Data Analytics Pipeline Homework 1

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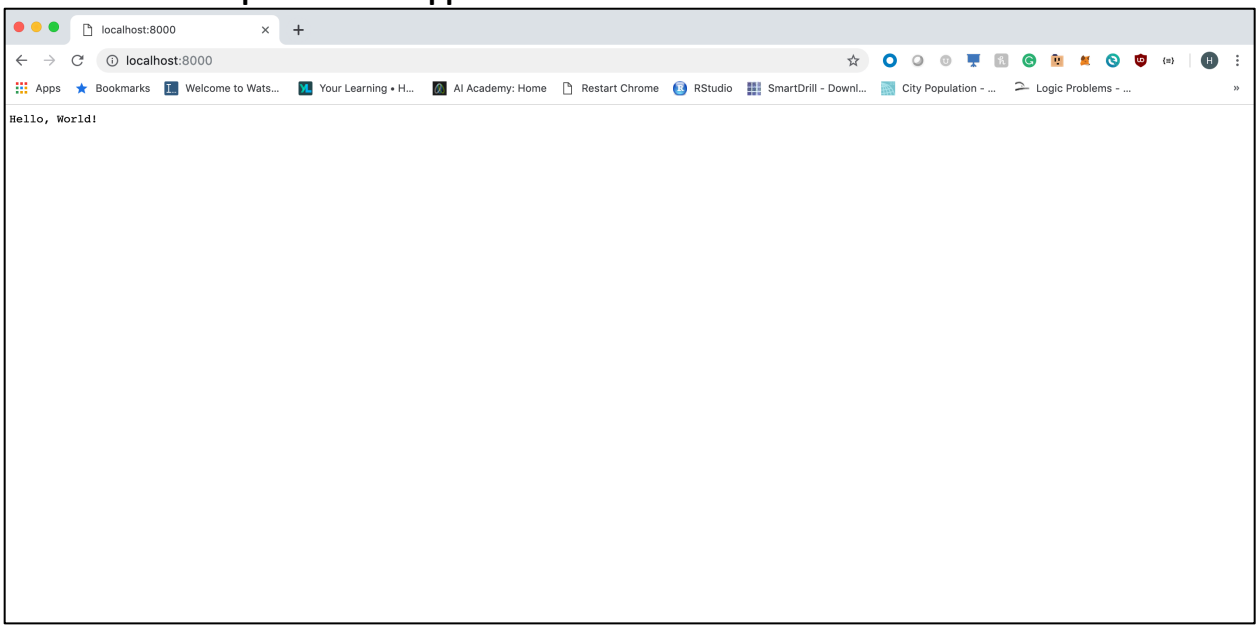
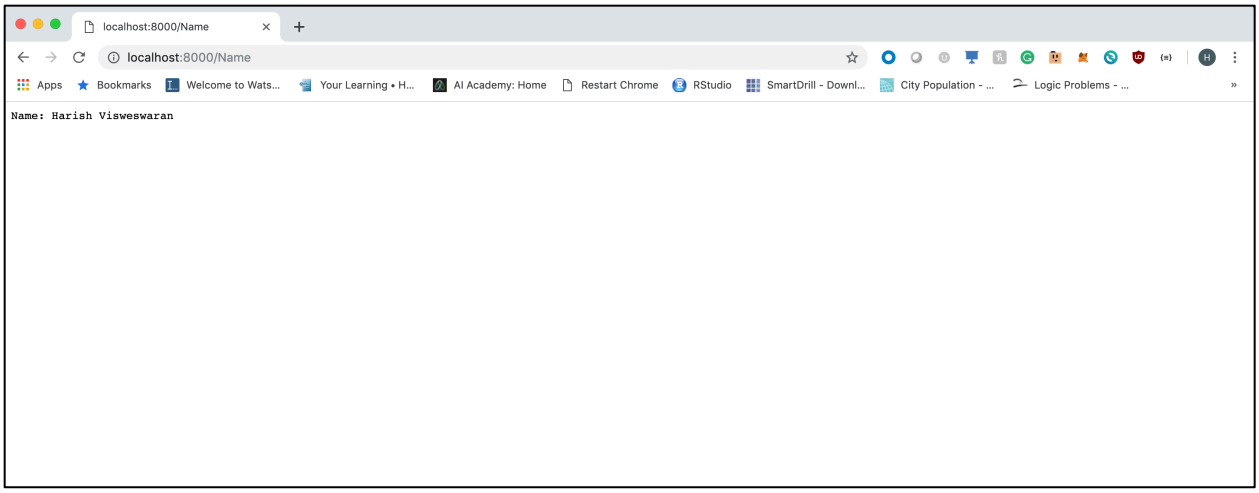
Question 1)

Hello World Example Tornado App:



Question 2)

Tornado App with Name Page



Script for Question 1 and Question 2:

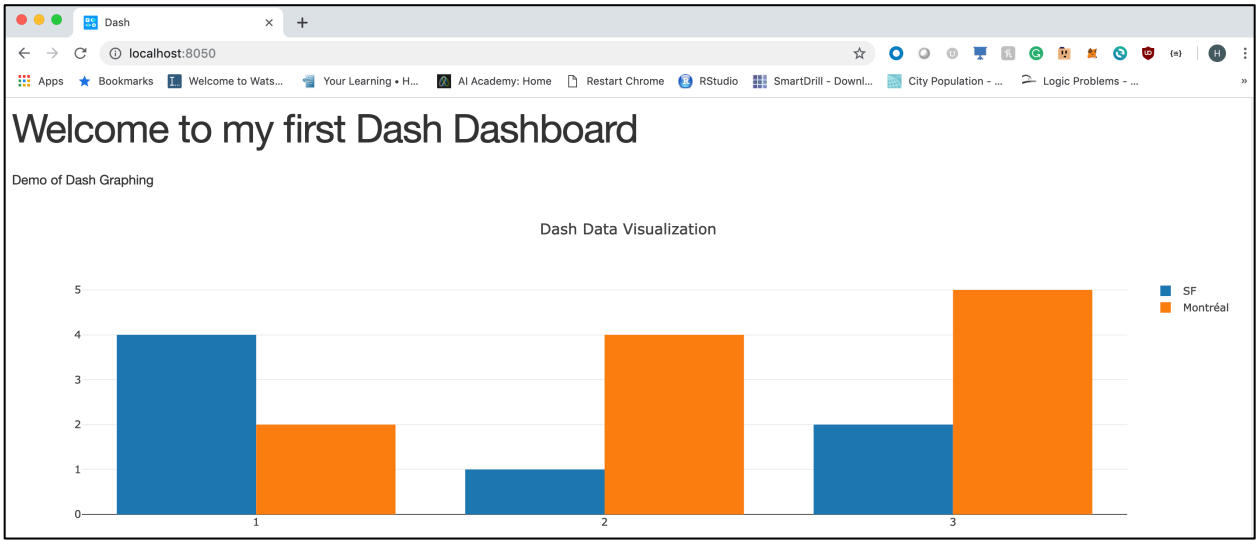
```
import tornado.ioloop
import tornado.web
import logging

class MainHandler(tornado.web.RequestHandler):
    def get(self):
        self.write("Hello, World!")

class NameHandler(tornado.web.RequestHandler):
    def get(self):
        self.write("Name: Harish Visweswaran")

class Application(tornado.web.Application):
    def __init__(self):
        app_settings = {
            'default_handler_args': dict(status_code=404),
        }

        app_handlers = [
            (r'^/$', MainHandler),
            (r'^/Name$', NameHandler)
        ]

        super(Application, self).__init__(app_handlers, **app_settings)

if __name__ == "__main__":
    port = 8000
    address = '0.0.0.0'
    logging_level = logging.getLevelName('INFO')
    logging.getLogger().setLevel(logging_level)
    logging.info('starting event logger on %s:%d', address, port)

    http_server = tornado.httpserver.HTTPServer(
        request_callback=Application(), xheaders=True)
    http_server.listen(port, address=address)
```

tornado.ioloop.IOLoop.instance().start()

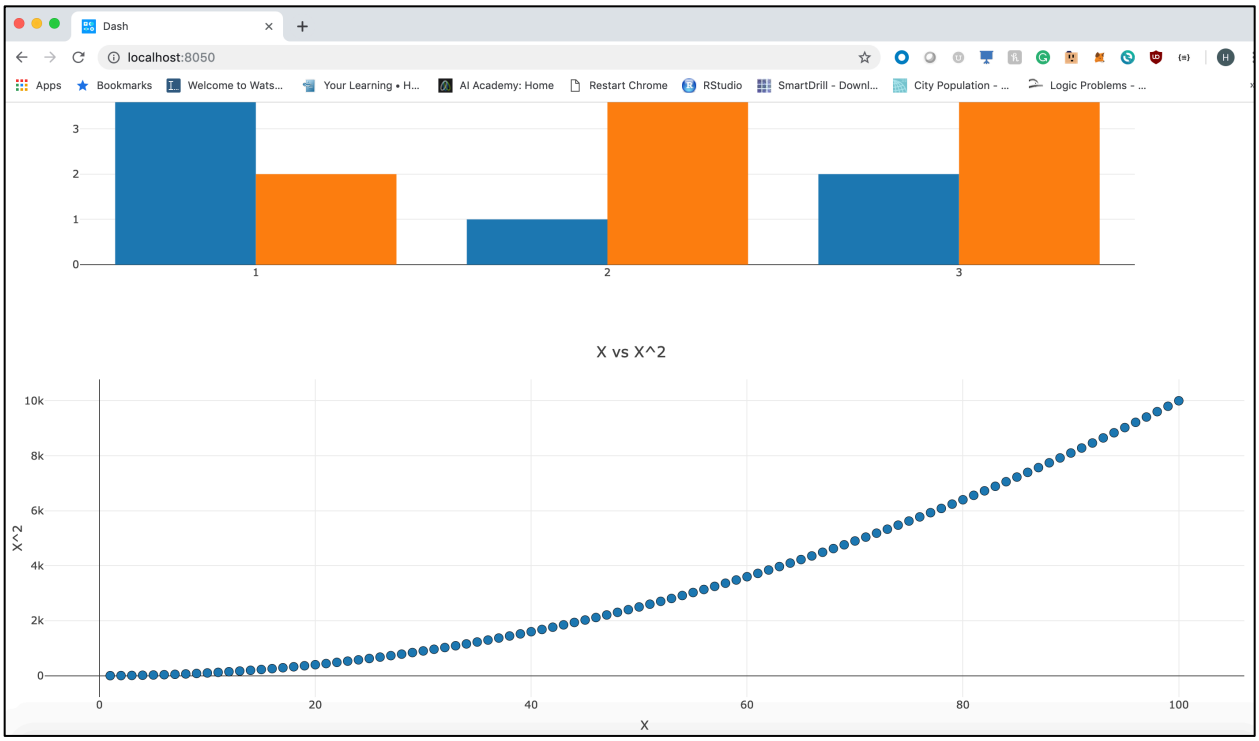
Question 3)

Dash App with sample graph and graph of X vs X^2:

Screenshot 1:



Screenshot 2:



Script for Question 3:

```
import dash
import dash_core_components as dcc
import dash_html_components as html
import plotly.graph_objs as go

external_stylesheets = ['https://codepen.io/chriddyp/pen/bWLwgP.css']

app = dash.Dash(__name__, external_stylesheets=external_stylesheets)

x = list(range(1,101,1))
y = [x_val**2 for x_val in x]

app.layout = html.Div(children=[
   html.H1(children='Welcome to my first Dash Dashboard'),
   html.Div(children='''
   Demo of Dash Graphing
   '''
   ),

   dcc.Graph(
      id='example-graph',
      figure={
         'data':[
            {'x': [1, 2, 3], 'y': [4, 1, 2], 'type': 'bar', 'name': 'SF'},
            {'x': [1, 2, 3], 'y': [2, 4, 5], 'type': 'bar', 'name': u'Montréal'}
               ],
         'layout':{
            'title':'Dash Data Visualization'
         }
      }
   ),

   dcc.Graph(
      id='x_vs_x_squared',
      figure={
         'data':[
```

```
            go.Scatter(
                x=x,
                y=y,
                mode='markers',
                marker={'size':10, 'line':{'width':0.5, 'color':'black'}}
                )
            # {'x': x, 'y': y, 'type': 'scatter', 'name': 'Scatter'}
            ],
        'layout':
            go.Layout(
            xaxis={'type': 'linear', 'title': 'X'},
            yaxis={'title': 'X^2'},
            margin={'l': 40, 'b': 40, 't': 50, 'r': 10},
            legend={'x': 0, 'y': 1},
            hovermode='closest',
            title='X vs X^2'
            )
        # 'title':'Dash Data Visualization'
      }
   )
])

if __name__ == '__main__':
   app.run_server(debug=True, port=8050)
```

Question 4)
Docker ps Output running the tornado app:

```
Harishs-MBP-2:~ harish$ docker ps
CONTAINER ID        IMAGE               COMMAND                  CREATED             STATUS              PORTS                    NAMES
63ad1023c821        tornado-docker      "python /app/tornado…"   6 seconds ago       Up 4 seconds        0.0.0.0:8000->8000/tcp   pedantic_poitras
```

Script for Question 4:

Dockerfile:

```
FROM python:3.6-slim

COPY . /app

RUN pip3 install --upgrade pip
RUN pip3 install -r /app/requirements.txt

CMD ["python", "/app/tornado_app.py"]
```