DIETARY MANAGEMENT

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❖ OBJECTIVE:

- To protect against diet related diseases.
- Provide a proper diet plan to everyone.
- Prevent malnutrition, obesity.
- Self-examination.
- Learn about Dietary management.

❖ ABSTRACT:

- Prevalence of malnutrition and obesity nowadays.
- Dietary plans are designed to maintain an adequate intake of proper food & nutrients to maintain our health.
- Input present sex, height & weight of a person
- Predict diet plan ensuring adequate nutrition.

❖ INTRODUCTION:

- A healthy diet prevents from malnutrition, obesity.
- “Dietary Management” or “Food Service Management”.
- It is the practice of preventing nutritional options for individuals according to their correct height & weight.
- Body needs essential nutrients for its well being.
- Predict weight using Machine Learning(ML).

❖ MOTIVATION:

- Many people suffer from Obesity and Underweight .
- 39% adults were overweight and 13% underweight.
- Print a diet plan according to the difference calculated.
- Reduce the cases of diseases due to improper weight.
- This provide information regarding predicted weight and diet plan to be followed.

❖ RELATED WORK:

- Work that proposes a different method to solve the same problem.
- There are different tables already available in Internet for height v/s weight.So we got an idea to work related to this and use ML for more accuracy and predictions.
- Also diet plans added to this will make the system act as an online nutritionist.

❖ PROPOSED WORK:

- The Problem Definition
- Plan & Approach
- Solution & Deliverables

❖ PROBLEM DEFINITION:

- Most of the population suffer from Obesity and Underweight.
- So provide a system to predict diet plans for these categories.
- Print a diet plan according to the difference calculated.

❖ PLAN & APPROACH:

- So provide a system to predict diet plans for these categories.
- Input the weight, height and sex of a person.
- Predict the weight according to sex and height.
- Calculate the difference between actual and predicted weight.
- Using Tkinter display graphs and diet plans.

❖ SOLUTION & DELIVERABLES

Diet Plan Representation

Use Difference between Weights

- If difference is positive, the person is overweight.
- If difference is negative, the person is underweight.
- If difference is close to zero, person is healthy.

❖ ALGORITHM:

- Using Linear Regression form a graph and predict the weight.
- Load dataset containing gender(sex), height, weight.
- Analyze the Data.
- Convert gender to 0 and 1 (replace directly in data frame).
- Split dataset into 70% training and 30% test set.
- Fit Regression model to train the data.
- Predict test set values.
- Model accuracy.
- Predict my weight.

❖ WORKING & BACKGROUND:

- Most of the population suffer from Obesity and Underweight.
- So, using ML we will predict the weight according to height.
- Plot graphs using metaplotlib.
- Use numpy,pandas etc for reading dataset and other activities.
- Using Tkinter,Frontend of the project is made.
- Here, user can enter all the data , get predicted weight.
- Also diet plan will be displayed if underweight or overweight.
- If person is healthy, message will be displayed for it.

❖ DATASET AND VISIUALIZATION:

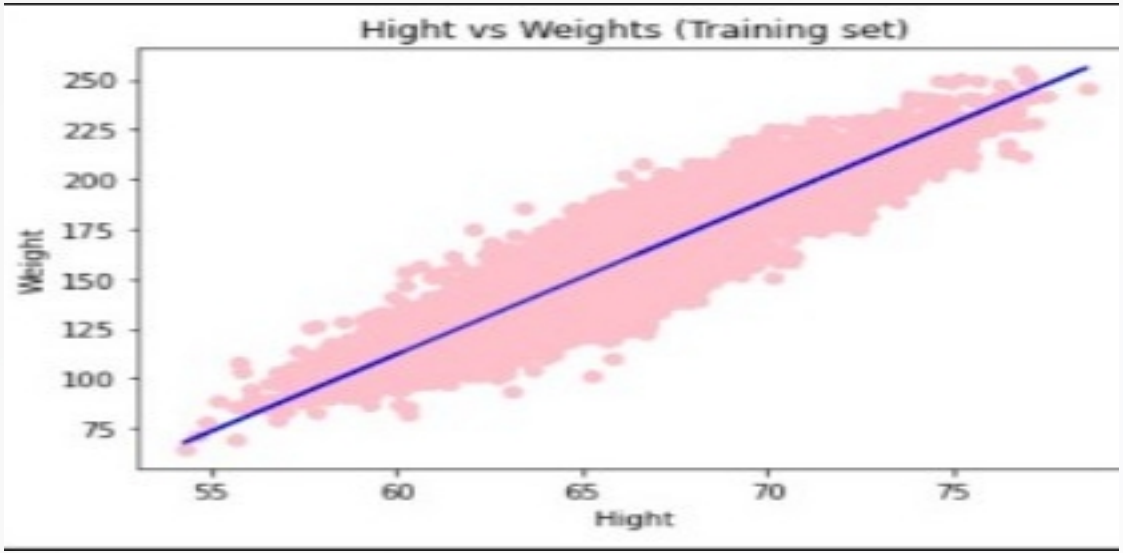
- We are working on Kaggle dataset.
- It has 10k rows providing height, weight and gender.
- After predicting the weight,display the diet plan.

```
dataset.head(10)
```

Gender	Height	Weight
Male	73.847017	241.893563
Male	68.781904	162.310473
Male	74.110105	212.740856
Male	71.730978	220.042470
Male	69.881796	206.349801
Male	67.253016	152.212156
Male	68.785081	183.927889
Male	68.348516	167.971110
Male	67.018950	175.929440
Male	63.456494	156.399676

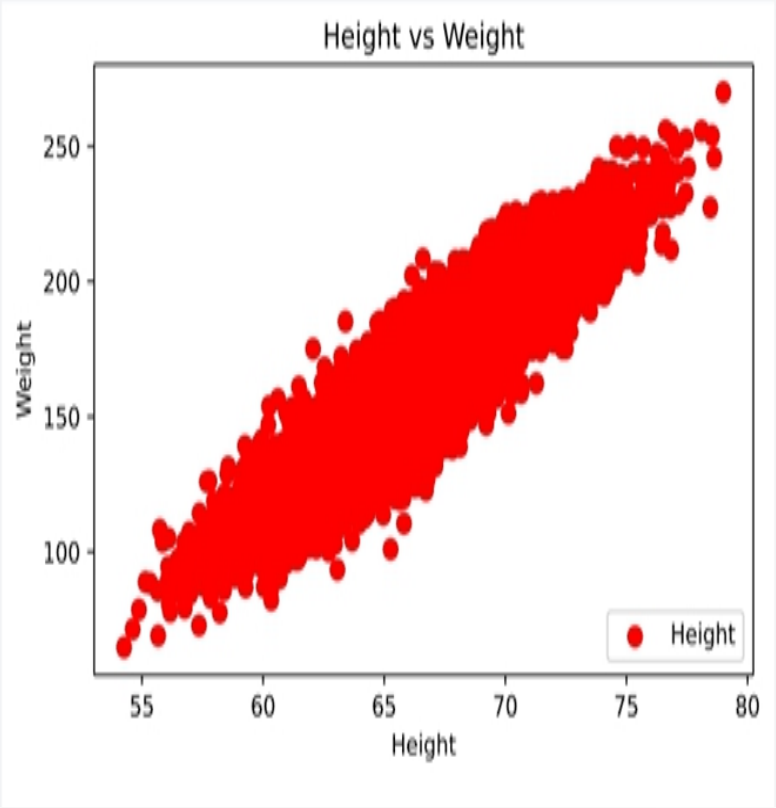
❖ THE PLOTTED GRAPH:

Using Linear Regression (Machine Learning)



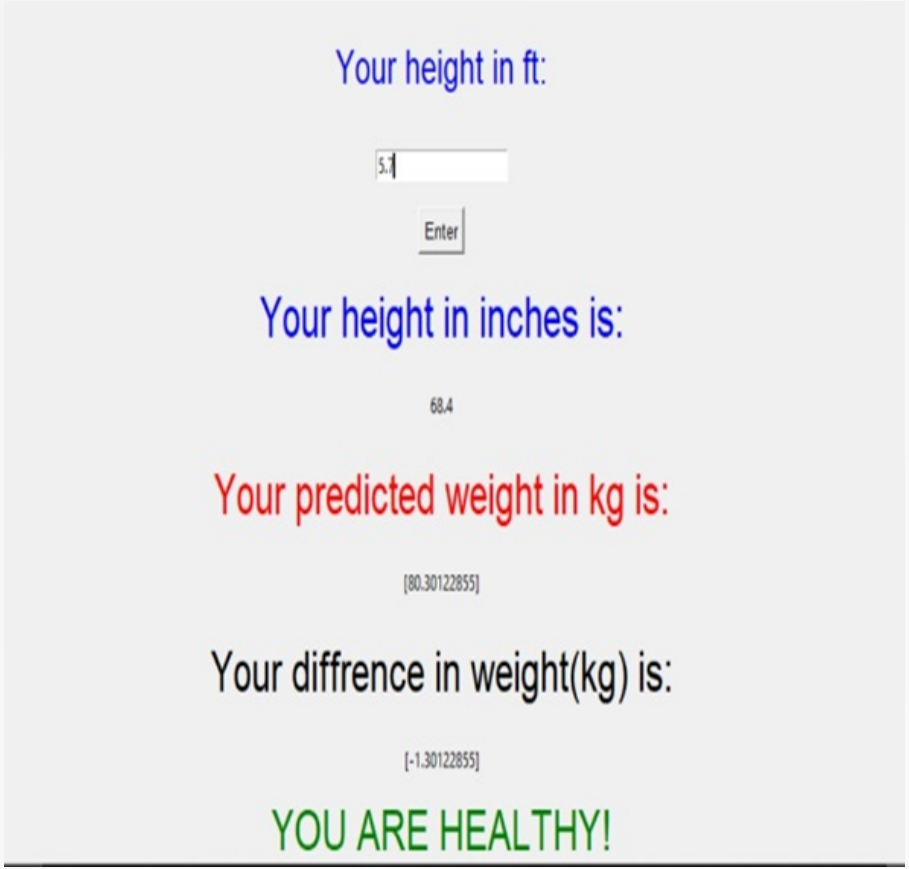
❖ ILLUSTRATION:

❖ WHY LINEAR REGRESSION?



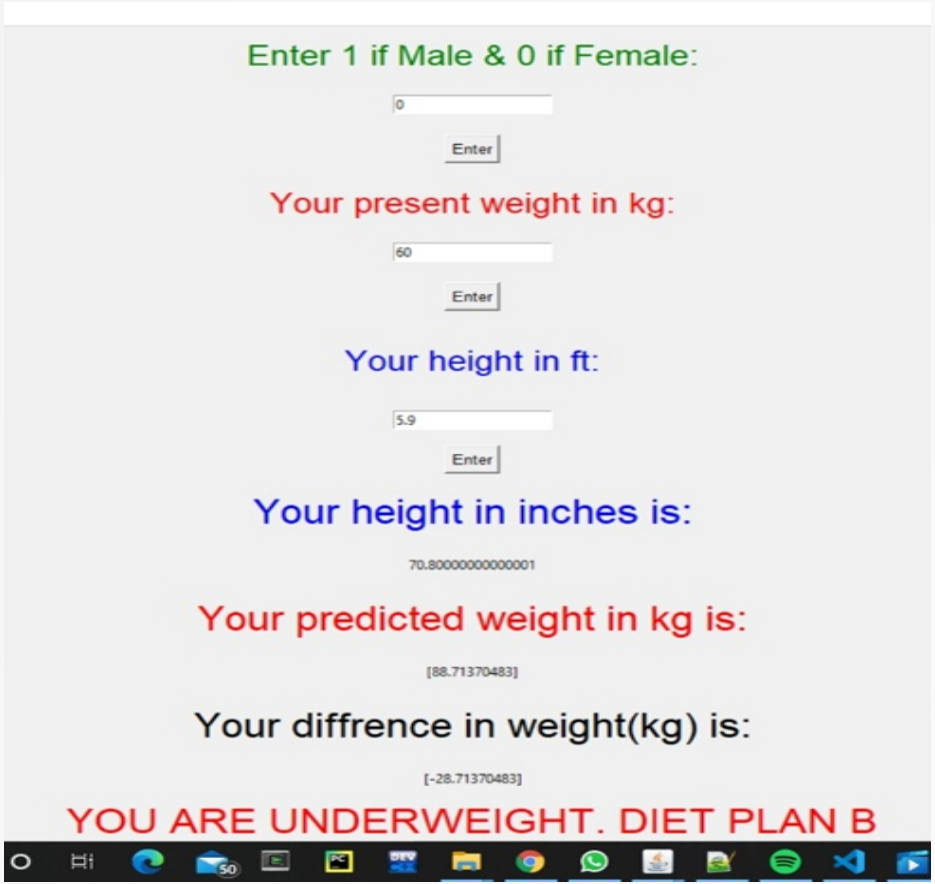
- Great tool to predict values and estimate relationship between dependent and independent variables.
- Variables are sex, height and weight.
- Less complexity.
- Simple to implement and interpret the output(weight).
- Prediction we got is very good based on MSE(143.23).
- No need of any other regression models.
- R Square is 90.52% accuracy which is good for the model.
- Variance score 0.9.

❖ RESULT & DECLARATION:



- Changing lifestyles & erratic eating habits led to rise in diseases.
- Under/Over weight leads to other diseases like diabetes.
- A healthy lifestyle can be followed using diet plans.
- Reduces the cases of malnutrition, obesity, diabetes, etc.
- NOTE: If suffering from other diseases, should consult a doctor.

❖ CONCLUSION & FUTURE SCOPES:



- Providing clients with the right level of encouragement
- Achieve healthy life goals.
- We may make this system to be used world wide.
- We can provide services for more categories of diseases.
- Different diet plans according to different conditions.
- No need to visit doctor for weight related issues.
- This project may act as a nutritionist who can prescribe on individual the best food choices according to their current state of health.

❖ REFERENCES:

- www.researchgate.net
- https://Bmcpublichealth.biocentral.com
- Study paper by students of BRAC University,Dhaka in 2016 gave correlation between height and weight by putting simple regression equations of different persons.


THANK YOU :)