Dynamic Programming

Implementation

The first step of the implementation of the dynamic programming algorithm was to convert the input.txt file into a useful data structure. From the input.txt file, the total number of vertices, starting vertex and goal vertex are saved. Then, the edges are saved in a dictionary. The format of this dictionary is as follows:

```
{
     tail vertex 1: [
          (head vertex 1, vertex weight),
          (head vertex 2, vertex weight),
          ...],
     tail vertex 2: [
          (head vertex 1, vertex weight),
          (head vertex 2, vertex weight),
          ...],
     ...
}
```

With this dictionary, the dynamic programming algorithm could now be implemented. I implemented the cost-to-go solution of the dynamic programming algorithm as discussed in class. Where the result weight is the optimal cost to go from the starting vertex to all vertices.

How to Compile and Run

Assuming python is already installed, there are no installation requirements. To run the python file:

```
python 017856202.py
```