

Calorie Burn predictor

PROJECT SYNOPSIS

Machine Intelligence

BACHELOR OF TECHNOLOGY- V Sem CSE

Department of Computer Science & Engineering

SUBMITTED BY

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Abstract and Scope

Home-workouts have become a trend in recent days of pandemic and people are trying to maintain a good physique by doing workouts without going to gym or hiring a personal trainer. Even though there are workout apps which provides set of exercises, they don't allow the design of personalized workout routine.

There is a need of tool to predict the amount of calorie burn to fine tune the workout plan.

The project includes developing a machine learning model for predicting calories burned based on height and weight of the person, and also workout duration and type of workout.

A regression model has to be developed based on the dataset for predicting calories.

Every home workout enthusiast can use this software to decide the workouts and also reach the daily calorie burn goal.

User group includes Home workout enthusiasts, gym trainers etc. With the minimal set of data such as Height, weight and age of the person is enough for the user to use this project.

The data provided by the user will be served as an input to the machine learning model.

Feasibility Study:

The project can widely be used by anyone as it does not target any specific age group or class of people.

Anyone interested in designing their own workout routine can use this technology to plan a good workout plan.

Once the project is widely in use, it becomes a necessary part of the people's routine.

Since the number of attributes in data is very less, there is a high chance of accurate prediction even with smaller dataset for training the model.

Design Approach/ Methodology/ Planning of work

The design approach is as following:

1. Gathering the dataset for training the dataset
2. Cleaning and analysing the data
3. Training multiple types of regression models
4. Using Ensemble model (preferably RG boost) to predict the number calorie that is going to be burnt during the workout.

Drawbacks:

1. Unavailability of sufficiently large dataset
 2. Unavailability of good research work in the field
- To overcome the drawbacks, data augmentation technique can be used to increase the size of dataset, thereby getting better accuracy by the model by avoiding overfitting.

The design constraint is availability of a good dataset for training the machine learning model. We are assuming that on acquiring sufficiently large dataset, the regression model will predict the calories accurately.

The accuracy of the model is dependent on the dataset. If the dataset has errors or if it is not sufficiently large, the model will have a bad accuracy and a large MSE.

Incase of availability of sufficiently large dataset, using deep learning method for generating the model for predicting calories would also be an option.

Drawback of this approach:

1. Requires larger dataset than the machine learning model.
2. Takes longer to train.

References

1. **Burned Calories Prediction using Supervised Machine Learning: Regression Algorithm**
[Burned Calories Prediction using Supervised Machine Learning: Regression Algorithm | IEEE Conference Publication | IEEE Xplore](#)
2. **Calories Burnt Prediction Using Machine Learning**
[Calories Burnt Prediction Using Machine Learning - IJARCCCE](#)