**Seaborn and the Heatmap:**

**Seaborn** is a library placed above matplotlib and integrated with pandas data structure, its mainly used for statistical data visualization in graphical format and more understandable, contain more information than matplotlib representation, whereas Heatmap is used for plotting and 2-D representation of data in colorfully formatting for data visualization and its easy to make beautiful heatmap with Seaborn library in python.

**Assignment Explanation:**

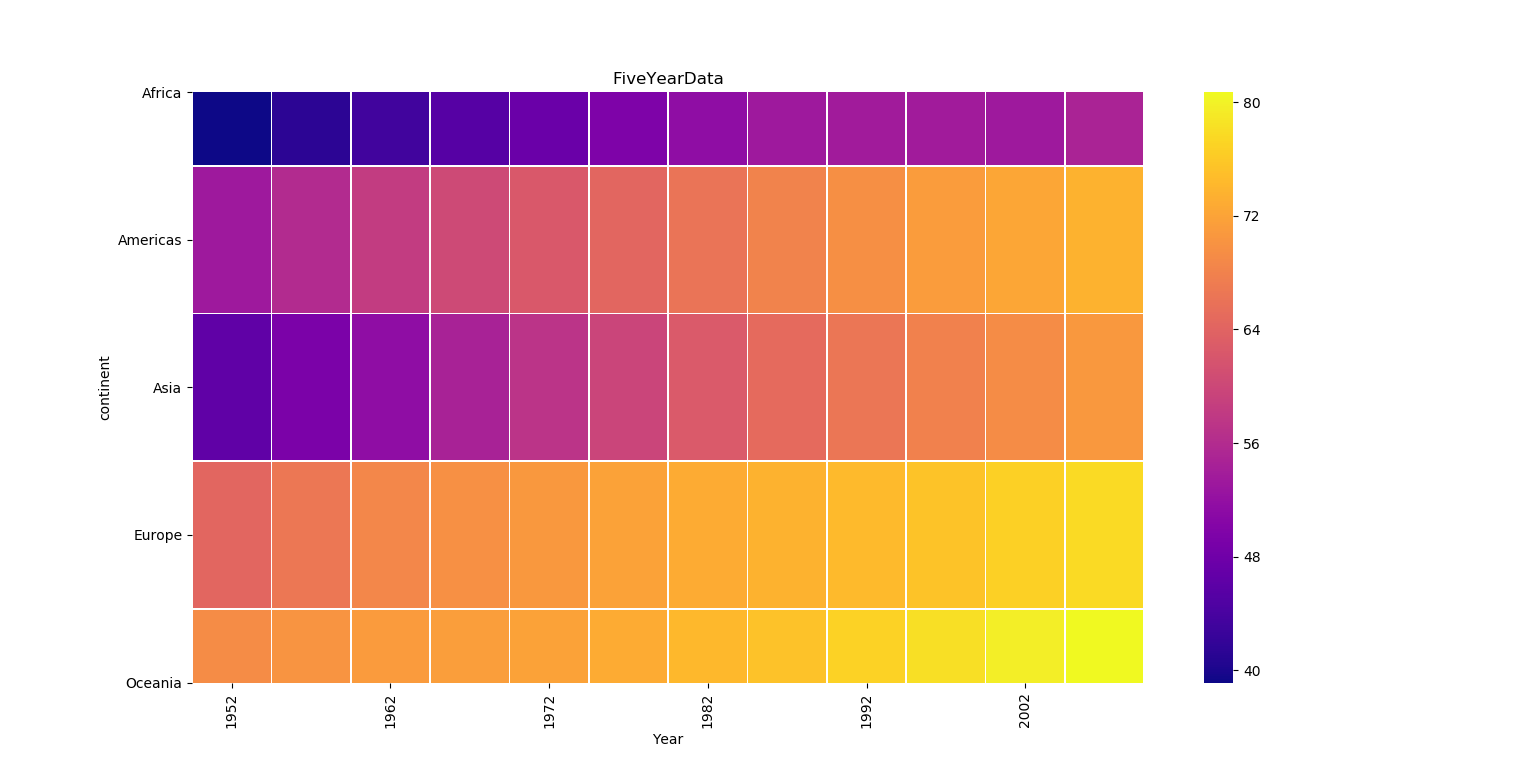
The dataset provided is very large and contain some duplicate values, also its important to extract that data from provided web address using (URL) function, and after that performing another task but first need to extract data from web and put into some file like xml or csv,so here I import that data into .csv file using to\_csv() function.

After that we have to Create a pivot table DataFrame with **year** along x-axes, **continent** along y-axes and **lifeExp** filled within cells from the data which we have for data visualization in Heatmap representation. After all this need to plot the final output in a Heatmap form and save the outputted image file.

Code with Explanation:

*"""  
importing pandas,numpy library  
importing urllib for importing and accessing data from provided link-url  
seaborn and matplotlib for heatmap representation and ploting data in graph for data  
visualization  
"""*import pandas as pd  
import numpy as np  
import urllib  
import pandas as pd  
import numpy as np  
from numpy.random import randn  
import requests  
import io  
from scipy import stats  
import seaborn as sns  
import matplotlib.pyplot as plt  
from urllib.request import urlretrieve  
#url address for data import  
url=('https://raw.githubusercontent.com/resbaz/r-novice-gapminder-files/master/data/gapminder-FiveYearData.csv')  
df=urlretrieve(url,'FiveYData.csv')  
print(df)  
#reading data in csv file  
df1 = pd.read\_csv('FiveYData.csv')  
#creating dataFrame on csv file data  
da=pd.DataFrame(df1)  
print("DataFrame is:\n",da)  
#reindexing data  
print(da.reindex())  
#printing and removing duplicate data  
print("About DuplicateData:\n(True only for Unique elements)\n",da.duplicated())  
print("Count of Dupliated values:\n",da.duplicated().sum())  
print("Droping Duplicates:\n",da.drop\_duplicates(inplace=True))  
print("Droping from file:\n",df1.drop\_duplicates(inplace=True))  
#creating pivot\_table  
df2=da.pivot\_table(index='continent',columns='year',values='lifeExp')  
print("Pivote\_table:\n",df2)  
#assigning size to fig of heatma[  
plt.figure(figsize=(2,2))  
#creating heat map and providing color and margins  
sns.heatmap(df2,fmt="g", linewidths=.5,cmap="plasma")  
"""  
labeling x and y axix along with giving name to Heatmap fig  
"""  
plt.title("FiveYearData")  
plt.ylabel("continent")  
plt.xlabel("Year")  
#saving output image  
plt.savefig("Save2.png")  
plt.show()

**Outpute:**

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