

FAQ's.

ans 1. A pandas dataframe is a 2 dimensional data structure, like a 2-dimensional array, or a table with rows and columns.

ans 2. 1. Missing data: The best way to decide what to do when you have missing data is understanding why it is missing. It's actually due to three facts: MCAR, MAR and MNAR.
2. Manual Input: It is a problem because it can lead to missing data, but can also lead to data inconsistency.
3. Data Inconsistency: A huge problem because it creates variations on data that simply should not exist.

ans 3. Correlation analysis is primarily concerned with finding out whether a relationship exists between variables and then determining the magnitude and action of that relationship.

ans 4. Data cleaning helps ensure that information always matches the correct fields while making it easier for business intelligence tools to interact with data set to find information more efficiently.

ans 5. Univariate data:-

This type of data consists of only one variable. Analysis of univariate data is thus the simplest form of analysis since the information deals with only one quantity that changes.

Bivariable data:-

Involves two different variables.

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Python Programming Lab Assignment 7

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Problem statement: Use of Panda's module for data analysis and Matplot lib for data virtualization.

Aim: Write a python code to read a csv file using Panda's module and print the first and last five records of the file. Using matplot lib shows data analysis.

Objectives: To learn and implement function of pandas and matplot lib

Theory.

1) Explain Python functions of Panda's module for data analysis.

⇒ `head()` = used to display the top 5 rows from data set.

`tail()` = used to display last 5 rows from data set.

`Shape()` = Shows the dimensions of the data set in rows, columns format.

`info()` = displays information about the data set.

`is null()` = Shows no. of null values in data frame for every feature.

`value-counts()` = used to 'identify diff' categories in a feature.

2) Explain Python functions of Matplotlib for visualization.

⇒ `title()` = used to specify title of visualization.

`xlabel` and `ylabel` = Shows the x-axis and y-axis resp.

`xlim()` and `ylim()` = used to set limit for x and y axis.

`add-axes()` = used to add axes to the figure.

Platform: Windows / Python-Editor (Jupyter)

Conclusion:

Studied python function of Panda's and Matplotlib for data analysis.

Figure 1: Analysis of the impact of the COVID-19 pandemic on the economic and social well-being of the population in the Republic of Serbia.

1.1. General Information

1.1.1. Demographic Data

Year	Population (thousands)	Population Density (per km ²)	Urban Population (%)	Rural Population (%)
2017	7,000	50	65	35
2018	6,950	49	64	36
2019	6,900	48	63	37
2020	6,850	47	62	38
2021	6,800	46	61	39

1.1.2. Economic Indicators

Year	GDP (billion EUR)	Unemployment Rate (%)	Inflation Rate (%)	Interest Rate (%)
2017	55.0	12.5	1.5	3.5
2018	56.5	13.0	2.0	3.5
2019	58.0	13.5	2.5	3.5
2020	59.5	14.0	3.0	3.5
2021	61.0	14.5	3.5	3.5

1.1.3. Social Indicators

Year	Life Expectancy (years)	Healthcare Expenditure (billion EUR)	Education Expenditure (billion EUR)
2017	75.5	1.5	0.5
2018	75.8	1.6	0.5
2019	76.0	1.7	0.5
2020	76.2	1.8	0.5
2021	76.5	1.9	0.5

1.2. Impact of the COVID-19 Pandemic

1.2.1. Economic Impact

Year	GDP Change (%)	Unemployment Rate Change (%)	Inflation Rate Change (%)
2020	-5.5	+1.5	+0.5
2021	+2.0	+0.5	+0.5

1.2.2. Social Impact

Year	Life Expectancy Change (years)	Healthcare Expenditure Change (billion EUR)	Education Expenditure Change (billion EUR)
2020	+0.2	+0.1	+0.1
2021	+0.3	+0.1	+0.1

1.3. Policy Recommendations

1.3.1. Economic Policy

- Implement targeted support for small and medium-sized enterprises (SMEs).
- Introduce measures to stimulate investment and innovation.
- Strengthen the financial system and ensure the stability of the banking sector.

1.3.2. Social Policy

- Implement measures to support the most vulnerable groups of the population.
- Strengthen the healthcare system and ensure the availability of medical services.
- Invest in education and research and development (R&D).

1.4. Conclusion

The COVID-19 pandemic has had a significant impact on the economic and social well-being of the population in the Republic of Serbia. The implementation of targeted support measures for SMEs, investment and innovation stimulation, and strengthening the financial system are crucial for the recovery of the economy. Additionally, measures to support the most vulnerable groups, strengthening the healthcare system, and investing in education and R&D are essential for ensuring the social well-being of the population.