



Interactive Visualization with Bokeh - 4

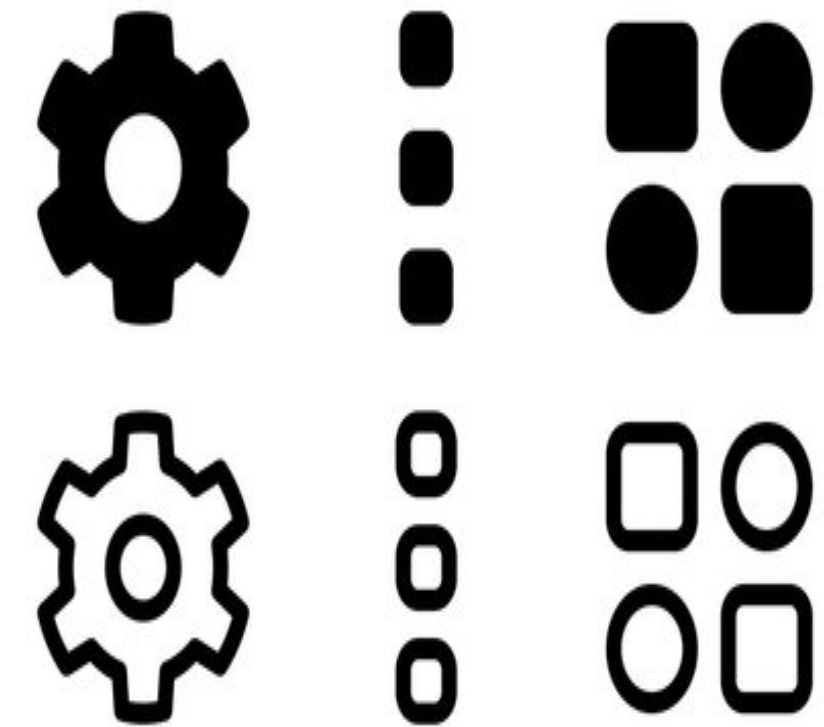
One should look for what is and not what he thinks should be. (Albert Einstein)

Module completion checklist

Objective	Complete
Integrate widgets to bokeh and plotly graphs	
Save your graphs	

Widgets

- **Widgets** are interactive controls that can be added to provide a front end user interface to a visualization
- They can be used for:
 - driving new computations
 - updating plots
 - connecting to other programmatic functionality



Adding widgets to graphs

- `ipywidgets` library allows us to turn Jupyter Notebooks from static documents into interactive dashboards
- Widgets are handy when we want to **change inputs** without needing to rewrite or rerun the code
- **Click here** to read the documentation on `ipywidgets`

Adding widgets to graphs (cont'd)

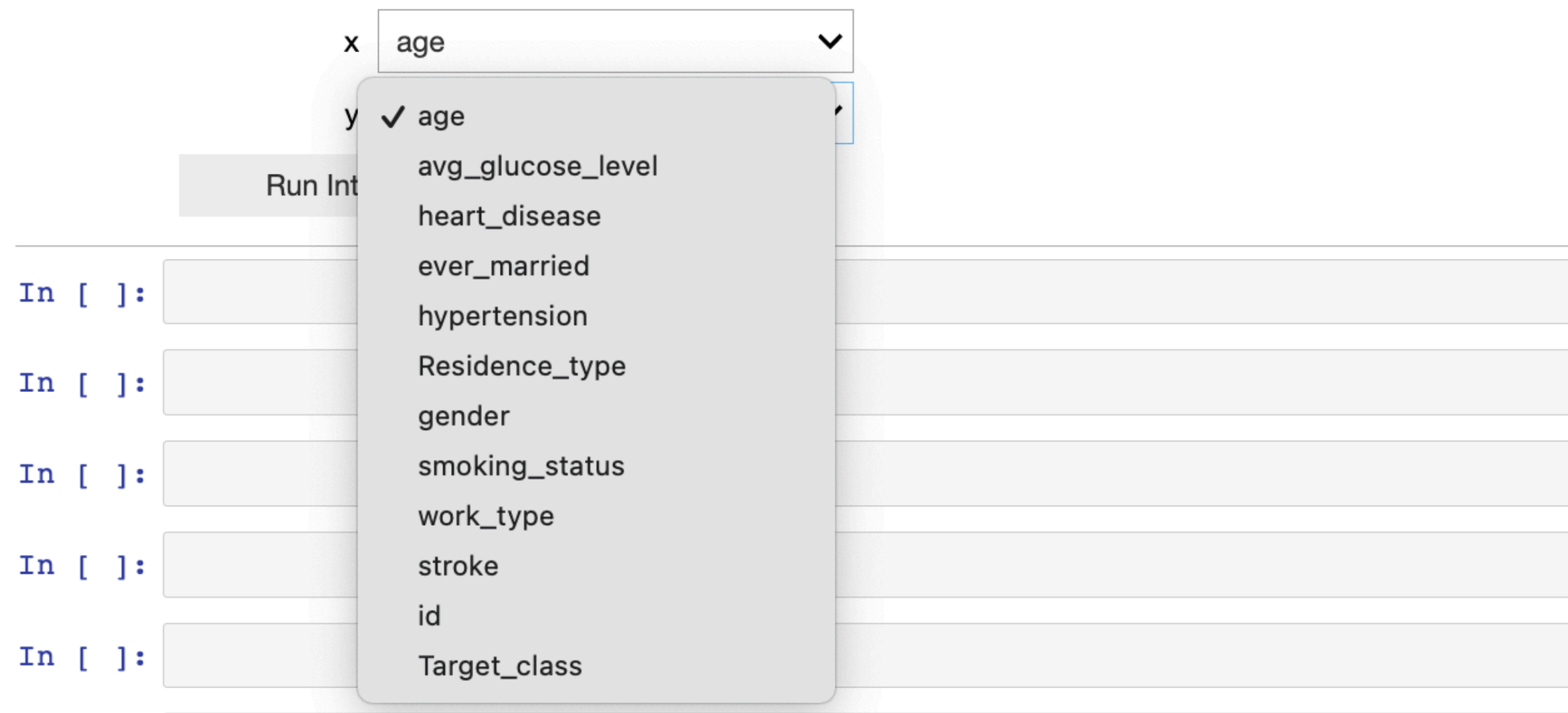
- The stroke dataset has many inputs which can slow the plot rendering, so let's subset the variables we wish to use

```
@interact_manual
def scatter_plot(x = list(df.columns), y = list(df.columns)):
    p = figure(title = f'{x} vs {y}',
               x_axis_label = x,
               y_axis_label = y)

    p.circle(x = x,
             y = y,
             source = df,
             size=20, color = "thistle", alpha = 0.2)

    show(p)
```

Adding widgets to graphs (cont'd)



Module completion checklist

Objective	Complete
Integrate widgets to bokeh and plotly graphs	✓
Save your graphs	

Saving your graph

- You will save all your graphs as an HTML file in the plots folder

```
x_values = [1, 2, 3, 4, 5, 6]
y_values = [6, 7, 2, 3, 6, 4]

# Create figure.
p = figure(width = 400, height = 400)

# Add glyphs to it.
p.triangle(x_values, y_values, size = 20, color = "darkseagreen", alpha = 0.7)

# Save your plot.
output_file(plot_dir + "/bokeh-simple-plot.html", mode = 'inline')
save(p)
```


Bokeh vs. other visualization libraries

- **Bokeh** is ideal for creating charts with multiple glyphs and has various options for customization, but it undergoes a lot of development
- Hence, the code we write today may change in the future
- One of the most popular visualization libraries is **Plotly**
 - Its syntax is also simple and can be embedded as HTML in applications
 - The main limitation of Plotly is that the online community version plots are public, and there is a limit of plots that can be created per day
- Choosing an interactive visualization package depends on your preference and ease of use

Knowledge check



Exercise



You are now ready to try tasks 22-23 in the Exercise for this topic

Module completion checklist

Objective	Complete
Integrate widgets to bokeh and plotly graphs	✓
Save your graphs	✓

Interactive Plots: Topic summary

In this part of the course, we have covered:

- Introduction to `bokeh` package
- Organize and visualize data with `bokeh`

Congratulations on completing this module!

