A Project/Dissertation Report

on

SMART VISION

Submitted in partial fulfilment of the
requirement for the award of the degree of

B. TECH

Under The Supervision
of Dr. Michael Raj TF

Submitted By

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INDIA
December, 2021

SCHOOL OF COMPUTING SCIENCE AND ENGINEERING
GALGOTIAS UNIVERSITY, GREATER NOIDA

CANDIDATE'S DECLARATION

I/We hereby certify that the work which is being presented in the thesis/project/dissertation, entitled **"Smart Vision"** in partial fulfillment of the requirements for the award of the B.tech submitted in the School of Computing Science and Engineering of Galgotias University, Greater Noida, is an original work carried out during the period of month, Year to Month and Year, under the supervision of Dr. Michael Raj TF Department of Computer Science and Engineering/Computer Application and Information and Science, of School of Computing Science and Engineering , Galgotias University, Greater Noida

The matter presented in the thesis/project/dissertation has not been submitted by me/us for the award of any other degree of this or any other places.

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This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

Supervisor Name

Designation

CERTIFICATE

The Final Thesis/Project/ Dissertation Viva-Voce examination of Kartikey Narayan 18SCSE1010369 and Raman kumar Sharma 18SCSE1010379 has been held on 17/12/2021 and his/her work is recommended for the award of-Bachelor of technology.

Signature of Examiner(s) **Signature of Supervisor(s)**

Signature of Project Coordinator **Signature of Dean**

Date: December , 2021
Place: Greater Noida

Acknowledgement

I would like to express my special thanks of gratitude to my guide Dr. Michael Raj TF who gave me the golden opportunity to do this wonderful project on the topic Smart Vision, which also helped me in doing a lot of Research and i came to know about so many new things I am really thankful to them.
Secondly i would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

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Acronyms

B.Tech.	Bachelor of Technology
M.Tech.	Master of Technology
BCA	Bachelor of Computer Applications
MCA	Master of Computer Applications
B.Sc. (CS)	Bachelor of Science in Computer Science
M.Sc. (CS)	Master of Science in Computer Science
SCSE	School of Computing Science and Engineering

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Abstract

Face Recognition system is API based web app which uses Clarify API to fetch data for face recognition. It collects the face images, and the recognition equipment automatically processes the images. The project introduces the related researches of face recognition from different perspectives. The paper describes the development stages and the related technologies of face recognition. Face recognition has recently gained a lot of interest in today's world of networked multimedia information access. Face recognition technology is beneficial in areas such as network security, content indexing and retrieval, and video compression since "humans" are the centre of attention in a lot of footage. Face recognition for network access control not only makes it nearly difficult for hackers to acquire one's "password," but it also enhances the security of the system.

In human-computer interaction, user-friendliness is important. Users such as news reporters, political scientists, and moviegoers will benefit from indexing and/or retrieving video material based on the appearances of certain people. Face recognition can also help with videophone and teleconferencing applications by providing a more efficient coding method. We

provide an overview of this innovative information processing technique in this publication. The study demonstrates the basic architecture for a face recognition system as well as the variations that the face recognizer commonly encounters. Several well-known face recognition techniques will also be discussed, including eigenfaces and neural networks.

Introduction

One of a person's most essential biometric characteristics is their face. A human being is capable of recognising a variety of faces with ease. Designing a reliable computer system for facial recognition, however, is a difficult challenge. When compared to our own natural facial identification skill, computerised face recognition algorithms are woefully inadequate. Face recognition, an incredibly complicated visual job, is nearly immediately performed by humans, and our own identification capacity is considerably more robust than any computer's. Humans can recognize a known person in a variety of lighting situations and from different angles or views.

Face recognition is still a hot topic of research since no totally successful technique or model for solving the problem has been offered. Surveillance systems of the future are projected to use a human face as an input pattern and extract relevant information such as gender.

PROBLEM FORMULATION

Face recognition system can be used to detect multiple faces in the surrounding, implementing some features like guessing age, gender, Mask or attendance system. Basically Face recognition system can be used for security and authentication during biometrics verification of users. To differentiate between people or object present in the surrounding, this system can detect number of people present.

Tools used for implementation

- Front end using HTML, CSS
- PostgreSQL
- Node, Express

Literature Survey

This part will discuss some theories and the literature reviews (related to digital technologies) incorporated in this study.

- Face Detection System using API

Over the years, face recognition is one of the fastest growing technologies which are used by numerous individuals, companies and educational institutions. Educational institutions like colleges and universities have discovered the ability of Face recognition tools to be useful tools within collaborative learning environment, and the fact that the tools allow learning to occur anytime and anywhere.

Technology implemented:-

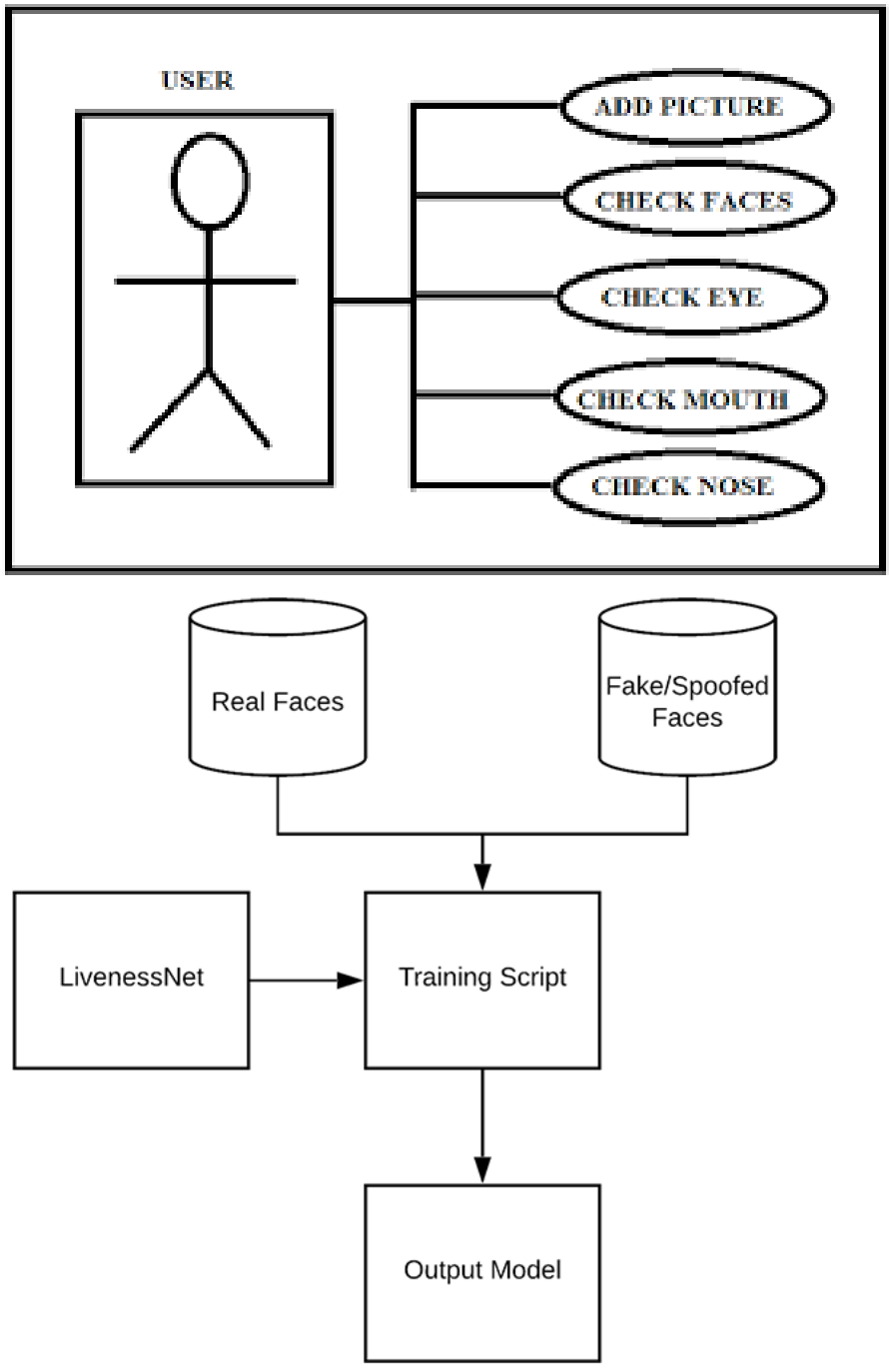
- HTML, CSS, JavaScript these tools are used for front end development.
- React.js is also implemented for UI design.
- Node and express is used for server creation.
- PostgreSQL

PostgreSQL (Backend as a Service) Which can help in storing data of users module and stores data . It is a relational database system which stores data in the form of rows and coloumns.

Web application:

Web application is a program which behave dynamically after inserting an imagine it will detect the face presents. Implementing login module for old users and signup module for new users after providing data it will count the number of times user used the website.

Data Flow Diagram



Research Paper:-

Introduction:-

Face recognition and real-time face detection are critical in applications like robot intelligence, smart cameras, security monitoring, and even criminal identification. Face detection and identification algorithms are often created for either still photos or colour images. Color photos enhance data complexity by mapping pixels into a high-dimensional space, which significantly slows down the face detection and recognition processing speed and accuracy.

There are several approaches towards facial recognition problems. Given the truth, the faces are commonly round or oval with a comparative overshadowing, one least complex technique is to use concealing division to recognize faces. Nevertheless, using concealing division can't acclimate to the developing environment, such as lighting conditions. More adaptable and solid systems will no doubt not be able to work ceaselessly since they require more computational power. Additionally, adaptable estimations generally use quantifiable thoughts in various degrees, for instance, design planning, Support Vector Machine (SVM), concealing division, and neural associations are examples of format matching computations. To conclude facial components for face acknowledgment, more dependable descriptors like Histogram of Oriented Gradient (HOG), Scale-Invariant Feature

Transform (SIFT), Nearby Binary Pattern (LBP), or Har-like elements are utilized. Head Component Analysis (PCA), Linear Discriminant Analysis (LDA), widely inclusive matching technique, and component based methodology are used for facial ID.

Faces must be discovered and recognized in real time, frequently against complex backgrounds, for practical applications.

The methods presented in this paper process gray-scale photographs in order to recognize and classify objects.

Face recognition in real time with excellent accuracy. The location precision is improved by utilizing a calculation and a course classifier.

To ensure a low false-positive face detection rate, the eye detection uses a cascade classifier based on the Har-like descriptor. An efficient pre-processing on training data can considerably improve the outcome of facial recognition training.

Three stages can be recognized in the executed calculation:

1) Detection of faces and eyes;

2) Normalization and enhancement of facial images.

3) Facial affirmation and test grouping In the fundamental stage

two separate course classifiers are used to perceive the appearances and eyes. The Ada Boost calculation is utilized in

the preparation of these two classifiers. Faces found in the past advance are standardized to a given size and direction in stage 2. The backgrounds are removed at this point, and the contrast and lighting are improved.

The calculation in sync 3 monitors the contrasts between faces in identification windows. In the event of a substantial difference, the system will recognize the face using PCA and collect the data to further train the recognition algorithm. The solution suggested in this paper can operate more correctly independent of the background thanks to preprocessing and an eye detection module.

Literature Review

This part gives an outline on the significant human face acknowledgment procedures that apply for the most part to front facing faces, benefits and loads of every technique are also given. The techniques considered are eigenfaces (eigenfeatures), neural affiliations, dynamic affiliation planning, stowed away Markov model, mathematical part arranging, and configuration putting together. The ways of thinking are broke down the degree that the facial portrayals they utilized.

Eigenfaces

Eigenface is quite possibly the most completely examined approach to confront acknowledgment. It is by and large called Karhunen-Loève expansion, eigen picture, eigenvector, and

head part. References used head part assessment to gainfully address pictures of faces. They fought that any face pictures could be for the most part changed by a little course of Reference utilized eigenfaces, which was goaded by the strategy for Kirby and Savovic, for face revelation and perceiving check.

Reference proposed one more procedure to deal with the covariance network using three pictures each was taken in different lighting conditions to address optional lighting up impacts, accepting that the thing is Lambertian. Reference extended their hidden work on eigenface to eigenfeatures standing out from go facing parts, like eyes, nose, and mouth. The framework accomplished an acknowledgment pace of 95% on the FERET information base of 7,562 pictures of roughly 3,000 people. In once-over, eigenface appears as a speedy, clear, and valuable strategy. In any case, if all else fails, it doesn't give invariance over changes in scale and lighting conditions.

As of late, in explores different avenues regarding ear and face acknowledgment, utilizing the standard head part investigation approach , showed that the acknowledgment execution is basically indistinguishable utilizing ear pictures or face pictures and joining the two for multimodal acknowledgment brings about a measurably critical exhibition improvement. For instance, the distinction in the position one acknowledgment rate for the day variety try utilizing the 197-picture preparing

sets. There is considerable related work in multimodal biometrics. For instance utilized face and unique mark in multimodal biometric recognizable proof, and utilized face and voice. Notwithstanding, utilization of the face and ear in blend appears to be more pertinent to reconnaissance applications.

Graph Matching

Graph matching is one more way to deal with face acknowledgment. Reference introduced a unique connection structure for twisting invariant item acknowledgment which utilized flexible diagram matching to track down the nearest put away chart. Dynamic connection engineering is an expansion to traditional fake neural organizations. Held things are tended to by little graphs, whose vertices are separate with a multiresolution portrayal to the degree a nearby power range and whose edges are named with mathematical distance vectors. Object certification can be figured as versatile blueprint matching which is performed by stochastic streamlining of a matching expense work.They revealed great outcomes on a data set of 87 individuals and a little arrangement of office things involving various articulations with a turn of 15 degrees.

Template Matching

A basic adaptation of format matching is that a test picture addressed as a two-dimensional exhibit of power esteems is looked at utilizing a reasonable measurement, like the Euclidean distance, with a solitary layout addressing the entire

face. There are a few other more modern forms of layout matching on face acknowledgment. One can utilize more than one face format from various perspectives to address a singular's face

Recent technique

Line Edge Map (LEM)

Edge data is a helpful item portrayal include that is coldhearted toward light changes to specific degree. However the edge map is broadly utilized in different example acknowledgment fields, it has been ignored in face acknowledgment besides in late work detailed in. Edge pictures of articles could be utilized for object acknowledgment and to accomplish comparative precision as dark level pictures. Reference used edge advisers for evaluate the likeness of face pictures. A 92% precision was accomplished. Takacs contended that course of face acknowledgment may begin at a whole lot sooner stage and edge pictures can be utilized for the acknowledgment of countenances without the association of undeniable level intellectual capacities.

Support Vector Machine (SVM)

SVM is a learning strategy that is viewed as a successful technique for universally useful example acknowledgment due to its high speculation execution without the need to add other information. Instinctively, given a bunch of focuses having a place with two classes, a SVM finds the hyperplane that confines the greatest possible piece of points of a comparative class on a comparable side, while expanding the division from one or the other class to the hyperplane. misclassifying the models in the preparation set as well as the inconspicuous illustration of the test set.

Discussion

Face acknowledgment framework has four principle steps, which are input, location, acknowledgment and result. Input performs picture obtaining part, which converts live caught picture to computerized picture information. Recognition part made out of white equilibrium amendment to obtained picture, skin like locale division, facial component extraction, and face picture extraction. White equilibrium rectification is a significant stage to dispense with shading changes of gained image because of light conditions change. Skin like area division execution can be improved with incorporating white equilibrium adjustment prior to dividing. Skin shading like locale division diminishes scan time for conceivable face district since just divided areas are considered as locale might

contain face. Facial component extraction is vital to separate face picture which will be standard face picture. Log channel gives best outcomes to separate facial elements concerning high contrast conversion.

Face affirmation system has four rule steps, which are input, area, affirmation and result. Input performs picture getting part, which converts live captured picture to modernized picture data. Acknowledgment part made from white harmony change to got picture, skin like district division, facial part extraction, and face picture extraction. White harmony correction is a huge stage to abstain from concealing changes of acquired image on account of light conditions change. Skin like region division execution can be improved with fusing white balance change before isolating. Skin concealing like region division lessens check time for possible face region since just separated regions are considered as area would contain face. Facial part extraction is crucial to isolate face picture which will be standard face picture. Log channel gives best results to isolate facial components concerning high difference conversion.

Result

The created framework has been tried for some live gained pictures and results are palatable for such a spearheading work in the office. Enhancements are needed for better execution. Framework portrayal and potential upgrades are examined in this part.

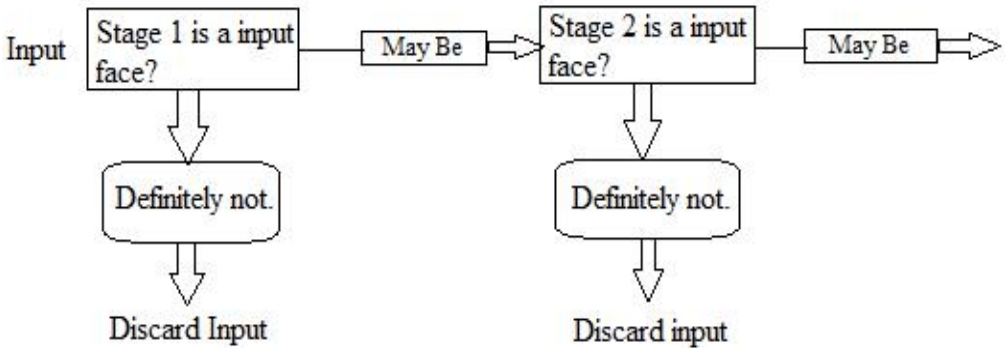
Conclusion:-

Continuously, our calculations can identify and perceive faces with extraordinary precision. When contrasted with other identification strategies, it has a quicker recognition speed. The eyes revelation is utilized to chip away at the accuracy of the face area. Facial component alignment, contrast enhancement, and image smoothing all help to improve facial recognition performance. Face images are collected in real time as training samples and recognized under a variety of scenarios, including among other faces.

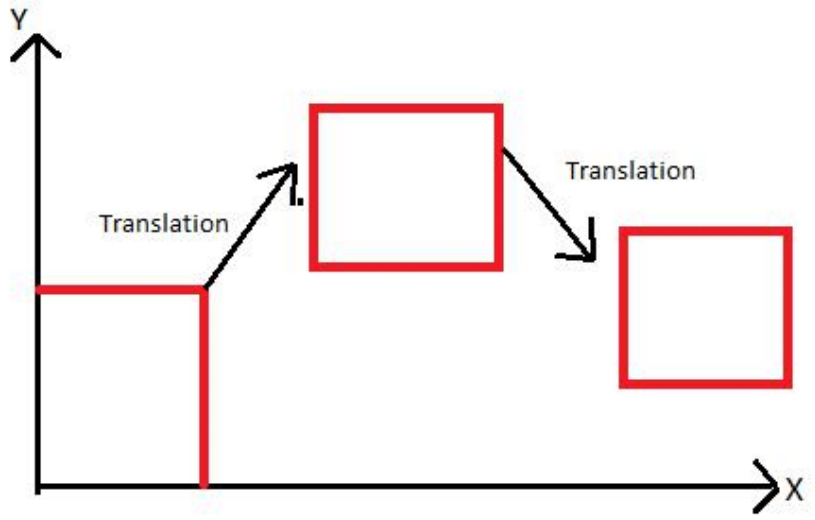
The preparation of new classifiers fit for extending face acknowledgment to a more extensive scope of facial directions is anticipated what's to come. The system may predict the head rotation to further adjust the facial image and retain accurate recognition.

Algorithm used:-

System works in the form of Input and output recognition, if input has more than two face available it will detect it in square faces, it has an ability to distinguish between human and other than human face, like animals and birds.



After taking input it translate in the form of mathematical equation taking image in the form of coordinates X and Y , after taking input it translate X coordinate to Y and after verifying it again translates it into X coordinate.



Use cases of Face detection/ recognition:-

1. **We are reaching new heights in airport boarding.**

Every year, more than 100 million passengers pass through Paris-Charles de Gaulle and Paris-Orly airports.

In 2009, the airports' owner – the ADP Group – introduced PARAFE fingerprint recognition technology to speed up the process. However, only 4% of people could use it, as the access to fingerprint biometrics were protected within the ePassports' chip. And there was often confusion among users. Which finger? Which hand?

In 2017, the airport authorities decided to upgrade PARAFE with facial recognition systems provided by Gemalto. The new system, which comprises 105 smart gates, delivers the following benefits:

MORE USERS:
Almost half of the travelers have passports compatible with facial biometrics.
LESS ACTION REQUIRED
Facial recognition requires virtually no effort from the subject.
FAST AND ACCURATE MATCHES
The average processing time per passenger is twice as fast as fingerprint scanning – and not subject to passenger error. In the pilot study, boarding times were reduced by between 30% and 40%.
Of course, the new systems complement 'human' security measures. Border police can still monitor passengers in real-time, make random checks, and block the opening of gates.

Since 2018, many more airlines have started to use on-board facial recognition technology. In the US alone, more than 15 airports have set up face matching systems to help board passengers faster and more safely. Trials have taken place at Los Angeles and San Jose airports, among many others.

The technology is creating a lot of interest in Europe too.

For example, the airport specialist Amadeus has successfully tested facial recognition technology for flights operated by Adria Airways, Air France, and LOT Polish Airlines at Ljubljana airport.
It found that the introduction of biometrics has also cut the average boarding time. The trial was conducted across 15 flights on which 175 passengers volunteered to enroll with their passport or ID card and a selfie-check.

The live picture was sent to a server and then used to match the passenger when he or she passed in front of the camera at the departure gate.

It took fewer than two seconds. With this simple enrolment of their data by smartphone, 98% of passengers were matched successfully and able to board their flight.

2. **Speeding up the hotel check-in**

For all the tech in hotel rooms and booking systems, check-in is still stuck in the 1960s.

There are queues. It can take ages.

With biometrics to play a significant role in the hospitality industry, enabling guests to skip front desk lines and cutting the

check-in process, hotel chains are prepared to jump in, just like Marriott, which recently started testing face recognition.

3. **Making an entrance at events**

The 2019 Brit Awards used facial recognition technology to enhance its event security, deploying it to screen guests at multiple entrances to the O2 in London.

The system linked to mobile apps, which enabled trained staff members to make secondary face-to-face identity verification checks.

4. **Driving the future**

After 100 years of relatively incremental change to cars, the sector is full of innovation. Facial recognition is of particular interest to manufacturers.

China's Byton, one of the newer car makers, has revealed a concept model that lets drivers unlock it with a simple face scan.

Looking to the future, as the automotive industry shifts away from personal car ownership towards a shared model, face recognition will be able to lock car doors or engines until the registered user needs their ride, as well as being able to change the car settings to their preferences.

5. **Taking the school register**

"Here Miss". The school register is an unchanging part of school life. Children have been saying this for decades.

But in Australia, schools are trialing an alternative.

Victoria's Department of Education is using facial recognition to monitor the whereabouts of students. Teachers and staff can access the information on a web dashboard or mobile app to save them time.

Book-lending library systems using built-in face recognition could also become common, with the system scanning the person holding the borrowed book and updating its database.

6. **Liveness detection**

One way to overcome these flaws is with liveness detection. These systems will look for indicators of a non-live image, such as inconsistent features between foreground and background.

They may ask the user to blink or move. They are needed to defeat criminals who try to cheat facial recognition systems by using photographs or masks.

7. **Machine learning**

This is a type of machine learning in which a model finds patterns in image data.

It deploys a network of artificial neurons that imitates the functioning of the human brain.

In effect, the network behaves like a black box.

It is given input values whose results are not yet known. It then makes checks to ensure the network is producing the expected result. When this is not the case, the system makes adjustments until it is correctly configured and can systematically produce the expected outputs.

Today, previously advanced processes are finding their way into mass-market devices.

8. **3D technology**

For example, Apple uses 3D camera tech to power the thermal infrared-based Face ID feature in its iPhone X. Thermal IR imagery maps the patterns of faces derived primarily from the pattern of superficial blood vessels under the skin.
Apple also sends the captured face pattern to a ‘secure enclave’ in the device. This ensures the authentication happens locally and that the patterns are not accessible by Apple.

➢ Measurements and accuracy of face recognition system

Three criteria assess facial recognition systems.

1. False-positive (aka false acceptance)
This describes when a system erroneously makes an incorrect match. The number should be as low as possible.
2. False-negative (aka false rejection)
With a false negative, a genuine user is not matched to his or her profile. This number should also below.
3. True positive
This describes when an enrolled user is correctly matched to his or her profile. This number should be high.
These three measurements are conveyed in percentages. So, let's say an entry system assesses 1,000 people a day. If five non-approved people are allowed in, the false positive rate is five in 1,000. That's one in 200 or 0.5%.

So, what percentages do the current systems achieve?

The National Institute of Standards and Technology (NIST) regularly tests multiple systems to search a database of 26.6 million photos.

Its 2018 test found that just 0.2% of searches failed to match the correct image, compared with a 4% failure rate in 2014. That's a 20x improvement over four years.
NIST computer scientist Patrick Grother says: "The accuracy gains stem from the integration, or complete replacement, of prior approaches with those based on deep convolutional neural networks. As such, face recognition has undergone an industrial revolution."

➢ Guiding principles for face recognition

The Biometrics Institute was set up in 2001 to promote the responsible and ethical use of biometrics. “Often, legislation can’t keep up,” explains Chief Executive Isabelle Moeller. “The technology is moving so fast that it’s complicated to provide the right framework in time.” In 2019, the Institute updated its privacy guidelines to factor in the growth of artificial intelligence, drones, and more sophisticated facial recognition systems. It continues to build on the work being done by organizations across the board.

In 2018, Microsoft published a relevant post.
It said regulation is needed to prevent tech companies alone having to choose between “social responsibility and market success.”

It shared six guiding principles:

1. Fairness
Facial recognition technology should treat all people fairly.
2. Transparency
Tech companies should document the capabilities and limitations of technology.
3. Accountability
There should be an appropriate level of human control for uses that may affect people in meaningful ways.
4. Non-discrimination
Terms of service should prohibit unlawful discrimination.
5. Notice and consent
Companies should provide notice and secure consent when they deploy facial recognition.

➢ Facial data protection and regulations

The European Union introduced the General Data Protection Regulation (GDPR) on 25 May 2018. GDPR puts measures in place to limit how enterprises can gather, store, and share personal data.

It classifies facial data as a 'special category' of data because it reveals the racial or ethnic origin, genetics, biometrics, and more. As such, it prohibits processing it unless an exemption applies.
One of these exemptions is consent (specific, informed, and unambiguous).
However, the regulation does not define consent in great detail and has yet to be tested thoroughly.

➢ Facial recognition issues

1. Forced or unaware of facial recognition

If attackers cannot spoof a system, they might try to force an authentication.

For example, they could hold a person's phone to the owner's face when asleep, or coerce them to unlock it.

2. Stealing the numerical code

If every face pattern is converted into a numerical code before matching, a criminal could steal the codes.

Happily, technology improvements and a smarter approach to the user interface have made it harder for hackers.

Liveness detection is the best defense against photo spoofing. 3D scanning helps (see technology section), and some systems require subjects to blink during set-up to indicate their 'liveness.'

Another sensible measure is to support different levels of security, depending on the use case.

- In low-risk scenarios, facial recognition alone might be suitable.
- But where the risk is high, the system might demand multi-factor authentication such as password and fingerprint.

Advantages of Face recognition/ detection:-

1. Automated Time Tracking System

Entry and exit time monitoring done manually or with other biometric systems can be fully automated with facial recognition attendance systems. There is no need for human intervention or physical validation as the system's advanced algorithms can locate and identify faces autonomously. It is effortless to track time for employees with facial recognition.

2. Cost-Effective

A facial recognition attendance system can save business resources by automatic employee time tracking. A solution like Truein can be used on mobile devices making it more affordable for small-scale and medium businesses. Irrespective of the business size, such an attendance system can:

- increase employee productivity by 10%
- cut administrative costs by 5-10%
- save 15% supervision time, helping supervisors with attendance control

The cost savings are even higher as data received from the face recognition-based employee attendance system is in real-time and valid.

3. Touchless Sign In System: A Post Pandemic Requirement

Pandemic like Covid 19 can be better managed by minimizing physical contact in public places and work environments. Post

pandemic there has been a significant increase in demand and adoption of contactless technologies. The industry has recognized the benefits of facial recognition and the adoption of attendance systems like Truein. Workplaces and multi-tenant environments can greatly reduce the frequency of contact between individuals, thus minimizing the risk of virus transmission.

4. Facial Recognition With Ageing Changes and Accessories

Face recognition attendance systems are not dependent on a few facial features but they are highly robust and identify a face on several data points. Therefore, these systems can screen for face masks and identify people without removing the mask or any change of facial attributes like beard, specs etc. It is a major advantage over any other biometric system as employees don't have to take off their masks. Modern-day attendance systems use highly accurate face recognition algorithms that can also track changes in facial attributes like glasses, beards, hats, etc.

5. More Accurate and Better Worker Attendance

Industrial floor time frauds are common worldwide and one of the most common work ethics violations. While a vast majority of workers are honest, but the nuisance of buddy punching cannot be ruled out. Teaming up with staff members or security personnel, some workers skip work and still get paid. Such time fraud is not only detrimental to companies but is also unfair towards honest contributing workers.
With a face recognition attendance system, the entire

environment is automated. You won't just take the attendance but also automatically record the entry-exit time of the employees. It also adds to the security of the workplace as the system can recognize who left the designated area and when accurately.

6. The Ubiquity Of Cameras On Mobile Devices

Systems like Truein make use of mobile devices for time and attendance using facial recognition. Nearly all smartphones, tablets, and laptops have built-in front-facing cameras. This implies there is no need for any additional hardware to implement a facial recognition attendance system. This is cost-effective and convenient as compared to other biometric systems like fingerprint scanners. As every employee is already accustomed to the use of the front-facing camera on their mobile device, there is no need for any training or orientation for work-from-home employees. These systems have intuitive UI, easy for anyone to use.

7. Easy To Manage

As compared to manual attendance systems, AI-based attendance systems are highly automated. These systems store and update day-to-day records in real-time. From maintaining daily attendance to preparing high-accurate timesheets of individual employees, facial recognition attendance systems are programmed to handle it all on a very large scale. Imagine handling a large crowd of 10,000 people without any fuss and

recording the attendance in an organized manner. Such is the efficiency of AI facial recognition systems.

8. Smart Integration

Integrating a face recognition attendance system with any other HRMS or Payroll system is quite easy. As these systems are modular and highly customizable, the time-in time-out and date formats can be customized to be compatible with other systems implemented in an organization. It makes organizing data a lot easier. Also, the time zone settings can be easily changed as per geo-location that making it possible to use software worldwide without any additional requirement.

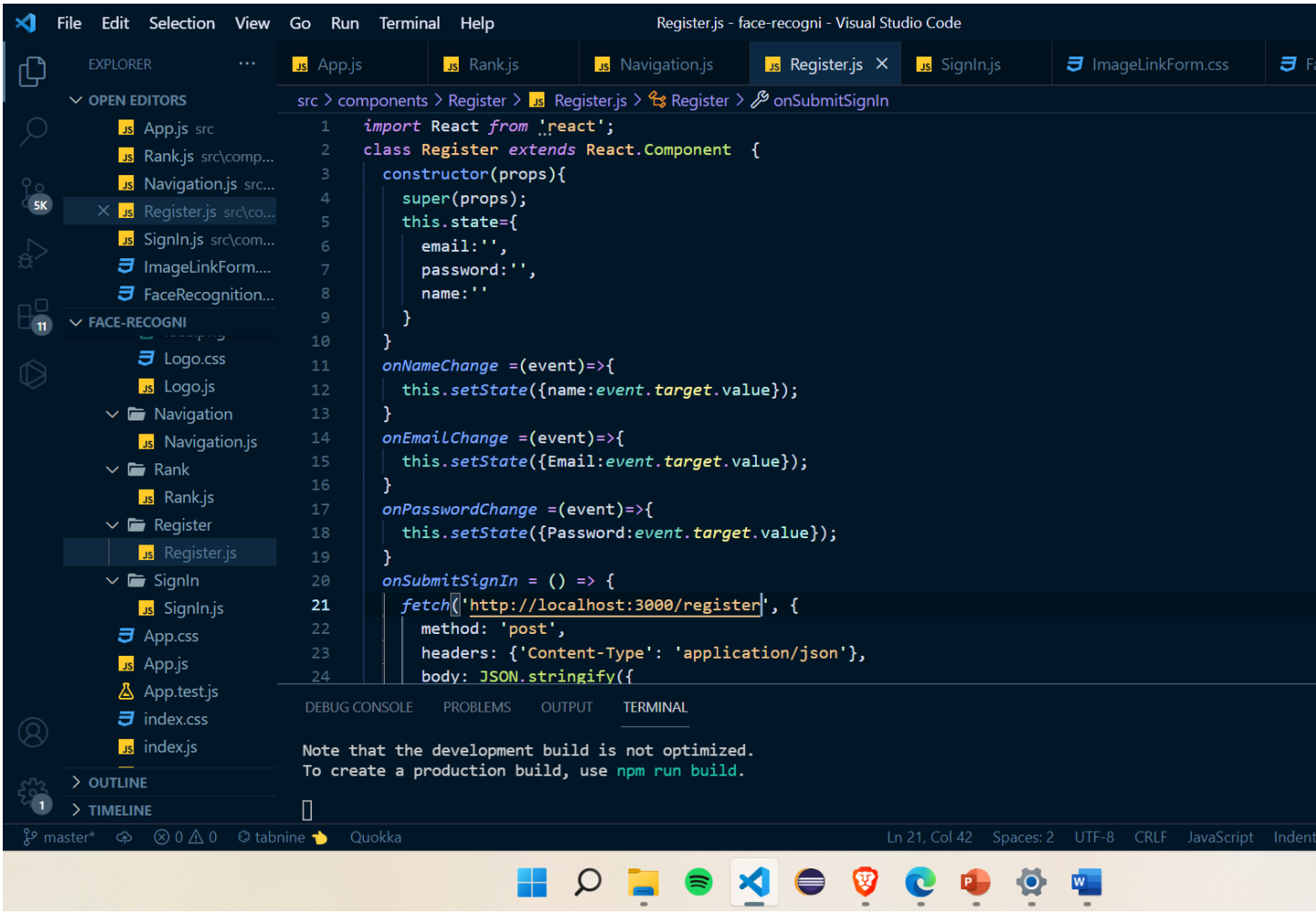
Project Modules

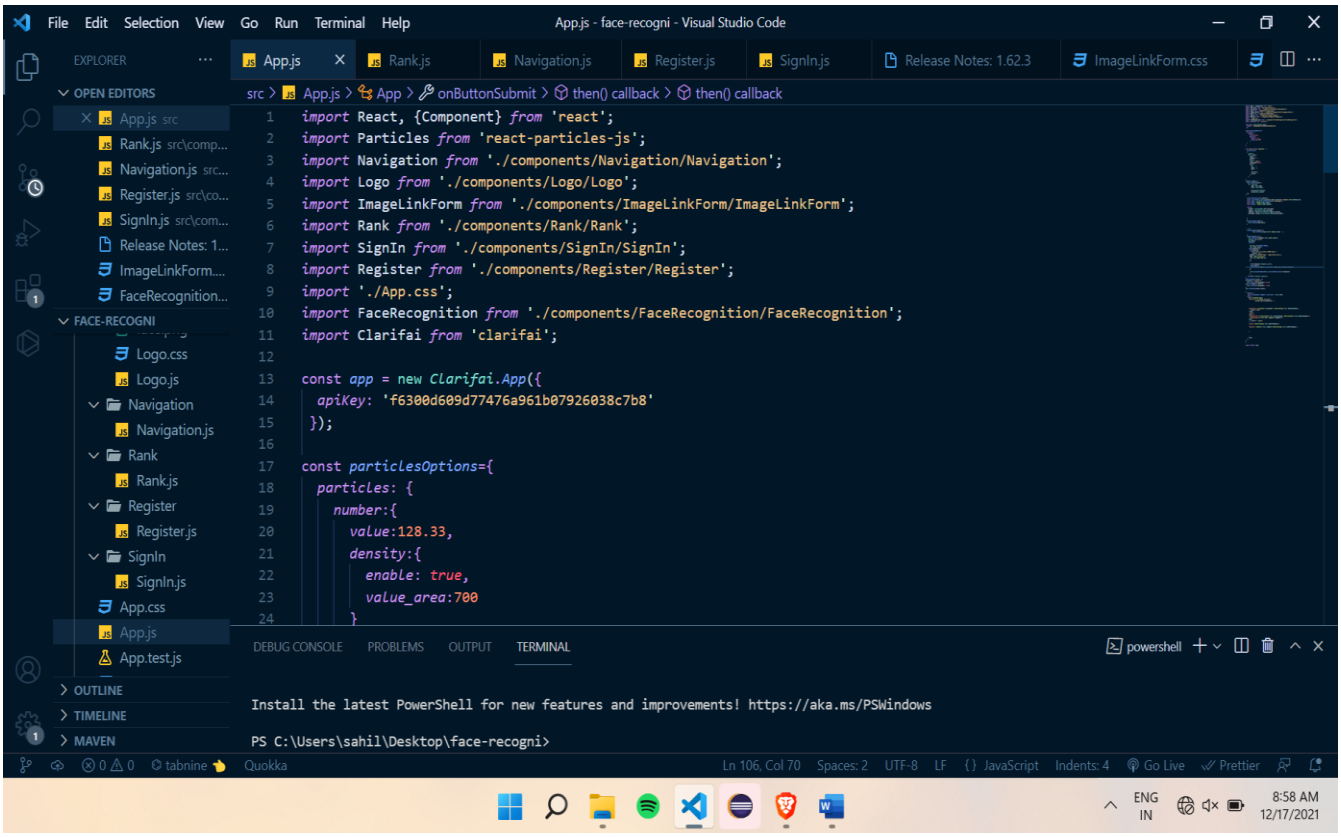
Project consist of various modules which makes it more workable and easy to use through several easy to use features.
Following are the modules discussed below :-

Register module:-

This module is about registration by new users on web app for accessing it.
User will require new email for username and password for registration.

Implementation

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Navigation.js src...
Register.js src\co...
SignIn.js src\com...
Release Notes: 1...
ImageLinkForm....
FaceRecognition...
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SignIn
SignIn.js
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TIMELINE
MAVEN
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Navigation.js
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SignIn.js
Release Notes: 1.62.3
ImageLinkForm.css
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import Particles from 'react-particles-js';
import Navigation from './components/Navigation/Navigation';
import Logo from './components/Logo/Logo';
import ImageLinkForm from './components/ImageLinkForm/ImageLinkForm';
import Rank from './components/Rank/Rank';
import SignIn from './components/SignIn/SignIn';
import Register from './components/Register/Register';
import './App.css';
import FaceRecognition from './components/FaceRecognition/FaceRecognition';
import Clarifai from 'clarifai';
const app = new Clarifai.App({
apiKey: 'f6300d609d77476a961b07926038c7b8'
});
const particlesOptions={
particles: {
number:{
value:128.33,
density:{
enable: true,
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DEBUG CONSOLE
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OUTPUT
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Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\sahil\Desktop\face-recogni>
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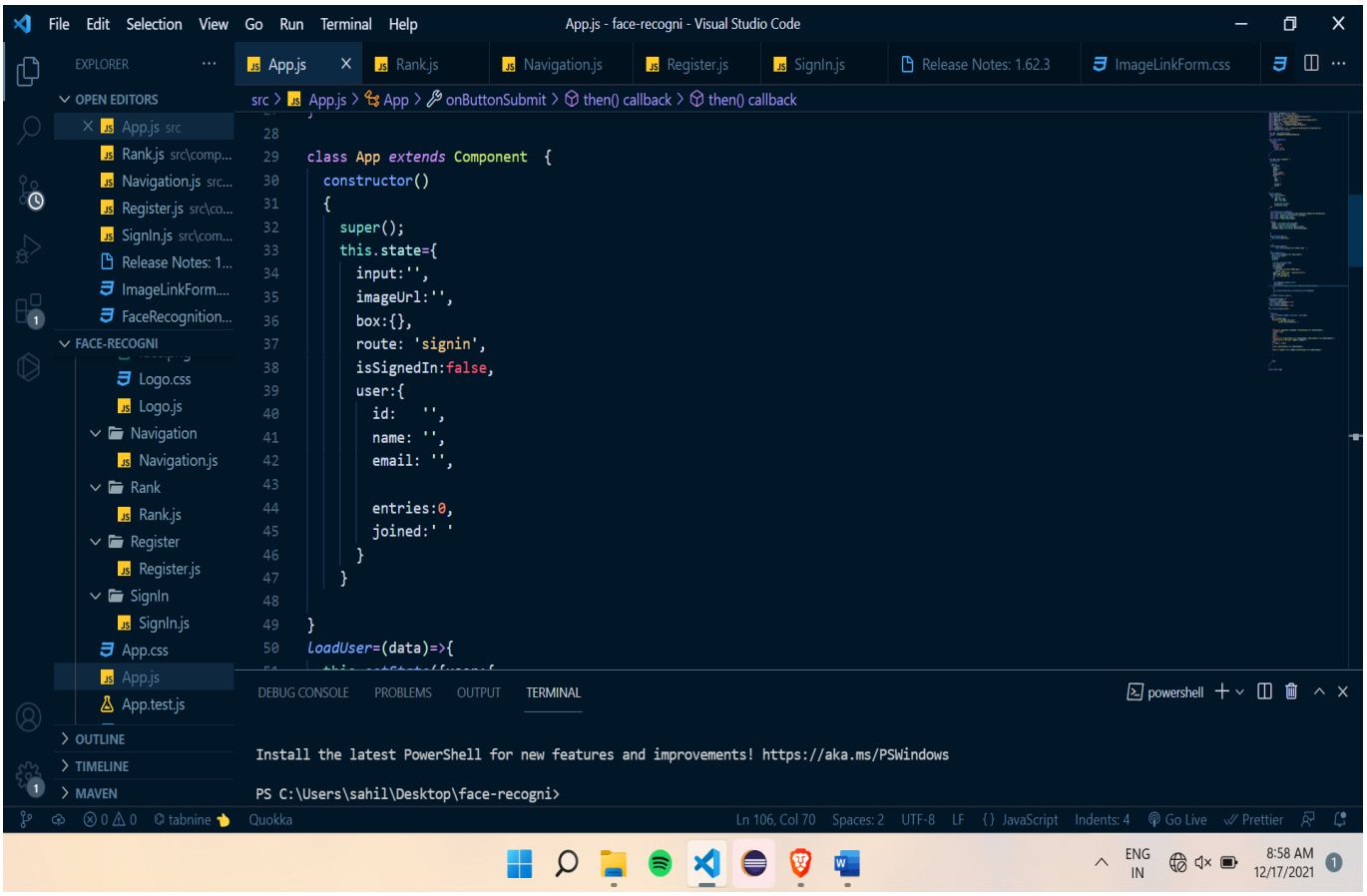
File Edit Selection View Go Run Terminal Help
App.js - face-recogni - Visual Studio Code
EXPLORER
OPEN EDITORS
App.js src
Rank.js src\comp...
Navigation.js src...
Register.js src\co...
SignIn.js src\com...
Release Notes: 1...
ImageLinkForm....
FaceRecognition...
FACE-RECOGNI
Logo.css
Logo.js
Navigation
Navigation.js
Rank
Rank.js
Register
Register.js
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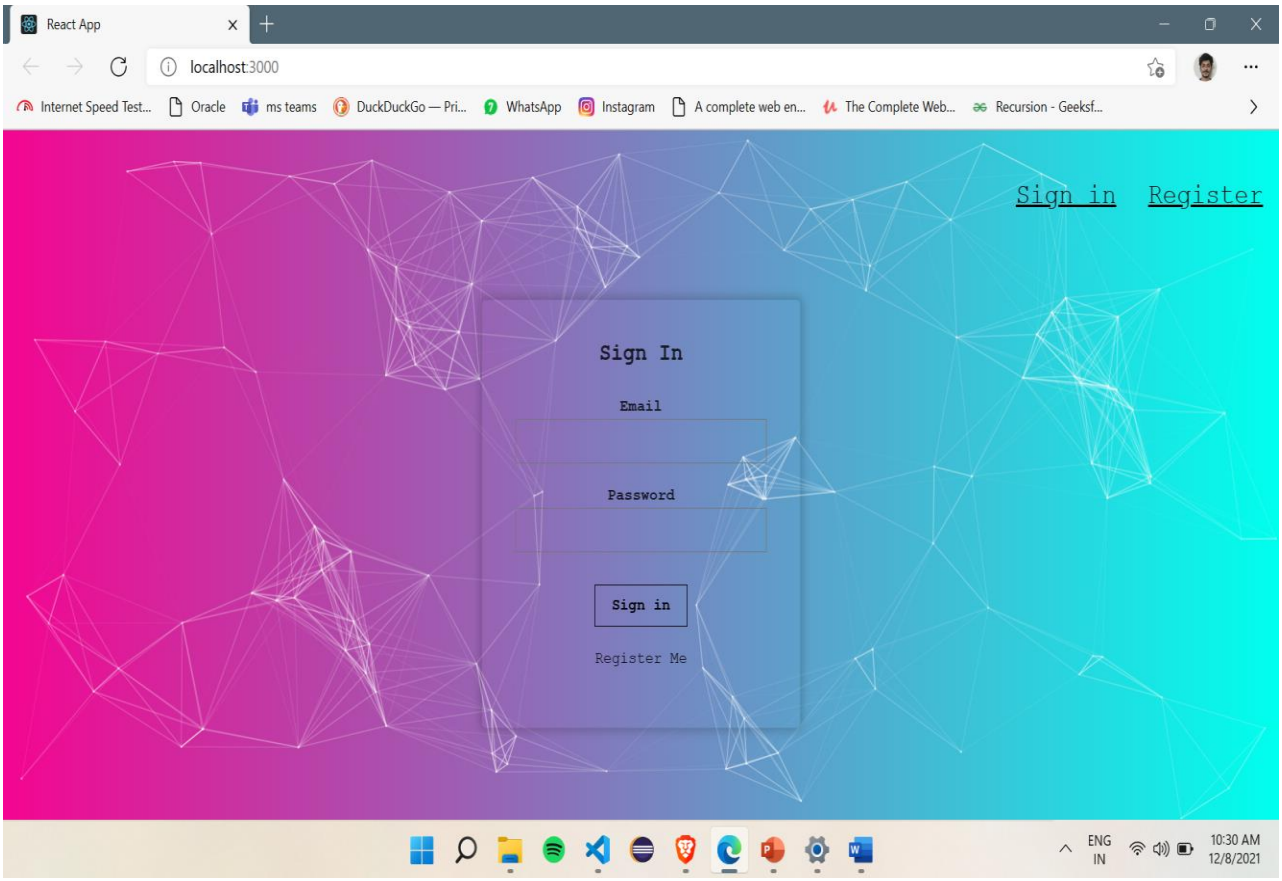
SignIn.js
App.css
App.js
App.test.js
OUTLINE
TIMELINE
MAVEN
App.js
Rank.js
Navigation.js
Register.js
SignIn.js
Release Notes: 1.62.3
ImageLinkForm.css
src > App.js > App > onButtonSubmit > then() callback > then() callback
class App extends Component {
constructor()
{
super();
this.state={
input:'',
imageUrl:'',
box:{},
route: 'signin',
isSignedIn:false,
user:{
id: '',
name: '',
email: '',
entries:0,
joined:' '
}
}
}
loadUser=(data)=>{
DEBUG CONSOLE
PROBLEMS
OUTPUT
TERMINAL
powershell
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\sahil\Desktop\face-recogni>
Ln 106, Col 70
Spaces: 2
UTF-8
LF
JavaScript
Indents: 4
Go Live
Prettier
tabnine
Quokka
ENG
IN
8:58 AM
12/17/2021

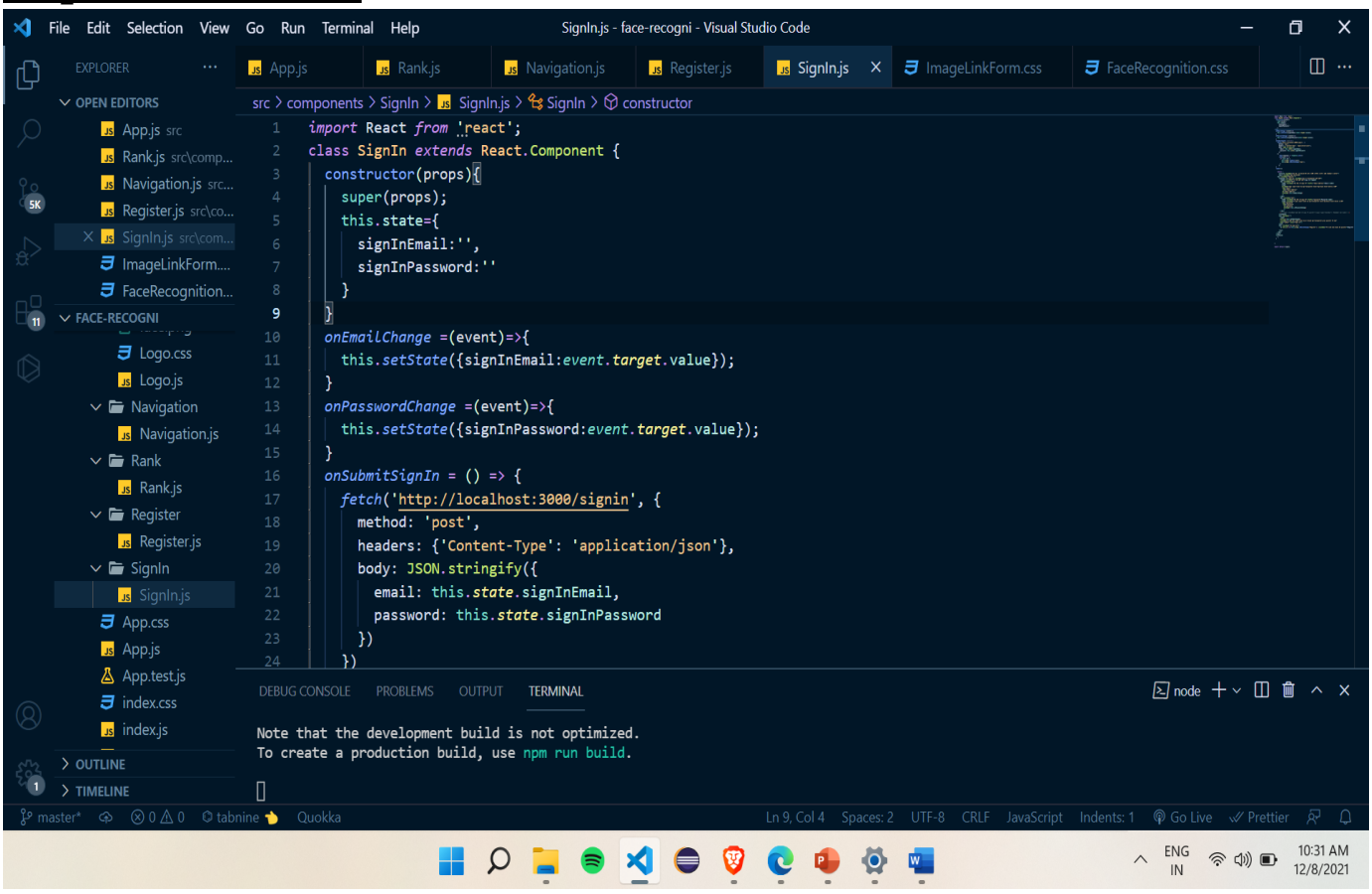
Output:-

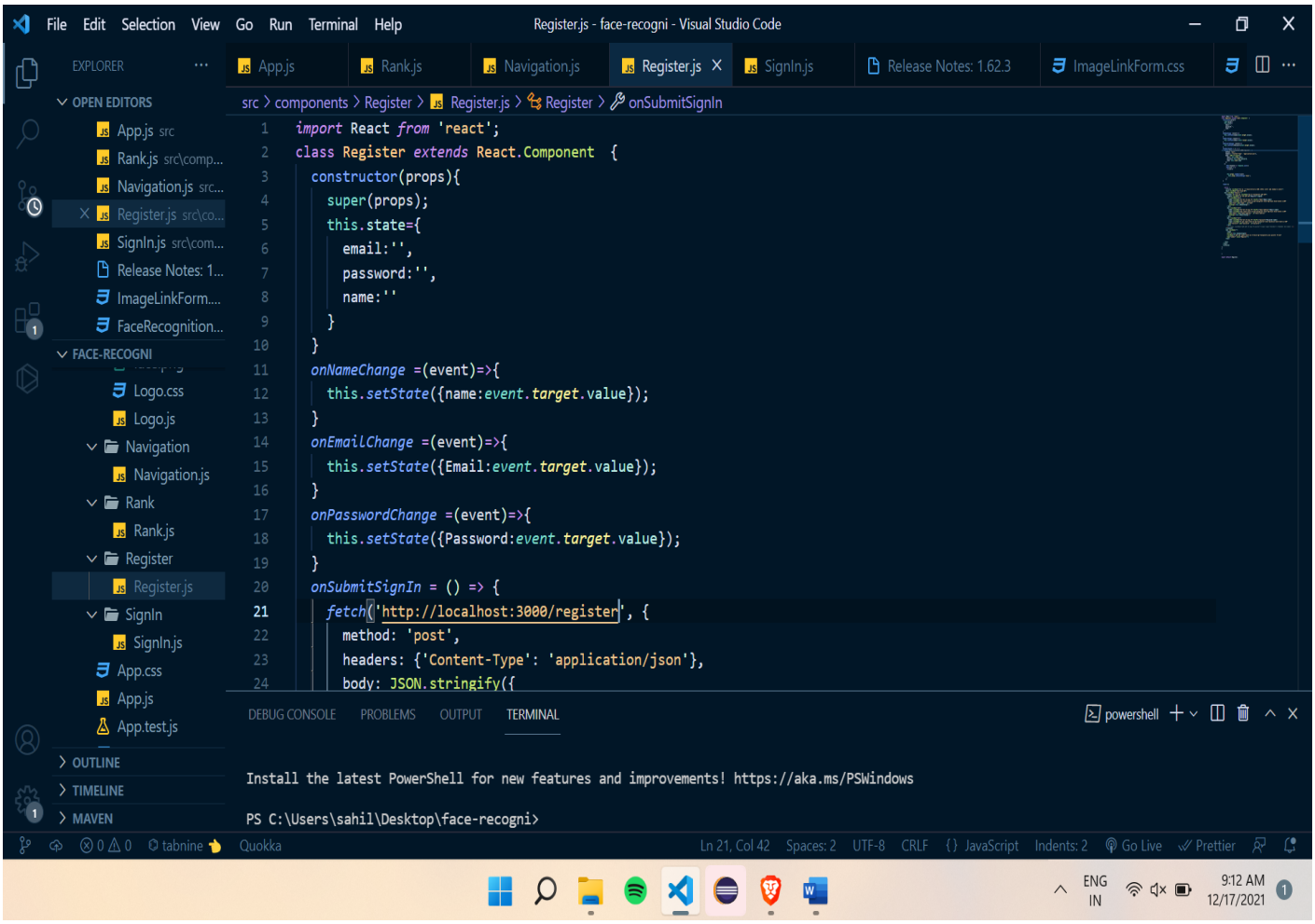

React App
localhost:3000
Internet Speed Test...
Oracle
ms teams
DuckDuckGo — Pri...
WhatsApp
Instagram
A complete web en...
The Complete Web...
Recursion - Geeksf...
Sign in
Register
Sign In
Email
Password
Sign in
Register Me
ENG
IN
10:30 AM
12/8/2021

Sign In module:-

Current users which are registered on the website can use direct sign in button to enter web app to access it and use its features again. Password used in the webapp will be encrypted by using B-crypt.JS to encrypt on device security and encryption.

Implementation:-




File Edit Selection View Go Run Terminal Help
Register.js - face-recogni - Visual Studio Code
EXPLORER
OPEN EDITORS
App.js src
Rank.js src\comp...
Navigation.js src...
Register.js src\co...
SignIn.js src\com...
Release Notes: 1...
ImageLinkForm....
FaceRecognition...
FACE-RECOGNI
Logo.css
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Navigation
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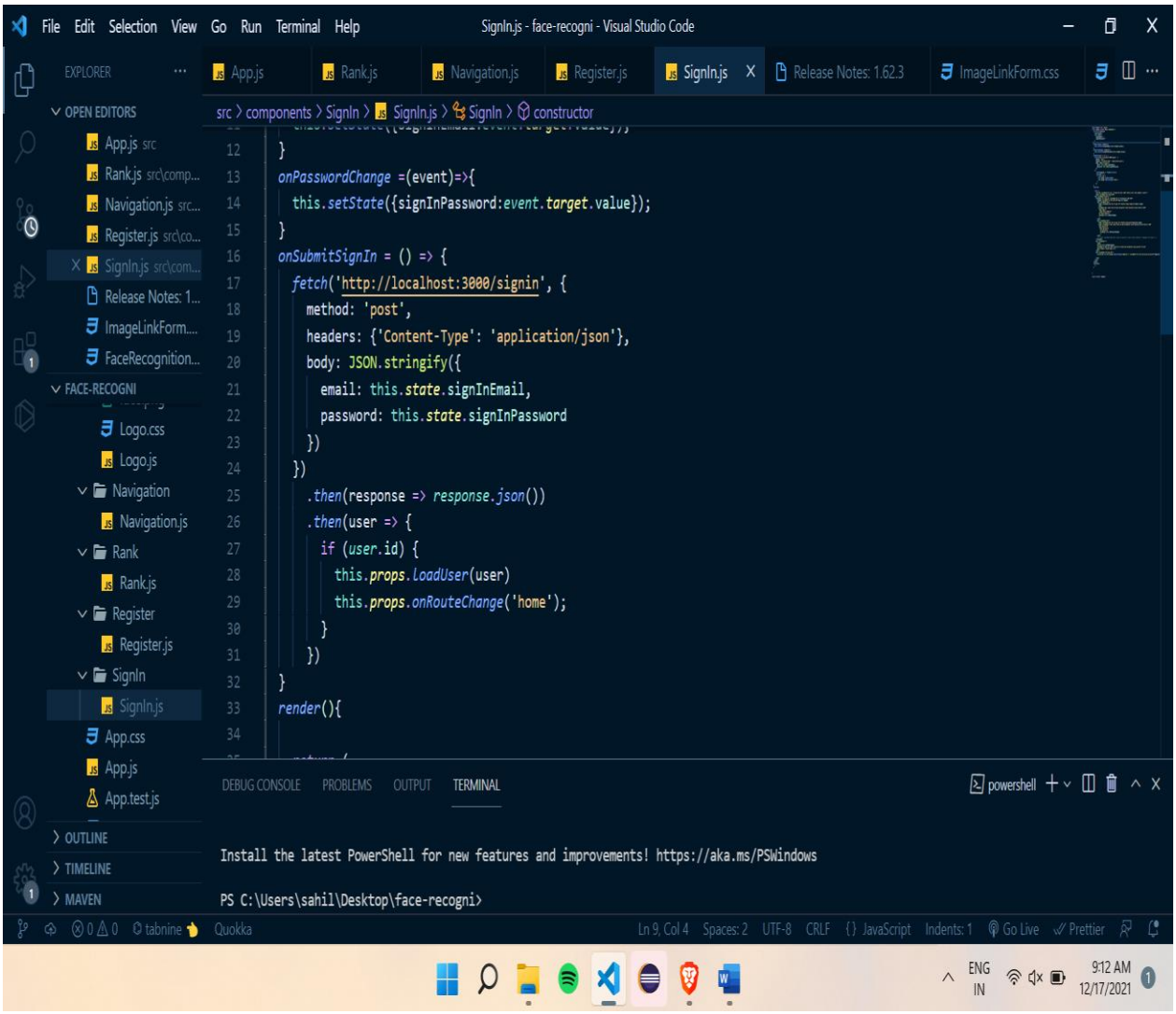
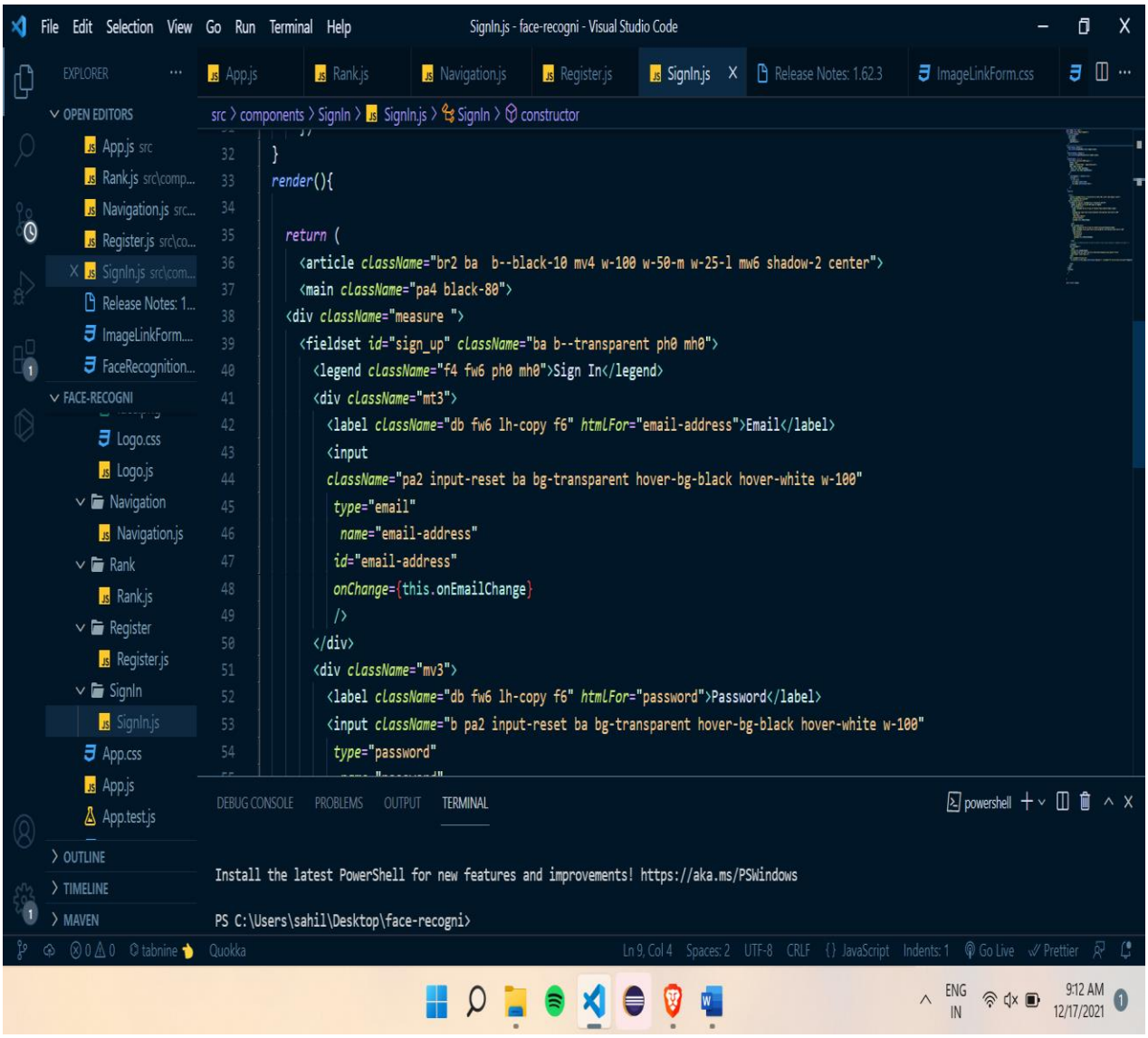
SignIn.js
App.css
App.js
App.test.js
OUTLINE
TIMELINE
MAVEN
App.js
Rank.js
Navigation.js
Register.js
SignIn.js
Release Notes: 1.62.3
ImageLinkForm.css
src > components > Register > Register.js > Register > onSubmitSignIn
import React from 'react';
class Register extends React.Component {
constructor(props){
super(props);
this.state={
email:'',
password:'',
name:''
}
}
onNameChange =(event)=>{
this.setState({name:event.target.value});
}
onEmailChange =(event)=>{
this.setState({Email:event.target.value});
}
onPasswordChange =(event)=>{
this.setState({Password:event.target.value});
}
onSubmitSignIn = () => {
fetch('http://localhost:3000/register', {
method: 'post',
headers: {'Content-Type': 'application/json'},
body: JSON.stringify({
DEBUG CONSOLE
PROBLEMS
OUTPUT
TERMINAL
powershell
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\sahil\Desktop\face-recogni>
tabnine
Quokka
Ln 21, Col 42
Spaces: 2
UTF-8
CRLF
JavaScript
Indents: 2
Go Live
Prettier
ENG
IN
9:12 AM
12/17/2021


File Edit Selection View Go Run Terminal Help
SignIn.js - face-recogni - Visual Studio Code
EXPLORER
App.js
Rank.js
Navigation.js
Register.js
SignIn.js
Release Notes: 1.62.3
ImageLinkForm.css
src > components > SignIn > SignIn.js > SignIn > constructor
OPEN EDITORS
FACE-RECOGNI
Logo.css
Logo.js
Navigation
Navigation.js
Rank
Rank.js
Register
Register.js
SignIn
SignIn.js
App.css
App.js
App.test.js
OUTLINE
TIMELINE
MAVEN
}
onPasswordChange =(event)=>{
this.setState({signInPassword:event.target.value});
}
onSubmitSignIn = () => {
fetch('http://localhost:3000/signin', {
method: 'post',
headers: {'Content-Type': 'application/json'},
body: JSON.stringify({
email: this.state.signInEmail,
password: this.state.signInPassword
})
})
.then(response => response.json())
.then(user => {
if (user.id) {
this.props.loadUser(user)
this.props.onRouteChange('home');
}
})
}
render(){
DEBUG CONSOLE
PROBLEMS
OUTPUT
TERMINAL
powershell
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\sahil\Desktop\face-recogni>
Ln 9, Col 4
Spaces: 2
UTF-8
CRLF
JavaScript
Indents: 1
Go Live
Prettier
ENG
IN
9:12 AM
12/17/2021


File Edit Selection View Go Run Terminal Help
SignIn.js - face-recogni - Visual Studio Code
EXPLORER
App.js
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Navigation.js
Register.js
SignIn.js
Release Notes: 1.62.3
ImageLinkForm.css
src > components > SignIn > SignIn.js > SignIn > constructor
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ImageLinkForm....
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Rank
Rank.js
Register
Register.js
SignIn
SignIn.js
App.css
App.js
App.test.js
OUTLINE
TIMELINE
MAVEN
}
render(){
return (
<article className="br2 ba b--black-10 mv4 w-100 w-50-m w-25-l mw6 shadow-2 center">
<main className="pa4 black-80">

<fieldset id="sign_up" className="ba b--transparent ph0 mh0">
<legend className="f4 fw6 ph0 mh0">Sign In</legend>

<label className="db fw6 lh-copy f6" htmlFor="email-address">Email</label>
<input
className="pa2 input-reset ba bg-transparent hover-bg-black hover-white w-100"
type="email"
name="email-address"
id="email-address"
onChange={this.onEmailChange}
/>

<label className="db fw6 lh-copy f6" htmlFor="password">Password</label>
<input className="b pa2 input-reset ba bg-transparent hover-bg-black hover-white w-100"
type="password"
DEBUG CONSOLE
PROBLEMS
OUTPUT
TERMINAL
powershell
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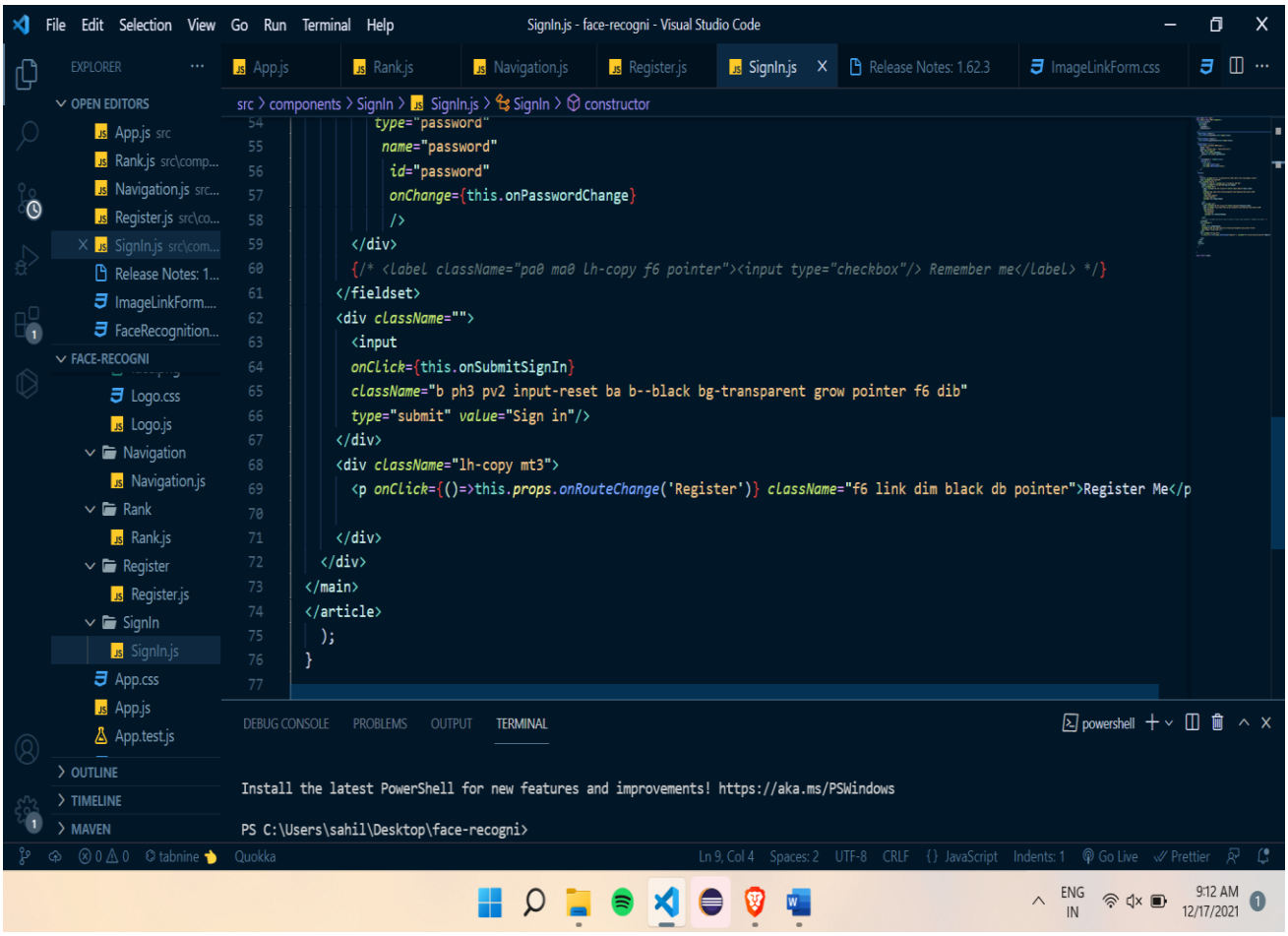
Quokka
Ln 9, Col 4
Spaces: 2
UTF-8
CRLF
JavaScript
Indents: 1
Go Live
Prettier
ENG
IN
9:12 AM
12/17/2021


File Edit Selection View Go Run Terminal Help
SignIn.js - face-recogni - Visual Studio Code
EXPLORER
OPEN EDITORS
App.js src
Rank.js src\comp...
Navigation.js src...
Register.js src\co...
SignIn.js src\com...
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FaceRecognition...
FACE-RECOGNI
Logo.css
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Rank.js
Register
Register.js
SignIn
SignIn.js
App.css
App.js
App.test.js
OUTLINE
TIMELINE
MAVEN
App.js
Rank.js
Navigation.js
Register.js
SignIn.js
Release Notes: 1.62.3
ImageLinkForm.css
src > components > SignIn > SignIn.js > SignIn > constructor
type="password"
name="password"
id="password"
onChange={this.onPasswordChange}
/>

{/* <Label className="pa0 ma0 lh-copy f6 pointer">☐ Remember me</label> */}
</fieldset>

<input
onClick={this.onSubmitSignIn}
className="b ph3 pv2 input-reset ba b--black bg-transparent grow pointer f6 dib"
type="submit" value="Sign in"/>

<p onClick={()=>this.props.onRouteChange('Register')} className="f6 link dim black db pointer">Register Me</p

</main>
</article>
);
}
DEBUG CONSOLE
PROBLEMS
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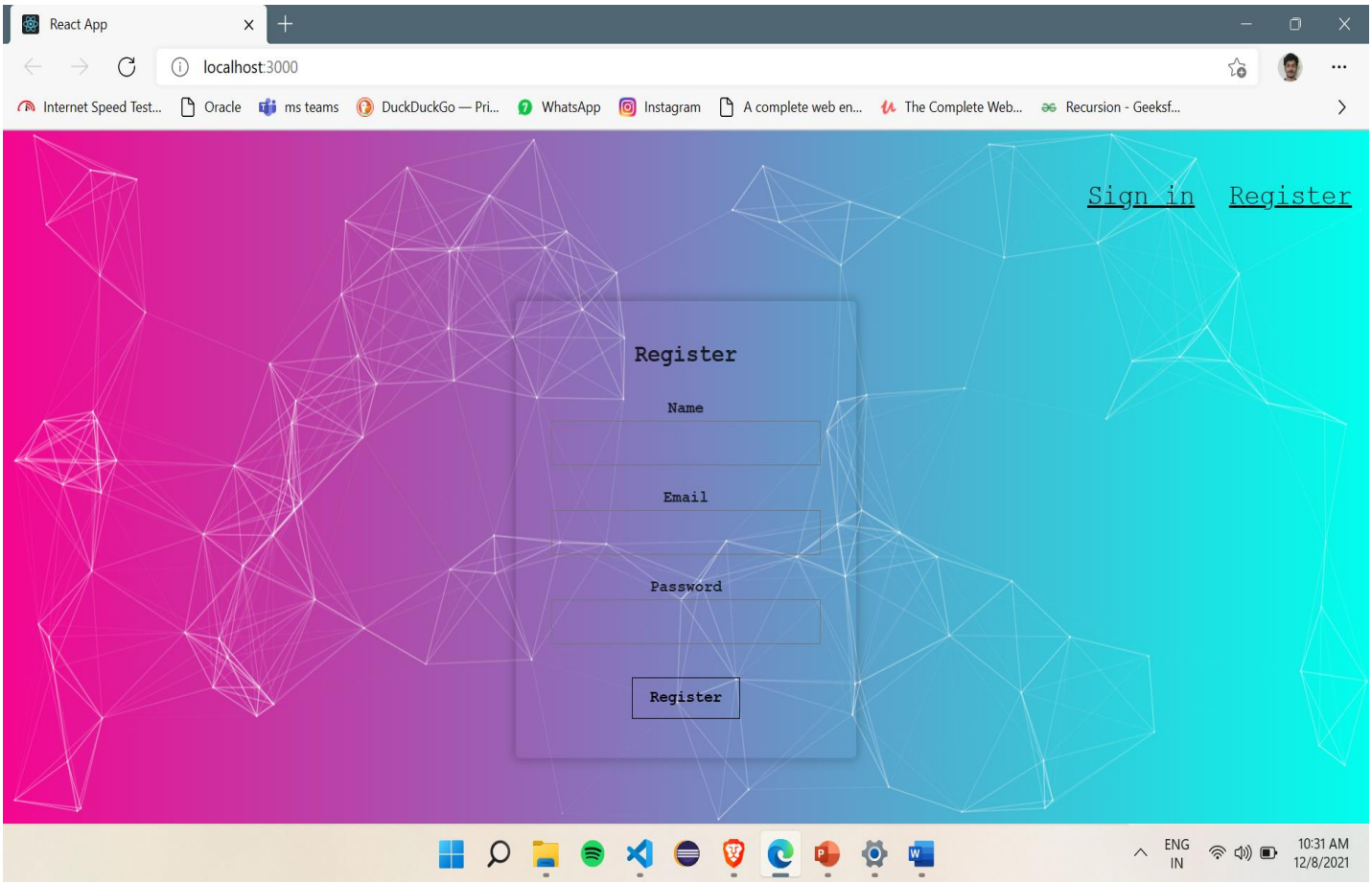
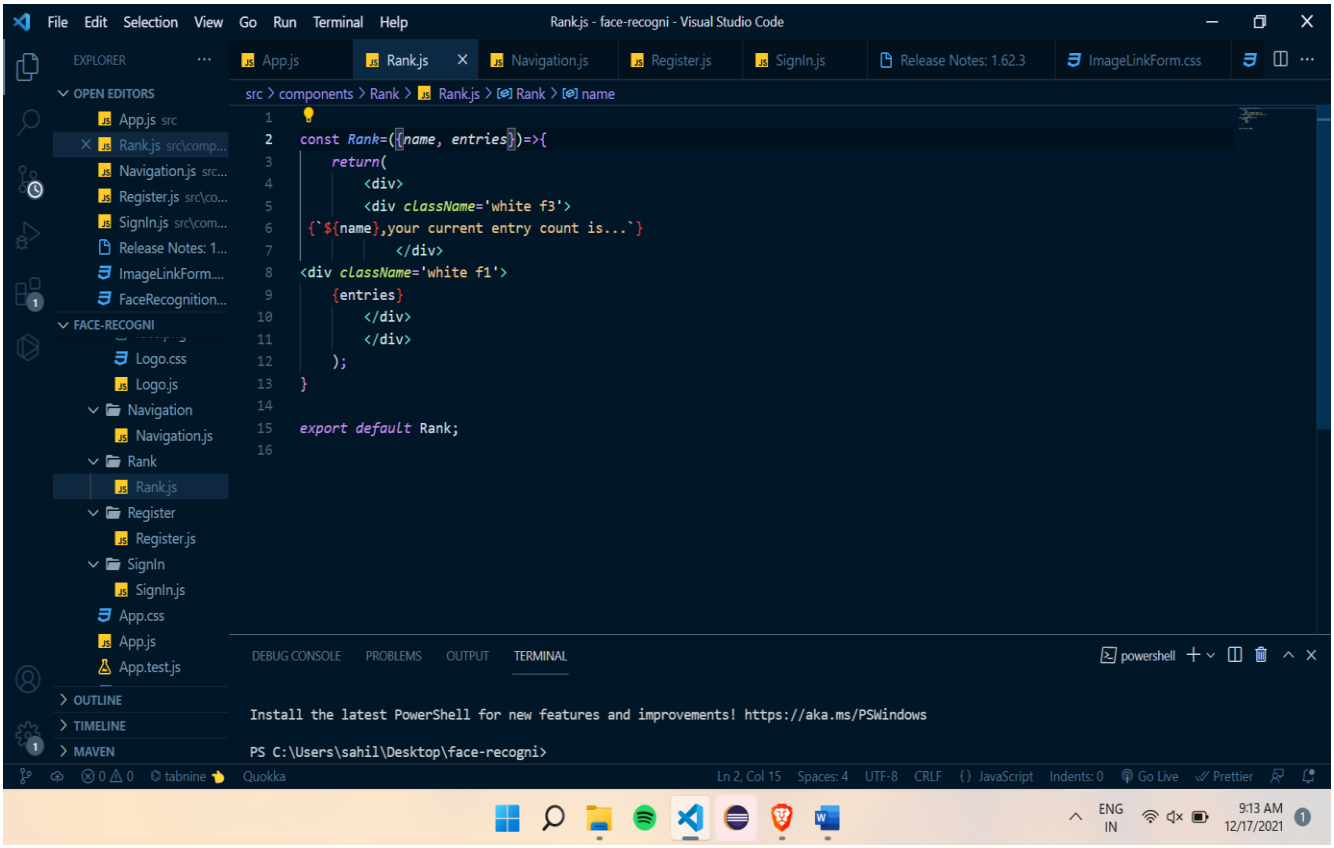
TERMINAL
powershell
Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows
PS C:\Users\sahil\Desktop\face-recogni>
tabnine
Quokka
Ln 9, Col 4
Spaces: 2
UTF-8
CRLF
JavaScript
Indents: 1
Go Live
Prettier
ENG
IN
9:12 AM
12/17/2021

Output:-


React App
localhost:3000
Internet Speed Test...
Oracle
ms teams
DuckDuckGo — Pri...
WhatsApp
Instagram
A complete web en...
The Complete Web...
Recursion - Geeksf...
Sign in
Register
Register
Name
Email
Password
Register
ENG
IN
10:31 AM
12/8/2021

Rank modules:-

This module is about checking the ranking of users in the current list, how they are performing and number of times they used it for recognisition. Number of times user will hit enter button it will generate its rank, comparing it with others all over the users of web app.



Conclusion and Future Scope

In real-time, our algorithms can detect and recognize faces with great accuracy. When compared to other detection methods, it has a faster detection speed. The eyes detection is utilized to improve the accuracy of the face detection. Facial component alignment, contrast enhancement, and image smoothing all help to improve facial recognition performance. Face images are collected in real time as training samples and recognized under a variety of scenarios, including among other faces.

The training of new classifiers capable of expanding face recognition to a wider range of facial orientations is planned for the future. The system may predict the head rotation to further adjust the facial image and retain accurate recognition.