Short Programming test

Instructions: Using any programming language of your choice, Attempt this questions.

It should be submitted on or before 18th / 08 / 2016

1. Assuming you were to build a navigational system that routes vehicle through the shortest path to desired location. Perform a system analysis and outline the steps with the aid of a flow chart, required to achieve this.

2. Using any convenient server side programming language, write a program which takes any
   - point (A): latitude=6.5115311 longitude=3.3775515; SRS: SRID 4326, Find the nearest point from the geojson feature collection listed below to the point.
   - GEOJSON TO BE USED
     {"crs": {"type": "link", "properties": {"href": "http://spatialreference.org/ref/epsg/4326/", "type": "proj4"}}, "type": "FeatureCollection", "features": [{"geometry": {"type": "Point", "coordinates": [3.3781779999999886, 6.5056559999999966]}, "type": "Feature", "properties": {"distance": 662.0, "name": ["POLICE"], "picture": "/media/piclist/2016/07/26/police22.png", "did": 38, "picture2": "/media/piclist/2016/07/26/police_station.png", "address": "Oyadiran St, Lagos, Nigeria", "id": "POLICE"}}, {"geometry": {"type": "Point", "coordinates": [3.364241999999998, 6.504802999999988]}, "type": "Feature", "properties": {"distance": 1663.0, "name": ["POLICE"], "picture": "/media/piclist/2016/07/26/police22.png", "did": 39, "picture2": "/media/piclist/2016/07/26/police_station.png", "address": "Aiyeleto St, Lagos, Nigeria", "id": "POLICE"}}, {"geometry": {"type": "Point", "coordinates": [3.353865999999988, 6.517038000000005]}, "type": "Feature", "properties": {"distance": 2708.0, "name": ["POLICE"], "picture": "/media/piclist/2016/07/26/police22.png", "did": 33, "picture2": "/media/piclist/2016/07/26/police_station.png", "address": "Main Gate Rd, LUTH, Lagos, Nigeria", "id": "POLICE"}}]}

3. Repeat the above solution (2) using JavaScript.

4. Using any RDBMS that has spatial capabilities, Model a database for an emergency response system application. Explain your relationships and model using a flow chart.