Finding the shortest path in a map using graph theory

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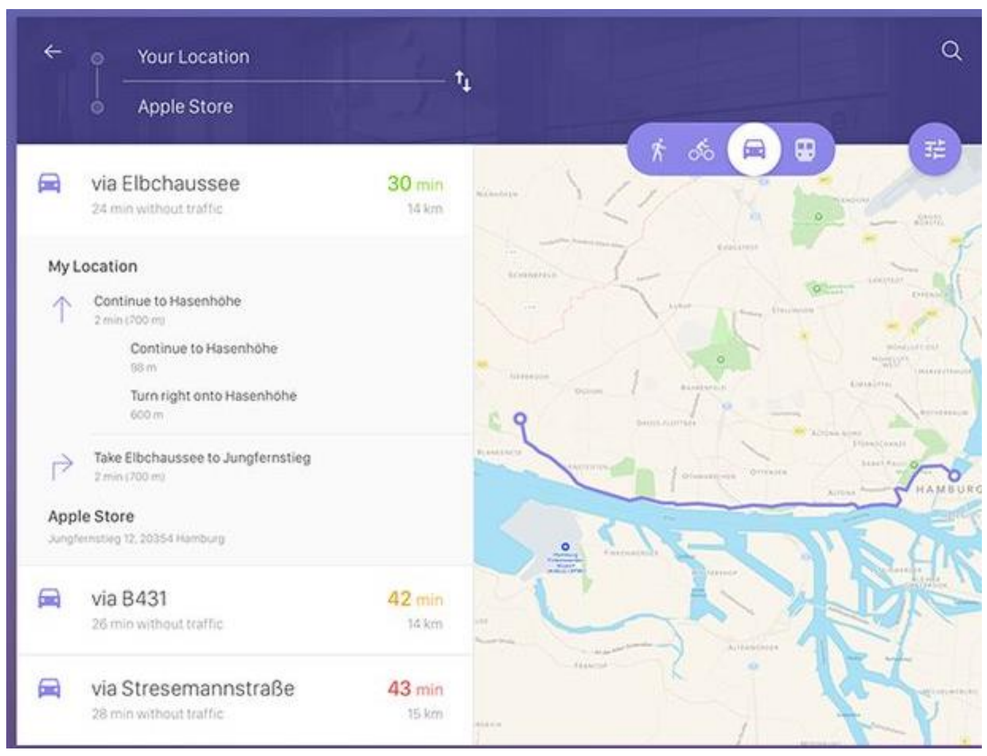
Abstract

The proposed project is about using a method called Dijkstra, which is a way to find the shortest route between two places on a map. With the growing importance of online maps in our lives, this project is very relevant. Anyone who needs to find their way around a city or town can benefit from this project, especially if they are new to the area or if they are living alone.

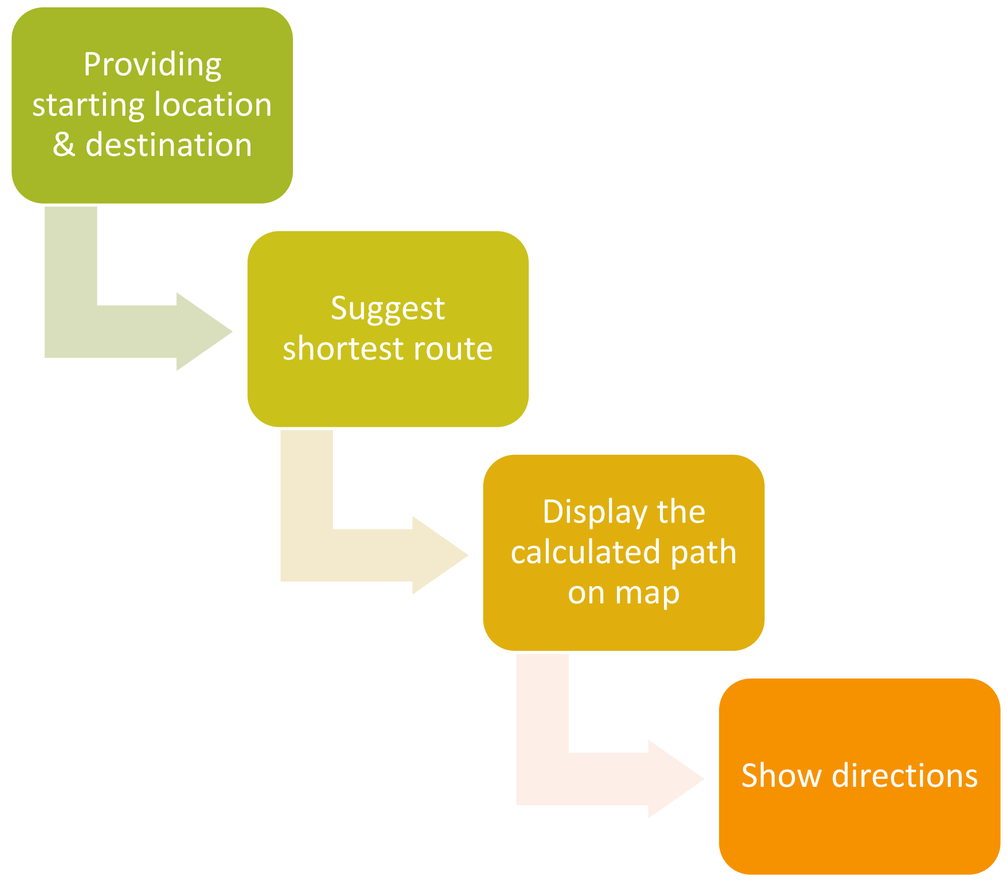
Objectives

Create a system to locate the shortest route between two points on a map using Dijkstra's algorithm. To allow users to enter their starting point and destination and view the calculated path on a map, create a user-friendly interface. Create a map database with the necessary details, like locations and road networks. Verify the system's efficiency and precision when determining the shortest route between two points. To help people find their way around cities or towns, especially for those who are new to the area or are living alone, provide a useful tool.



Methodology used

The user interface, the Dijkstra's algorithm module, and the map database will make up the system architecture. Users can enter their starting point and destination on the user interface, and it will display the calculated path on a map. The pathfinding will be carried out by the Dijkstra's algorithm module, and the map database will supply the necessary map information (such as road networks and locations)



Above diagram shows how the application works when it is given a command.

Conclusion

Using Dijkstra's algorithm to locate directions on a map has been suggested as a solution, and it can be a helpful tool for navigating in urban areas. The system can calculate the shortest route between two points on a map and give users turn-by-turn directions, as shown by the system architecture diagram and methodology described in this publication. The system may help people save time and effort, increase productivity, and possibly help emergency services.

References

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