In path planning, we have to find the shortest route with minimum cost from the start node to the goal node [1]. In A Star Method, there are 8 neighbouring nodes around the starting node. Only one node will be the closest node to the goal node. Then we have to pick that node as the next node. After that, that node will also have 8 neighbouring nodes. We need to repeat the process of finding the closest node to the goal node until we reach the goal node. Hence, we will have the shortest route.

However, in real life situation, there will be obstacles, which the aircraft cannot pass through, between start node and goal node. Moreover, there will be fuel-consuming area and time-consuming area, which will add additional cost to the flight. In some cases, we want to avoid these areas if their additional cost is too high or vice versa.

**Reference**

[1] The Hong Kong Polytechnic University, *Path Planning Algorithm and Python Robotics*, 2020. [Online]. Available: <https://learn.polyu.edu.hk/bbcswebdav/pid-4541187-dt-content-rid-26019569_1/courses/ENG1003_20201_A_FPAAE/Week%205%20for%20introduction%20to%20a%20star%20path%20planning%20%28LTH20201008%29.pdf> [Accessed Nov. 10, 2020]