assignment_five

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1 Assignment Five

Plotly charts

1.1 Task 1

Install `plotly` and other visual packages

1.1.1 Install instructions

These must be run in a bash terminal, within the `assignment five` directory 1. Create a virtual environment
`python3 -m venv pyvis` 2. Enter the virtual environment `source pyvis/bin/activate` 3. Install requirements `pip install -r requirements.txt`

When running the Jupyter Notebook in VSCode, the VSCode workspace should be open directly in the assignment five folder. This allows VSCode to find and use the `pyvis` virtual environment.

[12]:
```
import io
import json
import pandas as pd
import plotly.express as px
import plotly.io as pio
```

1.2 Task 2

Produce three types of charts with ACS data downloaded from Census.gov

[13]:
```
df = pd.read_csv("data/bois-ages-tract.csv", dtype={"Geography": str})
```

1.2.1 Task 2a

Choropleth Map
Total population in Census tracts for those 65 and older

[14]:
```

```

```
with io.open("data/boi_select_ages_tract_borders.geojson", encoding="utf-8") as␣
 ↪f:
    tracts = json.load(f)

pop_over_65_map = px.choropleth(
    df,
    geojson=tracts,
    featureidkey="properties.Geography",
    locations="Geography",
    color="tot_pop_over_65_est",
    color_continuous_scale="viridis_r",
    labels={"tot_pop_over_65_est": "Population over 65"},
    scope="usa",
)
pop_over_65_map.update_geos(fitbounds="geojson")
pop_over_65_map.show()
```

[15]:
```
pio.write_image(pop_over_65_map, "choropleth.png")
```

[16]:
```
pio.write_html(pop_over_65_map, "choropleth.html")
```

Population over 65 map

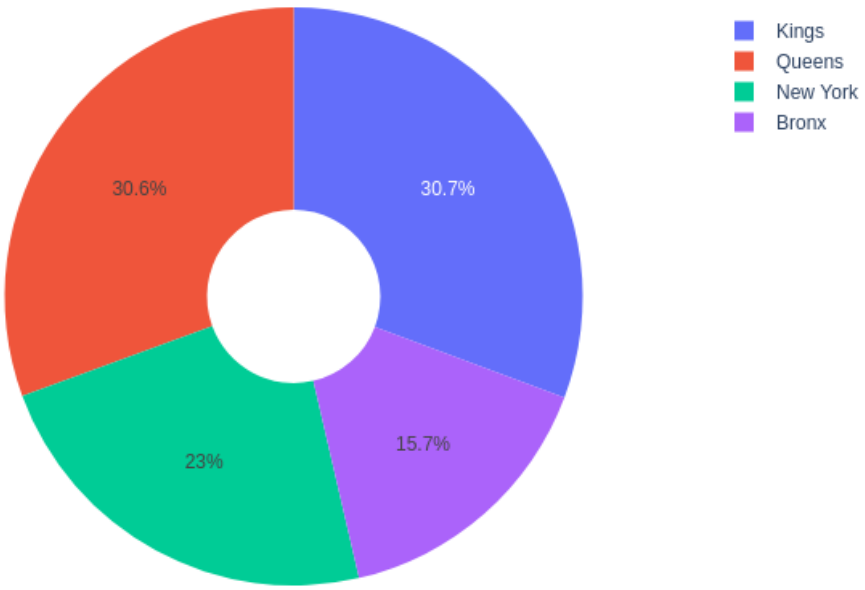
1.2.2 Task 2b

Pie Chart

Distribution of population for those 65 and older, distributed by borough

[17]:
```
pop_over_65_pie = px.pie(df, values="tot_pop_over_65_est", names="County",␣
↪hole=0.3)
pop_over_65_pie.show()
```

[18]:
```
pio.write_image(pop_over_65_pie, "pop_over_65_pie.png")
```



[19]:
```
pio.write_html(pop_over_65_pie, "pop_over_65_pie.html")
```

Pop over 65

1.2.3 Task 2c

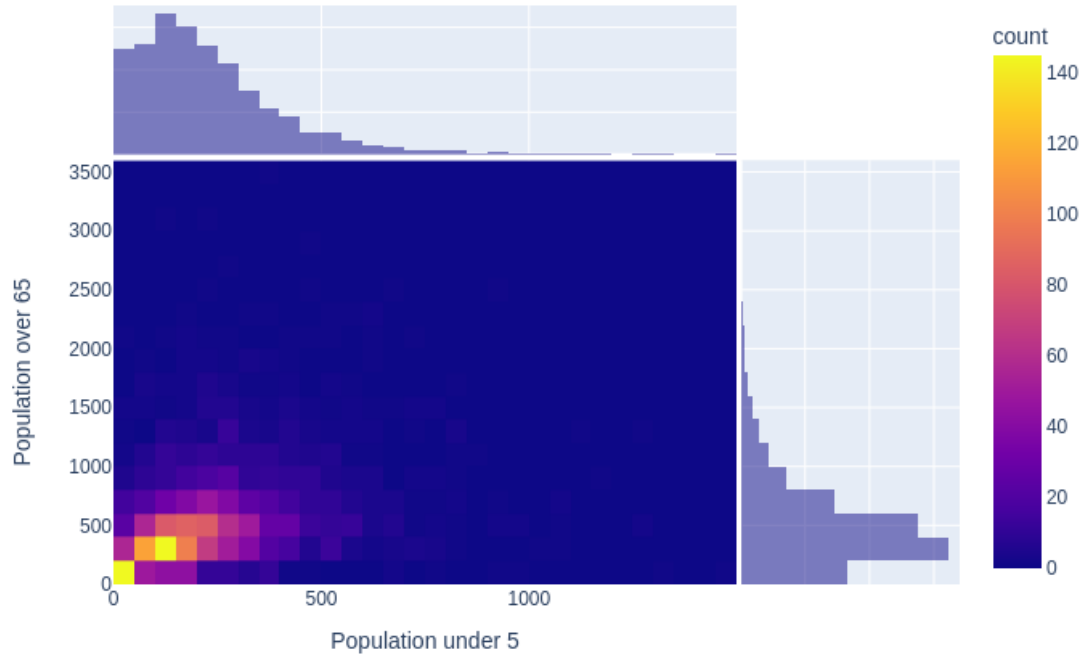
2D Histogram

Distribution of populations over 65 and under 5

[20]:
```
pop_over_65_under_5_hist = px.density_heatmap(
    df,
    x="tot_pop_under_5_est",
    y="tot_pop_over_65_est",
    marginal_x="histogram",
```

```
    marginal_y="histogram",
    labels=dict(
        tot_pop_under_5_est="Population under 5",
        tot_pop_over_65_est="Population over 65",
    ),
)
pop_over_65_under_5_hist.show()
```

[21]:
```
pio.write_image(pop_over_65_under_5_hist, "pop_over_65_under_5_hist.png")
```



[22]:
```
pio.write_html(pop_over_65_under_5_hist, "pop_over_65_under_5_hist.html")
```

Population over 65 and under 5

1.3 Task 3

Export at least one chart to a static image and one chart to an HTML Page

Every chart has been exported to an image and html page. The images are embedded in the exported jupyter notebooks (html and pdf). They are also available in the assignment five repo directory