**Introduction:**

In this project we need to implement a program to find the shortest path in a Map

**Objective:**

The main objective of this project is find the actual optimal path from My Home to University of Asia Pacific. Which will be the best path and minimize the distance by evaluate function of A\* Search Alogorithm.

**Designed Map:**

*Map For Home to UAP*

Text, letter

Description automatically generated

Heuristic Values:

|  |  |
| --- | --- |
| Node | Value |
| Dhanmondi R/A (Home) | 4 |
| Dhanmondi 32 | 5 |
| Dhanmondi 27 | 1 |
| Dhanmondi Road 2 | 4 |
| Indira Road | 3 |
| Kolabagan | 5 |
| Panthapath | 6 |
| Khamar Bari | 2 |
| Green Road | 5 |
| UAP | 0 |

**Search Tree:**

Diagram

Description automatically generated

Implementation:

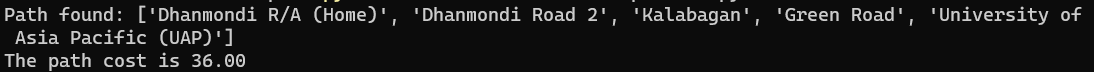
Text

Description automatically generated

Text

Description automatically generated

Result Analysis:



The Output is exactly the same as expected

Conclusion:

A\* in Python is a powerful and beneficial algorithm with all the potential. However, it is only as good as its heuristic function, which is highly variable considering a problem’s nature. It has found its applications in software systems in machine learning and search optimization to game development