PDDL Report

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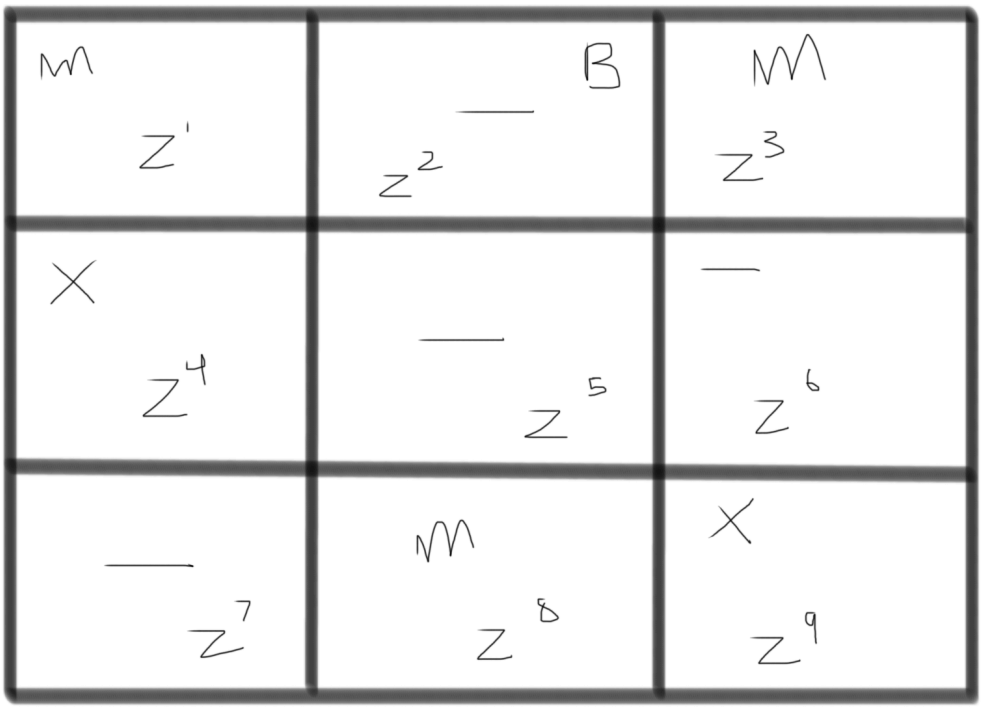
The planner I used for writing the code was http://editor.planning.domains/

For the first 2 parts of the specification where I was tasked with creating flat, hilly and mountainous regions I decided on making these 3 terrain types as predicates.

This meant that when making the actual grid in my problem file I could call on these predicates and define different regions of my planet to be of different terrain types.

In terms of my planet grid I decided to use a 3 x 3 grid. This gave me plenty of space to add all the necessary objects to make this project work.



This is the grid I have used in my problem files drawn out. It has 9 zones which range from z1 to z9 each of which have a specific terrain type.The jagged lines are the hilly regions, the straight lines are the flat regions and the crosses are the mountain regions.

I have also included the letter B in z2 as the base of operations.

For the problem instances in my code I have included 7 problem cases:

Problem 1

For this problem I simply wanted to test if the movement action was working properly so I started the program at z2 and asked it to move to z7.

Problem 2

For this problem I wanted to test if the shield systems were working so I set the goal to be 3 shields set up and I created 2 engineers in my problem file with 2 shields each and tasked them to set up 3 shields.

Problem 3

For this problem I wanted to test if turning the shield off worked properly. For this I had to set 3 regions to be shielded at the start and then I sent a personnel across the planet to turn them off individually

Problem 4

For this problem I wanted to test the terraforming. I set the goal to terraform all flat and hilly regions. After terraforming a hilly region it came back to base to repair and after terraforming a hilly or flat region it has to return to base to recharge the terraformer.

Problem 5

For this problem I am testing to see if the planetary shield works. The engineers need to activate 3 shields across the planet so that the commander at the base can activate the planetary shield

Problem 6

For this problem I am testing to see if turning off the planetary shield works. The commander needs to move to the base and turn off the planetary shield

Problem 7

For the problem I am testing to terraform one hilly region, one flat region and turn on the planetary shield.