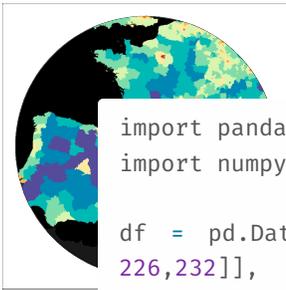# Pandas - Confusion Matrix

```python
import pandas as pd
import numpy as np

df = pd.DataFrame([[38.0, 2.0, 18.0, 22.0, 21, np.nan],[19, 439, 6, 452, 226,232]],
                  index=pd.Index(['Tumour (Positive)', 'Non-Tumour (Negative)'], name='Actual Label:'),
                  columns=pd.MultiIndex.from_product([['Decision Tree', 'Regression', 'Random'],['Tumour', 'Non-Tumour']], names=['Model:', 'Predicted:']))

s = df.style.format('{:.0f}').hide([('Random', 'Tumour'), ('Random', 'Non-Tumour')], axis="columns")

cell_hover = {  # for row hover use <tr> instead of <td>
    'selector': 'td:hover',
    'props': [('background-color', '#ffffb3')]
}
index_names = {
    'selector': '.index_name',
    # darkgr[ae]y
    'props': 'font-style: italic; color: #a9a9a9; font-weight:normal;'
}
headers = {
    'selector': 'th:not(.index_name)',
    'props': 'background-color: #000066; color: white;'
}
s.set_table_styles([cell_hover, index_names, headers])

s.set_table_styles([  # create internal CSS classes
    {'selector': '.true', 'props': 'background-color: #e6ffe6;'},
    {'selector': '.false', 'props': 'background-color: #ffe6e6;'},
], overwrite=False)
cell_color = pd.DataFrame([['true ', 'false ', 'true ', 'false '],
                           ['false ', 'true ', 'false ', 'true ']],
                          index=df.index,
                          columns=df.columns[:4])
s.set_td_classes(cell_color)
s.set_table_styles([  # create internal CSS classes
    {'selector': '.border-red', 'props': 'border: 2px dashed red;'},
    {'selector': '.border-green', 'props': 'border: 2px dashed green;'},
], overwrite=False)
cell_border = pd.DataFrame([['border-green ', ' ', ' ', 'border-red '],
                            [' ', ' ', ' ', ' ']],
                           index=df.index,
```
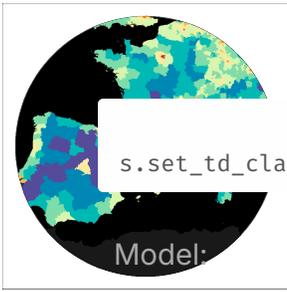
```
                              columns=df.columns[:4])
s.set_td_classes(cell_color + cell_border)
```

Model:	Decision Tree		Regression	
Predicted:	Tumour	Non-Tumour	Tumour	Non-Tumour
Actual Label:				
Tumour (Positive)	38	2	18	22
Non-Tumour (Negative)	19	439	6	452