Time to put it all together!

INTERACTIVE DATA VISUALIZATION WITH BOKEH

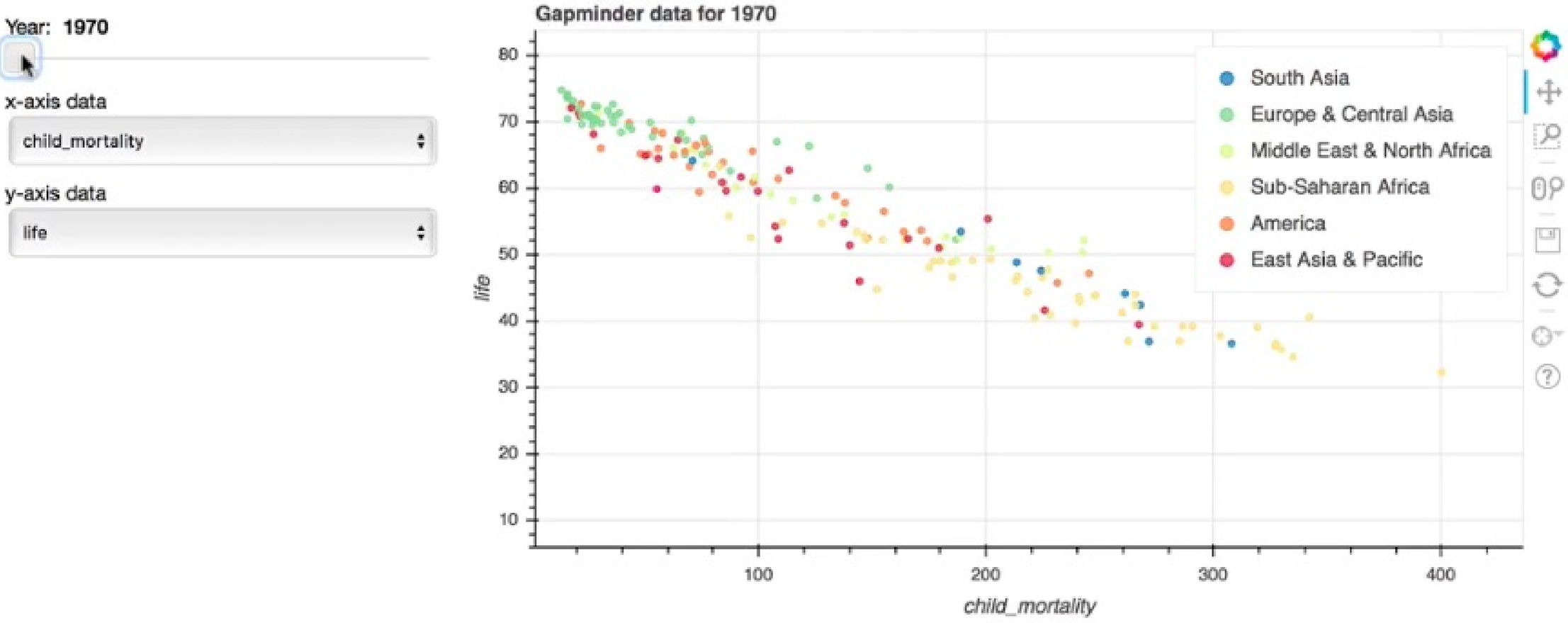
Bryan Van de Ven
Core Developer of Bokeh

The Gapminder dataset

```
data.head()
```

Year	Country	fertility	life	population	child_mortality	gdp	region
1964	Afghanistan	7.671	33.639	10474903.0	339.7	1182.0	South Asia
1965	Afghanistan	7.671	34.152	10697983.0	334.1	1182.0	South Asia
1966	Afghanistan	7.671	34.662	10927724.0	328.7	1168.0	South Asia
1967	Afghanistan	7.671	35.170	11163656.0	323.3	1173.0	South Asia
1968	Afghanistan	7.671	35.674	11411022.0	318.1	1187.0	South Asia

Data exploration tool



Let's practice!

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Starting the app

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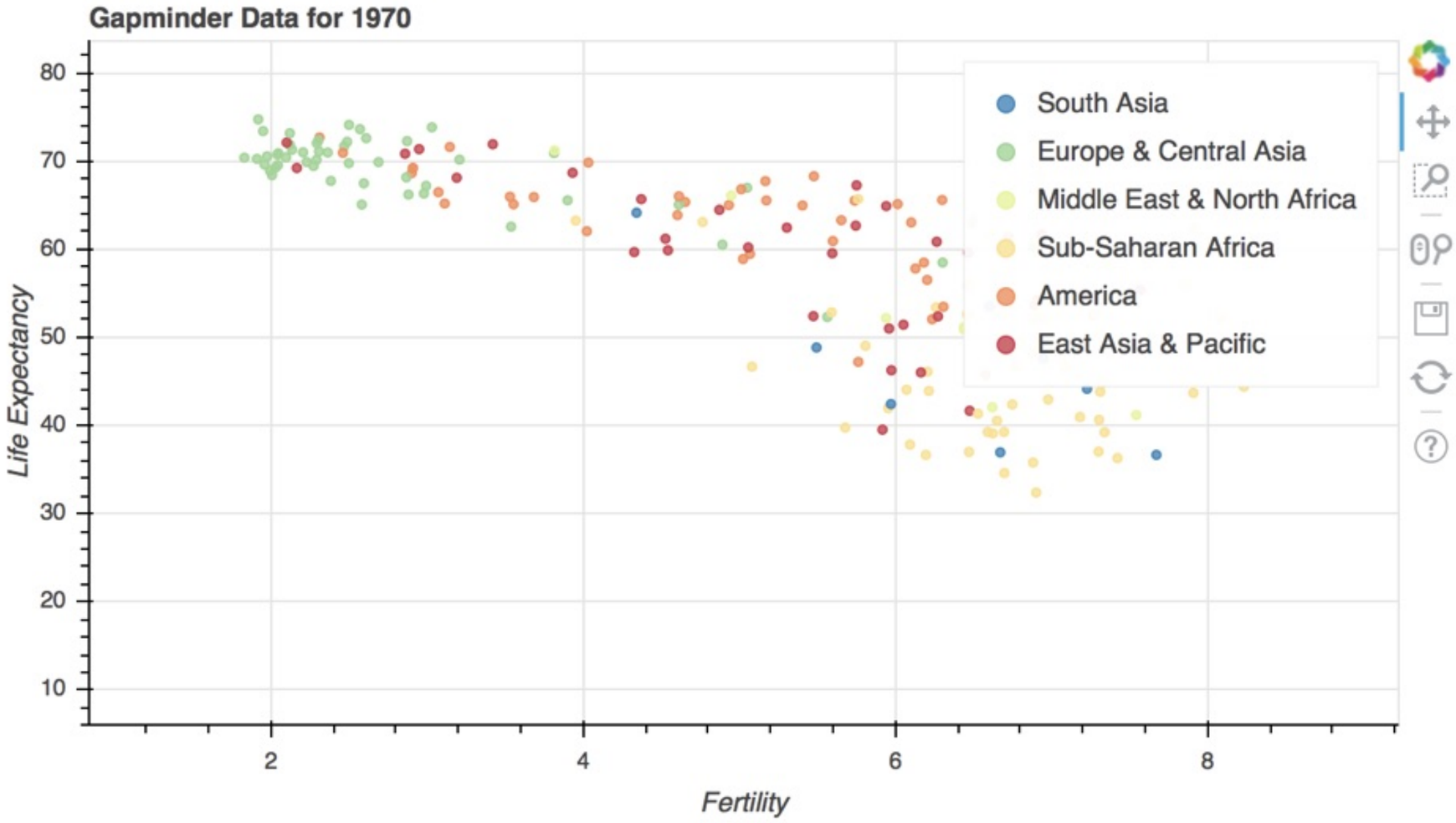
Adding just a plot

```
from bokeh.io import curdoc

# Create plots and widgets

# Add callbacks

# Arrange plots and widgets in layouts

curdoc().add_root(layout)
```

Adding just a plot



Adding a slider

```
# Define a callback taking attr, old, new
def update_plot(attr, old, new):
    yr = slider.value
    new_data = {
        # Update date here    }
    source.data = new_data

    plot.title.text = # new title text

# Create a slider
slider = Slider(start=1970, end=2010, step=1,
            value=1970, title='Year')

# Add a callback to its value
slider.on_change('value', update_plot)
```

Result for this section

Let's practice!

INTERACTIVE DATA VISUALIZATION WITH BOKEH

Adding more interactivity to the app

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datacamp

Adding a Hover Tool

```
from bokeh.models import HoverTool

# HoverTool tooltips accepts a list of tuples
hover = HoverTool(tooltips=[
    ('species name', '@species'),
    ('petal length', '@petal_length'),
    ('sepal length', '@sepal_length')
])

plot = figure(tools=[hover, 'pan', 'wheel_zoom'])
```

Adding a dropdown menu

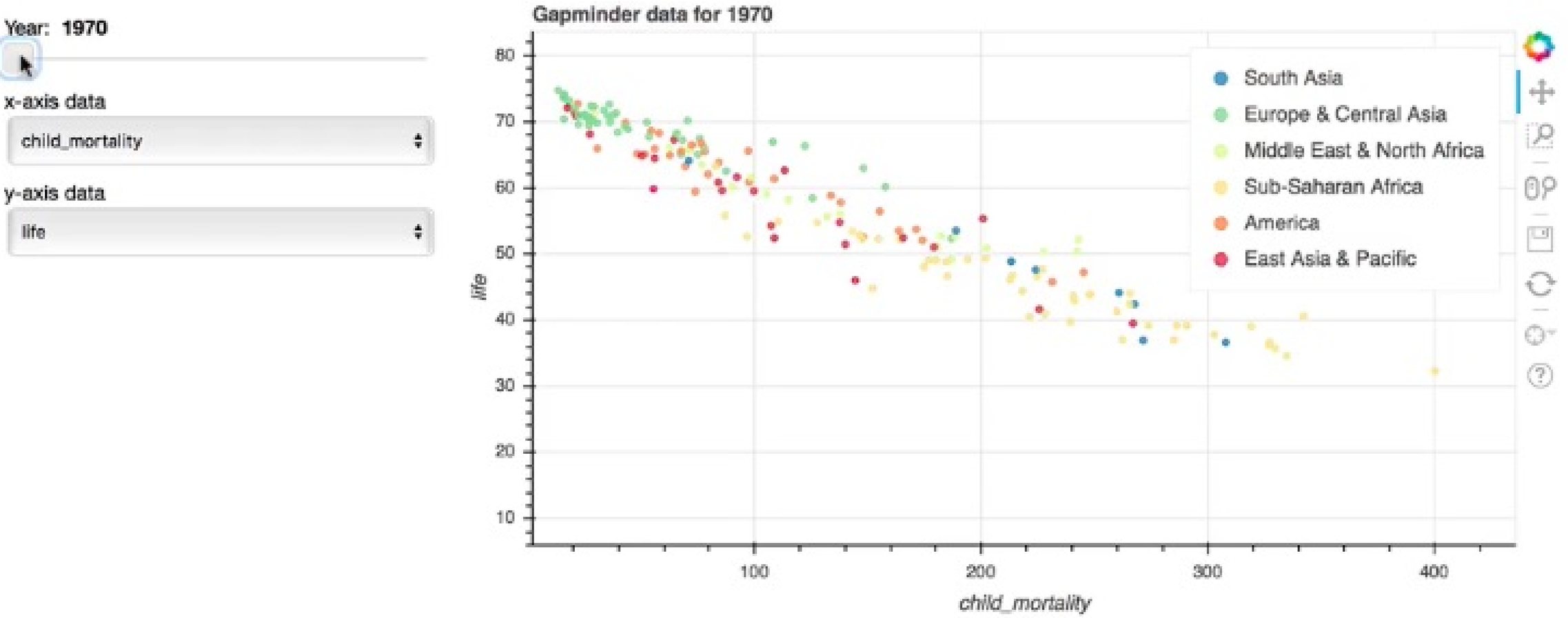
```
from bokeh.models import Select

# Define a callback taking attr, old, new
def callback(attr, old, new):
    # Update the plot here

menu = Select(options=['foo', 'bar', 'baz'],
        value='foo', title='A menu of options')

menu.on_change('value', callback)
```

The final result



Let's practice!

INTERACTIVE DATA VISUALIZATION WITH BOKEH

Congratulations!

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Recap and Next Steps

- The bokeh.plotting interface for basic plotting
- How to customize plots and add layouts and interactions
- The power of the bokeh server for creating richly interactive visualization applications

https://bokeh.github.io

Congratulations!

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