

Largest Companies Project

In this project you will learn how to structure your projects in Dash, use core components and use csv file with Dash.

1. Open Terminal or CMD
2. Create new project —> `mkdir largestcompanies`
3. Get into the `largestcompanies` directory `cd`

`largestcompanies`

4. Pip install Install virtualenv
5. To Initialize virtualenv venv in the folder `largestcompanies`
6. Activate virtualenv `source venv/bin/activate` for `venv/Scripts/activate`
7. If virtual environment activated you should see `(venv)`
8. Install Dash -> `pip install dash`
9. Install dash-bootstrap -> `pip install dash-bootstrap-components`
10. Install pandas -> `pip install pandas`
11. Install Plotly -> `pip install plotly`
12. `pip freeze` will show all libraries installed in virtualenvironment
13. Write all the libraries into `requirements.txt` `pip freeze > requirements.txt`

14. Create main.py

15. In main.py import dash from dash import Dash

15. Import Bootstrap

```
import dash_bootstrap_components as dbc
```

16. Create function main

17. Initialize an instance of the app

```
def main():  
    app = Dash(external_stylesheets=[dbc.themes.COSMO])  
  
if __name__=="__main__":  
    main()
```

18. Add title

```
app.title = "Largest Companies"
```

19. Add

```
app.run()
```

20. Add layout

```
app.layout = html.H1("Hello!")
```

21. Python main.py to run local server

22. Open ip in the browser

23. Nest layout with more elements

```
app.layout = html.Div(  
    className="app-div",  
    children=[  
        html.H1("Hello!"),  
        html.Hr(),  
        html.H6("My new Dash app!")  
    ]  
)
```

24. Create layout.py

And move html.Div there

```
from dash import Dash, html

def create_layout(app):
    return html.Div(
        className="app-div",
        children=[
            html.H1("Hello!"),
            html.Hr(),
            html.H6("My new Dash app!")
        ]
    )
```

25. Import layout in main.py

```
from layout import create_layout
```

26. Replace app.layout with create_layout function

```
def main():
    app = Dash(external_stylesheets=[dbc.themes.COSMO])
    app.title = "Chipotle project"
    app.layout = create_layout(app)
    app.run()
```

27. Move LargestCompanies.csv to largestcompanies folder

28. Create new file call it util.py

29. Import pandas

30. create function get_data()

```
31. import pandas as pd
32.
33. PATH = r"/Users/n/largestcompanies/LargestCompanies.csv"
34.
35. def get_data(PATH):
36.     df = pd.read_csv(PATH)
37.     print(df)
38.     return df
```

39. Perform calculations:

```
40. get 10 largest contries by marketcap by trillllions
41. return df with two columns --> country market_triiillions
42. def get_contries_marketcap():
43.     df = get_data(PATH)
44.     companies = df.groupby(['country'])['marketcap'].sum()
45.     companies.sort_values(ascending=False, inplace=True)
46.     companies = companies.iloc[:10].to_frame()
47.     companies['trillions'] = round(companies['marketcap']/1000000000000,2)
48.     companies.reset_index(inplace=True)
49.     return companies
```

50. Create pie_chart.py -> new component

51. import from util.py import get_countries_marketcap, print DataFrame

30. import

```
from dash import Dash, html, dcc
import plotly.express as px
from util import get_contries_marketcap
```

32. Create render function

33. Use data revenue to plot pie chart with plotly pie function

```
def render(app):
    df = get_contries_marketcap()
    fig = px.pie(df, values='trillions', names='country', title='Market cap by
country')
    return html.Div(dcc.Graph(figure=fig), id="pie_chart")
```

35. Include component pie_chart into layout file

Do not forget to import it

```
import pie_chart
```

```
def create_layout(app):
    return html.Div(children=[
        html.H1("Largest Companies", style={"color": "red"}),
        pie_chart.render(app)
    ])
```

37. Save everything

38. Run the server

```
39. create file bar_chart.py import plotly.express as px
from dash import Dash, html, dcc
from util import get_contries_marketcap

def render_bar(app):
    df = get_contries_marketcap()
    fig = px.bar(df, x='trillions', y='country', orientation='h')
    return html.Div(dcc.Graph.figure=fig), id="Bar_Chart")
```

40. add bar_chart component to layout

```
from dash import Dash, html
import pie_chart, bar_chart

def create_layout(app):
    return html.Div(children=[
        html.H1("Largest Companies", style={"color": "red"}),
        pie_chart.render(app),
        bar_chart.render(app)
    ])
```

41. create scatter_chart.py

```
import plotly.express as px
from dash import Dash, html, dcc
from util import get_contries_marketcap

def render(app):
    df = get_contries_marketcap()
    df = df.iloc[1:]
    x = df['trillions']
    y = df['country']
    c = df['marketcap']
    s = df['marketcap']
    fig = px.scatter(
        x=x,
        y=y,
        color=c,
        size=s)
    return html.Div(dcc.Graph.figure=fig), id="scatter_chart")
```

42. add scatter_chart into layout

```
def create_layout(app):
    return html.Div(children=[
        html.H1("Largest Companies",style={"color":"red"}),
        pie_chart.render(app),
        bar_chart.render(app),
        scatter_chart.render(app),
    ])

```

43. create bar_v_chart for vertical bar chart plot

```
import plotly.express as px
from dash import Dash, html, dcc
from util import get_contries_marketcap

def render(app):
    df = get_contries_marketcap()
    fig = px.bar(df, x='country', y='trillions')
    return html.Div(dcc.Graph(figure=fig), id="barv_chart")

```

44. Add bar_v_chart component to layout

```
from dash import Dash, html
import pie_chart, bar_chart, scatter_chart, bar_v_chart

def create_layout(app):
    return html.Div(children=[
        html.H1("Largest Companies",style={"color":"red"}),
        pie_chart.render(app),
        bar_chart.render(app),
        scatter_chart.render(app),
        bar_v_chart.render(app),
    ])

```

45. In layout move all the components into components folder

```
from components import (
    pie_chart,
    bar_chart,
    scatter_chart,
    bar_v_chart
)

```

46. Add Row and Col from Dash Bootstrap

```
from dash import Dash, html
import dash_bootstrap_components as dbc
from components import (
    pie_chart,
    bar_chart,

```

```

        scatter_chart,
        bar_v_chart
    )

def create_layout(app):
    return html.Div(children=[
        dbc.Row([
            dbc.Col(pie_chart.render(app), lg=6),
            dbc.Col(bar_chart.render(app), lg=6),
        ], className="mt-4"),
        dbc.Row([
            dbc.Col(scatter_chart.render(app), lg=6),
            dbc.Col(bar_v_chart.render(app), lg=6),
        ], className="mt-4"),
    ])

```

47. Add heading and wrap everything in Container element

```

def create_layout(app):
    heading = html.H1("Largest Companies by Country", className="bg-primary text-
white p-2 mb-3")
    return dbc.Container(children=[
        heading,
        dbc.Row([
            dbc.Col(pie_chart.render(app), lg=6),
            dbc.Col(bar_chart.render(app), lg=6),
        ], className="mt-4"),
        dbc.Row([
            dbc.Col(scatter_chart.render(app), lg=6),
            dbc.Col(bar_v_chart.render(app), lg=6),
        ], className="mt-4"),
    ])

```