Heatmaps

In this lesson, heatmaps using the seaborn package are discussed.

We'll cover the following

Introduction

Wherever data needs to be displayed efficiently, and in a comprehensible manner, heatmaps are used. They visualize trends in data perfectly and enable us to analyze what to do next.

A heatmap uses different colors to display data, while other plotting methods either use height or width parameters for it. Specific colors in varying concentrations are applied to different values of data depending on their importance.

Let's visualize a heatmap. The data used in the following example can be obtained from this link. The dataset contains information about the life expectancy of people from different countries and continents.

```
import pandas as pd
import seaborn as sns

# predefined table in data variable
df = pd.read_csv(data)
# Reshaping DataFrame
df = pd.pivot_table(df, values='lifeExp', index=['continent'], columns='year')

sns1 = sns.heatmap(df) # plotting heatmap
```

In the above example, life expectancy in different continents is to be separated for each year and displayed on a heatmap. On **line** 7, the initial table is *reshaped* using the pivot function of the `DataFrame`. Then, on **line 9**, the `heatmap()` function of the

seaborn package is used to generate the heatmap. It can be seen that different data

points are represented by different color bands. The five continents represent the *rows* of the heatmap, and the 12 time periods represent the *columns* of the heatmap.

Annotation

This method of *seaborn* allows the user to view the data points as well as the color band to which they belong. The `annot = True` is passed as an additional parameter to the `heatmap`, which enables this feature of *seaborn*. Let's visualize this with the following example.

```
import pandas as pd
import seaborn as sns

# predefined table in data variable
df = pd.read_csv(data)

df = pd.pivot_table(df, values='lifeExp', index=['continent'], columns='year')

sns1 = sns.heatmap(df, annot = True) # Using annotation to display numbers
```

Now, each value is mentioned with its respective color band. This enhances the visualization and understanding experience of the user by ten fold. More information can be viewed and analyzed this way.

For more information on the `heatmap()` function of the *seaborn* package, refer here.

In the next lesson, some more basic plots are explored.