A Glimpse at Plotly Dash

Python Meeting Düsseldorf

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What Is It?

- Python framework for creating interactive web-based dashboards and applications
- Based on and Plotly Python and Plotly.js
- Doesn't require writing any Javascript
- Self-hosting via Flask
- Example

Basic Example

```
import dash
import dash_core_components as dcc
import dash_html_components as html

app = dash.Dash(__name__)

app.layout = html.Div(children=[
    html.H1(children="Hello Dash"),
    html.Div(children="Dash: A web application framework for Python."),
    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"
}})])

if __name__ == "__main__":
    app.run_server(debug=True)
```

Batteries Included?

- Dash Core Components: graphs, dropdown, date picker, file upload, ...
- Dash DataTable (editable -> data writeback)
- Dash Bootstrap Components: navbar, grid system (rows, cols), Bootstrap components
- More component libraries

Interactivity with Callbacks

```
import dash
import dash_core_components as dcc
import dash_html_components as html
from dash.dependencies import Input, Output

app = dash.Dash(__name__)

app.layout = html.Div(
    [dcc.Input(id="my-id", value="initial value", type="text"), html.Div(id="my-div")]
)

@app.callback(
    Output(component_id="my-div", component_property="children"),
    [Input(component_id="my-id", component_property="value")],
)
def update_output_div(input_value):
    return f"You've entered {input_value}"

if __name__ == "__main__":
    app.run_server(debug=True)
```

Caveats

1) Deployment + Auth only included in commercial offering: Dash Deployment Server (like Heroku)

...but you can always roll your own (it's just flask)

2) Styling (company colors anyone?) can be painful: find CSS classes of all components and color via trial and error

...or buy commercial offering

Also Check Out

Recent additions to the Python web-based dashboarding ecosystem:

- Panel (based on Bokeh)
- Jupyter Voilà (based on ipywidgets)

Thanks

Questions?

Some Links for Further Research

- Dash App Gallery
- Dash User Guide
- PyViz: More info about Python visualization and dashboarding