README

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1 Running our Code

1. Move `bigredrobot_proj1` directory into `ros_ws/src/`
2. Run `catkin_make` in the `ros_ws` directory
3. Run `source ros_ws/devel/setup.bash` (in each terminal you open)
4. When using Baxter ensure you have run `baxter.sh` before launching and Baxter is positioned with the right gripper around the top block in the stack, with gripper arms pointing down and on either side of the stack, looking from the front. If running the single-arm controller, locate the stack slightly to Baxter's right from the center of the joint workspace (closer to the center of the right-arm workspace).
5. Start up our code (1 of 2 ways)
   - ROS Launch
     - Run ROS Launch `roslaunch bigredrobot_proj1 <launch file>` from one of our launch files below:
       - `sim.launch` - Symbolic, 1 arm, Stacked Descending, 5 Blocks
       - `robot.launch` - Robot, 1 arm, Stacked Descending, 6 Blocks
       - `bimanual_sim.launch` - Symbolic, 2 arm, Stacked Descending, 5 Blocks
       - `bimanual_robot_asc.launch` - Robot, 2 arm, Stacked Ascending, 6 Blocks
       - `bimanual_robot_desc.launch` - Robot, 2 arm, Stacked Descending, 6 Blocks
   - ROS Commands
     - Set ROS parameters using `rosparam set`
       - `num_blocks` Number of blocks in stack
       - `num_arms:=<1|2>` Number of arms used by controller (setting this to 1 uses the right arm only)
       - `configuration:="stacked_ascending" | "stacked_descending>"` Initial block configuration
       - `symbolic_only:=<true|false>` Switch variable to control whether just the symbolic simulation is run, or whether Baxter is also initialised and controlled.
     - Start up the robot_interface `rosrun bigredrobot_proj1 robot_interface.py`
     - Start up the controller `rosrun bigredrobot_proj1 controller.py`
6. Send a command to Baxter via ROS topic command `rostopic pub /command std_msgs/String "<command>"`. Ensure the `robot_interface` node has succesfully started (a log message will print) before sending one of the following commands:
   - "scatter"
   - "stack_ascending"

- "stack_descending"
- "stack_odd_even"

7. When the control policy has finished executing, another command may be sent using the above method. Sending another command during control policy execution will not effect operation.