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In [2]: import os
import pandas as pd

os.chdir("C:/Users/rmjol/OneDrive/Documents/School/Summer2023/MLNN/01")

cces_df = pd.read_csv("cces_sample.csv")

In [3]: import plotly
import plotly.express as px
from plotly import version
from plotly.offline import download_plotlyjs, init_notebook_mode, plot, iplot
init_notebook_mode(connected=True)

income_union = cces_df.loc[:,("union", "faminc_new", "gender")]
union=["Union Member", "Former Member", "Never Union"]
union_numeric = [1, 2, 3]

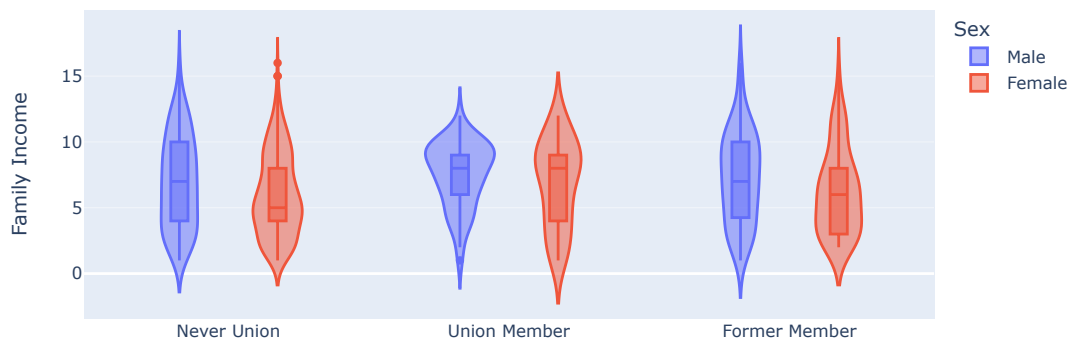
gender=["Male", "Female"]
gender_numeric = [1, 2]

income_union["union"] = income_union["union"].replace(union_numeric, union)
income_union["gender"] = income_union["gender"].replace(gender_numeric, gender)

fig1 = px.violin(income_union, y="faminc_new", x="union", color="gender",
                 box=True,
                 labels={
                     "faminc_new": "Family Income",
                     "union": "",
                     "gender": "Sex"
                 },
                 title="Income and Union Relationship by Sex",
                 width=800, height=400
                )

fig1.show()
```

Income and Union Relationship by Sex



```
In [3]: import bokeh
from bokeh.plotting import figure, show
from bokeh.models import ColumnDataSource
from bokeh.transform import dodge
from bokeh.io import output_notebook

tax_changes = cces_df.loc[:,("CC18_325a", "CC18_325b", "CC18_325c", "CC18_325d")]

support_oppo = tax_changes.apply(pd.Series.value_counts, axis = 0)
questions = ["39% Corporate \n Tax Rate", "Reduce Mortgage \n Interest Deduction", "Reduce Local \n Tax Deduction", "25K Standard"]
support = support_oppo.iloc[0, :].to_list()
opposition = support_oppo.iloc[1, :].to_list()

data = {"questions" : questions,
        "Support" : support,
        "Opposition" : opposition
       }
data = pd.DataFrame(data)

source = ColumnDataSource(data=data)
```

```
fig2 = figure(x_range=questions, y_range=(0, 820), title="Support and Opposition Counts for Tax Changes",
             height=350, toolbar_location=None, tools="")

fig2.vbar(x=dodge("questions", -0.25, range=fig2.x_range), top="Support", source=source,
          width=0.2, color="#c9d9d3", legend_label="Support")

fig2.vbar(x=dodge("questions", 0.0, range=fig2.x_range), top="Opposition", source=source,
          width=0.2, color="#718dbf", legend_label="Opposition")

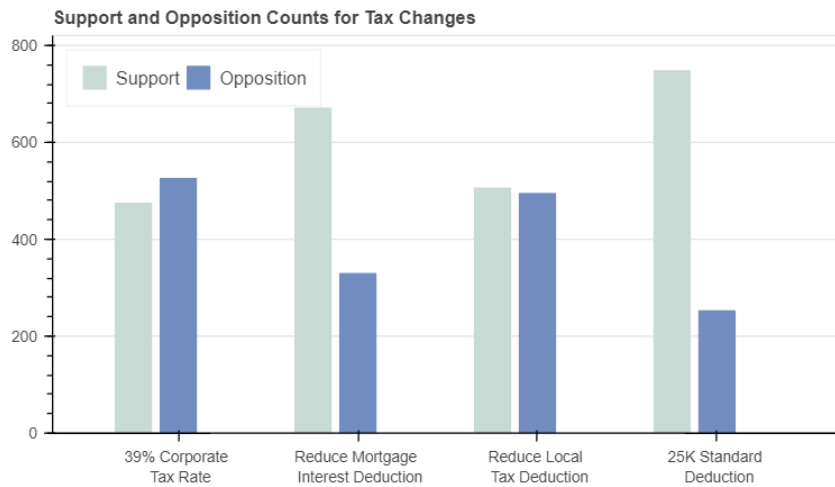
fig2.x_range.range_padding = 0.1
fig2.xgrid.grid_line_color = None
fig2.legend.location = "top_left"
fig2.legend.orientation = "horizontal"
```

In [4]: output_notebook()



BokehJS 3.1.1 successfully loaded.

In [5]: show(fig2)



In []:

