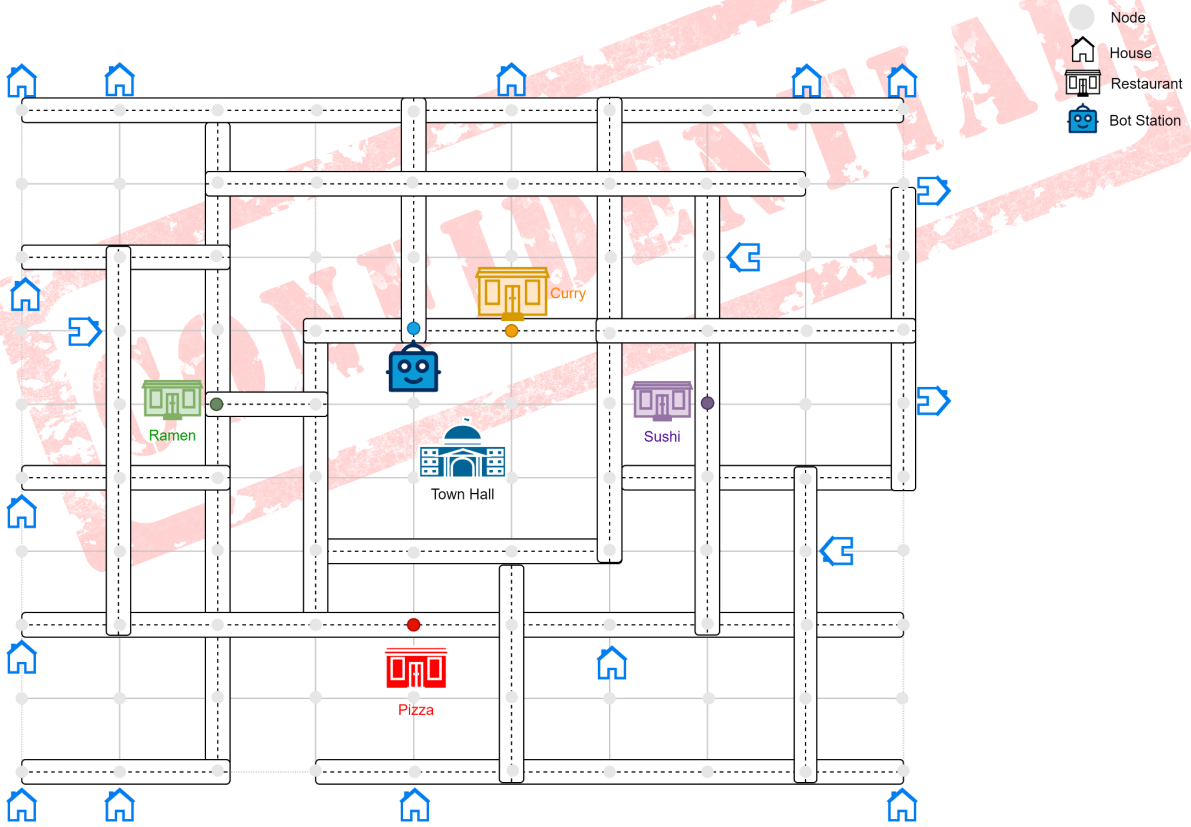
EAGLYS

Assignment

Story:

A local eco-friendly Bot food delivery service, EagRoute, wants to modernize its delivery process. They have a small fleet of delivery bots (autonomous electric robots) that handle food around the city. Currently, it is handled manually to decide the delivery route, wasting time and increasing travel distance. They need a Route Optimization Delivery Bot system that helps the following

- Select delivery points on a map.
- Automatically calculate the most efficient delivery route.
- Assign orders to available bots while respecting each bots's capacity.
- View real-time updates on delivery status.



Map Description:

The town's total area is (9x9) matrix size. Gray dot represents the node. The distance between every gray node is 1 second.

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Sample Data:

■ Valid Position / Picking-up Position / Delivery Position
- Please refer to the CSV file
  - sample_data.csv
    ※ (x, y) = (0, 0) is the top left

■ Invalid Paths
- Please refer to the CSV file
  - BlockedPaths.csv
    ※ “id” is sample_data’s id

Business Requirements:
- Total Bots = 5 (every bot can have max 3 order)
- Restaurants = Can receive order (3order/30sec)
- Address = L(i=0~N, j=0~N) ⇒ Ex: Pizza=LR74
- No waiting time at pick up location or destination location

Challenge Scope

■ Frontend (React/Nextjs)
- Create order CRUD Form
- Data Streaming for Order status
- Visualization Interactive map

■ Backend (Fastapi)
- Server side REST API design and Implementation
- Implement middleware, security, migration etc.
- Use ORM for database operation

■ Database (Postgresql)
- Design database schema
- Implementing any advanced database concept would be nice.

※ Complete solutions aren't required, but what you do submit needs to run.

Your design and code should meet these requirements and be sufficiently flexible to allow for future extensibility. Code should be well structured and suitably commented.

What are we looking for? What does this prove?
- ★ Assumptions you make given limited requirements
- ★ Technology and design choices

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★ Identify areas of your strengths

Where to submit：

https://gitlab.com/eaglys-recruitment/abeynayake_malaka

※Use the above repository after getting invitation mail.

Duration : 1 week (7days) from Receiving Email