

USER MANUAL

CALORIES BURNT PREDICTION

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Introduction:

This project aimed to predict calorie expenditure during exercise sessions using machine learning techniques, with a focus on the XGBoost Regressor model. The key findings indicate that the XGBoost model outperformed a RandomForest baseline, achieving lower Mean Absolute Error (MAE), Mean Squared Error (MSE), and Root Mean Squared Error (RMSE). The inclusion of additional features such as BMI score and weight status significantly improved the model's accuracy in estimating calorie burn. These findings highlight the importance of feature engineering and the suitability of XGBoost for predicting complex relationships in fitness data. Overall, the project contributes to the field of personalised fitness tracking by providing a reliable model for estimating calorie expenditure and empowering individuals to make informed decisions about their workout routines and fitness goals.

Libraries to Install to run the project:

The following libraries should be installed in order to achieve or to run the project:

To manipulate data:

```
import pandas as pd
import numpy as np
```

To visualise the data:

```
import matplotlib.pyplot as plt
import seaborn as sns
```

To implement the model:

```
from sklearn.model_selection import train_test_split
from xgboost import XGBRegressor
```

To evaluate the performance of the model:

```
from sklearn import metrics
from sklearn.metrics import mean_absolute_error, r2_score
```

Additionally since i have a build a application using streamlit centric to anaconda since my host is anaconda server, If your using anaconda and working on the model using anaconda or using anaconda environment on VScode please install the following libraries:

Such as for streamlit app:

```
!pip install streamlit
```

Then import streamlit:

```
import streamlit as st
```

As i mentioned my model is built using anaconda environment you should additionally download the following:

```
!conda install -c conda-forge streamlit
```

Then you import pickles to load your model into a file:

```
import pickle
```

Then to run the application: type in the following

```
!streamlit run app.py
```

Instructions to run your project:

I have attached the datasets as follows in the file download the datasets in your system. Copy the path of the dataset. Paste it to see the dataset in the following spaces as shown below in the 2 nd cell and the 5th cell(for reference mentioned the cells)

```
In [2]: #Loading the Dataset
mining = pd.read_csv('/Users/harshavardhan/Downloads/archive (8)/calories.csv')
```

```
In [3]: #Understanding the first 10 data entries.
mining.head(10)
```

```
Out[3]:
```

	User_ID	Calories
0	14733363	231.0
1	14861698	66.0
2	11179863	26.0
3	16180408	71.0
4	17771927	35.0
5	15130815	123.0
6	19602372	112.0
7	11117088	143.0
8	12132339	134.0
9	17964668	72.0

```
In [4]: #Checking the count of the first csv file
len(mining)
```

```
Out[4]: 15000
```

```
In [5]: #Loading the exercise dataset file.
data_min = pd.read_csv('/Users/harshavardhan/Downloads/archive (8)/exercise.csv')
```

```
In [6]: #Reading the first 7 entries in the dataset.
data_min.head(7)
```

```
Out[6]:
```

	User_ID	Gender	Age	Height	Weight	Duration	Heart_Rate	Body_Temp
0	14733363	male	68	190.0	94.0	29.0	105.0	40.8
1	14861698	female	20	166.0	60.0	14.0	94.0	40.3

Then after loading both the files separately on the their specified provision run all the cells and below after running the model you, can enter in you data for height weight and you will get a bmi count of you and later if you run the next cell you will see additional details asked in order to predict your calories burnt and that's it.

While working on the application to predict you after entering data into each cell you need to press enter and then continue to the next cell for the model to store the data in order to predict.

Conclusion:

Since my notebook has all the libraries and the other extensions run in each cell there is no additional work to be done except for copying the path of the dataset located in your PC or Mac and running all the cells.

You can see the prediction of the model with and without using the application. But for full experience of a good interface and prediction make sure you have anaconda as your host and run the program on anaconda environment in the Jupyter Notebook.