Using the ‘GDP (nominal) per Capita.csv’ which can be downloaded [here](https://justit831-my.sharepoint.com/:x:/g/personal/danpe_justit_co_uk/EV1Xzb5eNENHmOVMDssxyoMBqTCVcLg18U4qOLUDZZHSkw?e=PAbKfN), complete the below exercises and paste your input and output. Work individually, but we will work and support each other in the room.

* Read and save the ‘GDP (nominal) per Capita’ data to a data frame called “df” in Colab notebook
* Print the first 10 rows
* Print the last 5 rows
* Print ‘Country/Territory’ and ‘UN\_Region’ columns

|  |
| --- |
| # Read and save the ‘GDP (nominal) per Capita’ data to a data frame called “df” in notebook.  df = pd.read\_csv('GDP (nominal) per Capita.csv')  df.to\_csv('GDP (nominal) per Capita.csv', index=False)  #Print the first 10 rows  df.head(10)  A screenshot of a computer screen  AI-generated content may be incorrect.  #Print the last rows  df.tail()  A screenshot of a computer  AI-generated content may be incorrect.  # Print ‘Country/Territory’ and ‘UN\_Region’ columns  df[['Country/Territory', 'UN\_Region']]  A screenshot of a cellphone  AI-generated content may be incorrect. |

# **Task 2**

Back with ‘GDP (nominal) per Capita’. As a group, import and work your way through the Day\_4\_Python\_Activity.ipynb notebook which can be found [here](https://justit831-my.sharepoint.com/:u:/g/personal/danpe_justit_co_uk/Ede5Pb1JwPNMj49hTDzeEUMB7GZWBP7SVidCo0Gt6tnP1w?e=D83SIR). There are questions to answer, but also opportunities to have fun with the data – paste your input and output below.

[Additional data found here.](https://justit831-my.sharepoint.com/:f:/g/personal/danpe_justit_co_uk/Er0ybU9i0AZKiuGaCWZyj2ABoqKD23zwLGdJf3WlaixpRA?e=QVj2Bs)

|  |
| --- |
| # Countries below average by IMF\_Estimate  gdp=df[df["IMF\_Estimate"]<df["IMF\_Estimate"].mean()]  gdp.iloc[:,1:4]  A screenshot of a computer  AI-generated content may be incorrect.  #Country has highest UN\_Estimate  gdp=df[df["UN\_Estimate"]==df["UN\_Estimate"].max()]  gdp['Country/Territory']  A screenshot of a computer  AI-generated content may be incorrect.  #Country has highest Worlbank Estimate  gdp=df[df["WorldBank\_Estimate"]==df["WorldBank\_Estimate"].max()]  gdp['Country/Territory']  A close up of a text  AI-generated content may be incorrect.  #Country has highest IMF Estimate  gdp=df[df["IMF\_Estimate"]==df["IMF\_Estimate"].max()]  gdp['Country/Territory']  A screenshot of a computer  AI-generated content may be incorrect.  # Calculate the average of 'Worldbank\_Estimate' and 'UN\_Estimate' columns  avg\_worldbank\_UN = df[['WorldBank\_Estimate', 'UN\_Estimate']].mean()  avg\_worldbank\_UN  A close up of words  AI-generated content may be incorrect.  #Histogram  df.hist(figsize=(10,8))  plt.show()  A group of graphs with numbers and numbers  AI-generated content may be incorrect.  df[["IMF\_Estimate", "UN\_Estimate", "WorldBank\_Estimate"]].hist(figsize=(12,9))  plt.show()  A graph of different numbers  AI-generated content may be incorrect.  df[["IMF\_Estimate", "UN\_Estimate", "WorldBank\_Estimate"]].hist(bins=5, figsize=(12,9))  plt.show()  A graph of different sizes and numbers  AI-generated content may be incorrect.  df["WorldBank\_Estimate"].agg(["min","max"])  A screenshot of a computer  AI-generated content may be incorrect.  df[["IMF\_Estimate", "UN\_Estimate", "WorldBank\_Estimate"]].hist(bins=3, figsize=(12,9))  plt.show()  A graph of different types of data  AI-generated content may be incorrect.  df[["IMF\_Estimate", "UN\_Estimate", "WorldBank\_Estimate"]].hist(bins=15, figsize=(15,12))  plt.show()  A graph of a number of blue and white bars  AI-generated content may be incorrect.  df[["IMF\_Estimate", "UN\_Estimate", "WorldBank\_Estimate"]].corr()  A screenshot of a graph  AI-generated content may be incorrect.  corr = df[["IMF\_Estimate", "UN\_Estimate", "WorldBank\_Estimate"]].corr()  plt.figure(figsize=(9,6))  sns.heatmap(corr)  plt.show()  A screenshot of a color scheme  AI-generated content may be incorrect.  corr = df[["IMF\_Estimate", "UN\_Estimate", "WorldBank\_Estimate"]].corr()  plt.figure(figsize=(9,6))  sns.heatmap(corr, annot=True)  plt.show()  A screenshot of a color chart  AI-generated content may be incorrect.  corr = df[["IMF\_Estimate", "UN\_Estimate", "WorldBank\_Estimate"]].corr()  plt.figure(figsize=(9,6))  sns.heatmap(corr, annot=True, fmt=".2f", cmap = 'GnBu', annot\_kws={"size": 12})  plt.show()  A screenshot of a graph  AI-generated content may be incorrect.  corr = df[["IMF\_Estimate", "UN\_Estimate", "WorldBank\_Estimate"]].corr()  plt.figure(figsize=(9,6))  sns.heatmap(corr, annot=True, cmap = 'Purples')  plt.title("Correlation Map")  plt.show()  A screenshot of a computer screen  AI-generated content may be incorrect.  corr = df.select\_dtypes(include=[int, float]).corr()  plt.figure(figsize=(9,6))  sns.heatmap(corr, annot=True, cmap = 'Purples')  plt.show()  A screenshot of a graph  AI-generated content may be incorrect.  df.head()  A screenshot of a computer  AI-generated content may be incorrect.  sns.barplot(x="UN\_Region", y="WorldBank\_Estimate", data=df, errorbar=None)  plt.show()  A graph of blue rectangular bars  AI-generated content may be incorrect.  sns.barplot(x="WorldBank\_Estimate", y="UN\_Region", data=df, errorbar=None)  plt.show()  A graph of a number of countries/regions  AI-generated content may be incorrect.  fig = plt.figure(figsize = (8,5))  ax = sns.barplot(x = "IMF\_Estimate",  y = "UN\_Region",  data = df, errorbar = None)  ax.bar\_label(ax.containers[0])  plt.show()  A graph with numbers and a bar  AI-generated content may be incorrect.  fig = plt.figure(figsize = (8,5))  ax = sns.barplot(x = "UN\_Region",  y = "IMF\_Estimate",                   data = df, errorbar = None)  ax.bar\_label(ax.containers[0])  ax.set\_title("Regions by IMF Estimate")  plt.show()  A graph of blue bars with white text  AI-generated content may be incorrect.  #Scatter Plot  df.plot(x='UN\_Region', y='UN\_Estimate', kind='scatter',          figsize=(10,6),          title="Scatter Plot")  plt.show()  A graph with blue dots  AI-generated content may be incorrect.  #Boxplot  sns.boxplot(x=df["UN\_Estimate"])  plt.show()  A graph with a bar graph  AI-generated content may be incorrect.  df[df["UN\_Estimate"]>50000].head()  A screenshot of a computer  AI-generated content may be incorrect.  sns.boxplot(x=df["WorldBank\_Estimate"])  plt.show()  A graph of a bar graph  AI-generated content may be incorrect.  sns.boxplot(x=df["IMF\_Estimate"])  plt.show()  A graph with a bar and numbers  AI-generated content may be incorrect.  df[df["UN\_Estimate"]>100000]  A screenshot of a computer  AI-generated content may be incorrect.  #Create another dataframe called data excluding 5 countries with highest UN estimate  data = df[-(df["UN\_Estimate"]>100000)]  data.head()  A screenshot of a computer  AI-generated content may be incorrect.  A screenshot of a computer  AI-generated content may be incorrect.  df\_filtered = df[(df["UN\_Estimate"] < upper\_boundary) & (df["UN\_Estimate"] > lower\_boundary)]  df\_filtered.head()  A screenshot of a computer  AI-generated content may be incorrect. |