Client Report - [Introduction]

Course DS 250

Joshua Ludwig

Elevator pitch

This is code used to anaysis the data of from "mpg.csv". This shows the miles per gallon used from each class of car and on which highway it was recorded on.

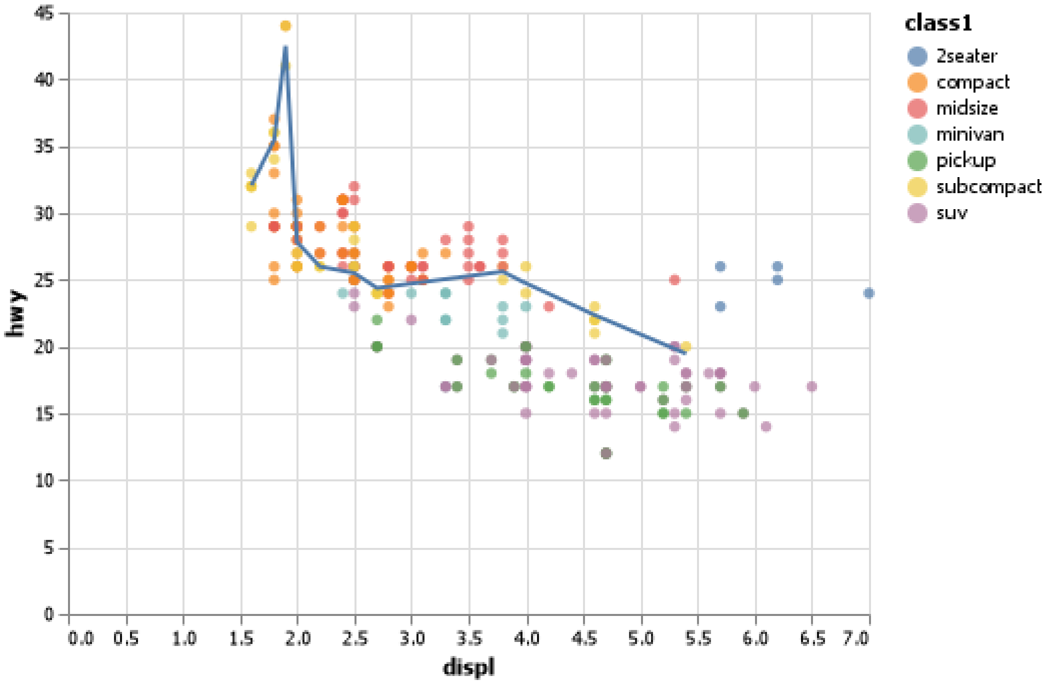
TECHNICAL DETAILS

```
base = (alt.Chart(mpg.rename(columns = {"class": "class1"}))
  .encode(
    x = "displ",
    y = "hwy"
    ))

chart_smooth_sub = (base
  .transform_filter(alt.datum.class1 == "subcompact")
  .transform_loess("displ", "hwy")
  .mark_line()
)

chart = base.encode(color = "class1").mark_circle() + chart_smooth_sub

chart.save("altair_combine_clean_color_filter.png")
```



```
mpg =pd.read_csv("mpg.csv")
print(mpg
    .head(5)
    .filter(["manufacturer", "model","year", "hwy"])
    .to_markdown(index=False))
```

manufacturer	model	year	hwy
audi	a4	1999	29
audi	a4	1999	29
audi	a4	2008	31
audi	a4	2008	30
audi	a4	1999	26

APPENDIX A (PYTHON CODE)

```
#%% Loading in libraires
import pandas as pd
import altair as alt

# %%Loading in data

mpg =pd.read_csv("mpg.csv")
print(mpg
    .head(5)
    .filter(["manufacturer", "model","year", "hwy"])
    .to_markdown(index=False))



# %%
chartleft = (alt.Chart(mpg)
  .encode(
    x = "displ",
    y = "hwy",
    )
  .transform_loess("displ", "hwy")
  .mark_line())




#%%
chartmiddle = (alt.Chart(mpg)
  .encode(
    x = "displ",
    y = "hwy",
    detail = "drv"
    )
  .transform_loess("displ", "hwy", groupby = ["drv"])
  .mark_line())

print(chartmiddle)




#%%
chartright = (alt.Chart(mpg)
  .encode(
    x = "displ",
    y = "hwy",
    color=alt.Color("drv", legend=None)
    )
  .transform_loess("displ", "hwy", groupby = ["drv"])
  .mark_line())
```

```
#%%
chartleft.save("altair_chartleft.png")
chartmiddle.save("altair_chartmiddle.png")
chartright.save("altair_chartright.png")

# %%
chartp = (alt.Chart(mpg)
  .encode(
    x = "displ",
    y = "hwy"
  )
  .mark_circle()
)

chart = chartp + chartleft

chart.save("altair_chartcombine.png")


# %%
base =(alt.Chart(mpg)
  .encode(
    x = "displ",
    y = "hwy"
  ))

chart = base.encode(color = "drv").mark_circle() + base.transform_loess("displ", "hwy").mark_lir

chart.save("altair_combine_clean_color.png")
# %%

#column name of class does not work nicely with Altair filter.

base = (alt.Chart(mpg.rename(columns = {"class": "class1"}))
  .encode(
    x = "displ",
    y = "hwy"
    ))

chart_smooth_sub = (base
  .transform_filter(alt.datum.class1 == "subcompact")
  .transform_loess("displ", "hwy")
  .mark_line()
)

chart = base.encode(color = "class1").mark_circle() + chart_smooth_sub

chart.save("altair_combine_clean_color_filter.png")
# %%
```