**MATPLOTLIB ASSIGNMENT**

**Assignement 1 : (Line Chart)**

**Task**:

Read a CSV file (temperatures.csv) containing data for year and average temperature of months and plot a line chart for any one month.

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Read a CSV file (temperatures.csv) containing data for year and average temperature of months and plot a line chart for any one month.

* Display Title of the graph
* Display X label
* Display Y label
* Change The color of the line chart

**Task**:

Repeat Task 2 and display line chart of any 2 or 3 months.

* Display legend() and each line label
* Apply Different Style on each line like (color,marker,linewidth,linestyle,markersize)
* Increase the size of the graph

**Assignment 2 : (Barplot)**

**Task:**

Create a bar plot for a single batsman showing their performance over the years (e.g., Rohit Sharma).(season\_record.csv)

**Task:**

Create a horizontal bar plot for all the batsmans showing their performance over the (2015) year. (season\_record.csv)

#### ****Task****:

#### Plot a grouped bar chart comparing two or more batsmen’s performance over the years. Display Batsman name on xlabel and runs on ylabel. (season\_record.csv)

#### ****Task****:

#### Create a stacked bar plot to show the cumulative performance of multiple batsmen over the years. (season\_record.csv)

#### Assignment 3 : (Scatterplot)

#### ****Task****:

#### Create a scatter plot to show the relationship between total bill and tip amount.(Note : Use ‘tips’ dataset from seaborn datasets)

#### Change the color of the data point

#### Change the marker

#### Change the size of the data points based on ‘size’ column

#### Change the opacity of the graph

#### ****Task****:

#### Create a scatter plot to show the relationship between total bill and tip amount, and use color and size to represent additional variables (sex and size).

#### ****Task****:

#### Use Iris dataset from seaborn datasets and plt scatterplot between sepal length and petal length.

#### Change the datapoints color according to species

#### Use cmap to change the colors of datapoints

#### Display colorbar

#### ****Task****:

#### Create a scatter plot to show the relationship between average and strike rate of batsmans and change the size of the data point using batsman runs. (batter.csv)

#### Display batsman name at each data point. (use plt.text)

#### Display Axis Horizontal Line at any point

#### Display Axis Vertical Line at any point

#### Assignment 4 : PieChart (batter.csv)

#### ****Task****:

Create a pie chart representing the proportion of total runs contributed by the top 5 batsmen in the dataset. (batter.csv)

* Display runs percentage
* Display Each batsman with custom color

#### ****Task****:

Create a pie chart of the top 5 batsmen by their strike rate, with the highest strike rate having an exploded slice.

**Task :**

Create a pie chart for the top 5 batsmen based on batting average, using custom colors and displaying the exact average as a label.

**Task :**

Create 3 Pie charts side by side of top 5 batsman. In First graph display runs,in second graph display strike rate, in third graph display average.

#### Assignment 5 : Subplots

#### ****Task****:

#### Create a figure with two subplots (one above the other) displaying

#### Task :

#### Create two side-by-side subplots (first line plot,second scatterplot)

**Task :**

Create a 2x2 grid of subplots with:

1. Scatter plot (total\_bill vs tip).
2. Bar plot (average tip per day).
3. Histogram of size.
4. Box plot of total\_bill.

**Task :**

Create two subplots (2x1) that share the x-axis:

1. A bar plot of day vs average total\_bill.
2. A line plot showing cumulative total\_bill over time.

#### ****Task**** :

#### Create two subplots that share the y-axis:

1. A scatter plot of total\_bill vs tip.
2. A scatter plot of total\_bill vs size.

**Assignment 6: 3D Plots**

**Task :**

Create 3D scatter plot of top 100 batsmans using (‘avg’,’strike\_rate’ and ‘runs’) and change the size of the data points using batsman runs

**Task :**

Create a random dataset of 3 dimention and plot 3D line plot on it

#### ****Task****:

Create a 3D line plot to visualize how the batting performance of virat kohli varies over time. (vk.csv)

**Task :**

Generate a custom dataset and create 3d Bar plot.

#### ****Task****:

Create a 3D surface plot to visualize the relationship between runs, avg, and strike\_rate for all batsmen.

**Task :**

Create a contour plot for the equation z=x2+y2

**Task :**

Create a contour plot for the equation z=sin(x)⋅cos(y).

**Task :**

Create A contour plot with fill for the above two equations

**Assignment 7 : Heatmap**

#### ****Task****:

Create a heatmap showing the total runs scored in each over for the first innings. (overs.csv)

#### ****Task****:

Create a heatmap showing in 20 overs on each ball how many six runs are hitted.

#### ****Task****:

Create a heatmap showing how many runs a particular batsman (e.g., YBK Jaiswal) scored per over in the first innings.

#### ****Task****:

Create a heatmap showing the number of extras (wides, leg byes, etc.) conceded per over by the bowling team in the second innings.

#### ****Task****:

Create a heatmap showing how many wickets fell in each over of both innings.

**SEABORN ASSIGNMENT**

#### ****Task****:

Create a scatter plot to visualize the relationship between total\_bill and tip.

**Task :**

Create a scatter plot to show the relationship between total\_bill and tip, with points colored by sex.

**Task :**

Create a scatter plot showing the relationship between total\_bill and tip, with points sized by size and styled by smoker.

**Task :**

Create scatter plots of total\_bill vs tip, separated by day of the week using Seaborn's facet grid functionality.

#### ****Task****:

Create a scatter plot to visualize the relationship between year and passengers for each month. (use seaborn flights dataset)

#### ****Task****:

Create a line plot showing the number of passengers each month for a particular year (e.g., 1955). (use seaborn flights dataset)

#### ****Task****:

Create a grid of line plots showing the number of passengers each month for different years.

#### **Steps**:

1. Use Seaborn's col parameter to create separate line plots for each year.
2. Plot month on the x-axis and passengers on the y-axis in each subplot.

#### ****Task****:

Create subplots of bar plots showing the number of passengers each month for specific years (e.g., 1950–1955).

#### ****Task****:

Create a bar plot showing the average petal length for each species.( use seaborns iris dataset)

#### ****Task****:

Create a histogram to visualize the distribution of the total\_bill in the tips dataset and apply different style on it. (Use seaborns tips dataset)

#### ****Task****:

Create grouped histograms to visualize the distribution of total\_bill separately for male and female customers. (Use seaborns tips dataset)

#### ****Task****:

Create a stacked histogram to visualize the distribution of tip amounts for each day of the week.

#### **Steps**:

1. Plot histograms for tip grouped by day.
2. Use a stacked approach to display the histogram.

#### ****Task****:

Create a figure-level histogram to visualize the distribution of total\_bill based on gender (male and female) and whether the customer is a smoker or non-smoker.

#### ****Task****:

Create a heatmap to visualize the life expectancy of different countries over several years using the Gapminder dataset.(Use country.csv)

#### **Steps**:

1. Load the Gapminder dataset.
2. Create a pivot table with countries as rows and years as columns, displaying the average life expectancy.
3. Use Plotly to generate an interactive heatmap from the pivot table.

**Task :**

Apply Different Style on above task ( color,cmap,annot,linewidths,linecolor)

#### ****Task****:

Create a strip plot to visualize the distribution of tip amounts for each day of the week, differentiating between male and female customers. (use seaborns tips dataset)

#### ****Task****:

Create a strip plot to visualize the distribution of tip amounts for each day of the week, differentiating between male and female customers (Use Figure Level Function). (use seaborns tips dataset)

#### ****Task****:

Create a swarm plot to visualize the distribution of tip amounts for each day of the week, differentiating between smokers and non-smokers. Use figure level function

#### ****Task****:

Create a box plot to visualize the distribution of total bill amounts from the tips dataset. This will help identify the median, quartiles, and potential outliers in the data.

#### ****Task****:

Create a box plot to visualize the distribution of tips received by male and female customers, differentiated by the day of the week.

#### ****Task****:

Create a violin plot to visualize the distribution of total bill amounts for each day of the week, differentiating between male and female customers.

#### ****Task****:

Create a violin plot to visualize the distribution of total bill amounts for each day of the week, differentiating between male and female customers in a split view.

#### ****Task****:

Create a bar plot to visualize the average total bill amounts for each day of the week using the tips dataset.

#### ****Task****:

Create a bar plot to visualize the maximum total bill amounts for each day of the week using the tips dataset, without displaying error bars.

#### ****Task****:

Create a categorical plot to visualize the count of customers for each day of the week, separated by gender and differentiated by smoking status.

#### ****Task****:

Create a relational plot to visualize the relationship between tip amounts (tip) and total bill amounts (total\_bill), separated by smoking status and day, and differentiated by gender.

#### ****Task****:

Create a pair plot to visualize the pairwise relationships between the numerical features of the iris dataset. Differentiate the data points by species using color.

#### ****Task****:

Create a customized pair grid to visualize the distribution of each feature using box plots along the diagonal and the relationships between features using scatter plots off the diagonal. Differentiate the data points by species using color. (map\_diag,map\_offdiag)

#### ****Task****:

Create a joint plot to visualize the relationship between sepal width and petal width in the iris dataset. Differentiate the data points by species using color and display the distribution of each feature along the axes.

#### ****Task****:

Create a JointGrid to visualize the relationship between tips and total bills in the tips dataset. Use scatter plots to show the relationship and box plots to display the distribution of tips for different total bill amounts, differentiated by gender.