**Mingjia Yao, 905302291**

**STATS 232C, Homework 3**

**Some explanations about my results:**

-For the posterior probabilities of the goals, my results are not between 0 and 1, but the results should be proportional to the actual posterior probabilities (refer to the homework description).

-For the calculation of pi (at | st, g), the equation is shown as:

A close up of a logo

Description automatically generated in the homework description.

However, if we use this equation to calculate pi, the result would be extremely large. Therefore, I used log instead of exp to calculate pi.

**Goal A, without gap**

A close up of a piece of paper

Description automatically generatedA picture containing clock

Description automatically generated

Visualization of value of goal A without gap. Visualization of policy of goal A without gap

A screenshot of a cell phone

Description automatically generated

The graph plotting the posterior probability of goal A without gap at each time point for the given trajectory sequences.

The probabilities are proportional to:

[3.1379882404511474, 10.083985411991591, 33.08324092956145, 110.93174740658924, 379.8297746257766, 1324.9363289419246, 4705.747517484912]

**Goal A, with gap**

A picture containing keyboard

Description automatically generatedA picture containing rain

Description automatically generated

Visualization of value of goal A with gap. Visualization of policy of goal A with gap

A screenshot of a social media post

Description automatically generated

The graph plotting the posterior probability of goal A with gap at each time point for the given trajectory sequences.

The probabilities are proportional to:

[3.202847205891906, 10.292411021839404, 33.76703786432827, 113.22459451024147, 387.6804756342923, 1352.321443187641, 4803.010667872254]

**Goal B, without gap**

A picture containing keyboard

Description automatically generatedA close up of a piece of paper

Description automatically generated

Visualization of value of goal B without gap. Visualization of policy of goal B without gap

A screenshot of a cell phone

Description automatically generated

The graph plotting the posterior probability of goal B without gap at each time point for the given trajectory sequences.

The probabilities are proportional to:

[3.121152038274025, 9.977545074384132, 32.63569334856427, 108.91450966094524, 371.23255919461366, 1291.2642534958634, 4580.00537153257]

**Goal B, with gap**

A picture containing rain

Description automatically generatedA picture containing keyboard

Description automatically generated

Visualization of value of goal B with gap. Visualization of policy of goal B with gap

A screenshot of a cell phone

Description automatically generated

The graph plotting the posterior probability of goal B with gap at each time point for the given trajectory sequences.

The probabilities are proportional to:

[3.2191833585636265, 10.561401585077677, 34.54543812744511, 115.28786758588984, 392.95600308938873, 1366.8252737102025, 4848.013960926132]

**Goal C, without gap**

A picture containing keyboard

Description automatically generatedA picture containing clock

Description automatically generated

Visualization of value of goal C without gap. Visualization of policy of goal C without gap

A screenshot of a cell phone

Description automatically generated

The graph plotting the posterior probability of goal C without gap at each time point for the given trajectory sequences.

The probabilities are proportional to:

[3.287819241259324, 11.024419686967674, 37.74756052223363, 131.67244248182197, 467.6581480148082]

**Goal C, without gap**

A close up of a keyboard

Description automatically generatedA picture containing clock

Description automatically generated

Visualization of value of goal C with gap. Visualization of policy of goal C with gap

A close up of a map

Description automatically generated

The graph plotting the posterior probability of goal C with gap at each time point for the given trajectory sequences.

The probabilities are proportional to:

[3.287819253742368, 11.024419805821687, 37.7475610492872, 131.6724450925809, 467.658158549859]