Task 1- Linear Regression SK Learn implementation:

A Simple Task for Linear Regression SK Learn implementation :

Dataset under discussion - Sample URL:

https://github.com/ShahzadSarwar10/FULLSTACK-WITH-AI-BOOTCAMP-B1-MonToFri-2.5Month-Explorer/blob/main/DataSetForPractice/Real_Estate_Sales_2001-2022_GL-Short.csv

It is REAL ESTATE – US data.

TASK:

1. Load above CVS file above, into DataFrame variable , with Pandas, following columns
   With "Serial Number" as Index column.
   Print DataFrame.
2. Call following method/properties of DataFrame, print output and analyze the output.
   .info()
   .dtypes
   .describe()
   .shape
   .
3. Assumption, that there is a Linear Regression relationship between

   "Assessed Value" being as X and "Sale Amount' being as Y

   Do To – convert DataFrame created above to array format, that is suited to SK Learn.

4. Slit data to 90% as training data and rest 10 % as testing data.
5. Train Linear regression Model, with train data in previous step.
6. Find and print your "intercept"
7. Find and print your "slope"
8. Write a python function to calculate "Sale Amount' based on "Assessed Value"- with "intercept" and "slope"
   Call this method to calculate "Sale Amount' based on "Assessed Value" for 3 values – take any value from sample data
9. Predict "Sale Amount' for testing data based on testing data for "Assessed Value"
10. Metric analysis:
    calculate the MAE and MSE by passing the y_test (actual) and y_pred (predicted) to the methods
    Also calculate - the square root of the MSE

Reference code: https://github.com/ShahzadSarwar10/FULLSTACK-WITH-AI-BOOTCAMP-B1-MonToFri-2.5Month-Explorer/blob/main/Week4/Case4-3-LinearRegressionViaSciKitLearn.py

Task 2- Linear Regression SK Learn implementation:

A Simple Task for Linear Regression SK Learn implementation :

Dataset under discussion - Sample URL:

https://github.com/ShahzadSarwar10/FULLSTACK-WITH-AI-BOOTCAMP-B1-MonToFri-2.5Month-Explorer/blob/main/Week2/zameencom-property-data-By-Kaggle-Short.csv

It is Zameen.com REAL ESTATE – PK data.

TASK:

1. Load above CVS file above, into DataFrame variable , with Pandas, following columns
   With "property_id" as Index column.
   Print DataFrame.
2. Call following method/properties of DataFrame, print output and analyze the output.
   .info()
   .dtypes
   .describe()
   .shape
   .
3. Assumption, that there is a Linear Regression relationship between

   "bedrooms" being as X and "price' being as Y

   Do To – convert DataFrame created above to array format, that is suited to SK Learn.

4. Slit data to 75% as training data and rest 25% as testing data.
5. Train Linear regression Model, with train data in previous step.
6. Find and print your "intercept"
7. Find and print your "slope"
8. Write a python function to calculate "price' based on "bedrooms" - with "intercept" and "slope"
   Call this method to calculate "price' based on "bedrooms" for 3 values – take any value from sample data
9. Predict "price' for testing data based on testing data for "bedrooms"
10. Metric analysis:
    calculate the MAE and MSE by passing the y_test (actual) and y_pred (predicted) to the methods
    Also calculate - the square root of the MSE

Reference code: https://github.com/ShahzadSarwar10/FULLSTACK-WITH-AI-BOOTCAMP-B1-MonToFri-2.5Month-Explorer/blob/main/Week4/Case4-3-LinearRegressionViaSciKitLearn.py

Task 3- Linear Regression SK Learn implementation:

A Simple Task for Linear Regression SK Learn implementation:

Dataset under discussion - Sample URL:

https://github.com/ShahzadSarwar10/FULLSTACK-WITH-AI-BOOTCAMP-B1-MonToFri-2.5Month-Explorer/blob/main/DataSetForPractice/number-of-registered-medical-and-dental-doctors-by-gender-in-pakistan%20(1).csv

It is medical industry – PK data.

TASK:

1. Load above CVS file above, into DataFrame variable , with Pandas, following columns
   With "**Years**" as Index column.
   Print DataFrame.
2. Call following method/properties of DataFrame, print output and analyze the output.
   .info()
   .dtypes
   .describe()
   .shape
   .
3. Assumption, that there is a Linear Regression relationship between

"**Female Doctors**" being as X and "**Female Dentists**' being as Y

Do To – convert DataFrame created above to array format, that is suited to SK Learn.

4. Slit data to 70% as training data and rest 30% as testing data.
5. Train Linear regression Model, with train data in previous step.
6. Find and print your "intercept"
7. Find and print your "slope"
8. Write a python function to calculate "**Female Dentists**' based on "**Female Doctors**" - with "intercept" and "slope"
   Call this method to calculate "**Female Doctors**" based on "**Female Doctors**" for 3 values – take any value from sample data
9. Predict "**Female Doctors**" for testing data based on testing data for "**Female Doctors**"
10. Metric analysis:
    calculate the MAE and MSE by passing the y_test (actual) and y_pred (predicted) to the methods
    Also calculate - the square root of the MSE

Reference code: https://github.com/ShahzadSarwar10/FULLSTACK-WITH-AI-BOOTCAMP-B1-MonToFri-2.5Month-Explorer/blob/main/Week4/Case4-3-LinearRegressionViaSciKitLearn.py

Task 4 - Multiple Linear Regression SK Learn:

A Simple Task for Multiple Linear Regression SK Learn implementation:

Dataset under discussion - Sample URL:

https://github.com/ShahzadSarwar10/FULLSTACK-WITH-AI-BOOTCAMP-B1-MonToFri-2.5Month-Explorer/blob/main/DataSetForPractice/50_Startups%20(1).csv

It is US start-up – spending data., with profit.

TASK:

11. Load above CVS file above, into DataFrame variable , with Pandas, following columns
    Print DataFrame.
12. Call following method/properties of DataFrame, print output and analyze the output.
    .info()
    .dtypes
    .describe()
    .shape
    .
13. Assumption, Independent and Dependent Variables - There are total 5 columns in the dataset, of which profit is our dependent feature, and the rest are our 3 independent features.
    Do To – convert DataFrame created above to array format, that is suited to SK Learn.
14. best-fitting regression line
    sns.regplot(
    be 3 independent variable and 1 dependent variable.

15. calculate the correlation of the new variables, this time using Seaborn's heatmap() to help us spot the strongest and weaker correlations based on warmer (reds) and cooler (blues)

16. Slit data to 90% as training data and rest 10% as testing data.
17. Train Linear regression Model, with train data in previous step.
18. Find and print your “intercept”
19. Find and print your “slope”
20. Predict “Profit” for testing data based on testing data for 3 independent features,
21. Metric analysis:
    calculate the MAE and MSE by passing the y_test (actual) and y_pred (predicted) to the methods
    Also calculate - the square root of the MSE

Reference code: https://github.com/ShahzadSarwar10/FULLSTACK-WITH-AI-BOOTCAMP-B1-MonToFri-2.5Month-Explorer/blob/main/Week4/Case4-4-MultipleLinearRegressionViaSciKitLearn.py

Task 5 - Multiple Linear Regression SK Learn:

Apply Multiple Linear Regression SK Learn Model. [same as Task 4 – pervious one]

https://www.kaggle.com/datasets/camnugent/california-housing-prices

It is California housing database on Kaggle.

Task 6 - Multiple Linear Regression SK Learn:

Apply Multiple Linear Regression SK Learn Model. [same as Task 4 – pervious one]

raw.githubusercontent.com/Explore-AI/Public-Data/master/Data/regression_sprint/mtcars.csv

It is Car and its characteristics database on Kaggle.

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Ask questions, if you have confusions. ASK me, Call me on whatsapp.

Let’s put best efforts.

Thanks