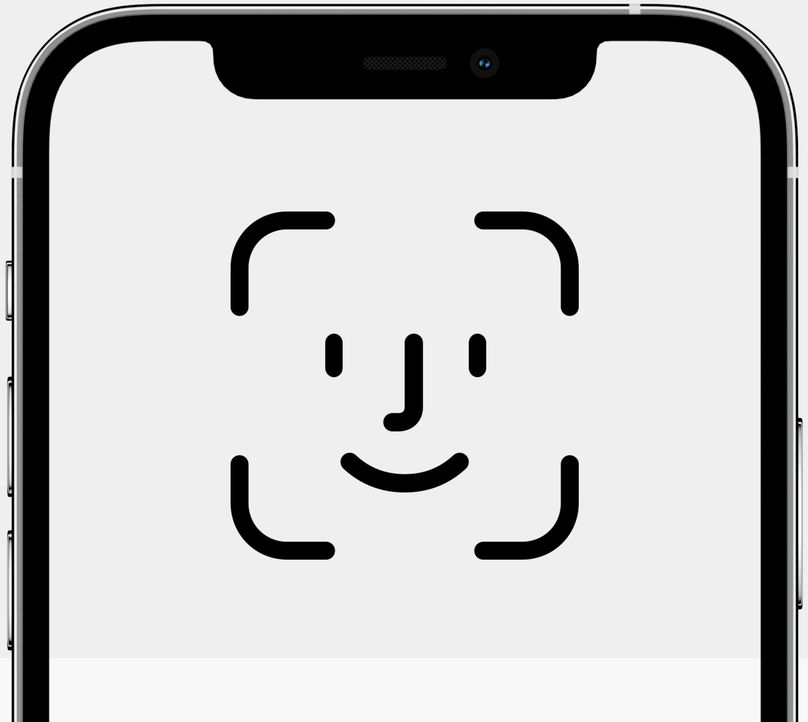
FACIAL RECOGNITION

USER AUTHENICATION



Team Members

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6388117 Siranut Akarawuthi
6388206 Tawan Meethong

ITCS461
Computer and
Communication Security

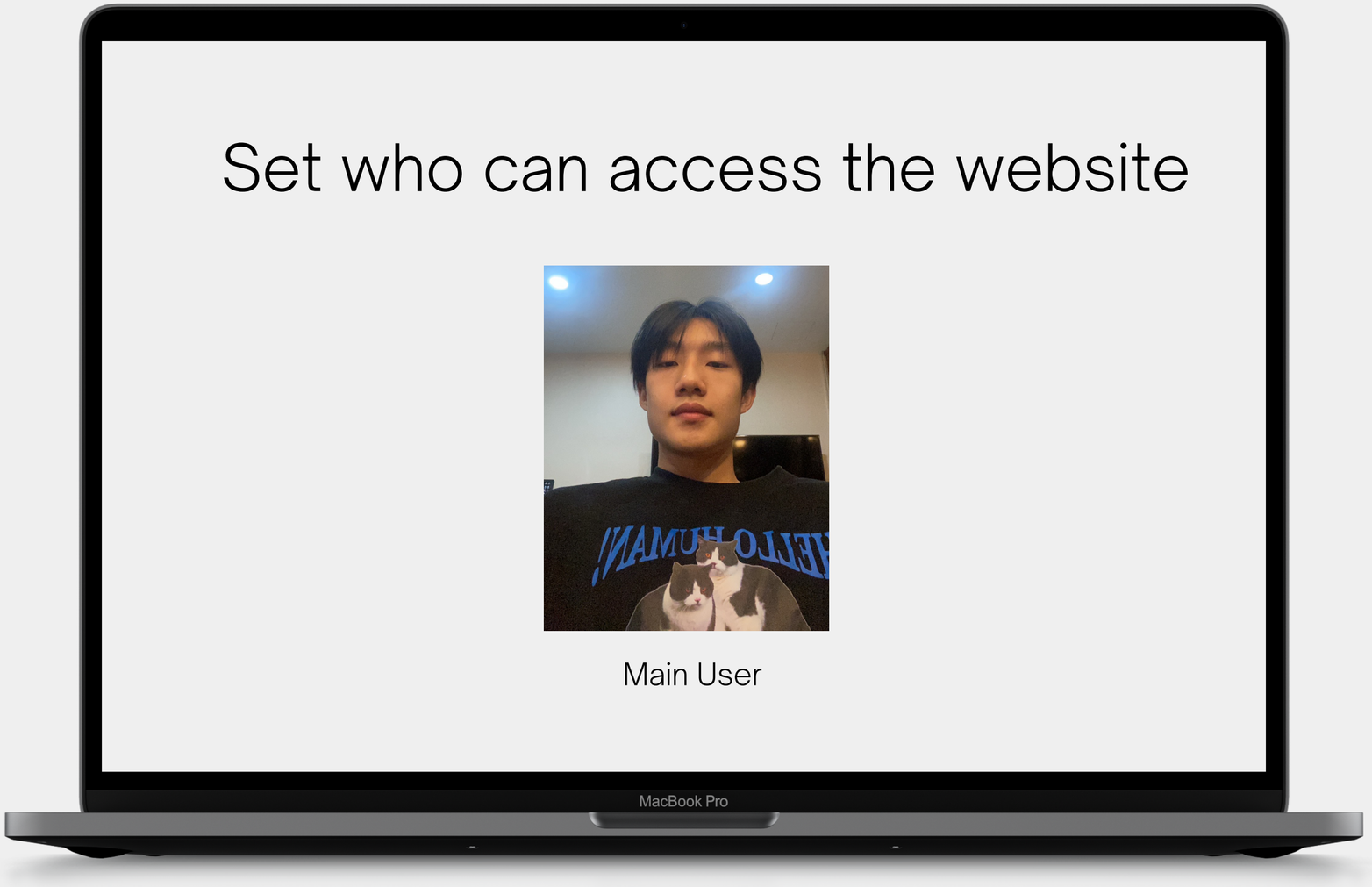
OUR CONCEPT

01

02

03

OUR CONCEPT



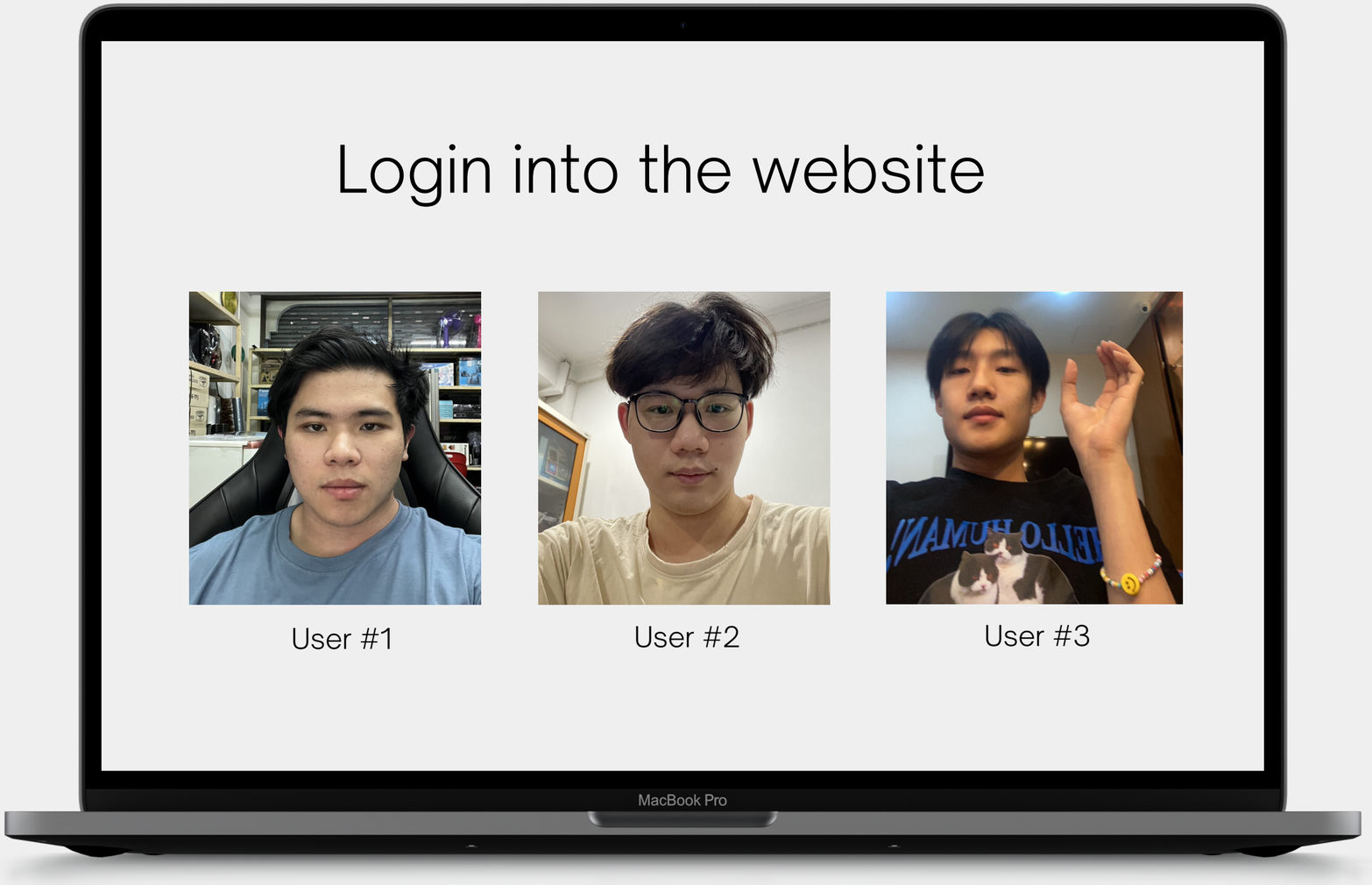
01

02

03

OUR CONCEPT

Main User



User #1

User #2

User #3

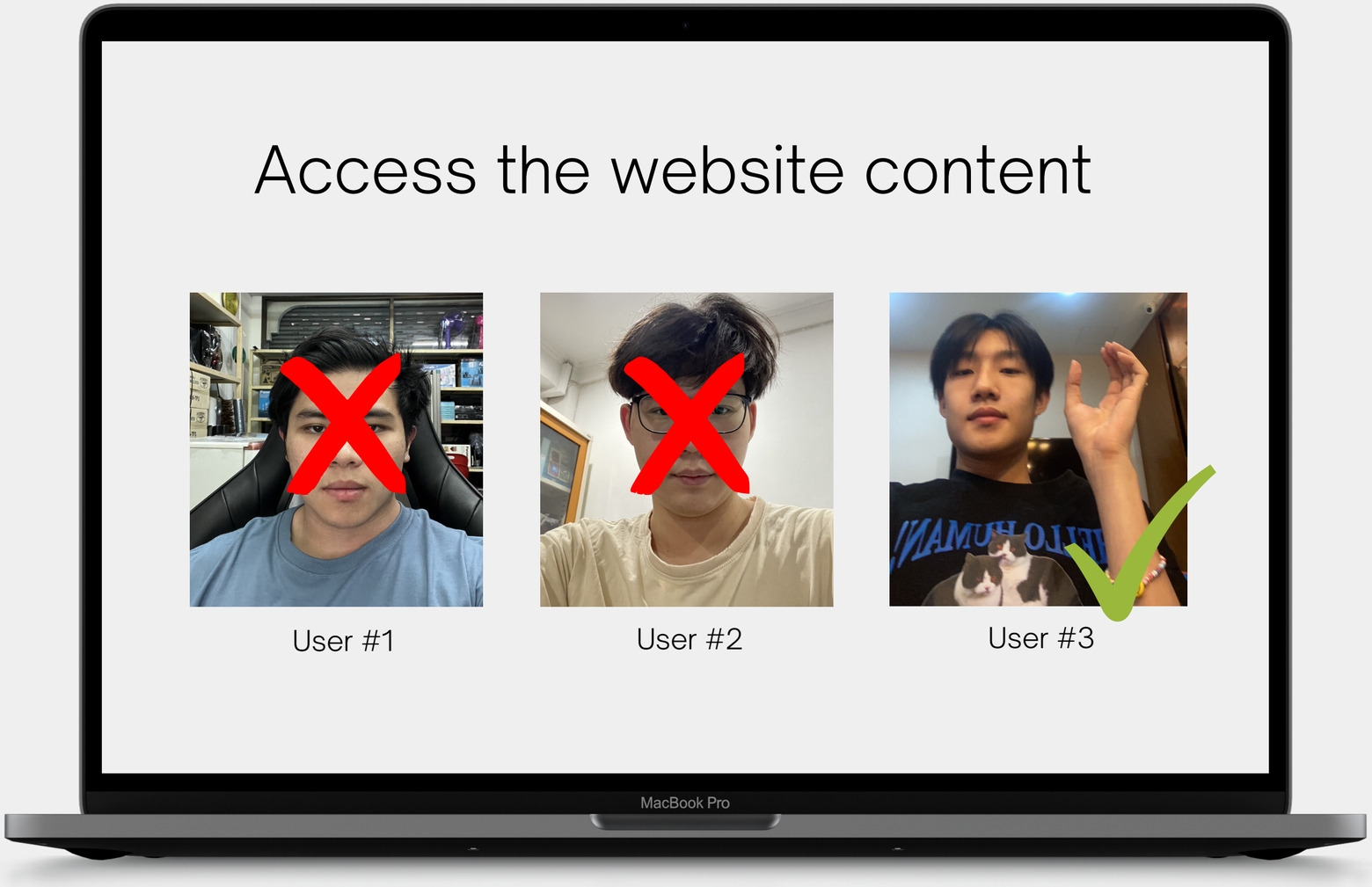
01

02

03

OUR CONCEPT

Main User



User #1

User #2

User #3

01

02

03

OUR CODE

```
import face_recognition
from flask import Flask, render_template, request, redirect, url_for

app = Flask(__name__)

# Dummy data for demo purposes
users = [
    {'username': 'Nitit', 'image_path': 'D:/.Mahidol University/year 3/Security/Project/Data/Nitit_data.png'},
]

# Homepage
@app.route('/')
def index():
    message = ''
    return render_template('index.html', error=message)

# Dashboard page
@app.route('/dashboard')
def dashboard():
  return render_template('dashboard.html')
```

```
@app.route('/login', methods=['POST'])
def login():
  image_file = request.files['fileInput']

  for user in users:
    try:
      known_image = face_recognition.load_image_file(user['image_path'])
      known_encoding = face_recognition.face_encodings(known_image)[0]
      unknown_image = face_recognition.load_image_file(image_file)
      unknown_encoding = face_recognition.face_encodings(unknown_image)[0]
      face_distances = face_recognition.face_distance([known_encoding], unknown_encoding)
    except:
     message = 'We were unable to verify your identity based on the uploaded image. Please try again.'
     return render_template('index.html', error=message)

    print(face_distances[0])

    if face_distances[0] < 0.5:
      return redirect(url_for('dashboard'))

  message = 'We were unable to verify your identity based on the uploaded image. Please try again.'
  return render_template('index.html', error=message)
```

face_recognition

PACKAGE

»

```
known_image = face_recognition.load_image_file(user['image_path'])
known_encoding = face_recognition.face_encodings(known_image)[0]
unknown_image = face_recognition.load_image_file(image_file)
unknown_encoding = face_recognition.face_encodings(unknown_image)[0]
face_distances = face_recognition.face_distance([known_encoding], unknown_encoding)
```

face_recognition.api.load_image_file(file, mode='RGB')

Loads an image file (.jpg, .png, etc) into a numpy array
Parameters

- file – image file name or file object to load
- mode – format to convert the image to. Only 'RGB' (8-bit RGB, 3 channels) and 'L' (black and white) are supported.

Returns image contents as numpy array

```
known_image = face_recognition.load_image_file(user['image_path'])
known_encoding = face_recognition.face_encodings(known_image)[0]
unknown_image = face_recognition.load_image_file(image_file)
unknown_encoding = face_recognition.face_encodings(unknown_image)[0]
face_distances = face_recognition.face_distance([known_encoding], unknown_encoding)
```

face_recognition.api.face_encodings(face_image, known_face_locations=None, num_jitters=1, model='small')
Given an image, return the 128-dimension face encoding for each face in the image.

Parameters
• face_image – The image that contains one or more faces
• known_face_locations – Optional - the bounding boxes of each face if you already know them.
• num_jitters – How many times to re-sample the face when calculating encoding. Higher is more accurate, but slower (i.e. 100 is 100x slower)
• model – Optional - which model to use. "large" or "small" (default) which only returns 5 points but is faster.

Returns A list of 128-dimensional face encodings (one for each face in the image)

```
known_image = face_recognition.load_image_file(user['image_path'])
known_encoding = face_recognition.face_encodings(known_image)[0]
unknown_image = face_recognition.load_image_file(image_file)
unknown_encoding = face_recognition.face_encodings(unknown_image)[0]
face_distances = face_recognition.face_distance([known_encoding], unknown_encoding)
```

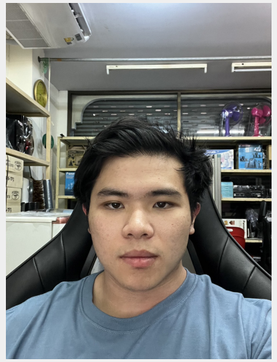
face_recognition.api.face_distance(face_encodings, face_to_compare)

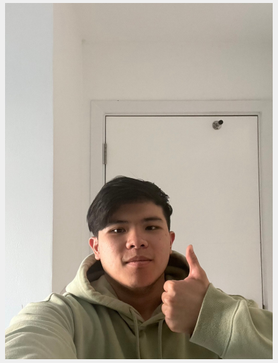
Given a list of face encodings, compare them to a known face encoding and get a euclidean distance for each comparison face. The distance tells you how similar the faces are.

Parameters
- face_encodings – List of face encodings to compare
- face_to_compare – A face encoding to compare against

Returns A numpy ndarray with the distance for each face in the same order as the ‘faces’ array

TEST RESULTS

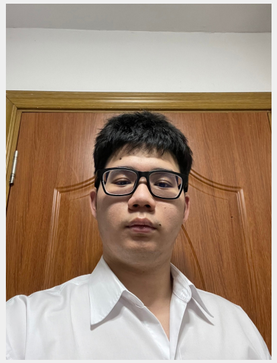


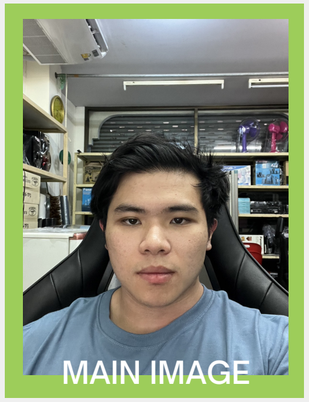


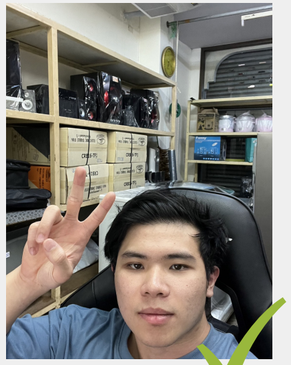




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0.48672777

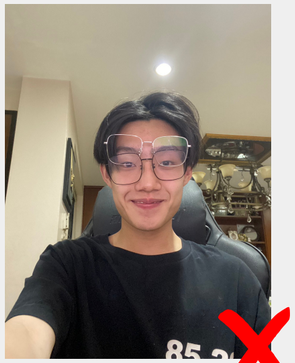

0.33977759


0.34989035


0.40692876


0.63185175


0.62124515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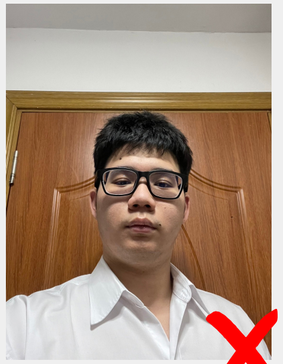
0.56942761


0.57852109


0.6644986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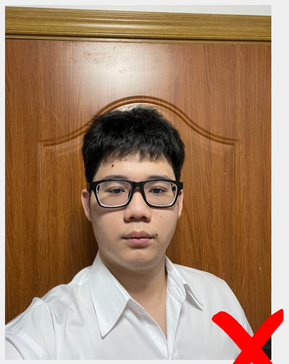
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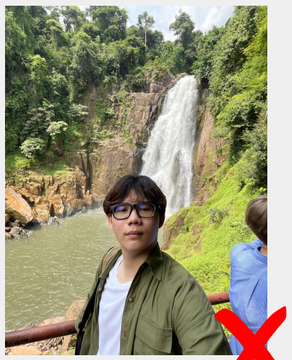
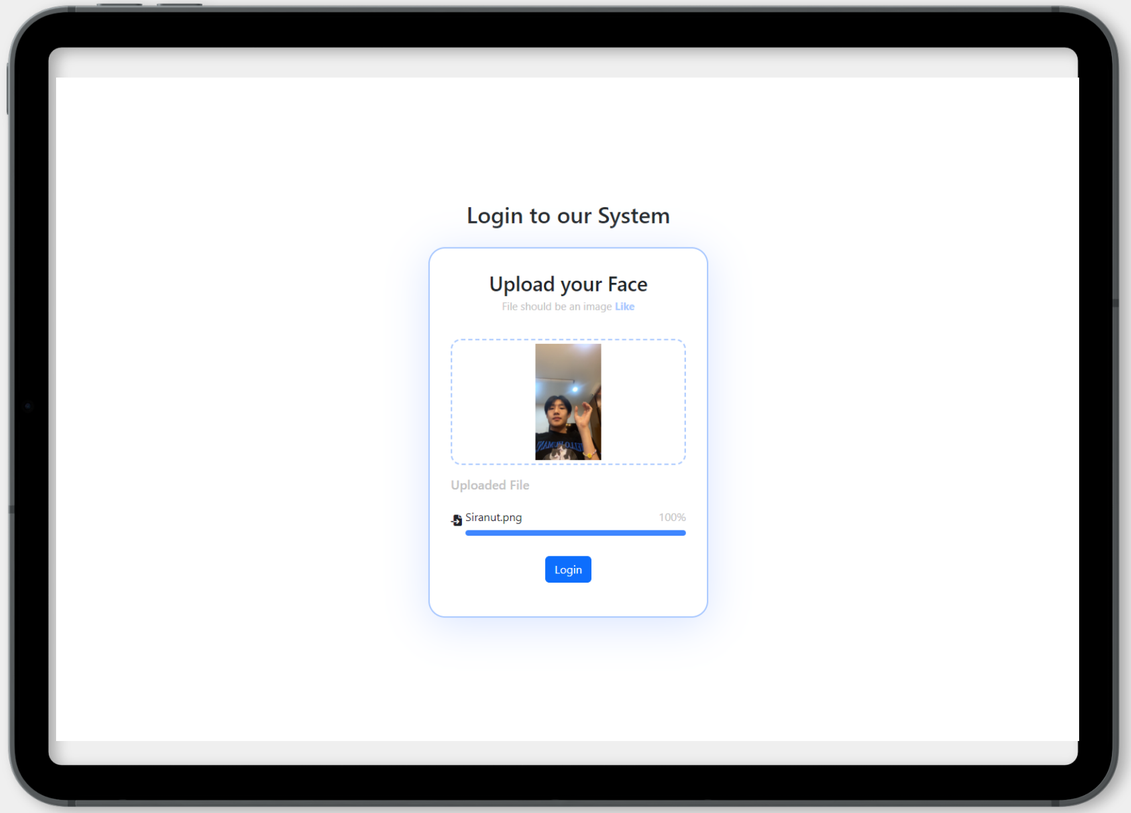
0.52416827


0.52756898


0.57681206


0.52480254

LIVE DEMO


Login to our System
Upload your Face
File should be an image Like
Uploaded File
Siranut.png
100%
Login