This assignment represents my own work. I did not work on this assignment with others. All coding was done by myself.

I understand that if I struggle with this assignment that I will reevaluate whether this is the correct class for me to take. I understand that the homework only gets harder.

CS 671: Homework 2

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Question 7

```
In [ ]: ### Imports
        import pandas as pd
        import matplotlib.pyplot as plt
        from sklearn.model_selection import train_test_split
        from interpret.glassbox import ExplainableBoostingClassifier
        from interpret import show
        from IPython.display import Image, display
```

```
In [ ]: ### Read and split data
        df = pd.read_csv("penguins_trunc.csv")
        x, y = df[["CulmenLength", "CulmenDepth", "FlipperLength"]], df[["Species"]]

        x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.2, random

        ebm = ExplainableBoostingClassifier(random_state=0)
        ebm.fit(x_train, y_train)
```

```
Out[ ]:  ▼          ExplainableBoostingClassifier

        ExplainableBoostingClassifier(random_state=0)
```

```
In [ ]: ### Accuracy and plotted shape functions
        train_score = ebm.score(x_train, y_train)
        test_score = ebm.score(x_test, y_test)
        print(train_score)
        print(test_score)

        ebm_global = ebm.explain_global()
        show(ebm_global)
```
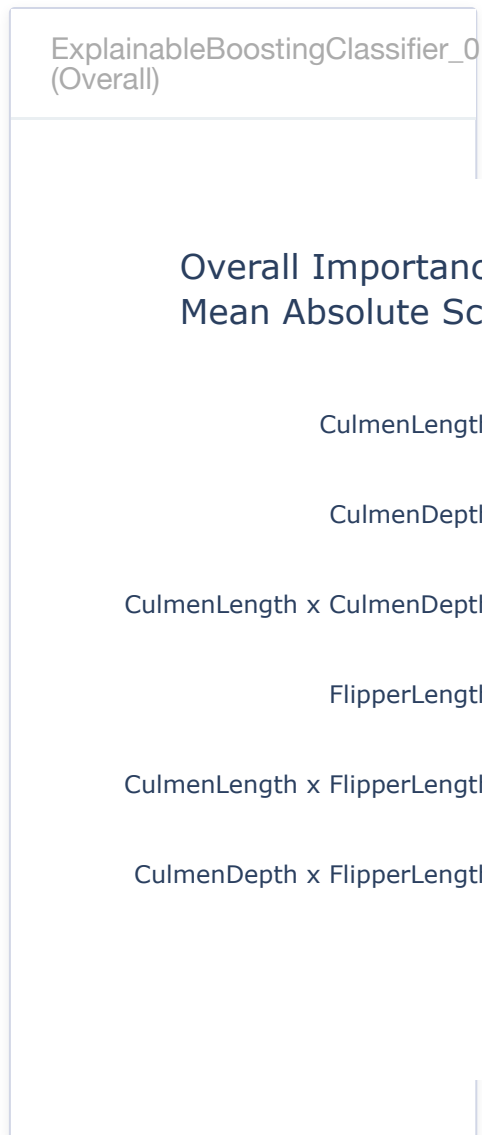
```
1.0
0.9855072463768116
```

```
/Users/alexanderkumar/miniconda3/envs/671/lib/python3.8/site-packages/interpre
t/visual/udash.py:5: UserWarning:
The dash_html_components package is deprecated. Please replace
`import dash_html_components as html` with `from dash import html`
  import dash_html_components as html
/Users/alexanderkumar/miniconda3/envs/671/lib/python3.8/site-packages/interpre
t/visual/udash.py:6: UserWarning:
The dash_core_components package is deprecated. Please replace
`import dash_core_components as dcc` with `from dash import dcc`
  import dash_core_components as dcc
/Users/alexanderkumar/miniconda3/envs/671/lib/python3.8/site-packages/interpre
t/visual/udash.py:7: UserWarning:
The dash_table package is deprecated. Please replace
`import dash_table` with `from dash import dash_table`

Also, if you're using any of the table format helpers (e.g. Group), replace
`from dash_table.Format import Group` with
`from dash.dash_table.Format import Group`
  import dash_table as dt
```
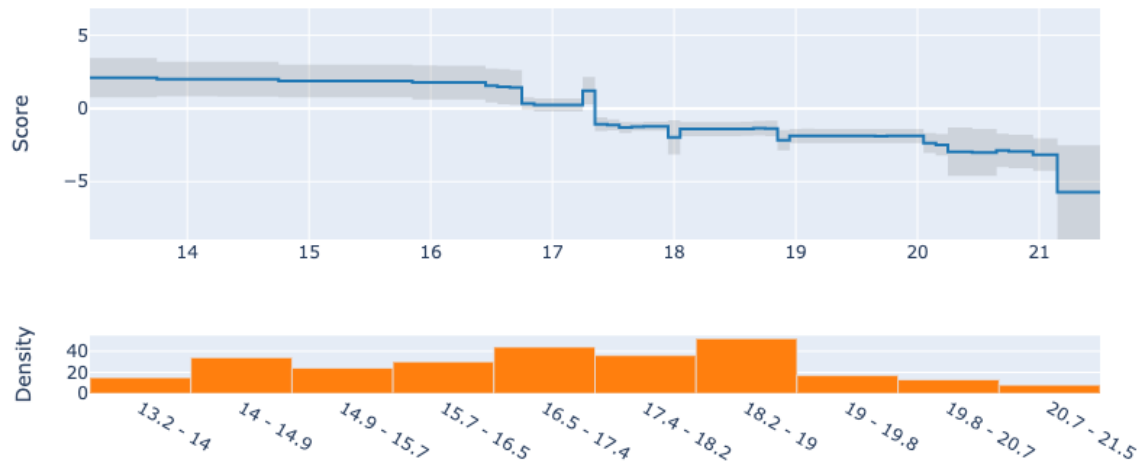
Select Component to Graph

Summary ▼

ExplainableBoostingClassifier_0
(Overall)

Overall Importance:
Mean Absolute Scor

CulmenLength

CulmenDepth

CulmenLength x CulmenDepth

FlipperLength

CulmenLength x FlipperLength

CulmenDepth x FlipperLength
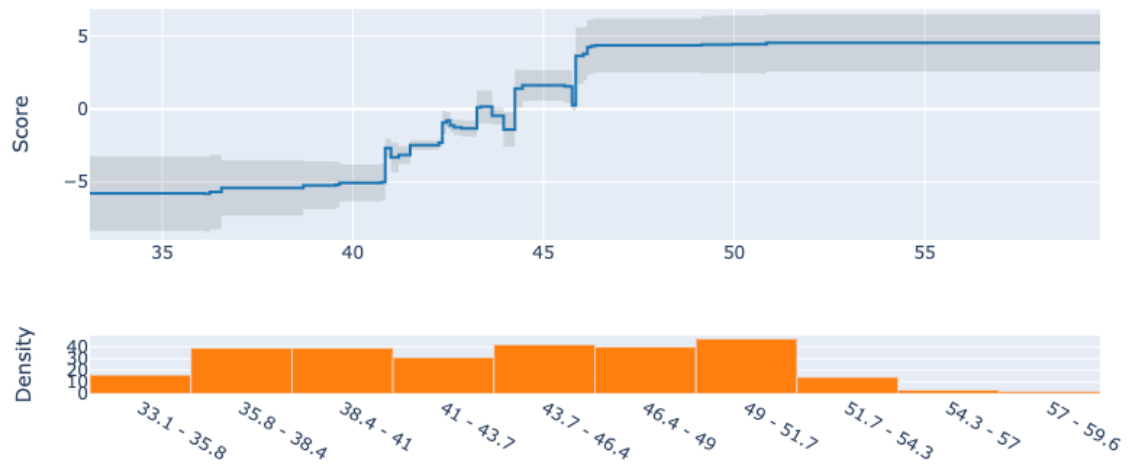
0

```
In [ ]:  ### Display component graphs from above (saved as pngs)
         display(Image(filename='CulmenDepth.png'),
                 Image(filename='CulmenLength.png'),
                 Image(filename='FlipperLength.png'))
```

CulmenDepth

CulmenLength

FlipperLength