

**CEREAL ANALYSIS BASED ON RATINGS BY USING MACHINE
LEARNING TECHNIQUES**

UG PHASE-1

Submitted to

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY, HYDERABAD

In partial fulfilment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY IN

COMPUTER SCIENCE AND ENGINEERING

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This is to certify that the UG Project Phase-1 entitled **CEREAL ANALYSIS BASED ON RATINGS BY USING MACHINE LEARNING TECHNIQUES** is being submitted by **M.APARNA(H.NO:19UK1A05E2),M.VRUSHANK(H.NO:19UK1A05F7), B.SREECHARAN(H.NO:19UK1A05F8),P.DEEKSHITHA(H.NO:19UK1A05E3)** in partial fulfilment of the requirements for the award of the degree of **Bachelor of Technology in Computer science and Engineering** to **Jawaharlal Nehru Technological University Hyderabad** during the academic year **2022-23**, is a record of work carried out by them under the guidance and supervision.

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ACKNOWLEDGEMENT

We wish to take this opportunity to express our sincere gratitude and deep sense of respect to our beloved **Dr. P. PRASAD RAO**, Principal, Vaagdevi Engineering College for making us available all the required assistance and for his support and inspiration to carry out this Ug phase-1 in the institute.

We extend our heartfelt thanks to **Dr. R. NAVEEN KUMAR**, Head of the Department of CSE, Vaagdevi Engineering College for providing us necessary infrastructure and thereby giving us freedom to carry out the Ug phase-1.

We express heartfelt thanks to **Smart Bridge Educational Services Private Limited**, for their constant supervision as well as for providing necessary information regarding the Ug phase-1 and for their support in completing the Ug phase-1.

We express heartfelt thanks to the guide, **Dr. N. RAJENDER REDDY** Assistant professor, Department of CSE for his constant support and giving necessary guidance for completion of this Ug phase-1.

Finally, we express our sincere thanks and gratitude to my family members, friends for their encouragement and outpouring their knowledge and experience throughout the thesis.

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ABSTRACT

The purpose is to find the high dietary food that is predicted on the basis of rating of the food. A customer can get high dietary food by the rating of the food given to it from the cereals and ingredients present. The model can predict the rating of the food more accurately by giving the inputs which are the cereals and ingredients present in the food. it is important to know the relationships between things like calories, sugar, vitamins, and how these factors related to the rating of a cereal. It would be very useful for manufacturers to be able to receive higher ratings on their cereals while at the same time offering healthier options for consumers.

Keywords: Fiber, Diet Food, Vitamins, Minerals, Low Sugar.

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Cereal Analysis Based On Ratings By Using Machine Learning Techniques

1. INTRODUCTION

1.1 Overview

The project objective is to find the high dietary food that is predicted on the basis of rating of the food. A customer wants to buy some food items with high dietary benefits so that he wants to know which food item has high dietary benefits. It is so difficult to choose an item. Usually a customer expects to consume dietary cereals with high proteins, fiber and low sugars, fats. Predicting a brand with high dietary cereals became a big issue.

1.2 Purpose

The purpose is to find the high dietary food that is predicted on the basis of rating of the food. A customer can get high dietary food by the rating of the food given to it from the cereals and ingredients present. The model can predict the rating of the food more accurately by giving the inputs which are the cereals and ingredients present in the food. it is important to know the relationships between things like calories, sugar, vitamins, and how these factors related to the rating of a cereal. It would be very useful for manufacturers to be able to receive higher ratings on their cereals while at the same time offering healthier options for consumers.

2. LITERATURE SURVEY

2.1 Existing Problem

A customer wants to buy some food items with high dietary benefits so that he wants to know which food item has high dietary benefits. It is so difficult to choose an item. Usually a customer expects to consume dietary cereals with high proteins, fiber and low sugars, fats. So it is difficult to find the beneficiary cereals by manual examination. Therefore, Predicting a brand with high dietary cereals became a big issue.

2.2 Proposed System

We use machine learning algorithms to predict the food with a high beneficiary diet. The model can predict the rating of the food more accurately by giving the inputs which are the cereals and ingredients present in the food. The most notable of findings is that healthier cereals are generally disposed to receiving better ratings. It would be very useful for manufacturers to be able to receive higher ratings on their cereals while at the same time offering healthier options for consumers. The rating is predicted using the neural networks model.

3. THEORETICAL ANALYSIS

3.1 Block Diagram

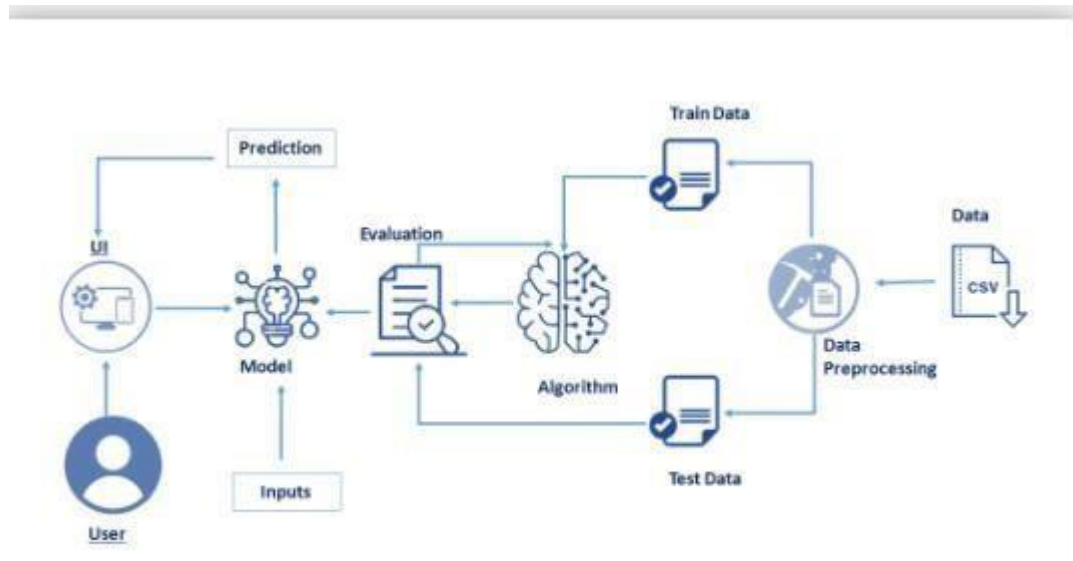


Fig 1: Block Diagram

3.2 Hardware/Software Designing

Anaconda Navigator: Anaconda Navigator is a free and open-source distribution of the Python and R programming languages for data science and machine learning-related applications. It can be installed on Windows, Linux, and MacOS, Conda is an open-source, cross-platform, package management system. Anaconda comes with great tools like JupyterLab, JupyterNotebook, QtConsole, Spyder, Glueviz, Orange, Rstudio, Visual Studio Code. For this project, we will be using Jupyter notebook and Spyder.

4. EXPERIMENTAL INVESTIGATIONS

Our aim is to build a machine learning model that estimates the ratings of food. For this purpose, we collect the dataset for training purposes. From the dataset we have chosen the necessary attributes that contribute to our prediction. The dataset consist of 16 attributes and has no missing values. There are 15 input variables and 1 output variable. Here we are going to build a machine learning model that find the high dietary food that is predicted on the basis of rating of the food. After some preprocessing on the dataset, we are building our model.

In this analysis, we will disclose the main attributes that influence cereal ratings. We will predicting ratings using neural networks model.

5. FLOWCHART

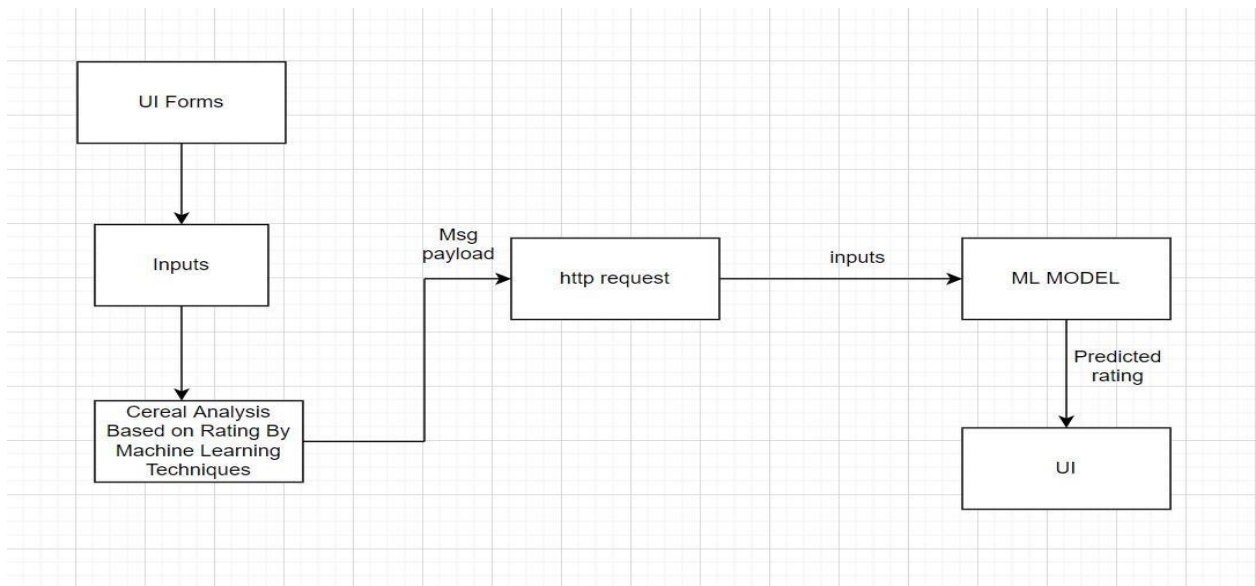


Fig 2: Flowchart

6. RESULT



Fig 3: Home Page

Fig 4: Predict Page

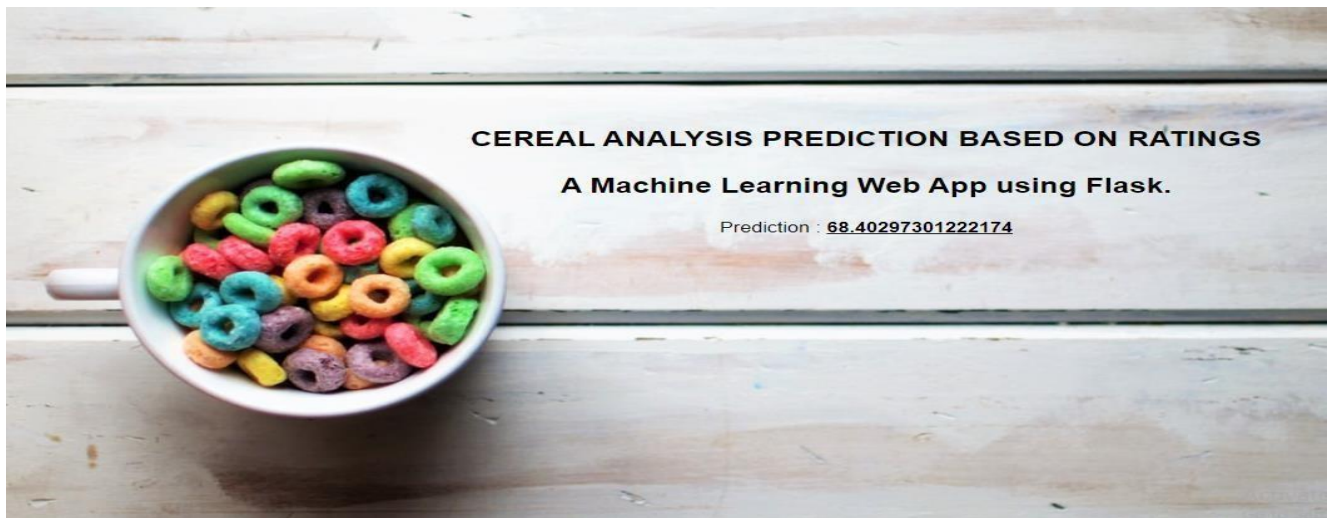


Fig 5: Result Page

7. ADVANTAGES & DISADVANTAGES

7.1 Advantages

- Help to choose high beneficiary cereal
- Critical role in human diets
- Encouraging progress toward better nutritional quality □ Toward a sustainable dietary revolution

7.2 Disadvantages

- Attributes and dataset collected should be correct. Otherwise it will affect the accuracy of our model.
- Require more dataset to increase the accuracy of model.

8. APPLICATIONS

An individual can use this application as a cereal rating calculation to choose high dietary food and improve their health. It can also be used in the medical industry to provide high beneficiary diet food to the patients for improve their health. It will reduce pressure on medical staff and save time, providing great convenience in medical treatments. Helps to keep track on contents of food intake on a daily basis which helps in health maintenance.

9. CONCLUSION

The more calories that a cereal has, the less likely it is to receive a high rating. Manufacturers that want to bring in high ratings should create cereals that are high in fiber, protein, and potassium and avoid creating cereals with high calorie counts or lots of sugar or fat. Cereals with high ratings are more likely to be placed on the first or third shelf, because that is generally where the consumers' eyes gravitate.

10. FUTURE SCOPE

In future, we can include the aspects to accurately predict the cereal ratings more effectively. An improved form of this application developed and used in the health sector for better suggestions of food and thereby we can maintain health.

11. BIBLIOGRAPHY

<https://www.kaggle.com/code/kianwee/analysis-on-cereal-prediction-on-ratings/notebook>

12. APPENDIX

Source code

```
from flask import Flask, render_template, request

import requests import json

# NOTE: you must manually set API_KEY below using information retrieved from your IBM
Cloud account.

API_KEY = "bJSrKnWH-dYvye3Ig4-MxTGXynisAZKTwdMhOaIXTXsk"

token_response = requests.post('https://iam.cloud.ibm.com/identity/token', data={"apikey":
API_KEY,      "grant_type": 'urn:ibm:params:oauth:grant-type:apikey'}) mltoken      =
token_response.json()["access_token"]

header = {'Content-Type': 'application/json', 'Authorization': 'Bearer ' + mltoken}

app = Flask(__name__)

import pickle

model = pickle.load(open('cerealanalysis.pkl','rb'))

@app.route('/') def helloworld():
return render_template('base.html')

@app.route('/assesment') def prediction ():
return render_template('index.html')

@app.route('/predict', methods = ['POST'])

def admin():      a=request.form["mfr"]      if
(a == 'a'):
```

```

a1, a2, a3, a4, a5, a6, a7=1,0,0,0,0,0,0
if(aif(a == 'g'):      a1, a2, a3, a4, a5,a6,a7
= 0,1,0,0,0,0,0      if (a == 'k'):      a1, a2,
a3, a4, a5, a6, a7=0,0,1,0,0,0,0      if (a ==
'n'):      a1, a2, a3, a4, a5, a6,
a7=0,0,0,1,0,0,0      if (a == 'p'):      a1,

a2, a3, a4, a5, a6, a7=0,0,0,0,1,0,0      if (a
== 'q'):      a1, a2, a3, a4, a5, a6,a7=0,0,0,0,0,1,0
if (a == 'r'):
    a1, a2, a3, a4, a5, a6, a7=0,0,0,0,0,0,1
b= request.form["type"]

if (b=='c'):

b=0

if (b== 'h'):

b=1

    c= request.form["Calories"]    d=
    request.form["Protien"]    e=
request.form[ "Fat"]    f=
request.form["Sodium"]    g=
request.form[ "Fiber"]    h=
request.form["Carbo"]    i=
request.form["Sugars"]    j=
request.form["Potass"]    k=
request.form[ "Vitamins"]    l=
request.form[ "Shelf"]    m=
request.form["weight"]    n=
request.form["Cups"]

t=[[int (a1), int(a2), int(a3), int(a4), int(a5), int(a6), int (a7), int (b), int(c), int(d), int(e), int(f)
,int(g),int(h),int(i),int(j),int(k),int(l),int(m),flat

```

```

(n)]] y = model.predict(t) return
render_template("prediction.html", z =
y[0][0])

payload_scoring = {"input_data": [{"field":
[["mfr","type","G1","G2","G3","G4","G5","G6","calories","protein","fat","sodium","fiber","carb
o","sugars","potass","vitamins","shelf","weight","cups"]], "values": t}]}

response_scoring = requests.post('https://us-
south.ml.cloud.ibm.com/ml/v4/deployments/d18d52cb-55ec-
40df9e62b8de982c3585/predictions?version=2021-10-28', json=payload_scoring,
headers={'Authorization': 'Bearer ' + mltoken})) print("Scoring response")
predictions=response_scoring.json() print("Final Prediction:")
#print(predictions['predictions'][0]['values'][
0][0]) print(predictions) if __name__ ==
"__main__": app.run(debug=False)

```

BASE.HTML

```

<!DOCTYPE html>

<html >

<!--From https://codepen.io/frytyler/pen/EGdtg-->

<head>

<meta charset="UTF-8">

<title>Cereal Analysis Prediction</title> <link
rel="stylesheet" href="{{ url_for('static',
filename='css/style.css') }}">

<style>

.login{ top:
20%; }

</style>

<body>

<div class="login">

```

Cereal AnalysisBased on Ratings by using Machine Learning Techniques

</h1>

<div class='description'>

<p>A customer wants to buy some food items with high dietary benefits so that he wants to know which food item has high dietary benefits. It is so difficult to choose an item .Usually a customer expects to consume dietary cereals with high proteins, fiber and low sugars, fats. Predicting a brand with high dietary cereals became a big issue.</p>

<p>We use machine learning algorithms to predict the food with high beneficiary diet. The model can predict the rating of the food more accurate by giving the inputs which are the cereals and ingredients present in the food. Thus a customer can get high dietary food by the rating of the food given to it from the cereals and ingredients present. The rating is predicted using the neural networks model.</p>

</div>

<form action="/assesment"> <button
type="submit" class="btn bt primary btn-
block btn-large">Click me to continue
with prediction</button>

```

        </form>
    </div>
</body>
</html>
<!DOCTYPE html>
<html >
<!--From https://codepen.io/frytyler/pen/EGdtg-->
<head>
    <meta charset="UTF-8">
    <title>Cereal Analysis Prediction</title> <link
rel="stylesheet" href="{{ url_for('static',
filename='css/style.css') }}">

<style> .login{ top:
20%; } select {
margin-bottom: 10px;
border: none;  outline:
none;  padding: 10px;
font-size: 13px;
color: purple;
    text-shadow: 1px 1px 1px rgb(255 182 193 /
50%);
    border: 1px solid rgba(128,0,128,0.4);  border-
radius: 4px;
}
</style>
</head>
INDEX.HTML
<body>

```



```
<div class="login">
<h1>Cereal Analysis Prediction</h1>
<br>
<!-- Main Input For Receiving Query to our ML
<form action="/predict"method="post">
    <select name="mfr">
        <option disabled="disabled"
selected="selected">Manufacturer</option><br>
<option value="a">A</option>
        <option value="g">G</option>
        <option value="k">K</option>
        <option value="n">N</option>
        <option value="p">P</option>
        <option value="q">Q</option>
        <option value="r">R</option>
    </select>
    <select name="type">
        <option disabled="disabled"
selected="selected">Type</option>
        <option value="c">Cold</option>
        <option value="h">Hot</option>
    </select><br>
        <input type="text" name="Calories"
placeholder="Calories" required="required" /><br>
<input type="text" name="Protien"
placeholder="Protien" required="required" /><br>
<input type="text" name="Fat" placeholder="Fat"
required="required" /><br>    <input type="text"
```

```

name="Sodium" placeholder="Sodium"
required="required" /><br>    <input type="text"
name="Fiber" placeholder="Fiber"
required="required" /><br>    <input type="text"
name="Carbo" placeholder="Carbo"
required="required" /><br>    <input type="text"
name="Sugars" placeholder="Sugars"
required="required" /><br>    <input type="text"
name="Potass" placeholder="Potass"
required="required" /><br>    <input type="text"
name="Vitamins" placeholder="Vitamins"
required="required"
/><br>
    <input type="text" name="Shelf"
placeholder="Shelf" required="required" /><br>
    <input type="text" name="Weight"
placeholder="Weight" required="required" /><br>
    <input type="text" name="Cups"
placeholder="Cups" required="required" /><br>
    <button type="submit" class="btn btn-primary btn-
block btn-large">Predict</button>
</form>
<br>
<br>
<p>
    {{ z }} <p>
</div>
</body>

```

</html>

PREDICT.HTML

<html lang="en" dir="ltr">

<head>

<meta charset="utf-8">

<title>Cereal Analysis Prediction</title> <link

rel="shortcut icon" href="{ { url_for('static',

filename='diabetes-favicon.ico') }}"> <link

rel="stylesheet" type="text/css" href="{ {

url_for('static', filename='styles.css') }}">

<script

src="https://kit.fontawesome.com/5f3f547070.js"

crossorigin="anonymous"></script>

<link

href="https://fonts.googleapis.com/css2?family=Pac

ifico&display=swap" rel="stylesheet">

</head>

<style> body

{

background-image:url('../static/img/corn.jpg');

background-position: center; font-

family:sans-serif; background-size:cover;

}

</style>

<body>

</br></br></br></br></br></br>

<!-- Website Title -->

<div style="padding-left:200px">

```
<div class="container">
    <h2 class='container-heading'><span
class="heading_font">Cereal Analysis
Prediction</span></h2>
    <div class='description'>
        <p>A Machine Learning
Web App using Flask.</p>
    </div>
</div>
<!-- Result -->
<div class="results">
    <p>Prediction :
<b><u>{ { z } }</u></b></p>
</div>
</div>
</body>
</html>
```