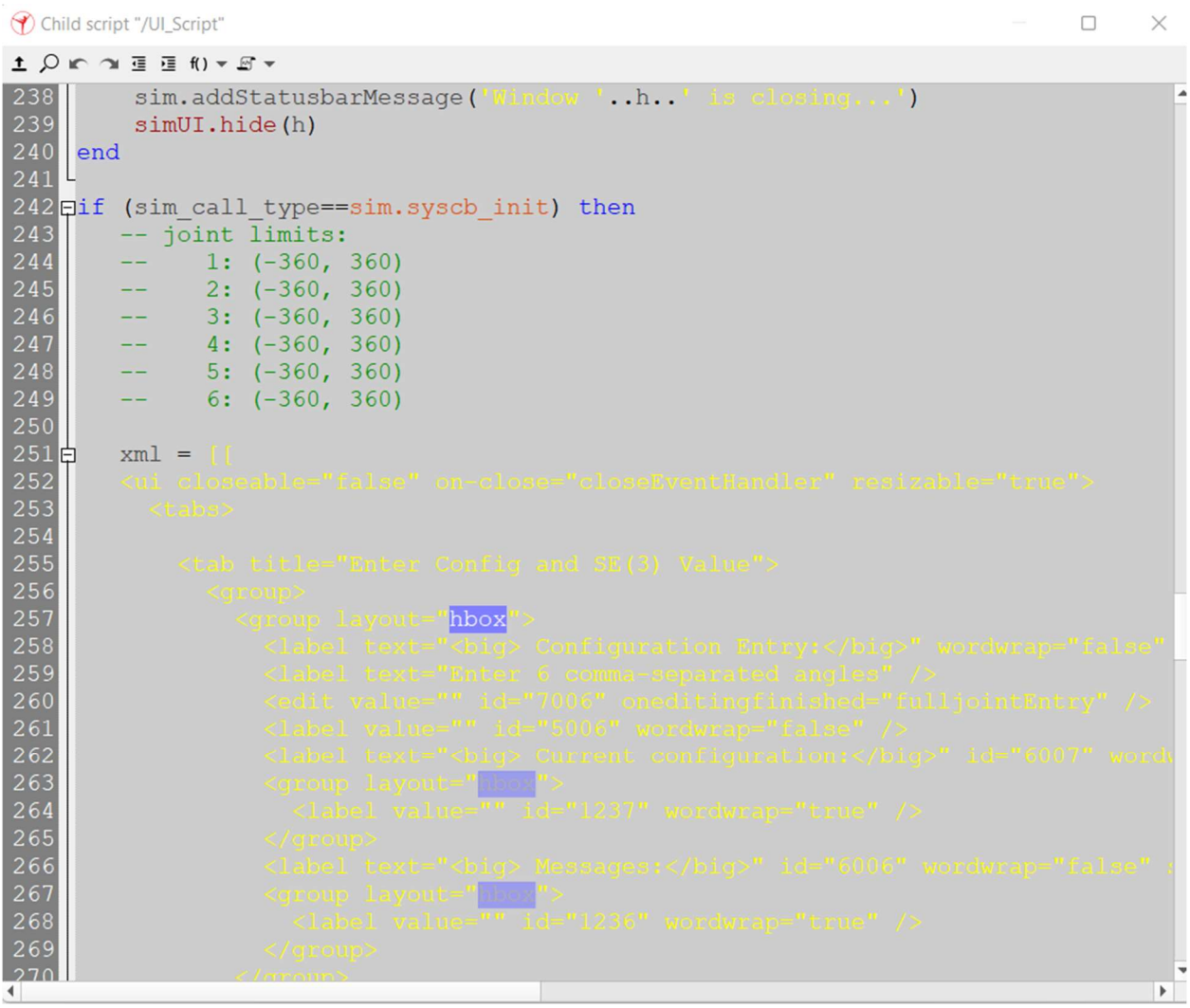
ME449 Homework 1

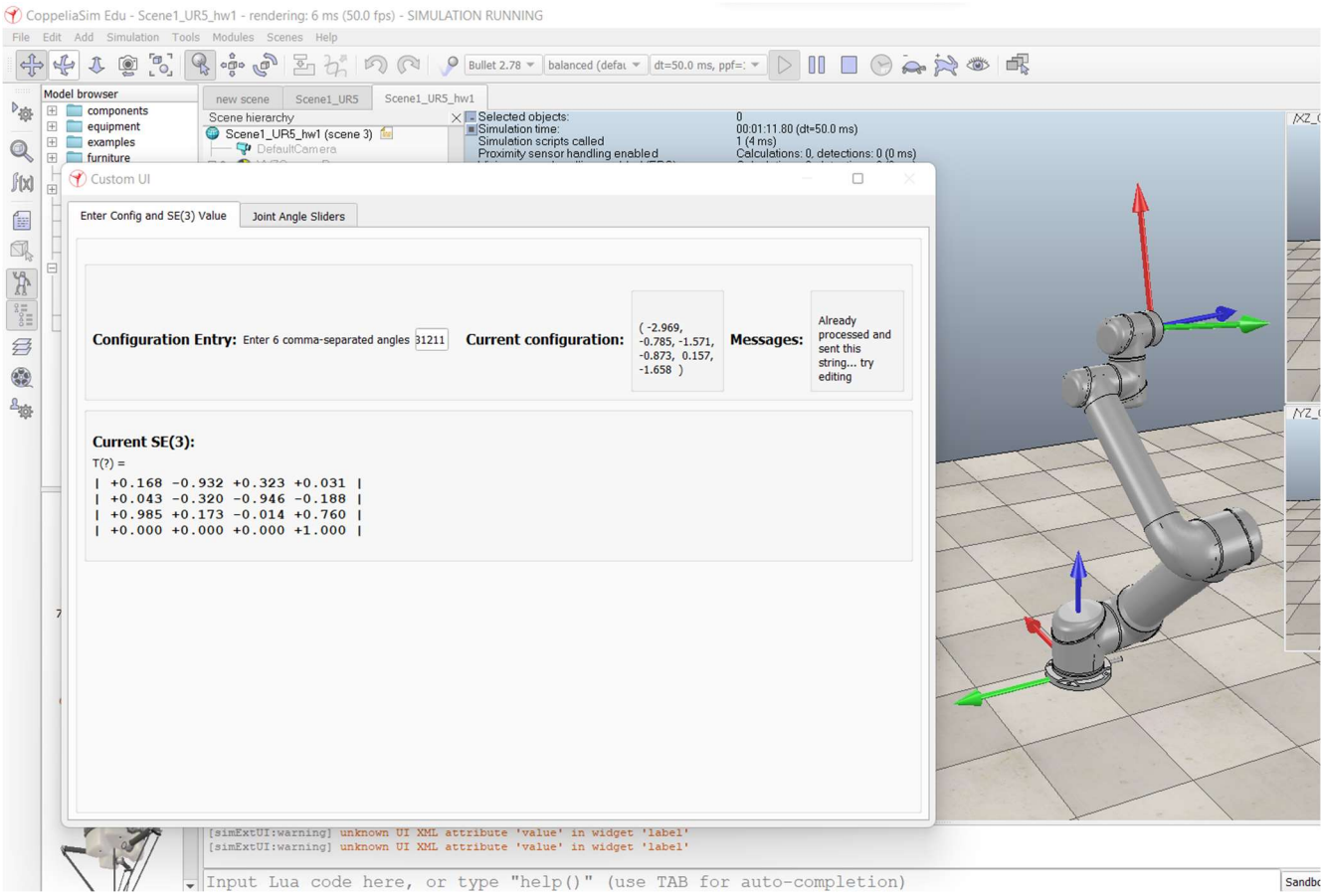
Sean Morton, 10/14/22

Part 1B



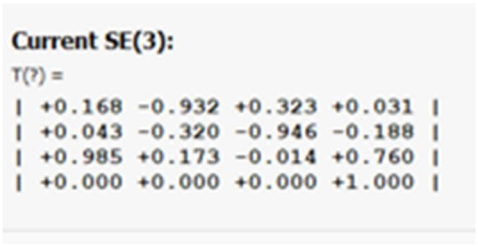
This is the UI script for Scene 1 in CoppeliaSim. I changed the group layouts of the UI so that all the vertical boxes “vbox” were changed to horizontal boxes “hbox”.

Parts 1B + 2



This is a screenshot of my CoppeliaSim Scene, showing:

- The changes to the UI I made
- The position of the robot after moving to the joint angles calculated in my Python script
- The SE(3) matrix corresponding to the orientation of the robot. The rotation matrix within the SE(3) representation is approximately equal to the rotation matrix Rsb I calculated in Python, within 2 decimal places. Below: comparison between CoppeliaSim and Python output

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Rotation matrix Rsb:
[[0.1676 -0.9308 0.3250]
 [0.0434 -0.3224 -0.9456]
 [0.9849 0.1726 -0.0136]]
```

See attached for Python code + full outputs