DETECTION OF CYBERBULLYING ON SOCIAL MEDIA USING MACHINE LEARNING

EXECUTABLE CODE :

The system is implemented using Python with Flask for the backend and HTML/CSS/JavaScript for the frontend.

app.py

```python
from flask import Flask, render_template, request, jsonify

import joblib

import torch

import pandas as pd

from sklearn.feature_extraction.text import TfidfVectorizer

app = Flask(__name__)

# Load the trained model and vectorizer

nb_classifier = joblib.load('nb_classifier.pkl')

tfidf_vectorizer = joblib.load('tfidf_vectorizer.pkl')

# Define a route to render the HTML page

@app.route('/')

def home():

return render_template('index.html')

# Define a route to handle form submission and make predictions

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

def predict():

input_text = request.form['input_text']

features = tfidf_vectorizer.transform([input_text])

prediction = nb_classifier.predict(features)[0]

probability = max(nb_classifier.predict_proba(features)[0])

return jsonify({'prediction': prediction, 'probability': probability})

if __name__ == '__main__':

app.run(debug=True)
```

index.html

```html
<!DOCTYPE html>

<html>

<head>

<title>CyberBullying Detection</title>

<style>

body {

font-family: Arial, sans-serif;

background-image: linear-gradient(45deg, #ff6b6b, #6b47ff);

background-size: cover;

background-repeat: no-repeat;

background-attachment: fixed;

margin: 0;

padding: 0;

display: flex;

flex-direction: column;

align-items: center;

justify-content: center;

min-height: 100vh;

overflow: hidden;

}

.container {

background-color: rgba(255, 255, 255, 0.9);

backdrop-filter: blur(10px);

border-radius: 8px;

box-shadow: 0 4px 8px rgba(0, 0, 0, 0.2);

padding: 20px;

text-align: center;

max-width: 400px;

animation: fadeIn 1s ease-in-out;
```

```
}
22@keyframes fadeIn {
0% {
opacity: 0;
transform: scale(0.8);
}
100% {
opacity: 1;
transform: scale(1);
}
}
h1 {
font-size: 24px;
margin-bottom: 20px;
color: #333;
}
label {
display: block;
font-size: 18px;
margin-bottom: 10px;
text-align: left;
}
textarea {
width: 100%;
max-width: 300px;
height: 100px;
padding: 10px;
margin-bottom: 15px;
border: 1px solid #ccc;
border-radius: 4px;
```

```css
resize: none;

transition: border-color 0.3s ease, transform 0.3s ease;

23outline: none;

}

textarea:focus {

border-color: #007bff;

transform: scale(1.02);

}

input[type="submit"] {

background-color: #007bff;

color: #fff;

border: none;

border-radius: 4px;

cursor: pointer;

font-size: 16px;

padding: 10px 20px;

transition: background-color 0.3s ease, transform 0.3s ease;

}

input[type="submit"]:hover {

background-color: #0056b3;

transform: scale(1.05);

}

#result {

margin-top: 20px;

font-size: 16px;

opacity: 0;

transform: translateY(-20px);

transition: transform 0.5s ease, opacity 0.5s ease;

}

#result.slide-in {
```

```css
        transform: translateY(0);

24opacity: 1;

}

/* Background animation */

body::before {

content: "";

position: absolute;

top: 0;

left: 0;

width: 100%;

height: 100%;

background: linear-gradient(45deg, #ff6b6b, #6b47ff);

z-index: -1;

animation: backgroundAnimation 20s linear infinite;

}

@keyframes backgroundAnimation {

0% {

background-position: 0% 0%;

}

100% {

background-position: 100% 0%;

}

}

}
```

```html
</style>

</head>

<body>

<div class="container">

<h1>Cyberbullying Detection</h1>

<form action="/predict" method="post">

<label for="input_text">Enter a statement:</label>
```

```html
<textarea id="input_text" name="input_text" rows="4" cols="40" required></textarea>
<input type="submit" class="fade-in" value="Classify">
25</form>
<div id="result" class="slide-in"></div>
</div>
</body>
<script>
document.querySelector('form').addEventListener('submit', function (e) {
e.preventDefault();
const inputText = document.getElementById('input_text').value;
fetch('/predict', {
method: 'POST',
headers: {
'Content-Type': 'application/x-www-form-urlencoded',
},
body: `input_text=${encodeURIComponent(inputText)}`,
})
.then(response => response.json())
.then(data => {
const resultElement = document.getElementById('result');
if (data.prediction === 'ethnicity') {
resultElement.innerHTML = `The statement is classified as cyberbullying with
probability ${data.probability.toFixed(2)}`;
} else {
resultElement.innerHTML = `The statement is not classified as cyberbullying with
probability ${data.probability.toFixed(2)}`;
}
resultElement.classList.add('slide-in');
})
.catch(error => console.error('Error:', error));
```

```
});
</script>
</html>
```