TRANSFORMATIONS

Instructions:

Please share your answers filled inline in the word document. Submit code files wherever applicable.

Please ensure you update all the details:

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Topic: Data Pre-Processing

Problem Statement:

Everything will revolve around the data in Analytics world. Proper data will help you to make useful predictions that improve your business. Sometimes the usage of original data as it is does not help to have accurate solutions. It is needed to convert the data from one form to another form to have better predictions. Explore various techniques to transform the data for better model performance. you can go through this link:

https://360digitmg.com/mindmap-data-science

1) Prepare the dataset by performing the preprocessing techniques, to have the data which improves model performance.

```
import pandas as pd
```

import numpy as np

from sklearn.preprocessing import MinMaxScaler, StandardScaler

Creating the DataFrame from the given data

df = pd.read_csv(r"calories_consumed.csv")

#1. Normalization

scaler = MinMaxScaler()

df_normalized = pd.DataFrame(scaler.fit_transform(df), columns=df.columns)

2. Standardization

standard_scaler = StandardScaler()

df_standardized = pd.DataFrame(standard_scaler.fit_transform(df), columns=df.columns)

3. Log Transformation (only applicable for positive values)

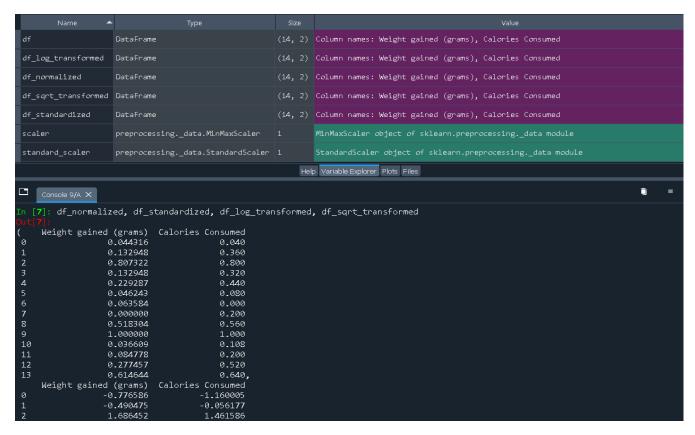
df_log_transformed = df.apply(np.log)

4. Square Root Transformation

df_sqrt_transformed = df.apply(np.sqrt)

Display the results

df_normalized, df_standardized, df_log_transformed, df_sqrt_transformed



| 3 | -0 .4 90 47 5 | -0.194155 |
|----|-----------------------------|---------------------------|
| 4 | -0 .17948 5 | 0.219780 |
| 5 | -0.770366 | -1.022026 |
| 6 | -0.714388 | -1.297983 |
| 7 | -0.919641 | -0.608091 |
| 8 | 0 .7 53 48 3 | 0.633 7 15 |
| 9 | 2.308432 | 2.151478 |
| 10 | -0.801465 | -0.925441 |
| 11 | -0.645970 | -0.608091 |
| 12 | -0.023991 | 0.495737 |
| 13 | 1.064473 | 0.909672, |
| | Weight gained (grams) | Calories Consumed |
| 0 | 4.682131 | 7.313220 |
| 1 | 5.298317 | 7.740664 |
| 2 | 6.802395 | 8.131531 |
| 3 | 5.298317 | 7.696213 |
| 4 | 5.703782 | 7.824046 |
| 5 | 4.700480 | 7. 3 777 59 |
| 6 | 4.852030 | 7.244228 |
| 7 | 4.127134 | 7.549609 |
| 8 | 6.396930 | 7.937375 |
| 9 | 7.003065 | 8.268732 |
| 10 | 4.605170 | 7.420579 |
| 11 | 5.010635 | 7.549609 |
| 12 | 5 .8 5 7 933 | 7.901007 |
| 13 | 6.551080 | 8.006368, |

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|----|-----------------------|----------------------------|--|
| | Weight gained (grams) | Calories Consumed | |
| 0 | 10.392305 | 38.729833 | |
| 1 | 14.142136 | 47. 95 8 315 | |
| 2 | 30.000000 | 58.309519 | |
| 3 | 14.142136 | 46.904158 | |
| 4 | 17.320508 | 50.000000 | |
| 5 | 10.488088 | 40.000000 | |
| 6 | 11.313708 | 37.416574 | |
| 7 | 7.874008 | 43.588989 | |
| 8 | 24.494897 | 52.915026 | |
| 9 | 33.166248 | 62.449980 | |
| 10 | 10.000000 | 40.865633 | |
| 11 | 12.247449 | 43.588989 | |
| 12 | 18.708287 | 51.961524 | |
| 13 | 26.457513 | 54.772256) | |
| | | | |