

F4

06:07.23

EDS Mini Project



Rainfall

The topic chosen for this project is rainfall. We've collected the data for the rainfall in region of Kokan & Goa in the time duration of year 2000 to 2015.

The operations used in this project are:

- Numpy
- Mathematical operators
- Statistical operators
- K-means

We will see these topics in elaboration.

Numpy:

Functions used:

- read- It is used to read a specific type of file. Syntax- `pd.read_filetype('filename')`
- dataframe- It is like a 2D data structure with rows and columns.
- `idxmax()`-It is a function in pandas dataframe which is used to call out the index of the max value.

Python matplotlib:

Matplotlib is a low level graph plotting library in python that serves as a visualization utility.

Functions:

- `.subplot`- It is used to draw or plot many graphs in a single figure. Syntax- `plt.subplot(r,c,p)`. r is the no of rows, c is the no of columns and p is the position of the graph you want.
- `.plot`- It plots a simple line graph, you can change the line width, color, and add markers.

Syntax- `plt.plot(x,y)`

- `.bar`- It plots a bar graph. You can change the color of the graph. Syntax- `plt.bar(x,y)`
- `.scatter`- It plots a scatter graph, you can also change the color of the points. Syntax- `plt.scatter(x,y)`
- `.xlabel`- It is used to give a label to the markings on the x axis. Syntax- `plt.xlabel("label")`

Dataset-

SUBDIVISION	YEAR	Jan-Feb	Mar-May	Jun-Sep	Oct-Dec	ANNUAL
KONKAN & GOA	2000	1.2	191.2	2841.2	99.7	3133.2
KONKAN & GOA	2001	5.6	62.4	2232.7	94.7	2395.4
KONKAN & GOA	2002	0	12.3	2446.4	78.6	2537.2
KONKAN & GOA	2003	1.2	13.2	2771.6	56.3	2842.3
KONKAN & GOA	2004	0	57.2	2885.5	43.1	2985.9
KONKAN & GOA	2005	1.4	15.6	3522.2	76.6	3615.7
KONKAN & GOA	2006	0	221.7	3035.6	224.9	3482.2
KONKAN & GOA	2007	0	36.9	3369.9	61.7	3468.5
KONKAN & GOA	2008	0.1	43	2949.3	60.6	3053.1
KONKAN & GOA	2009	0	5.9	2282.2	428.5	2716.6
KONKAN & GOA	2010	2.7	9.7	3467.4	298.3	3778.1
KONKAN & GOA	2011	0	4.5	3697.3	123.5	3825.2
KONKAN & GOA	2012	0	1.7	2839.3	177.4	3018.4
KONKAN & GOA	2013	7.3	18.7	3345.2	152.8	3524
KONKAN & GOA	2014	6.6	23.8	2608.8	118.4	2757.5
KONKAN & GOA	2015	2.7	51.7	1908.7	118.8	2082

OUTPUT-


```
Matrix of data of annual rainfall
[[3133.2 2395.4 2537.2 2842.3]
 [2985.9 3615.7 3482.2 3468.5]
 [3053.1 2716.6 3778.1 3825.2]
 [3018.4 3524.  2757.5 2082.  ]]
```

```
Transpose of annual matrix :
[[3133.2 2985.9 3053.1 3018.4]
 [2395.4 3615.7 2716.6 3524.  ]
 [2537.2 3482.2 3778.1 2757.5]
 [2842.3 3468.5 3825.2 2082.  ]]
```

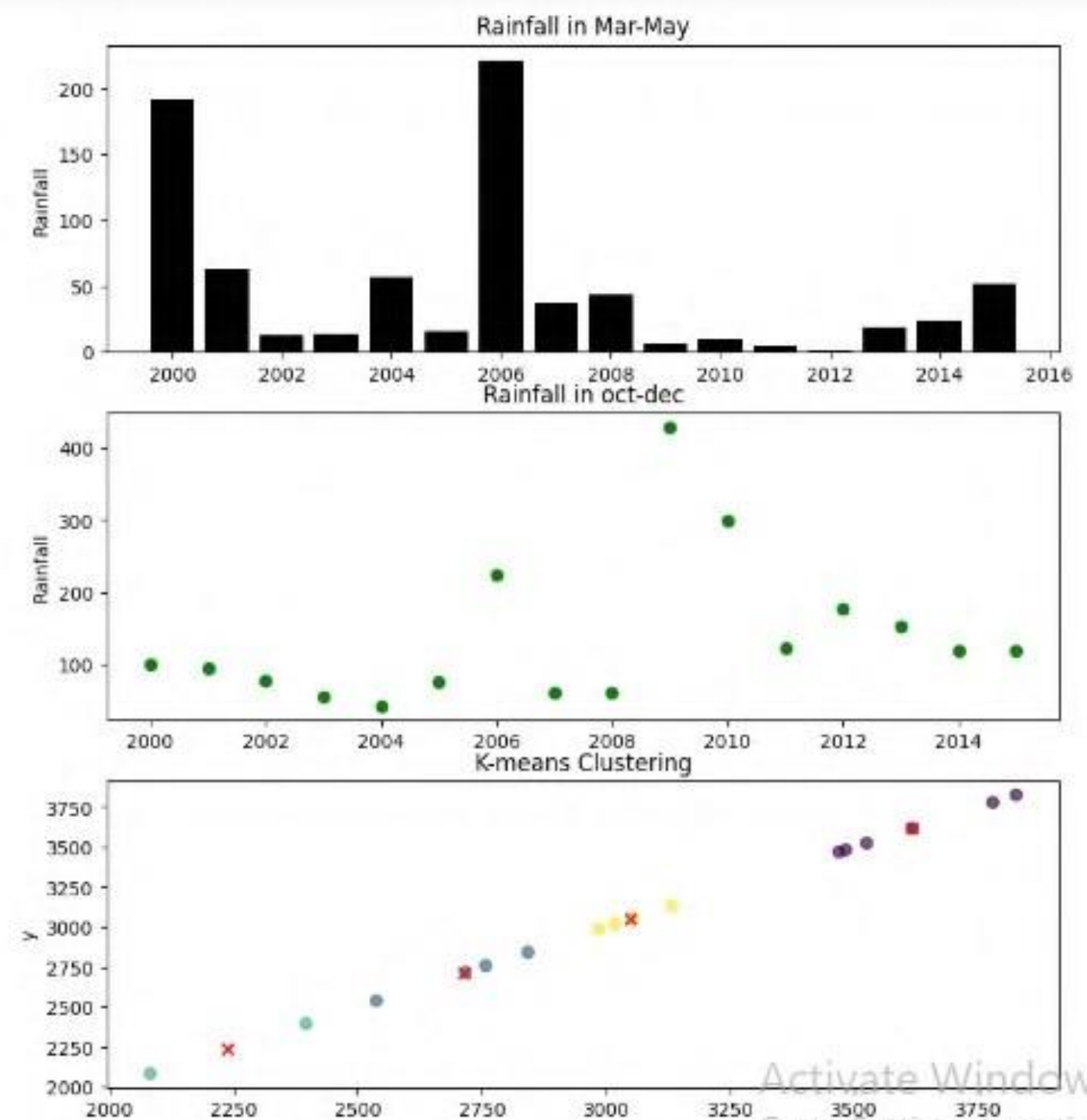
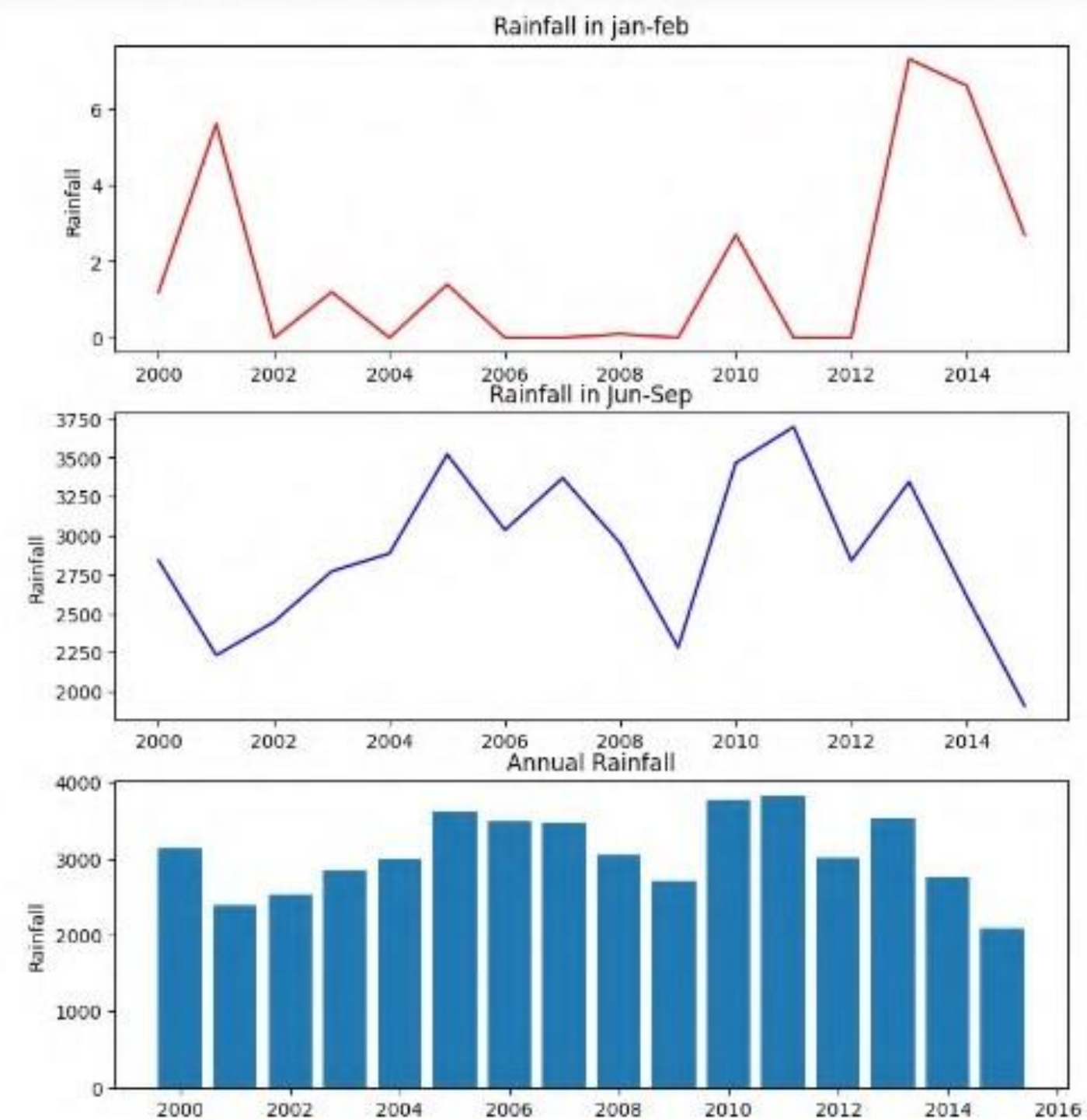
```
Maximum annual rainfall: 3825.2
The year of maximum rainfall is: 2011
Maximum rainfall in Jan-Feb: 7.3
The year of maximum rainfall is: 2013
Maximum rainfall in Mar-May: 221.7
The year of maximum rainfall is: 2006
Maximum rainfall in Jun-Sep: 3697.3
The year of maximum rainfall is: 2011
Maximum rainfall in Oct-Dec: 428.5
The year of maximum rainfall is: 2009
```

```
Minimum annual rainfall: 2082.0
The year of minimum rainfall is: 2015
Minimum rainfall in Jan-Feb: 0.0
The year of minimum rainfall is: 2002
Minimum rainfall in Mar-May: 1.7
The year of minimum rainfall is: 2012
Minimum rainfall in Jun-Sep: 1908.7
The year of minimum rainfall is: 2015
Minimum rainfall in Oct-Dec: 43.1
The year of minimum rainfall is: 2004
```

```
Total rainfall in 16 years 49215.3
```

```
Average rainfall annually 3075.95625
Average rainfall in Jan-Feb 1.8
Average rainfall in Mar-May 48.09375
Average rainfall in Jun-Sep 2887.70625
Average rainfall in Oct-Dec 138.36875
```

OUTPUT-



Thank You

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