International Institute of Information Technology, Hyderabad

Data Structures and Algorithms

S21CS1.201

COVID-Tracing Mini-Project

Team 6

Vayur S (2020112027)

Khushi Agarwal (2020101092)

Mancharla Harish (2020102062)

Abhinav Tanniru (2020112007)

Aryan Gupta (2020101091)

1 Data Structures Used:

The project contains multiple structures for storing

1. Routes: A linked list for storing the routes in a given graph.
2. Person: It contains the status of a person (if the person is covid-positive or a contact etc.), length of his/her infection, who was it's cause and the station number.
3. Stations: It has a list of all the people currently in the station and it's current danger value.
4. Paths: A linked list for storing the routes of multiple people, it contains the person id, the route and a pointer to the next path structure.
5. Days: An array of structures which consists of stations, paths and people and can store these for up to 15 days.
6. Possible Paths: It is used to store the 3(or less) possible routes a person can take and their corresponding danger values.

The graph implementation is done using adjacency lists and min-heaps.

2 Algorithms Used:

3 Division Of Work:

- Aryan: 3-way Dijkstra algorithm
- Khushi: 3-way Dijkstra algorithm
- Vayur: Update functions and structs
- Abhinav: Update functions and structs
- Harish: main.c