**Assignment WEEK-2 Report**

**Objective**

* Build campus graph.
* Implement pathfinding algorithms.
* Prepare backend for integration.

**Tasks Completed**

* Created node and edge list with distances.
* Represented campus as weighted undirected graph.
* Implemented BFS, DFS, UCS, A\*.
* Validated algorithms with sample queries.

**System Architecture**

User → NLP → Python Navigator → Graph Data → Result

**Graph Details**

**Nodes:** Main Gate, ID Gate, Library, ACB1-LW, Cafe, AC2, Food Court, Hostel, Sports Complex.  
**Edges:** See distance table (Main Gate–ID Gate = 170m, ID Gate–Library = 70m, …).

**Algorithm Results (sample)**

* BFS: Finds path by exploring level by level.
* DFS: Explores deeply, not always optimal.
* UCS: Guarantees shortest weighted path.
* A\*: Faster than UCS with Euclidean heuristic.

**Tools Used**

* Python (graph + algorithms).
* Draw.io (graph storage).
* Google Maps API (planned for visualization).

**Graph map of Campus**

**A diagram of a network

AI-generated content may be incorrect.**