

## Taxi Allocation Optimization

*Sending taxi's to where they are the most required*

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# <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:

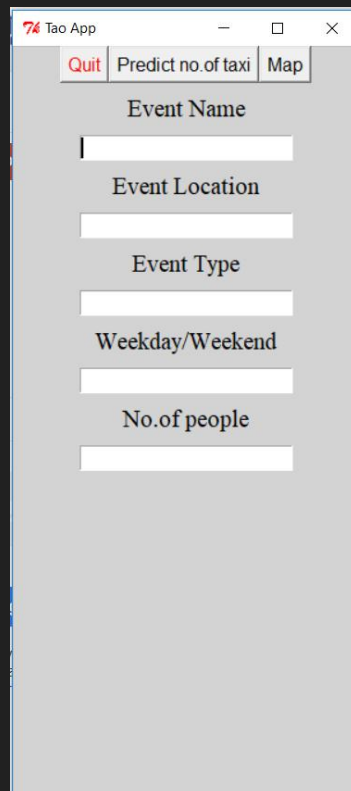
- Autonomously pull out information about events in real time from the web
- Predicts number of taxi's required for the event using machine learning from Historical Data
- Notify taxi's to go these events

My solution is more efficient than existing solutions because:

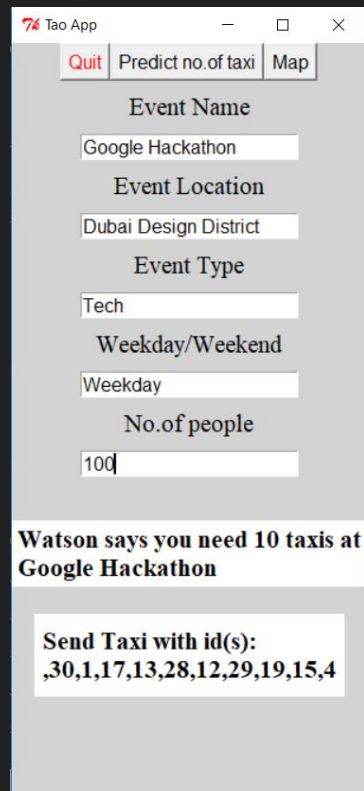
- Taxi user's don't have to do anything
- RTA (Government): Optimal utilization of taxi's.

# <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.



The screenshot shows the input interface of the Tao App. It features a title bar with the app name and standard window controls. Below the title bar are three buttons: 'Quit' (highlighted in red), 'Predict no. of taxi', and 'Map'. The main area contains six input fields with labels: 'Event Name', 'Event Location', 'Event Type', 'Weekday/Weekend', and 'No. of people'. Each field is currently empty.



This screenshot shows the same Tao App interface after data entry. The input fields are now populated: 'Event Name' is 'Google Hackathon', 'Event Location' is 'Dubai Design District', 'Event Type' is 'Tech', 'Weekday/Weekend' is 'Weekday', and 'No. of people' is '100'. Below the input fields, a text box displays the prediction: 'Watson says you need 10 taxis at Google Hackathon'. At the bottom, another text box shows the list of taxi IDs: 'Send Taxi with id(s): ,30,1,17,13,28,12,29,19,15,4'.



Tao App

Quit

Predict no.of taxi

Map

Event Name

Google Hackathon

Event Location

Dubai Design District

Event Type

Tech

Weekday/Weekend

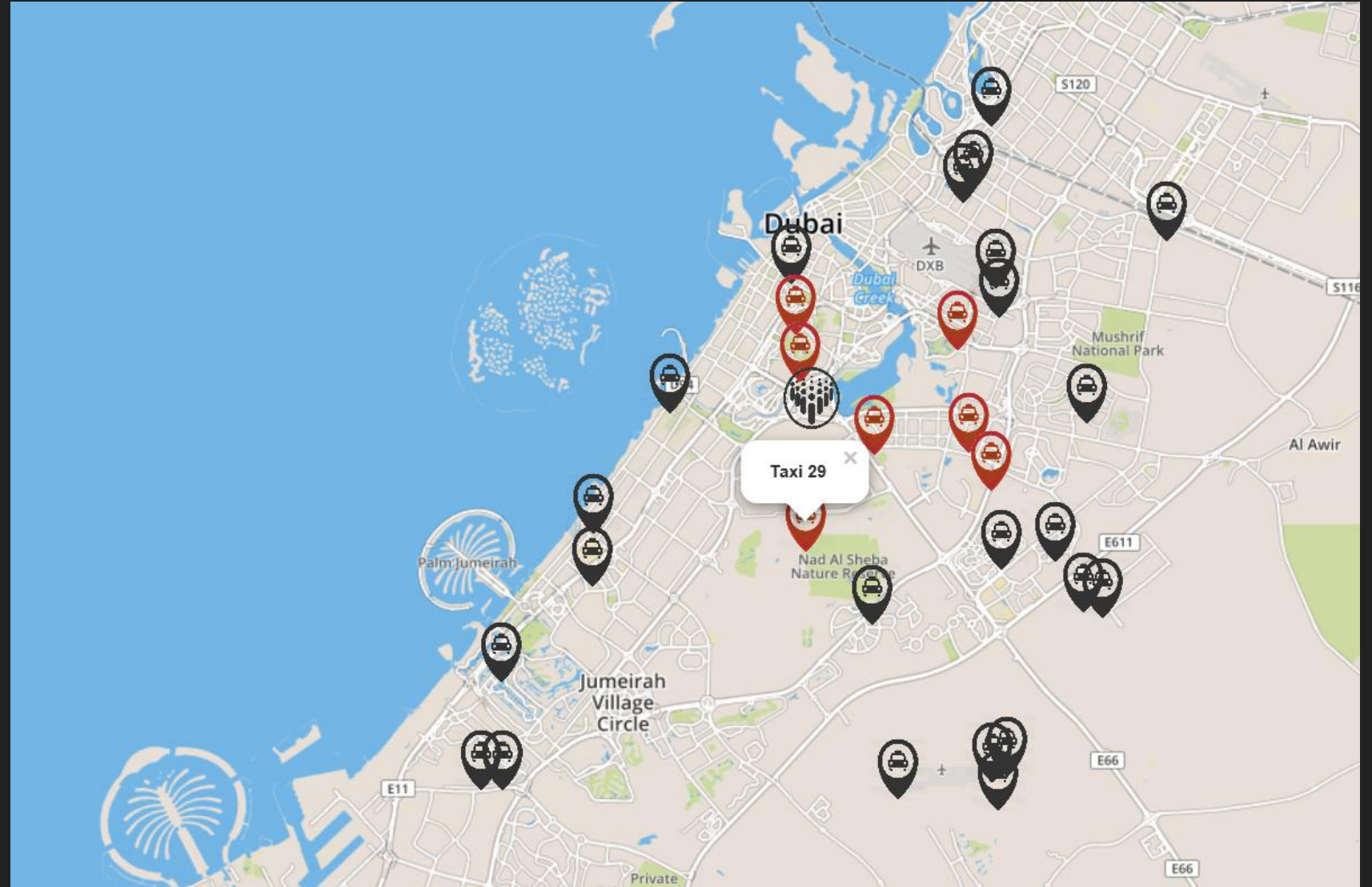
Weekday

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

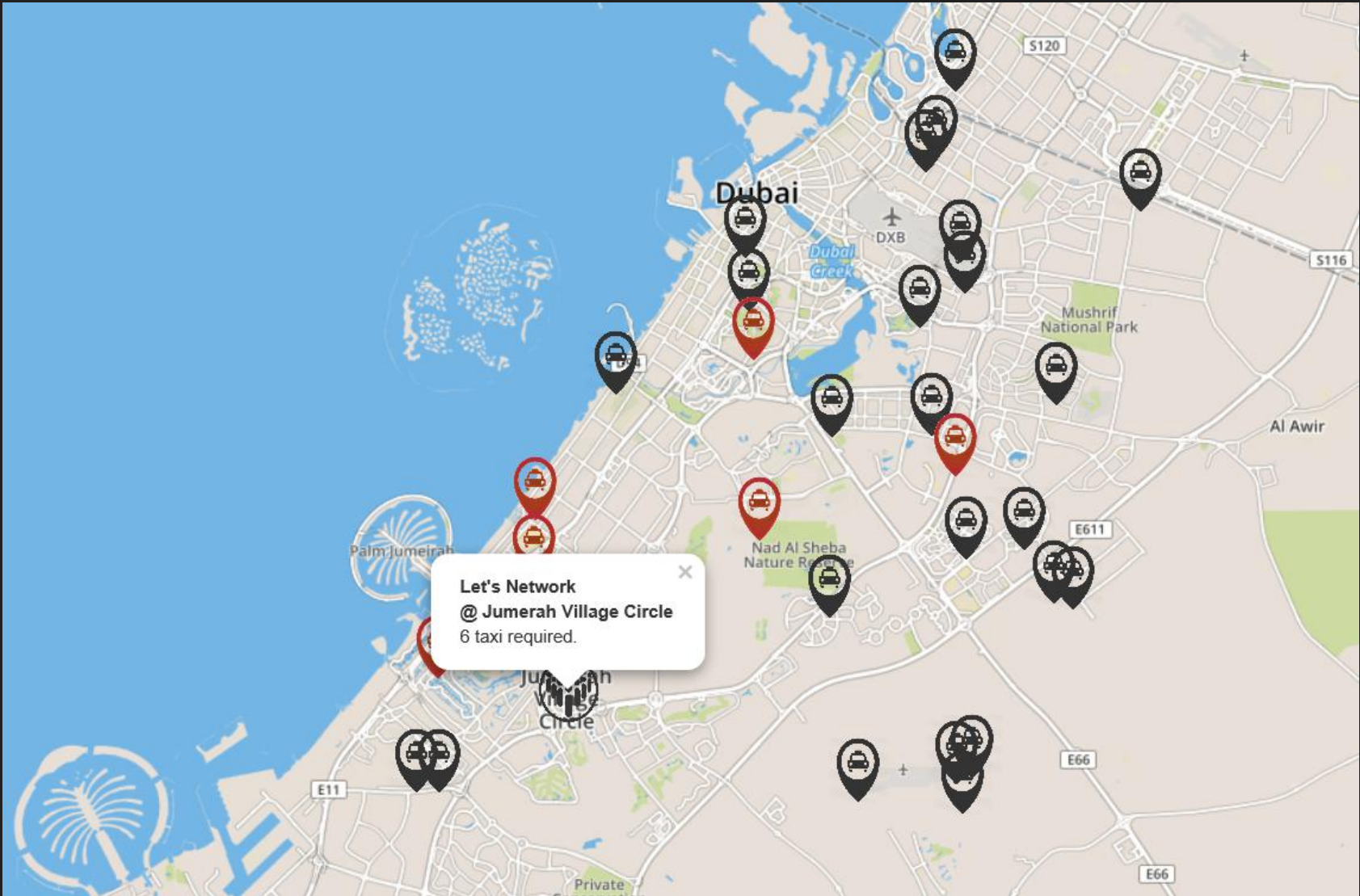
Weekday

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

Cool App

Quit Predict no.of taxi Map

Event Name  
AI Hack

Event Location  
Dubai Design District

Event Type  
Tech

Weekday/Weekend  
Weekday

No.of people  
35

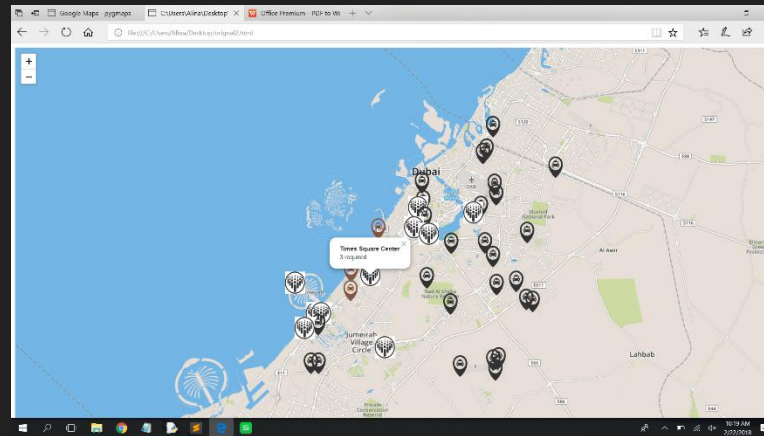
Watson says you need 7 taxis at  
AI Hack

Send Taxi with id(s):  
1,30,13,28,12,29,8

No. of taxis

ID-Array of  
taxis needed

Closest taxi to  
event location  
based on time



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>