16-662

Robot Autonomy HW3

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**Q2.**

Code snippet for action 1 (the robot can move to a pantry if it is in the kitchen):

### Move to Pantry

Precond=np.zeros([nrObjects, nrPredicates])

# TODO: Robot in the kitchen and Robot not in the pantry

Precond[0][1] = 1

Precond[0][5] = -1

Effect=np.zeros([nrObjects, nrPredicates])

# TODO: Move robot from the kitchen to the pantry (remove from kitchen and add to pantry)

Effect[0][1] = -2

Effect[0][5] = 2

ActionPre.append(Precond)

ActionEff.append(Effect)

ActionDesc.append("Move to Pantry from Kitchen")

Code snippet for action 2 (the robot can move to the kitchen if it is in the pantry):

### Move from Pantry

Precond=np.zeros([nrObjects, nrPredicates])

# TODO: Robot not in the kitchen and Robot in the pantry

Precond[0][1] = -1

Precond[0][5] = 1

Effect=np.zeros([nrObjects, nrPredicates])

# TODO: Move robot from the pantry to the kitchen (remove from pantry and add to kitchen)

Effect[0][1] = 2

Effect[0][5] = -2

ActionPre.append(Precond)

ActionEff.append(Effect)

ActionDesc.append("Move to Kitchen from Pantry")

Code snippet for action 3 (the robot can cut fruit if the robot, knife, and fruit are in the kitchen and the fruit has not been cut):

###Cut fruit in kitchen

for j in [1,2]:

Precond=np.zeros([nrObjects, nrPredicates])

# TODO: Robot in the kitchen, fruit in the kitchen, knife in the kitchen, fruit not chopped

Precond[0][1] = 1

Precond[j][1] = 1

Precond[4][1] = 1

Precond[j][6] = -1

Effect=np.zeros([nrObjects, nrPredicates])

# TODO: Fruit is chopped

Effect[j][6] = 2

ActionPre.append(Precond)

ActionEff.append(Effect)

ActionDesc.append("Cut "+Objects[j]+" in the kitchen")

**Q3.**

Dijkstra Search:

* Number of vertices after finding path: **5894**
* Length of final plan: **16**

A computer screen with white text

AI-generated content may be incorrect.

A\* Search:

* Number of vertices after finding path: **2005**
* Length of final plan: **16**

A screen shot of a computer

AI-generated content may be incorrect.