Taxi Allocation Optimization

Sending taxi's to where they are the most required

- By Alina Zaidi

<The Problem>

Dubai is the hub of events. But, usually there are insufficient taxi's available at events. Resulting in :
- Long waiting lines for taxi's
- No taxi's available for users

NOTE: In Dubai the Taxi's are maintained by Road Transport Authority (RTA) , which is a government authority

Existing solutions:
- Call an RTA taxi which charges some extra money.
- Use Uber / Careem (higher cost than RTA Taxi in Dubai)

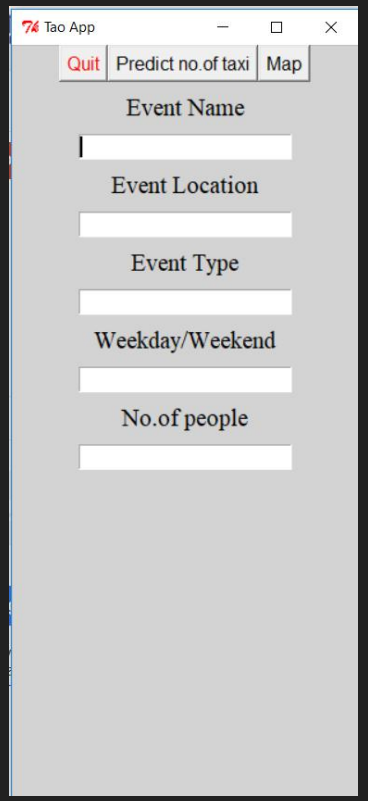
<My Solution>

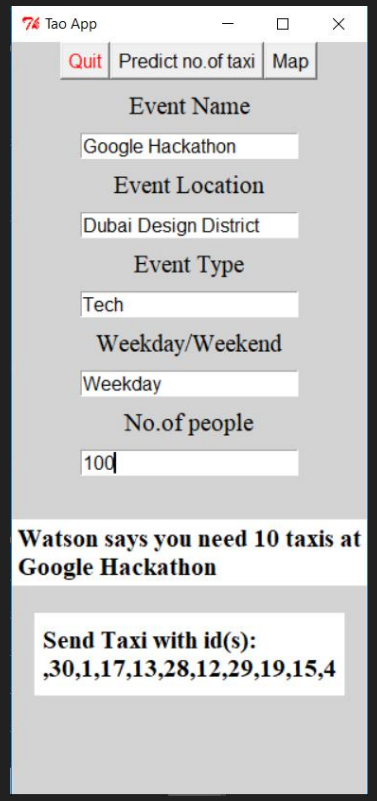
A software that is maintained by RTA, Dubai which:
- Autonomously pull out information about events in real time from the web
- Predicts number of taxi's required for the event using maching learning from Historical Data
- Notify taxi's to go these events

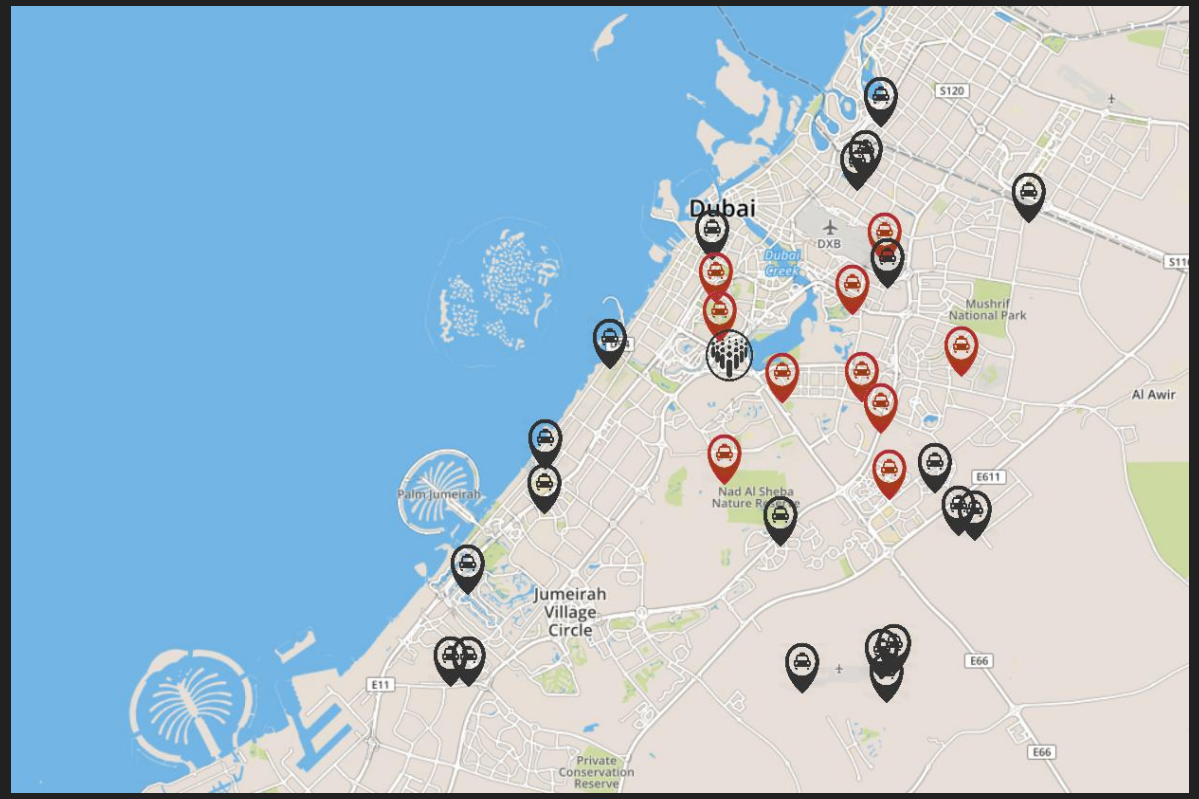
My solution is more efficient than exisiting solutions because:
- Taxi user's dont have to do anything
- RTA (Government): Optimal utilization of taxi's.

<Tao App>

For the prototype of the app, the events are supposed to be manually entered and the taxis to be notified are just shown on a map. This software is coded in Python.







Tao App

Quit | Predict no.of taxi | Map

Event Name

Google Hackathon

Event Location

Dubai Design District

Event Type

Tech

Weekday/Weekend

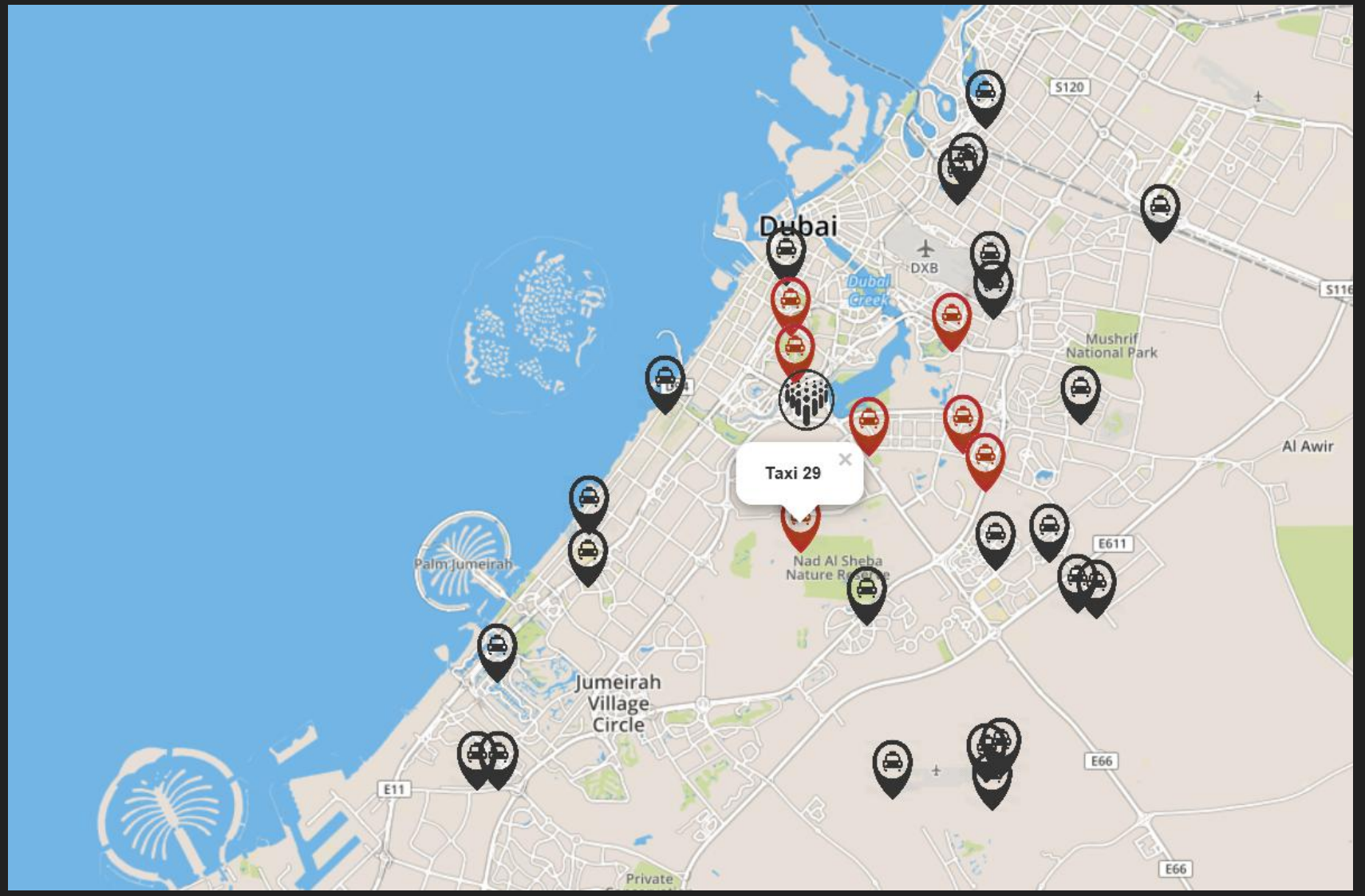
Weekday

No.of people

50

Watson says you need 7 taxis at Google Hackathon

Send Taxi with id(s): ,30,1,17,13,28,12,29



Tao App

Quit | Predict no.of taxi | Map

Event Name

Let's Network

Event Location

Jumerah Village Circle

Event Type

Networking

Weekday/Weekend

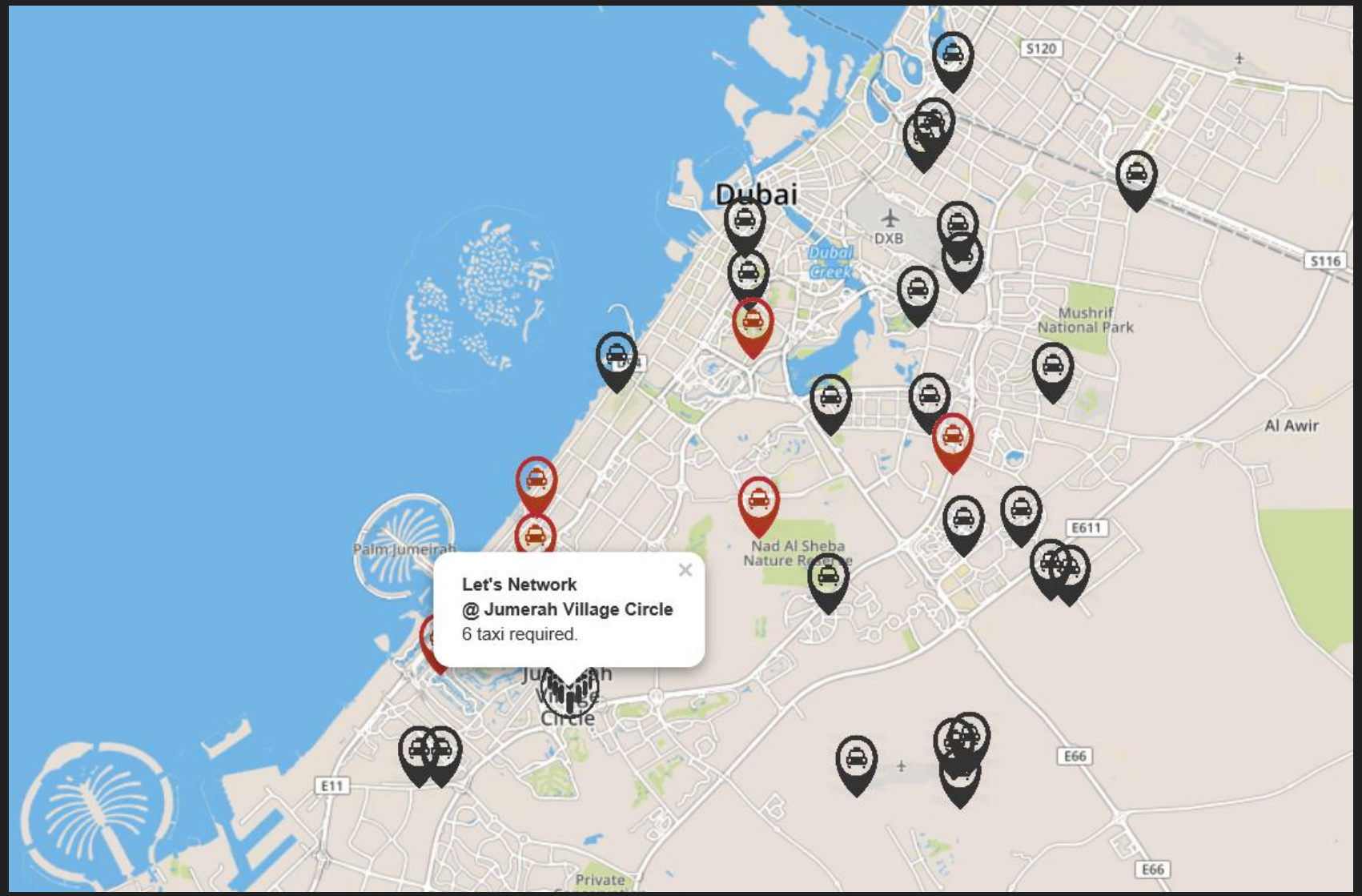
Weekday

No.of people

50

Watson says you need 6 taxis at Let's Network

Send Taxi with id(s): ,16,22,27,29,13,30



<The Architecture>

Event Data from meetup.com, eventbrite.com

Training

Machine Learning model trained using historical data to find number of taxis an event would require

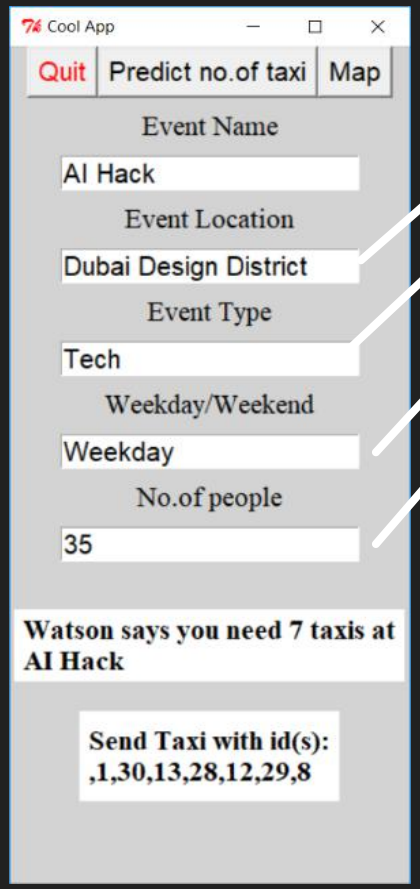
IBM Cloud Machine Learning Model

No. of Taxis

Model for finding nearest taxis to the event

Google Maps API (geospatial, driving time)

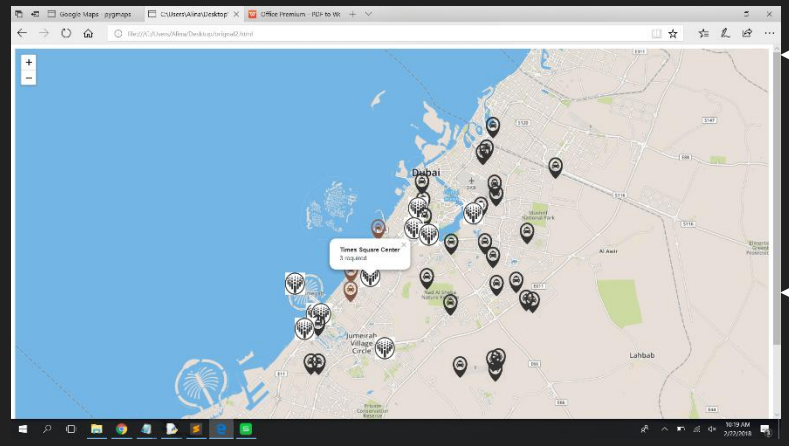
GUI



Closest taxi to event location based on time

No. of taxis

ID-Array of taxis needed



MAP

Leaflet.js

<Future Scope>

Tau prototype is only for allocating taxi for Events, which are many in number in Dubai.

Tau can be extended to allocate taxi's to malls in rush hours, or at specific locations in the city which have high taxi demand.

<Thank You>