

PUBLIC TRANSPORTATION AND ANALYSIS

PHASE 3:DEVELOPMENT PART 1

About dataset:

Content:

The public bus transportation boarding summary.csv file contains route,trip,stop and week of year from 20140711.

Data source

The data fields in the given file are

- **TripID** Unique identity of trip
- **RouteID** Value representing public transport route
- **StopID** Unique identity of stop
- **StopName** Name of given stop
- **WeekBeginning** Date representing first day of any week
- **NumberOfBoarding** Count of all boarding's occurred at this stop for the named trip over the previous week

Coding:

In [1]:

```
%matplotlib inline
import numpy as np # linear algebra
import pandas as pd # data processing, CSV file I/O (e.g. pd.read_csv)
import matplotlib.pyplot as plt
import datetime
import os
from sklearn.preprocessing import LabelEncoder
from sklearn.preprocessing import MinMaxScaler
import lightgbm as lgb
import xgboost as xgb
from sklearn.metrics import mean_squared_error
from math import sqrt
import warnings
warnings.filterwarnings('ignore')
print(os.listdir("../input/unisys/ptsboardingsummary"))
```

```
# Any results you write to the current directory are saved as output.  
['Public Transport Boarding Summary by Route, Trip, Stop and Week of Year.doc',  
'20140711.CSV']
```

In [2]:

```
import plotly.plotly as py  
import plotly.graph_objs as go  
from plotly import tools  
from plotly.offline import download_plotlyjs, init_notebook_mode, plot, iplot  
from bubbly.bubbly import bubbleplot  
init_notebook_mode(connected=True)  
  
from bokeh.plotting import figure, save  
from bokeh.io import output_file, output_notebook, show  
from bokeh.models import ColumnDataSource, GMapOptions, HoverTool  
from bokeh.plotting import gmap  
  
import tensorflow as tf  
from tensorflow.python.keras.models import Sequential  
from tensorflow.python.keras.layers import Input, Dense, GRU, LSTM, Embedding  
from tensorflow.python.keras.optimizers import RMSprop  
from tensorflow.python.keras.callbacks import EarlyStopping, ModelCheckpoint,  
TensorBoard, ReduceLROnPlateau
```

In [3]:

```
## For Multiple Output in single cell  
from IPython.core.interactiveshell import InteractiveShell  
InteractiveShell.ast_node_interactivity = "all"
```

In [4]:

```
data = pd.read_csv('../input/unisys/ptsboardingsummary/20140711.CSV')
```

In [5]:

```
out_geo = pd.read_csv('../input/outgeo/output_geo.csv')  
route = pd.read_csv('../input/trann11/transit/routes.csv')
```

In [6]:

```
data.shape  
data.head(2)
```

Out[6]:

```
(10857234, 6)
```

Out[6]:

	TripID	RouteID	StopID	StopName	WeekBeginning	NumberOfBoardings
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	TripID	RouteID	StopID	StopName	WeekBeginning	NumberOfBoardings
0	23631	100	14156	181 Cross Rd	2013-06-30 00:00:00	1
1	23631	100	14144	177 Cross Rd	2013-06-30 00:00:00	1

In [7]:

```
route.head(2)
```

```
out_geo.head(2)
```

Out[7]:

	route_id	agency_id	route_short_name	route_long_name	route_desc	route_type	route_url	route_color	route_text_color	RouteGroup
0	100	5	100	Arndale Centre Interchange to Glen Osmond	via Woodville Road, Holbrooks Road, Marion Road..	3	http://www.adelaidemetro.com.au/routes/100	0033CC	ffffff	100-101

	route_id	agency_id	route_short_name	route_long_name	route_desc	route_type	route_url	route_color	route_text_color	RouteGroup
					.					
1	100B	5	100B	Arndale Centre Interchange / Urrbrae Agriculture	via Kingswood, Hawthorn, Edwardstown, North Pl...	3	http://www.adelaidemetro.com.au/routes/100B	0033CC	ffffff	100-101

Out[7]:

	accuracy	formatted_address	google_place_id	input_string	latitude	longitude	number_of_results	postcode	status	type
0	ROFTOP	181 Cross Rd, Westbourne Park SA 5041, Australia	ChIJKT7I9rbPsGoRVHMhkly-Oyk	181 Cross Rd	-34.966656	138.592148	1	5041	OK	street_address

	accuracy	formatted_address	google_place_id	input_string	latitude	longitude	number_of_results	postcode	status	type
		a								
1	RO OFT OP	177 Cross Rd, Westbo urne Park SA 5041, Australi a	ChIJ- VFZ87bPsGo RyfVgC5qbP pE	177 Cros s Rd	- 34.9 666 07	138. 5923 01	1	504 1	O K	street _addr ess