Practical Assignment – 1

➔ Deploying ML model with Flask

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SUBJECT: Machine Learning

Application: Find ideal Weight from height
Model used: Linear Regression

This model is predicting ideal weight of user from his/her height provided.

I had used dataset from Kaggle for this practical assignment
Link is following:
https://www.kaggle.com/datasets/burnoutminer/heights-and-weights-dataset

Additionally, I had used sklearn and numpy library in this assignment.

Code section –

1)HTML: (templates/index.html)

-> I had used Javascript in this page it self.

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <link rel="stylesheet" href="../static/index.css"/>
    <title>project 1</title>
</head>
<body>
    <h3>Navneetkumar R. Thakor : 21CP031</h3>
    <div id="formContainer">
        <h1>Linear Regration</h1>

        <div id="formquestions">
            <div>
                <input type="text" required name="inputdata" id="inputdata" />
                <label for="inputdata">Enter you height (cem)</label>
            </div>
```

```html
            <div>
                <input type="text" required name="ans" id="ans" />
                <label for="inputdata">calculated weight (Kg)</label>
            </div>


        </div>
        <button id="btn">Calculate</button>

    </div>

    <script>
        const button  = document.getElementById("btn");
        button.onclick = async () =>{
            const val = document.getElementById("inputdata");
            console.log(val.value)
            const url = `http://localhost:5000/calculate?height=${val.value}`;
            const response = await fetch(url,{
                method: "POST",
                headers:{
                    "Content-Type": "application/json"
                },
            })
            const ans = await response.json();
            document.getElementById("ans").value = ans;

        }
    </script>
</body>
</html>
```

2) CSS (static/index.css):

```css
/* css reset  */
*{
    padding: 0;
    margin: 0;
    box-sizing: border-box;
}

body{
    display: flex;
    flex-direction: column;
    align-items: center;
    justify-content: center;
    min-height: 100vh;
    width: 100vw;
    overflow-x: hidden;
    background-color: rgb(41, 41, 46);
    color: white;
}

/* form styling  */
#formContainer{
    width: 80vw;
    height: 70vh;
    border: 2px solid gray;
    border-radius: 8px;
    display: flex;
    flex-direction: column;
    align-items: center;
    justify-content: center;
}

#formquestions{
    position: relative;
    width: 50%;
    display: flex;
    margin-top: 10vh;
}
#formquestions > div{
    position: relative;
    width: 40%;
    margin-left: 5%;
    display: flex;
    border-bottom: 2px solid lightgray;
    /* margin-top: 10vh; */
}
#formquestions label{
    position: absolute;
    bottom: 0;
    left: 0;
    transition: 0.5s;
}

input{
    height: 5vh;
    background-color: transparent;
    color: white;
    border: none;
    outline: none;
}
```

```
#formquestions  input:focus ~ label,
#formqestions  input:valid ~ label{
    transform: translateY(-5vh);
}

/* button stling  */
button{
    margin-top: 5vh;
    font-size: large;
    color: rgb(33, 33, 128);
    background-color: rgb(65, 177, 185);
    height: 5vh;
    width: 20%;
    border: none;
    outline: none;
    transition: 0.5s;
}
button:active{
    background-color: aquamarine;
    color: brown;
}
```

3) app.py :

```
from flask import Flask, render_template, request
from flask_cors import CORS
app = Flask(__name__)
CORS(app)


"""
training model with our data
"""
import numpy as np
from sklearn.linear_model import LinearRegression
import csv

X_train = np.array([])
Y_train = np.array([])

with open('data.csv', 'r') as csvFile:
    csv_reader = csv.reader(csvFile)
    for row in csv_reader:
        X_train = np.concatenate((X_train, [float(row[0])]))
        Y_train = np.concatenate((Y_train, [float(row[1])]))
```

```
# Creating a linear regression model
model = LinearRegression()

# Training the model
model.fit(X_train.reshape(-1, 1), Y_train)


"""
our routes
"""

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

@app.route('/calculate', methods=['GET', 'POST'])
def calculate():
    if request.method == 'POST':
        height = request.args.get('height')
        height = int(height)
        ans = model.predict(np.array([height]).reshape(1,-1))
        # ans = ((height*0.39) + 3)
        return str(ans)
    return "5"

if __name__ == "__main__":
    app.run(debug=True)
```

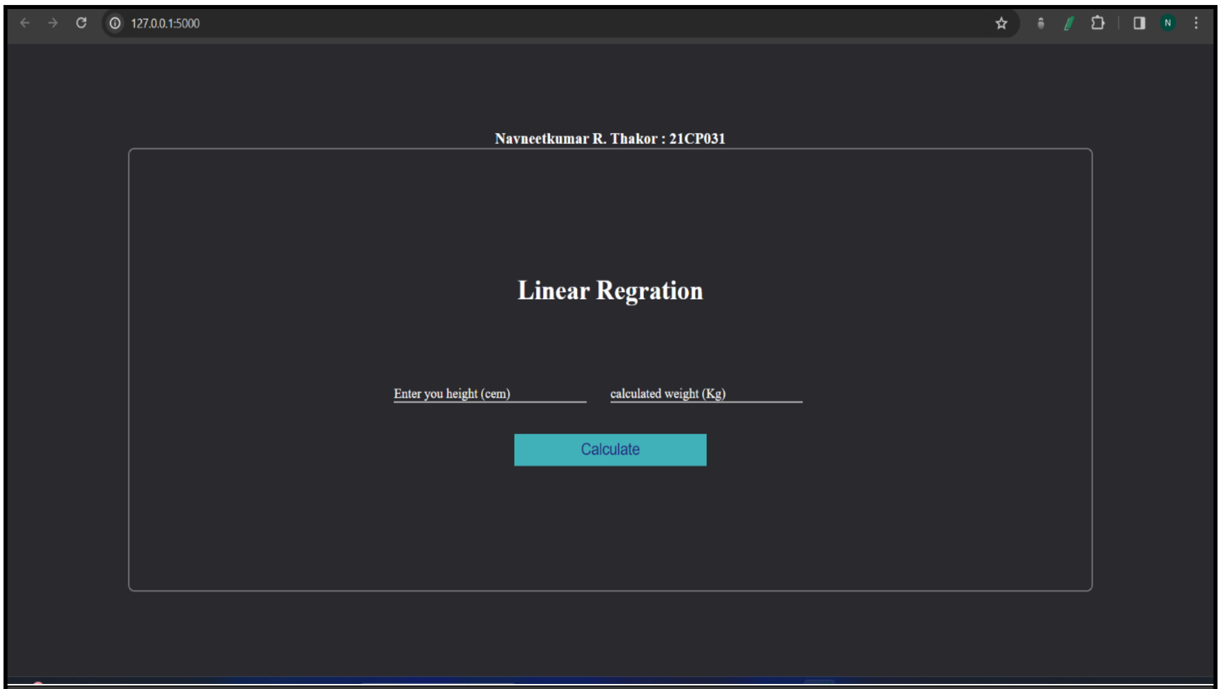
4)requirements.txt

-> it will be useful for 3rd person to understand and download all the dependencies

```
blinker==1.7.0
click==8.1.7
colorama==0.4.6
Flask==3.0.2
Flask-Cors==4.0.0
gunicorn==21.2.0
itsdangerous==2.1.2
Jinja2==3.1.3
```

```
MarkupSafe==2.1.5
packaging==24.0
Werkzeug==3.0.1
```

Photos of final output:



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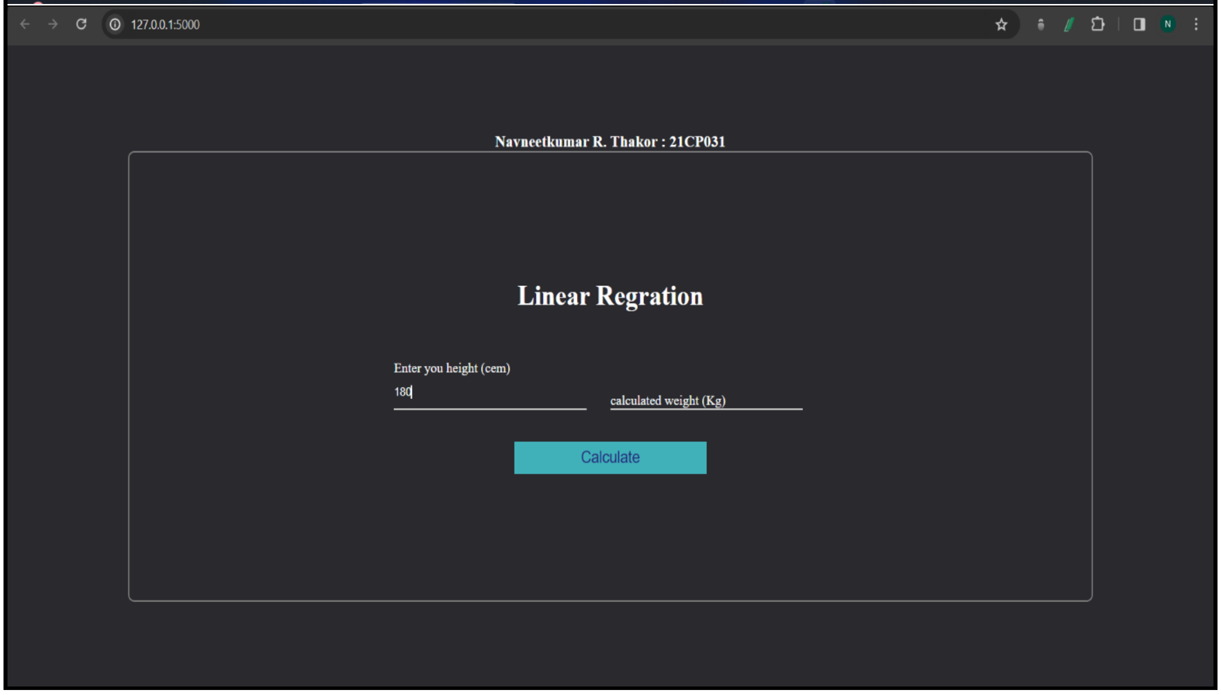
Linear Regration

Enter you height (cem)

calculated weight (Kg)



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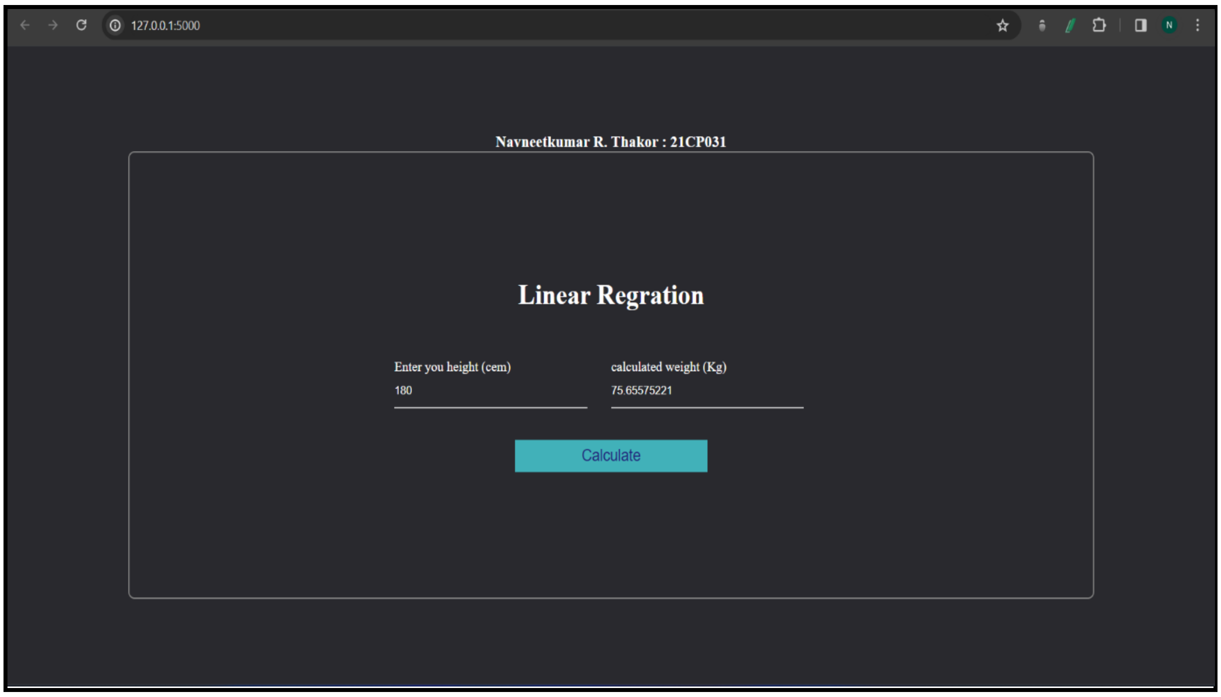
Linear Regration

Enter you height (cem)

180

calculated weight (Kg)



127.0.0.1:5000

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Linear Regration

Enter you height (cem)

180

calculated weight (Kg)

75.65575221