



MONASH University

Spatial Database Lab

2016.01.10 - 2016.02.24

Intern Report

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Spatial Database Lab

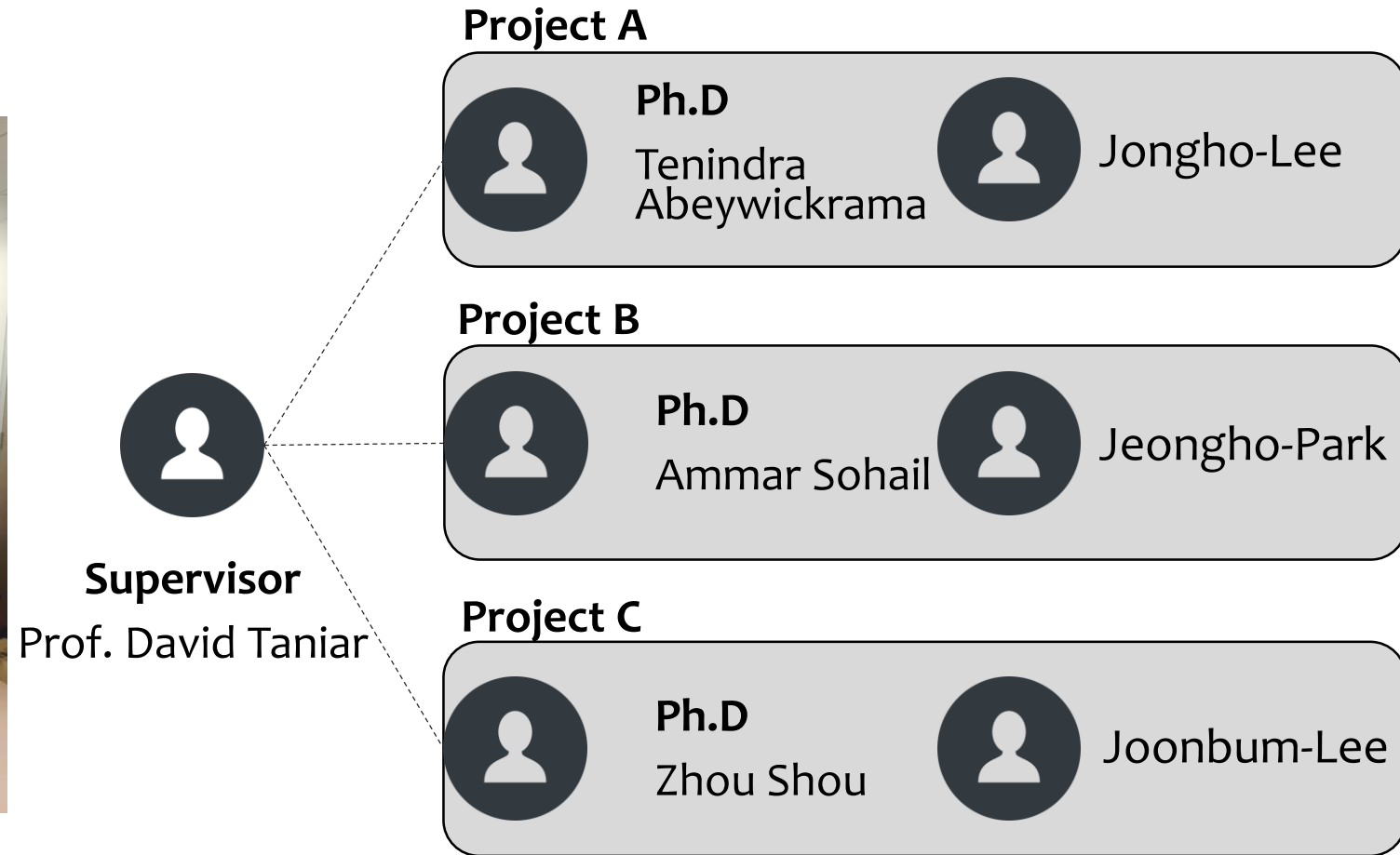


- A **spatial database**, (or **geodatabase**)
 - optimized to store and query data that represents objects defined in a geometric space
 - Most spatial database allow representing simple geometric objects such as points, lines and polygons.



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Projects Members



Project A:

The K Closest POIs (Jongho-Lee)

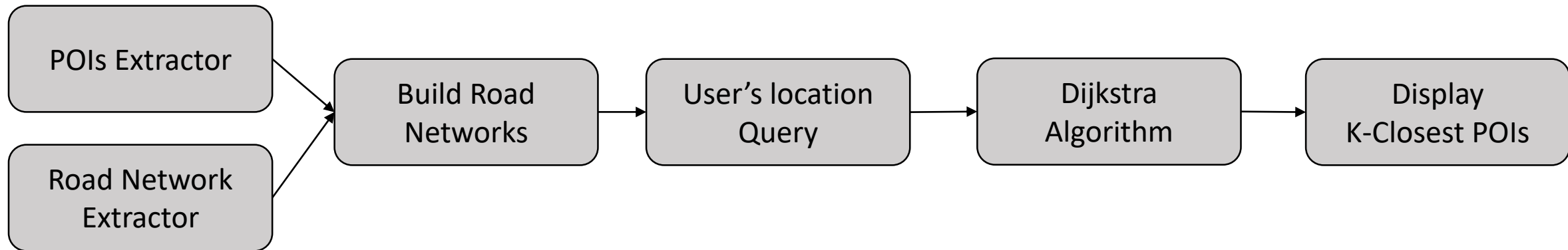
- Goal
 - Given a location, one or more types of POIs, display the k closest POIs of each types on a map
 - Apply Dijkstra's algorithm to search for POIs
- Environments
 - Java
 - JMapView : a java component which allows to integrate an OSM map view into Java application
 - OpenStreetMap API
 - Postgis spatial database



Project A:

The K Closest POIs (Jongho-Lee)

- Application process



Project A:

The K Closest POIs (Jongho-Lee)

- Data Set
 - Australia Road Network
 - Using OpenStreetMap

Road Network	
Node	2,022,519
Edge	2,623,641
POI	40,707

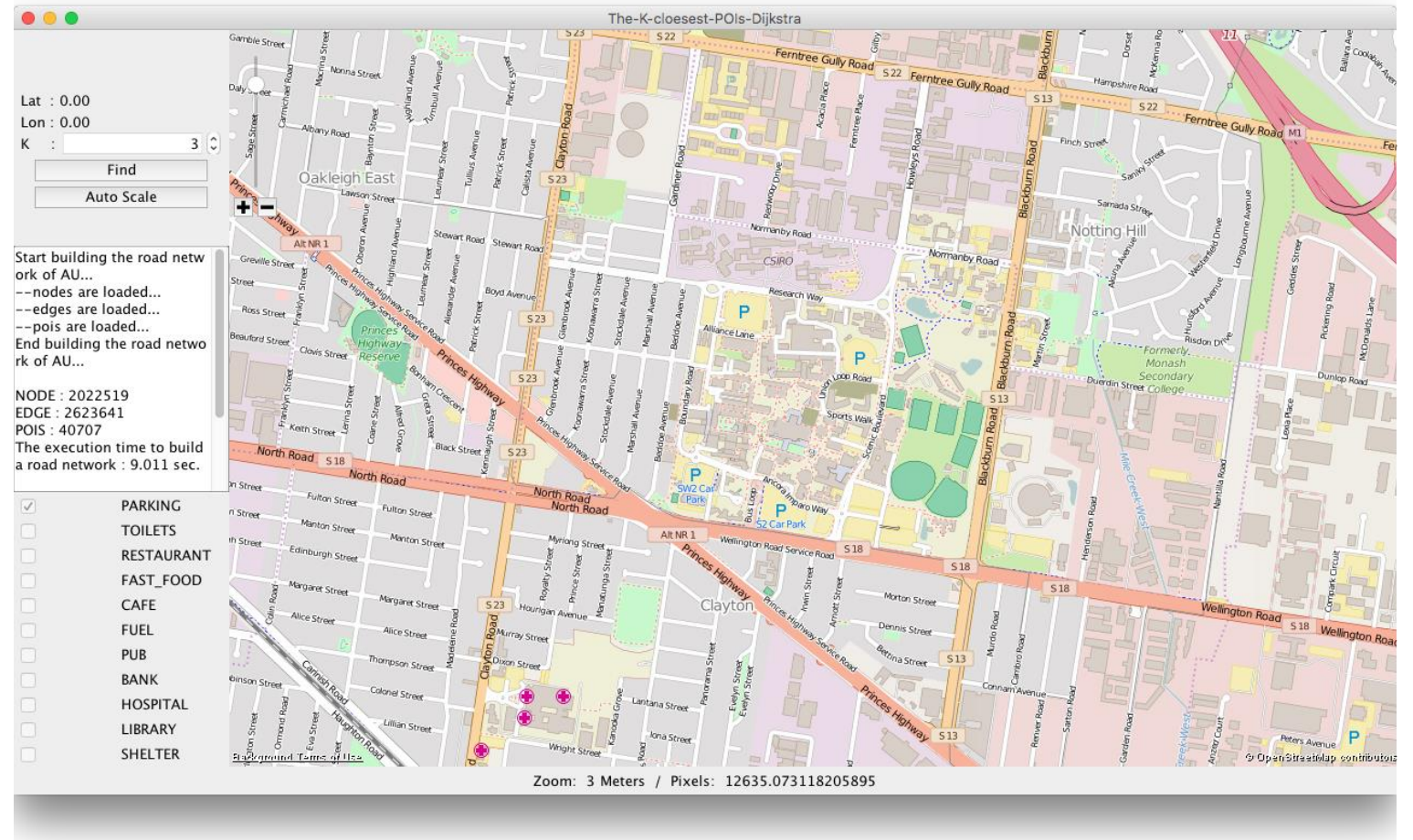
- POIs 11 categories
 - PARKING, TOILET, RESTAURANT, FAST_FOOD, CAFÉ, FUEL, PUB, BANK, HOSPITAL, LIBRARY, SHELTER



Project A:

The K Closest POIs (Jongho-Lee)

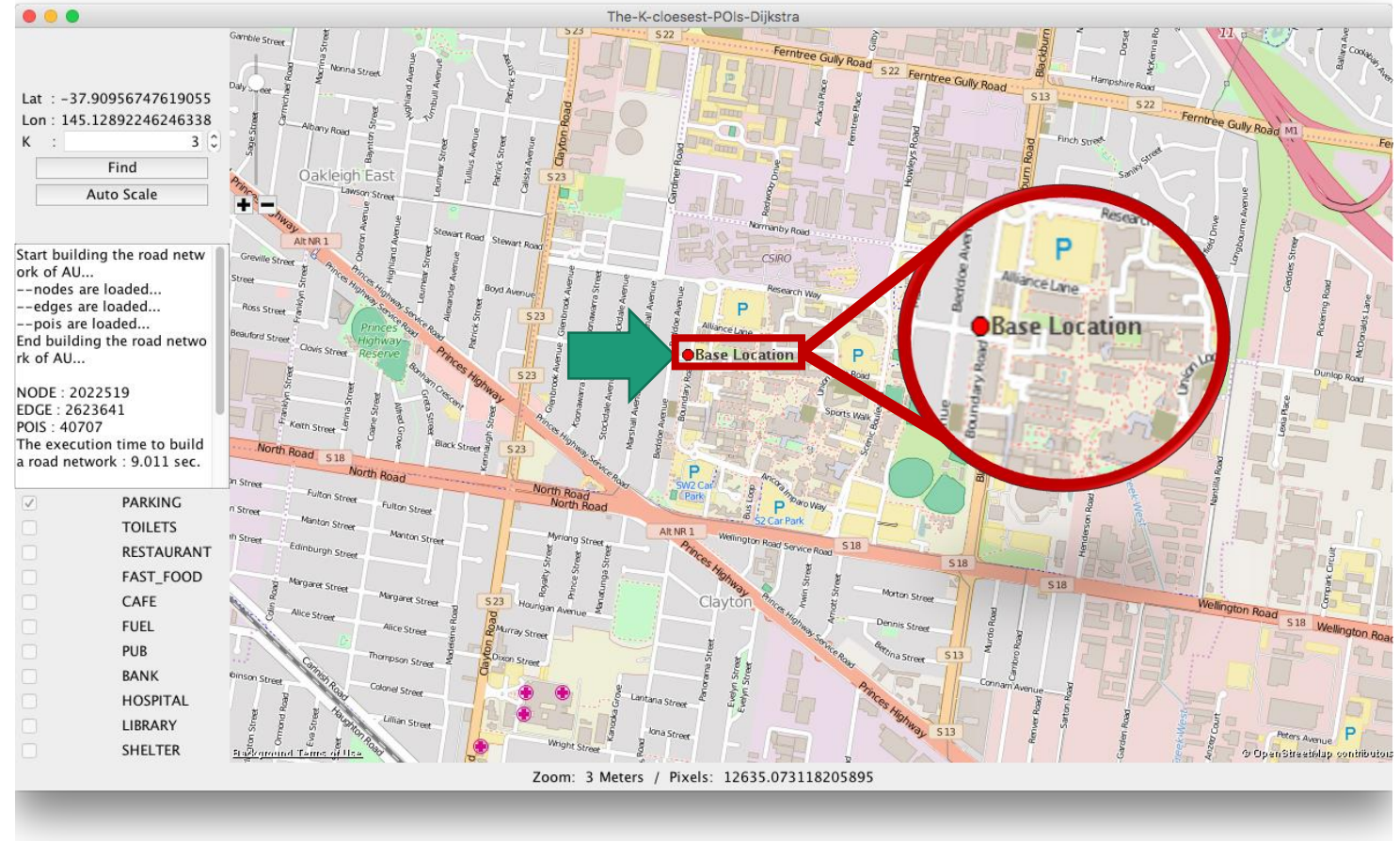
- Results
 - Initial Screen



Project A:

The K Closest POIs (Jongho-Lee)

- Results
 - Set base location for query Using mouse-click

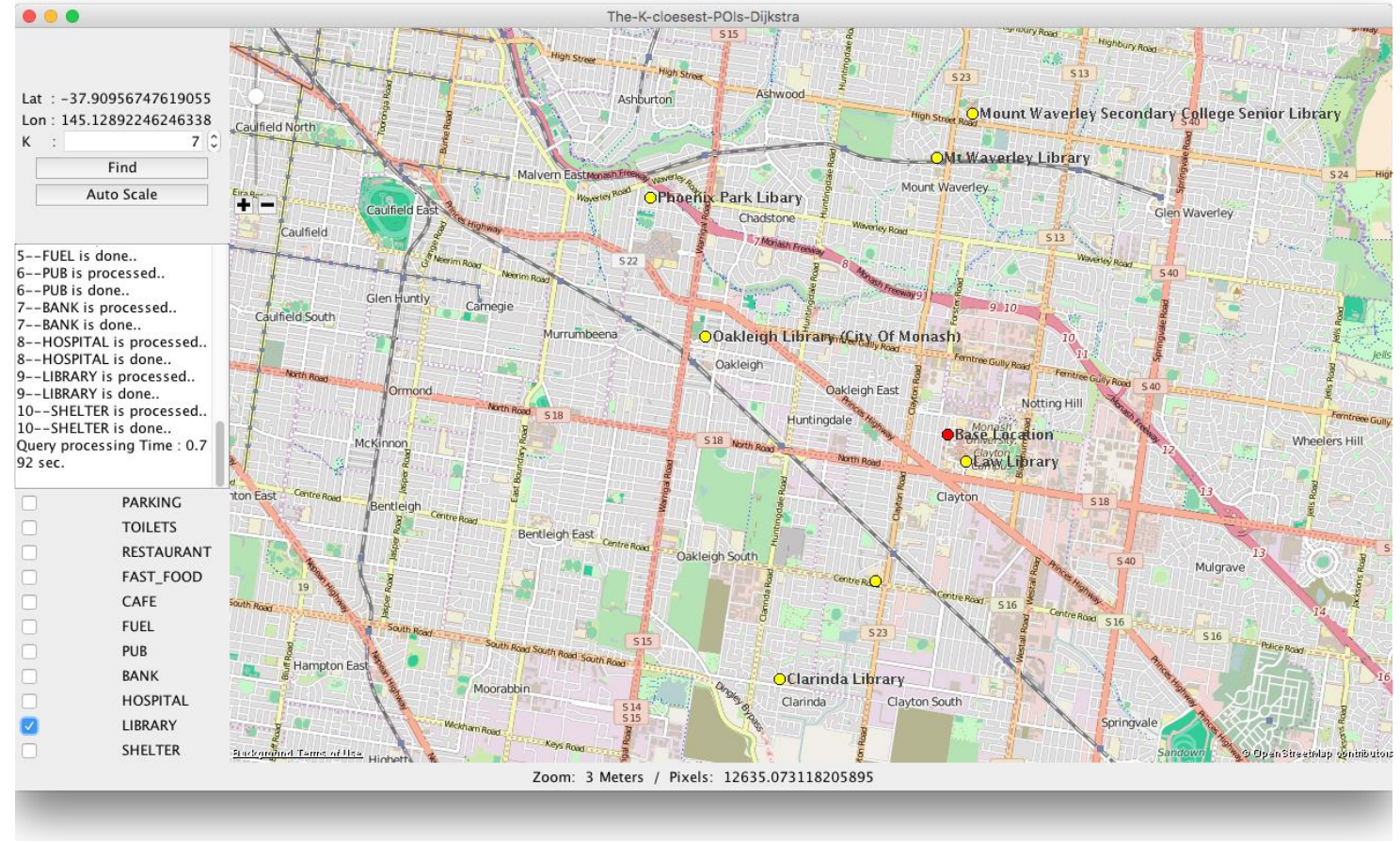


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Project A:

The K Closest POIs (Jongho-Lee)

- Results
 - Display K-closest POIs on map
 - K = 7
 - Category : LIBRARY



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Project B:

Visualization program for Geo-Social Top-k query (Jeongho-Park)

- Goal
 - Find Top-K places among user's friends in certain / given area

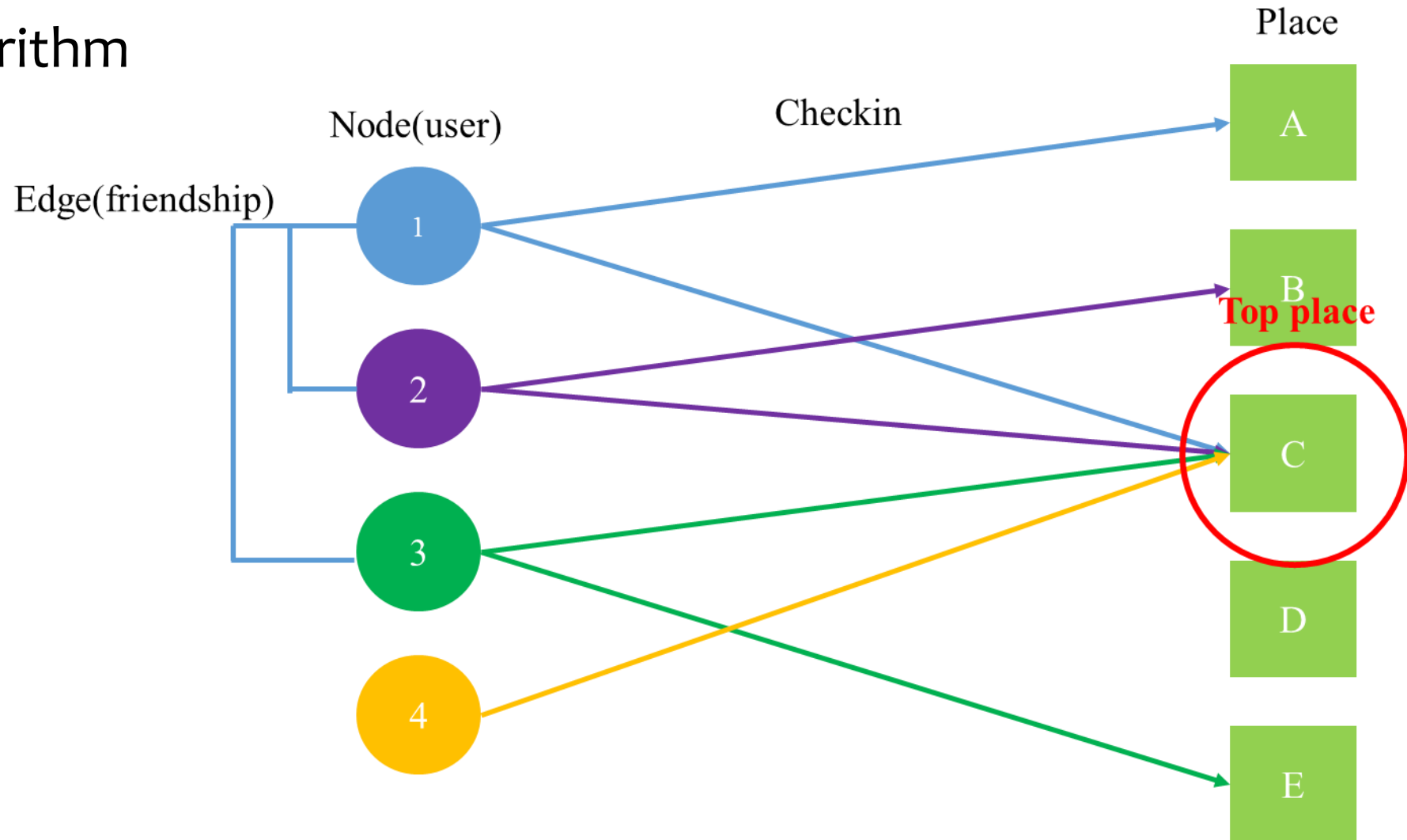


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Project B:

Visualization program for Geo-Social Top-k query (Jeongho-Park)

- Algorithm



Project B:

Visualization program for Geo-Social Top-k query (Jeongho-Park)

❖ Dataset

- Foursqaure
 - ✓ check-in : about 20milion
 - ✓ Friendship : about 3.5milion

❖ Data structure

- Use R-tree for Range query

❖ IDE

- Eclipse(JSP)

❖ Library

- Google Map API
- Foursquare API

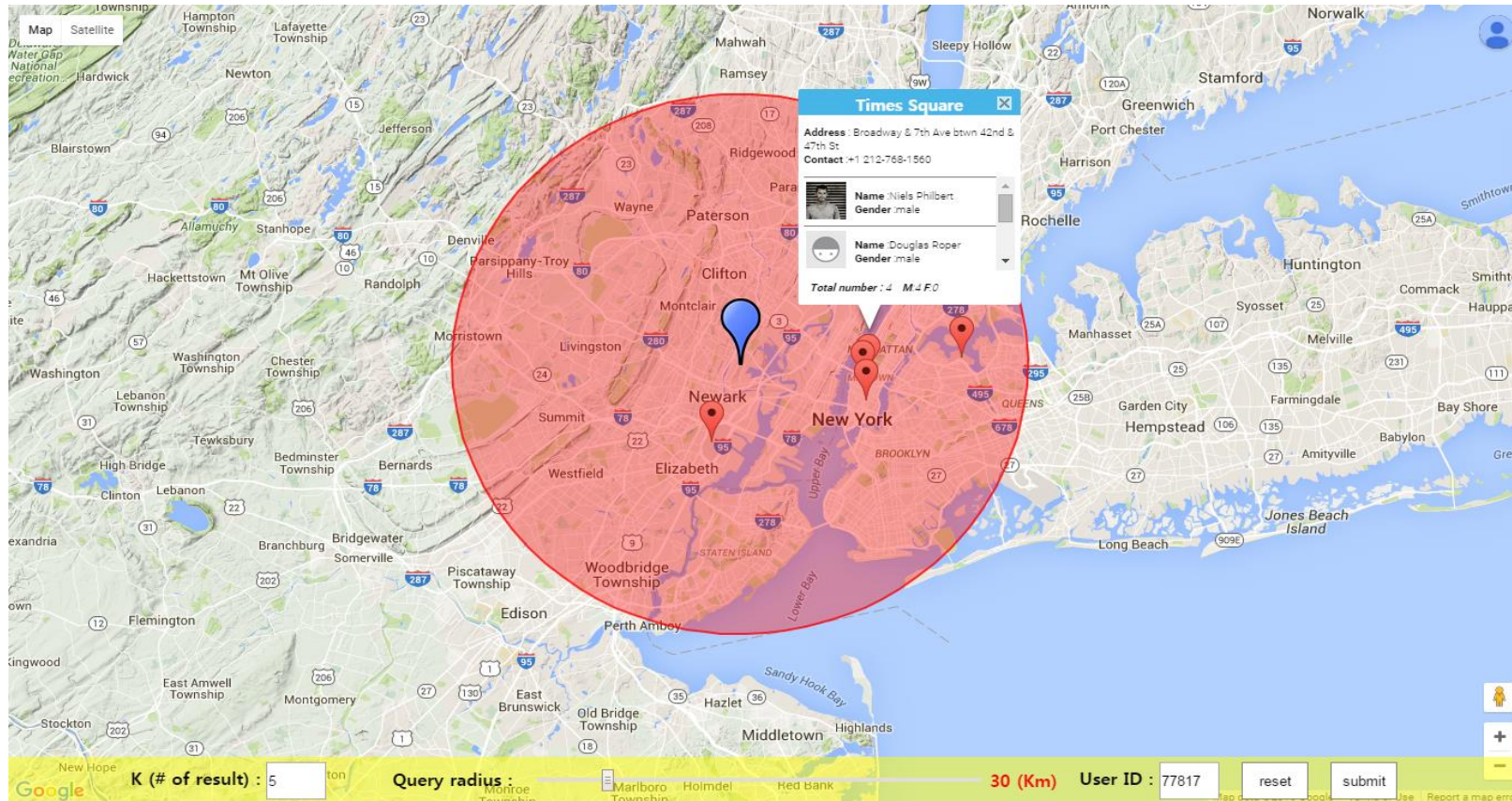


Project B:

Visualization program for Geo-Social Top-k query (Jeongho-Park)

❖ Visualization

- Results of the user's Top-5 query in New York



Project C:

A Real Time System for Indoor Shortest Path Query with Indexed Indoor Datasets (Joonbum Lee)

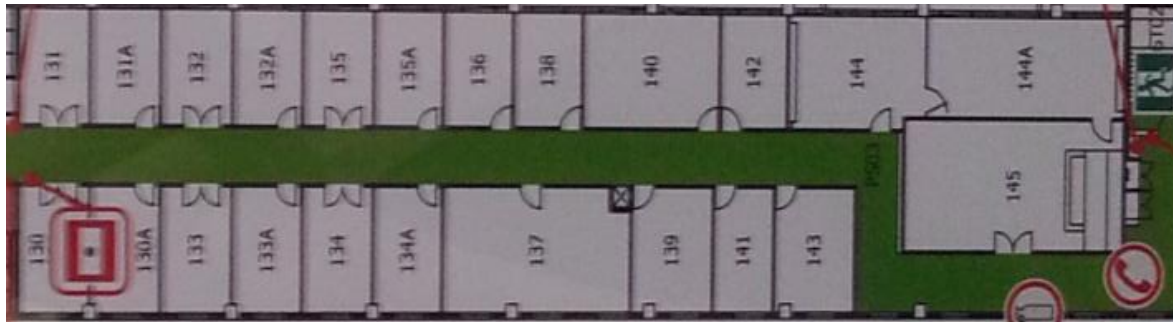
- Goal
 - Indoor dataset collecting, display indexed indoor dataset to find shortest path
 - Dijkstra's algorithm applied to search for Shortest Path Query
- Environments
 - Eclipse
 - Java for controller
 - JSP
 - Google Map API
 - HTML5



Project C:

A Real Time System for Indoor Shortest Path Query with Indexed Indoor Datasets (Joonbum Lee)

- Data Set
 - Suggested New Dataset in Monash Clayton Campus using a Floor Plan



- Room
 - ID, Type, Coordinates, Floor, Doors
- Door
 - ID, Room1, Room2, Coordinate, Type

```
0 HALLWAY 0 20 85 0 0 0,1,2,3,4,5,6,
2 ROOM 0 20 8.5 15 0 0
3 ROOM 8.5 20 17 15 0 1
```

```
0 2 0 4.25 15 hallway
1 3 0 12.75 15 hallway
2 4 0 21.25 15 hallway
3 5 0 29.75 15 hallway
```

Project C:

A Real Time System for Indoor Shortest Path Query with Indexed Indoor Datasets (Joonbum Lee)

- Architecture



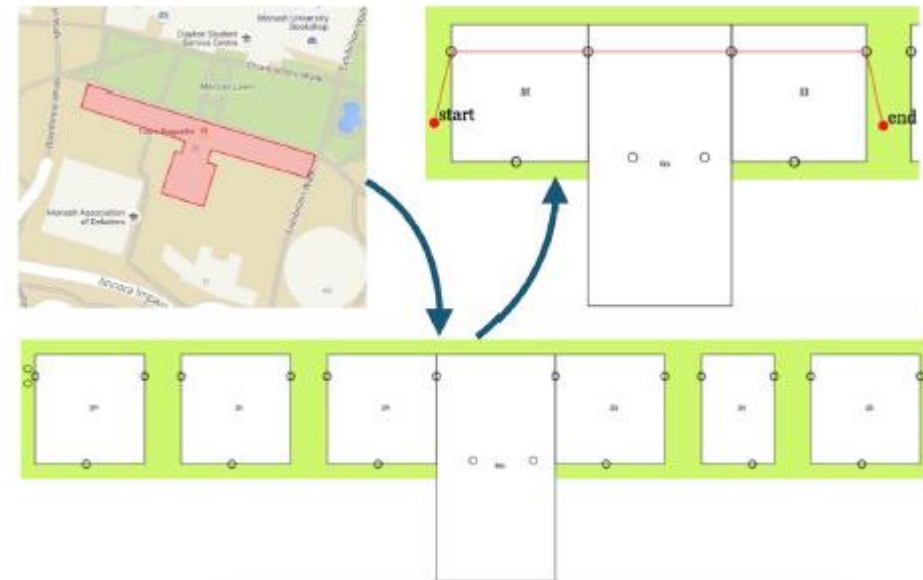
Project C:

A Real Time System for Indoor Shortest Path Query with Indexed Indoor Datasets (Joonbum Lee)

- Results
 - Initial Screen



Faculty of Info Tech, Union Loop Rd, Clayton VIC 3168, Australia
Engineering Building 31, Clayton VIC 3168, Australia



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Visited Places in Australia



National Gallery of Victoria



Victoria Market



Grampians National Park

Visited Places in Australia



Geelong



Flinders St
Federation Square

Thank you



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