Lab 1

Download the pset files in a .zip

[Download here a .zip file with the python files that you will need. (lab1/lab_1.zip)](lab1/lab_1.zip)

Introduction

There are two types of files in this lab.

- Some `.py` file(s).

  These files contain the implementation of the functions used to control the robot. You will be completing/modifying certain parts of these files.

- Model/resource files.

  `.sdf`, `.obj` and `.npy` files fall under this category. They are used to represent robots and point clouds.

How to do this Lab

Please go to 38-530 at the beginning of your scheduled time. Make sure that you've done Pset 3 and the following steps before you arrive. Bring your computers.

To run the code, do this. (Make sure to have the bash script in your terminal's working directory, and specify the path to the `lab_1` unzipped folder)

```
## use the bash script for your system
./docker_run_bash_linux.sh drake-20181024 /path/to/lab1
```

For example if you have the `lab_1` directory in the same parent directory as the `docker_run_bash_linux.sh` script, you can run:

```
## use the bash script for your system
./docker_run_bash_linux.sh drake-20181024 lab_1
```

Then, start `meshcat-server` and then run `python run_manipulation_station_simulator.py`. This should run a very simple trajectory for the robot in the simulated station environment. You should see something like this:
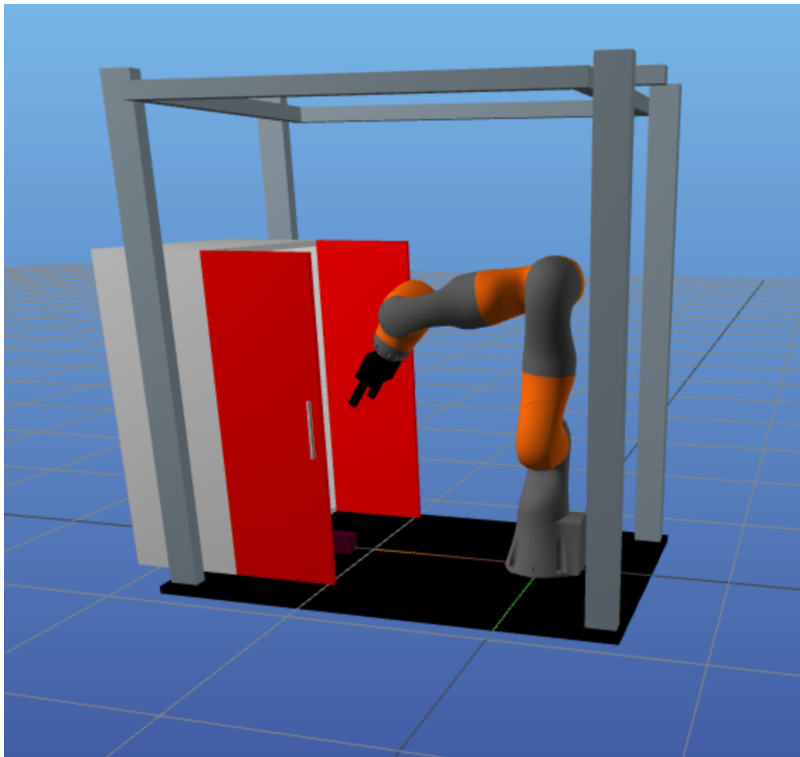
Modify the `GenerateIiwaPlansAndGripperSetPoints` function so that you pick up the little brick and place it in the open cupboard. We will provide a mechanism for getting the pose of the purple brick by using the camera; we will fill in the details when you get to lab.

If you have time and want to experiment with trajectories to open or close the doors that would be great, but we don't require that you do that.

The focus of this lab will be on experiencing the process of going from a simulated program to one that runs on the actual hardware. As far as your program is concerned, it should just require changing the value of the `is_hardware` flag, but there are a number of manual steps to connect to the robot and verifying that everything runs as expected. We wil go through that with you in lab. We are still working out the kinks in this process; we appreciate your patience (and suggestions).

Good luck and have fun!

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