SUMMER TRAINING REPORT

on

ADVANCED ASSIGNMENT SYSTEM

Bachelor of Engineering
IN
COMPUTER SCIENCE AND ENGINEERING

Submitted by

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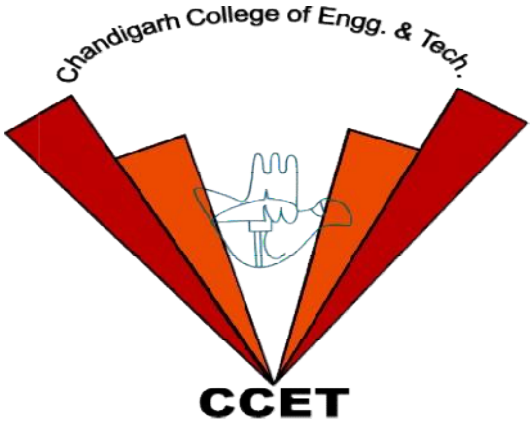
(CO18325)

Under the supervision of

Dr. Dheerendra Singh



CHANDIGARH COLLEGE OF ENGINEERING AND TECHNOLOGY
(DEGREE WING)

Government Institute under Chandigarh (UT) Administration, Affiliated to Panjab University , Chandigarh
Sector-26, Chandigarh. PIN-160019

July, 2020

CHANDIGARH COLLEGE OF ENGINEERING AND TECHNOLOGY (DEGREE WING)
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CANDIDATE'S DECLARATION

I hereby declare that the work presented in this report entitled "ADVANCED ASSIGNMENT SYSTEM", in fulfillment of the requirement for the award of the degree Bachelor of Engineering in Computer Science & Engineering, submitted in CSE Department, Chandigarh College of Engineering & Technology (Degree wing) affiliated to Punjab University, Chandigarh, is an authentic record of my/our own work carried out during my 4rth semester under the guidance of **Dr. Dheerendra Singh.**

Date : 31 July 2020 **Inderpreet Singh**

Place : Chandigarh **CO18325**

CERTIFICATE

This is to certify that the Project work entitled **"ADVANCED ASSIGNMENT SYSTEM"** submitted **INDERPREET SINGH (CO18325)**, in fulfillment for the requirements of the award of Bachelor of Engineering Degree in Computer Science & Engineering at Chandigarh College of Engineering and Technology (Degree Wing), Chandigarh is an authentic work carried out by him/her under my supervision and guidance. To the best of my knowledge, the matter embodied in the project has not been submitted to any other University / Institute.

Date:

Place:

ACKNOWLEDGEMENT

First and foremost, praises and thanks to the God, the Almighty, for His showers of blessings throughout my research work to complete the research successfully.

I would like to express my deep and sincere gratitude to my professor **Dr Dheerendra Singh** for giving me the opportunity to do research and providing invaluable guidance throughout this research. His dynamism, vision, sincerity and motivation have deeply inspired me. He has taught me the methodology to carry out the research and to present the research works as clearly as possible. It was a great privilege and honor to work and study under his guidance. I am extremely grateful for what he has offered me.

Any attempt at any level can't be satisfactorily completed without the support and guidance of my parents and friends.

I would like to thank my parents who helped me a lot in gathering different information, collecting data and guiding me from time to time in making this project, despite of their busy schedules, they gave me different ideas in making this project unique.

Thanking you,

Inderpreet Singh

CO18325

ABSTRACT

Due to on-going pandemic COVID-19 everything in physical education system has came to a standstill and world had to shift education to the virtual methods. But with virtual methods came some major problems. Although, In today's world online teaching is a fast growing industry. And along with it students have numerous ways to do their Homework / Assignments / Quizzes / Tests / etc using illicit means. Especially, Indian education system is hit the most as most the education took place in physical classrooms.

Online education is still a new concept in India. Educational Institutes are still reluctant to take assignments / quizzes / Exams through online portals. This is due to the fact that authenticity of the assignments submitted by students is still a major issue. And thus there is a need of a application which can provide authentic assignment submissions so that fair evaluation can take place.

Advanced Assignment System will give the educational institutes assurance that assignments submitted will be authentic, and if students indulge into any malpractices then the plagiarism will be detected by this application and educational institute will get to know about it through Plagiarism Reports. This application will also ensure the liveness of the student for the assignment and it will also prevent image spoofing.

CONTENTS

CHAPTER-01 COURSES PURSUED

1. Python for Everybody Specialization

PLATFORM : COURSERA

INSTITUTE : University of Michigan

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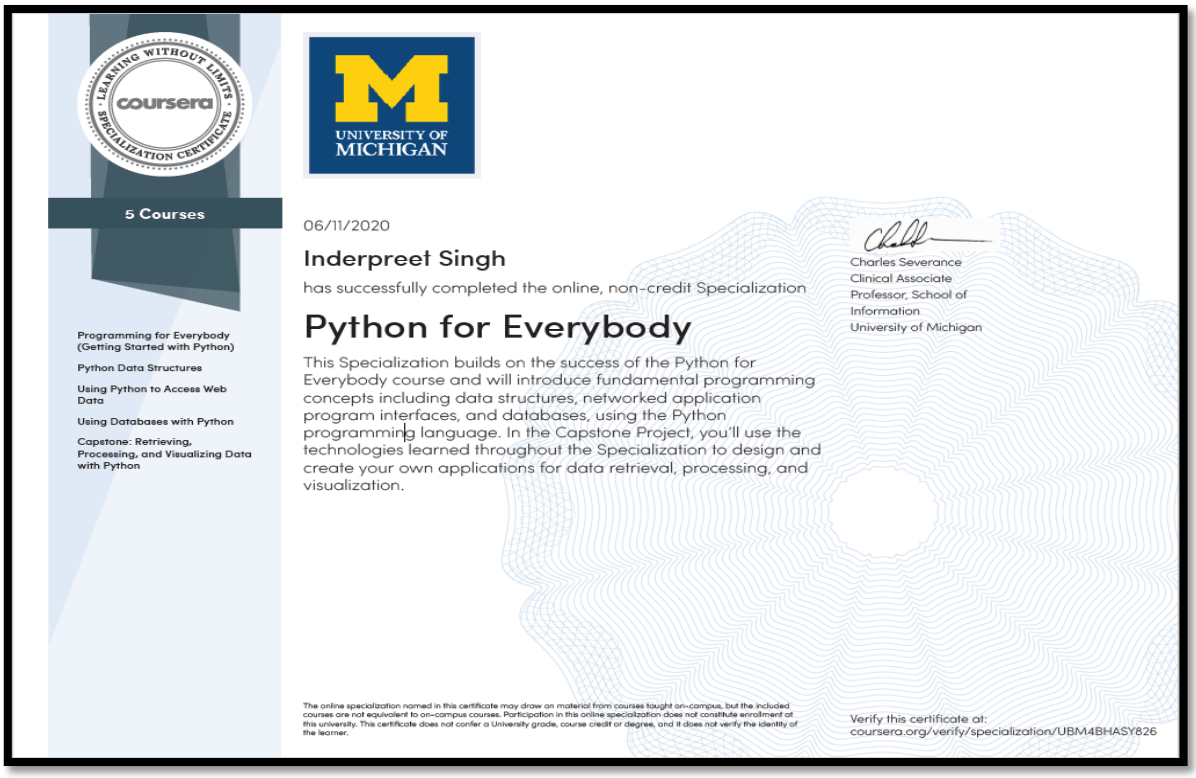


1.1. INTRODUCTION

This specialization helped me in learning about basics of the Python programming language, using variables to store, retrieve and calculate information, utilizing core programming tools such as functions and loops. Technologies I learnt are Json, Xml, Python programming, Database (DBMS), Python syntax and Semantics, Basic Programming language, Computer programming, Data structure, Tuple, Web scrapping, Sqlite, SQL. **This specialization consisted of 5 courses-**

- Getting started with Python
- Python Data Structures
- Using Python to Access Web Data
- Using Databases with Python
- Capstone: Retrieving, Processing, and Visualizing Data with Python

1.2. ABOUT THE SPECIALIZATION

1.2.1. GETTING STARTED WITH PYTHON

This course aims to teach the basics of programming computers using Python. It covered the basics of how one constructs a program from a series of simple instructions in Python. The course had no pre-requisites and avoids all but the simplest mathematics. This course covered Python 3.

1.2.2. PYTHON DATA STRUCTURES

This course introduced the core data structures of the Python programming language. I moved past the basics of procedural programming and explored how I can use the Python built-in data structures such as lists, dictionaries, and tuples to perform increasingly complex data analysis.

- **List** – It allows us to store many values in a single variable using an indexing scheme to store, organize, and retrieve different values from within a single variable. We call these multi-valued variables "collections" or "data structures".
- **Dictionaries** - The Python dictionary is one of its most powerful data structures. Instead of representing values in a linear list, dictionaries store data as key / value pairs. Using key / value pairs gives us a simple in-memory "database" in a single Python variable.
- **Tuples -** Tuples are a simple version of lists. We often use tuples in conjunction with dictionaries to accomplish multi-step tasks like sorting or looping through all of the data in a dictionary.

1.2.3. USING PYTHON TO ACCESS WEB DATA

This course showed how one can treat the Internet as a source of data. I learned about scraping,

parsing, and reading web data as well as accessing data using web APIs. I worked with HTML, XML, and JSON data formats in Python.

- **Sockets in Python** – It helps in getting data from the server. A socket is one endpoint of a two-way communication link between two programs running on the network. Python has built-in support for TCP Sockets.
- **Urllib library** - Urllib module is the URL handling module for python. It is used to fetch URLs (Uniform Resource Locators). It uses the urlopen function and is able to fetch URLs using a variety of different protocols. Urllib is a package that collects several modules for working with URLs, such as: urllib.request for opening and reading. urllib.parse for parsing URLs
- **Beautifulsoup library** - In Python for web scraping we can use Beautiful Soup, package for parsing HTML and XML documents. It works with your favorite parser to provide idiomatic ways of navigating, searching, and modifying the parse tree. It commonly saves programmers hours or days of work.

1.2.4. USING DATABASES WITH PYTHON

This course introduced to the basics of the Structured Query Language (SQL) as well as basic database design for storing data as part of a multi-step data gathering, analysis, and processing effort. The course used SQLite3 as its database. It also covered the basics of Object Oriented Python. We won't be writing our own objects, but since many of the things we use like BeautifulSoup, strings, dictionaries, database connections all use Object Oriented (OO) patterns we should at least understand some of its patterns and terminology.

1.2.5. CAPSTONE

This course was the combination of all the things I learned in the specialization. I build a series of applications to retrieve, process and visualize data using Python. In the first part of the capstone, students will do some visualizations to become familiar with the technologies in use and then will pursue their own project to visualize some other data that they have or can find.

2. Machine Learning for All

PLATFORM : COURSERA

INSTITUTE : University of London

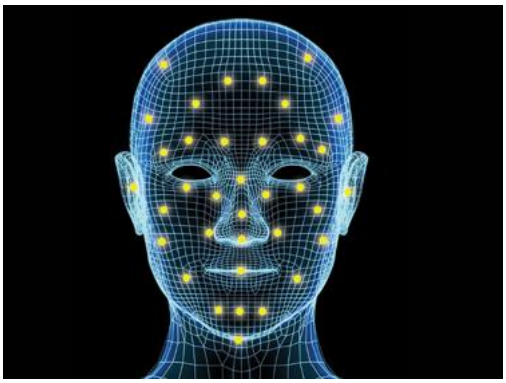
CERTIFICATE:

2.1. ABOUT THE COURSE

This course taught me the basics of Machine Learning and Artificial Intelligence. This course only covered the conceptual part of ML and AI. That means that we don't cover the programming based machine learning tools like python and TensorFlow. This course is for a lot of different people. It will be a good first step into my technical career in Machine Learning, after all it is always better to start with the high level concepts before the technical details.

CHAPTER-02 CONCEPTS STUDIED

1. FACE RECOGNITION SYSTEM



A facial recognition system is a technology capable of identifying or verifying a person from a digital image or a video frame from a video source. There are multiple methods in which facial recognition systems work, but in general, they work by comparing selected facial features from a given image with faces within a database.

It is also described as a Biometric Artificial Intelligence based application that can uniquely identify a person by analyzing patterns based on the person's facial textures and shape.

1.1. USAGE

1.1.1. Improved Public Security

- Face recognition makes it easier to track down burglars, thieves and trespassers. The technology is capable of analyzing the feed private and public CCTV camera networks.
- The technology is not limited to tracking down criminals. For instance, it could also make it easier to find missing children and seniors.
- Face recognition could make security checkpoints at airports less intrusive to passengers.
- Public outrage over unjustified stops and searches are a source of constant hassle and controversy for the police — yet another area in which there may be advantages of face recognition technology. By singling out suspects among crowds, face recognition technology could help decrease stops and searches on law-abiding citizens.

1.1.2. Fast and Non-Invasive Identity Verification

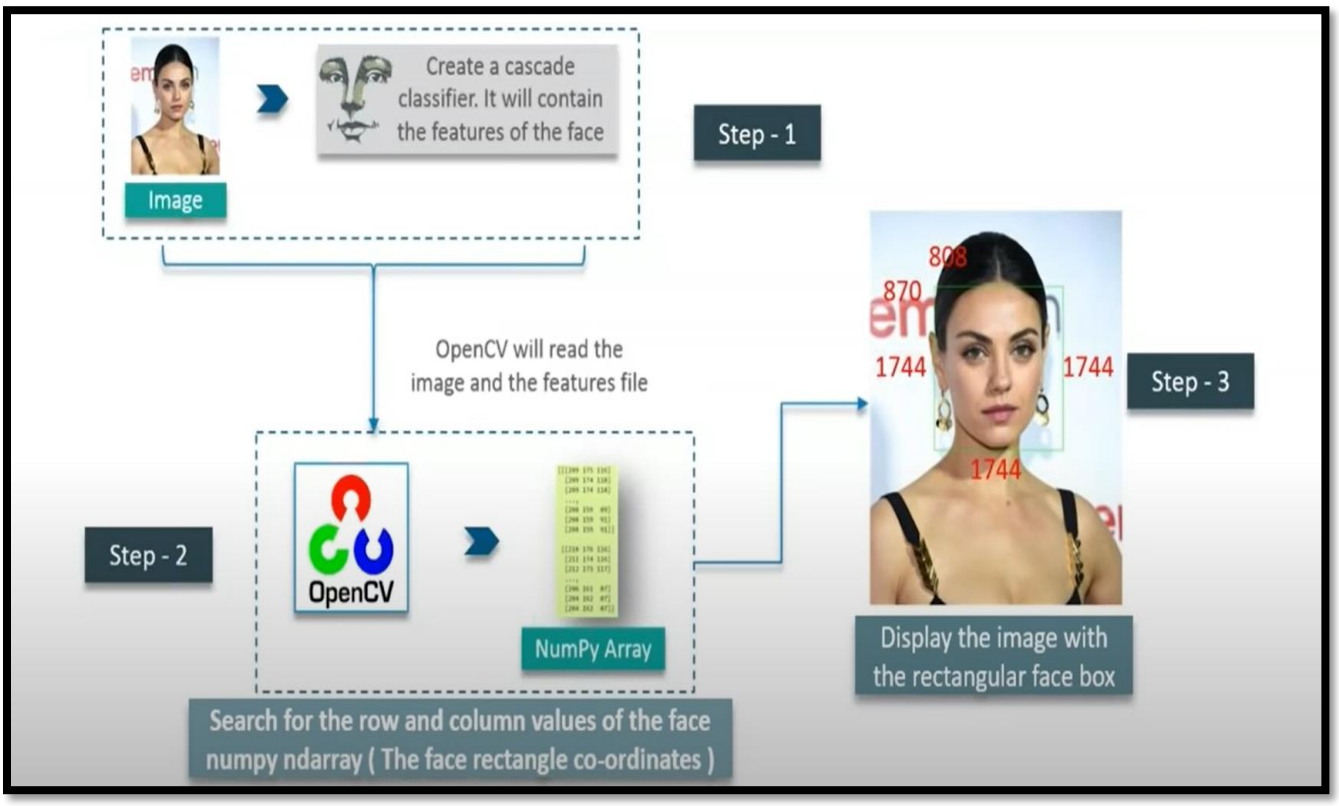
With Face recognition technology, companies can control access to facilities without long lines. Someday, systems will be able to verify identities without stopping anyone for a check. Applications are not limited to physical security but encompass cybersecurity as well. Companies can use face recognition technology as a substitute for passwords to access computers. For instance, newer iPhones allow unlocking with face recognition. Also, in our list of 10 face recognition apps for Android to boost your business, we show several Android apps for face unlocking your phone.

1.1.3. Benefits of Facial Recognition in Banking

While Banks have become sophisticated at using one time passwords to access accounts or authorize transfers, there is still room for improvement. One possible solution is biometric identification via facial recognition technology. Instead of those pesky one-time passwords, you could authorize transactions by looking at your smartphone or computer. Biometric online banking is another of the benefits of face recognition. With face recognition, there are no passwords that hackers could compromise. Even if hackers stole your photo database, it would be of little use, as "liveness detection," prevent using them for impersonation purposes. The benefits go beyond online, physical bank branches and ATMs can also make use of the technology. Thanks to it, using debit cards and signatures may soon be a thing of the past.

1.1.4. Face Recognition Furthers Enables Computer Vision

Face Recognition research may one day allow computers to see and recognize objects and people in a similar manner to humans. As a result, there will be new possibilities for interactions. Computer vision development is critical to make technologies like self-driving cars viable. In the future, we can expect research in computer vision and face recognition to gather more interest and breakthroughs to continue.



STEPS INVOLVED IN FACE RECOGNITION

1.2. Haar Cascade Classifier

Haar Cascade is a machine learning object detection algorithm used to identify objects in an image or video and based on the concept of features proposed by Paul Viola and Michael Jones in their paper "Rapid Object Detection using a Boosted Cascade of Simple Features" in 2001. It is a machine learning based approach where a cascade function is trained from a lot of positive and negative images. It is then used to detect objects in other images.

Haar Cascade classifier is based on the Haar Wavelet technique to analyze pixels in the image into squares by function. This uses “integral image” concepts to compute the “features” detected. Haar Cascades uses the Ada-boost learning algorithm which selects a small number of important features from a large set to give an efficient result of classifiers then use cascading techniques to detect the face in an image.

The algorithm has four stages:

- Haar Feature Selection
- Creating Integral Images
- Adaboost Training
- Cascading Classifiers

It is well known for being able to detect faces and body parts in an image, but can be trained to identify almost any object.

1.3. Detection Phase

During the detection phase, a window of the target size is moved over the input image, and for each subsection of the image and Haar features are calculated. You can see this in action in the video below. This difference is then compared to a learned threshold that separates non-objects from objects. Because each Haar feature is only a "weak classifier" (its detection quality is slightly better than random guessing) a large number of Haar features are necessary to describe an object with sufficient accuracy and are therefore organized into cascade classifiers to form a strong classifier.

2. BLINK RECOGNIZER

Blink detection is actually the process of using computer vision to firstly detect a face, with eyes, and then using a video stream (or even a series of rapidly-taken still photos) to determine whether those eyes have blinked or not within a certain timeframe.

2.1. USAGE

Blink detection can also be used for “liveness” or “anti-spoofing” systems to see if a live person or a photograph is being verified using face recognition / detection. Blinking provides a signal which is easily detected and unique to faces. It is important to realise that we are talking about blinking here, not winking. With blinking you have two eyes moving together, and this is the key factor distinguishing blinking from other motions that may be happening. This ties in with the fact that eyes are symmetrically positioned with a fixed separation.

Blink detection is just one part of the analysis into microexpressions that can be aided by the analysis of still images and video. Because they happen so quickly, microexpressions can be difficult to recognize, but still images and video showing them can make them easier to perceive. Software involving frame rate manipulation allows the viewer to distinguish distinct emotions, as well as their stages and progressions, which are otherwise too subtle to identify. Blink detection is definitely part of this process.

To build our blink detector, we’ll be computing a metric called the eye aspect ratio (EAR), introduced by Soukupová and Čech in their 2016 paper, Real-Time Eye Blink Detection Using Facial Landmarks.

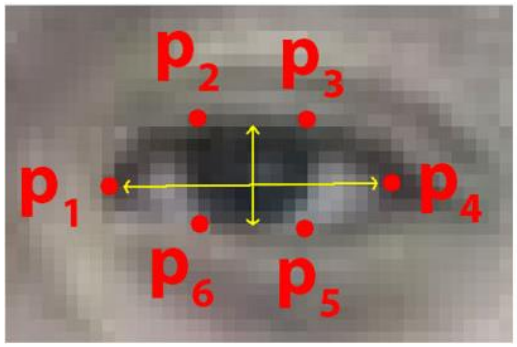
2.2. DEVELOPMENT

Traditional image processing methods for computing blinks which typically involve some combination of:

- Eye localization.
- Thresholding to find the whites of the eyes.
- Determining if the “white” region of the eyes disappears for a period of time (indicating a blink).

But in this project we will use the eye aspect ratio as it is a much more elegant solution that involves a very simple calculation based on the ratio of distances between facial landmarks of the eyes. This method for eye blink detection is fast, efficient, and easy to implement.

2.3. REPRESENTATION



Each eye is represented by 6 (x, y)-coordinates, starting at the left-corner of the eye (as if you were looking at the person), and then working clockwise around the remainder of the region:

There is a relation between the width and the height of these coordinates.

Based on the work by Soukupová and Čech in their 2016 paper, Real-Time Eye Blink Detection using Facial Landmarks, we can then derive an equation that reflects this relation called the eye aspect ratio (EAR):

$$\mathrm{EAR} = \frac{\|p_2 - p_6\| + \|p_3 - p_5\|}{2\|p_1 - p_4\|}$$

Where p1, …, p6 are 2D facial landmark locations.

The numerator of this equation computes the distance between the vertical eye landmarks while the denominator computes the distance between horizontal eye landmarks, weighting the denominator appropriately since there is only one set of horizontal points but two sets of vertical points.

2.4. RECOGNIZING BLINK

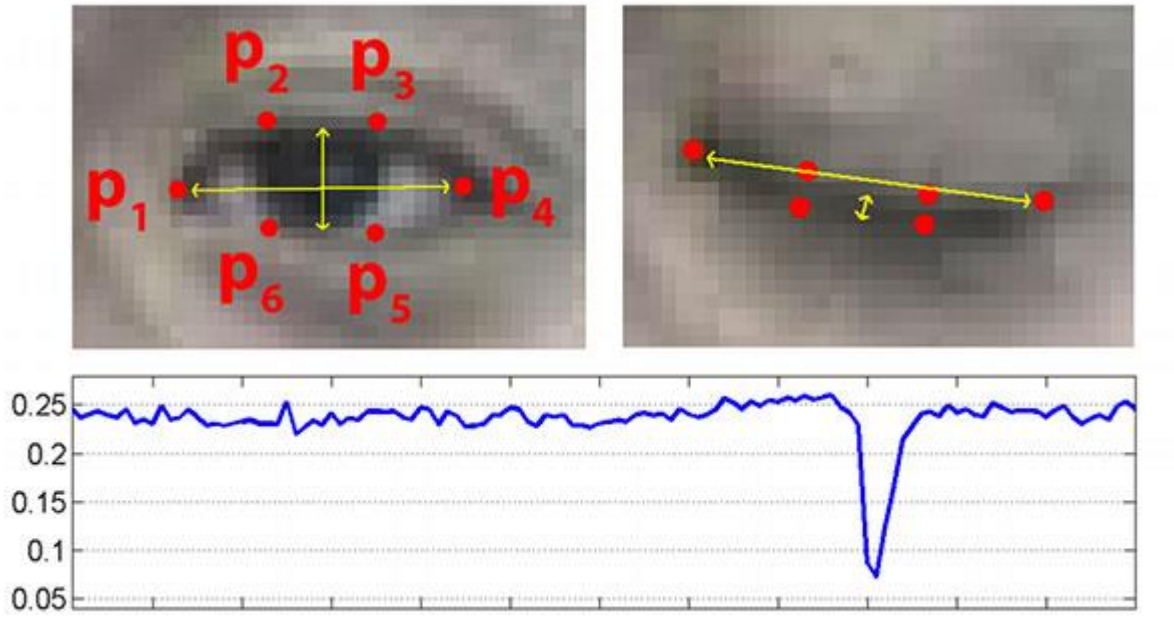


Figure Description : **Top-left:** ***A visualization of eye landmarks when then the eye is open.*** **Top-right:** ***Eye landmarks when the eye is closed.*** **Bottom:** ***Plotting the eye aspect ratio over time. The dip in the eye aspect ratio indicates a blink***

On the top-left we have an eye that is fully open — the eye aspect ratio here would be large(r) and relatively constant over time.

However, once the person blinks (top-right) the eye aspect ratio decreases dramatically, approaching zero.

The bottom figure plots a graph of the eye aspect ratio over time for a video clip. As we can see, the eye aspect ratio is constant, then rapidly drops close to zero, then increases again.

Thus, indicating a single blink has taken place!!

3. SPEECH RECOGNITION

Speech recognition is the ability of a machine or program to identify words and phrases in spoken language and convert them to a machine-readable format. Rudimentary speech recognition software has a limited vocabulary of words and phrases, and it may only identify these if they are spoken very clearly. More sophisticated software has the ability to accept natural speech. To understand the speech we use Natural Language Processing.

3.1. USAGE

With the introduction of AI digital-assistants in the office, everyone can have one. From asking Cortana to find a long-lost budget report, to asking your Google Assistant to please create a graph showcasing the year's growth in click-through-rates – the use-cases for implementing digital-assistants in the workplace are far reaching. Voice could very well replace manually going through files on your computer in the same way that electronic documents so easily replaced paper records just a short time ago. Instead of typing out company correspondence, it will all be dictated to a computer that will generate flawless documents. Office security will be strengthened by using voice recognition instead of swiping cards. Long data entry processes might become redundant with artificial intelligence taking over. Wherever you go, the lighting and temperature controls all perform in concert to optimise your comfort based on your pre-determined personal indicators.

3.2. NLP

Natural Language Processing is manipulation or understanding text or speech by any software or machine. An analogy is that humans interact, understand each other views, and respond with the appropriate answer. In NLP, this interaction, understanding, the response is made by a computer instead of a human.

NLP is used to analyze text, allowing machines to understand how human's speak. This human-computer interaction enables real-world applications like automatic text summarization, sentiment analysis, topic extraction, named entity recognition, parts-of-speech tagging, relationship extraction, stemming, and more. NLP is commonly used for text mining, machine translation, and automated question answering.

3.3. GOOGLE SPEECH RECOGNITION

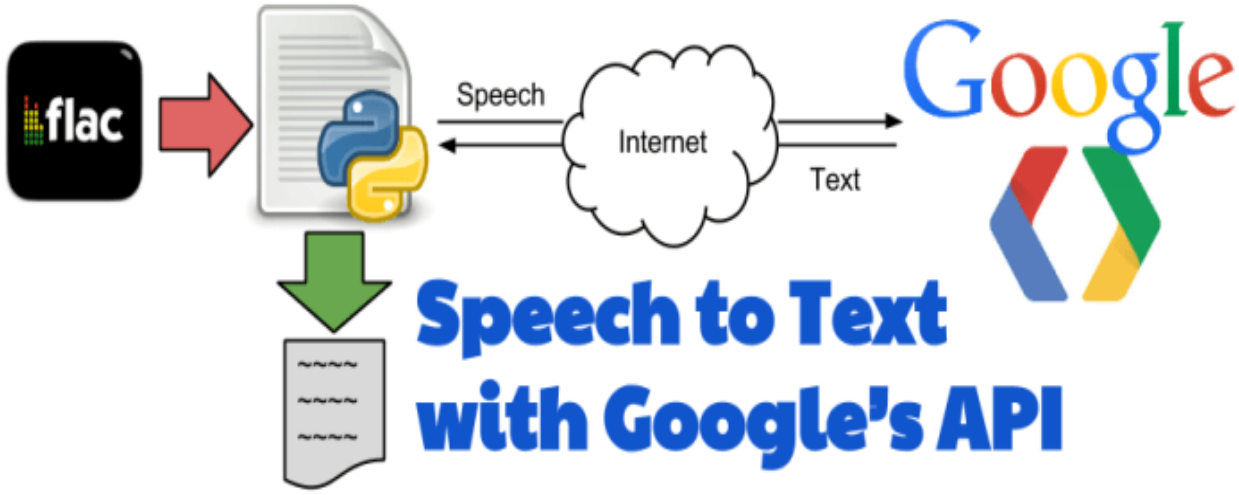
For our project we will use the google speech api which is in-built in the python library NLTK.

Google has a great Speech Recognition API. This API converts spoken text (microphone) into written text (Python strings), briefly Speech to Text. You can simpldy speak in a microphone and Google API will translate this into written text. The API has excellent results for English language.

FEATURES OF THE GOOGLE API:

- Apply powerful neural network models to convert speech to text
- Recognises more than 110 languages and variants

- Text results in Real-Time
- Successful noise handling
- Supports devices which can send a REST or gRPC request
- API includes time offset values(timestamps) for the beginning and end of each word spoken in the recognised audio



WORKING OF GOOGLE API

CHAPTER-01 IMPORTANT PACKAGES USED

1. Tkinter

Python has a lot of GUI frameworks, but Tkinter is the only framework that's built into the Python standard library. Tkinter has several strengths. It's cross-platform, so the same code works on Windows, macOS, and Linux. Visual elements are rendered using native operating system elements, so applications built with Tkinter look like they belong on the platform where they're run.

However, Tkinter is lightweight and relatively painless to use compared to other frameworks. This makes it a compelling choice for building GUI applications in Python, especially for applications where a modern sheen is unnecessary, and the top priority is to build something that's functional and cross-platform quickly.

2. SQLite

SQLite is a C-language library that implements a small, fast, self-contained, high-reliability, full-featured, SQL database engine. SQLite is the most used database engine in the world. SQLite is built into all mobile phones and most computers and comes bundled inside countless other applications that people use every day. The SQLite file format is stable, cross-platform, and backwards compatible and the developers pledge to keep it that way through at least the year 2050.

Features

- SQLite does not require a separate server process or system to operate (serverless).
- SQLite comes with zero-configuration, which means no setup or administration needed.

- A complete SQLite database is stored in a single cross-platform disk file.
- SQLite is very small and light weight, less than 400KiB fully configured or less than 250KiB with optional features omitted.
- SQLite is self-contained, which means no external dependencies.
- SQLite transactions are fully ACID-compliant, allowing safe access from multiple processes or threads.
- SQLite supports most of the query language features found in SQL92 (SQL2) standard.
- SQLite is written in ANSI-C and provides simple and easy-to-use API.

3. Open Source Computer Vision Library

OpenCV (Open Source Computer Vision Library) is an open source computer vision and machine learning software library. OpenCV was built to provide a common infrastructure for computer vision applications and to accelerate the use of machine perception in the commercial products. Being a BSD-licensed product, OpenCV makes it easy for businesses to utilize and modify the code.

The library has more than 2500 optimized algorithms, which includes a comprehensive set of both classic and state-of-the-art computer vision and machine learning algorithms. These algorithms can be used to detect and recognize faces, identify objects, classify human actions in videos, track camera movements, track moving objects, extract 3D models of objects, produce 3D point clouds from stereo cameras, stitch images together to produce a high resolution image of an entire scene, find similar images from an image database, remove red eyes from images taken using flash, follow eye movements, recognize scenery and establish markers to overlay it with augmented reality, etc.

4. Email

The email package is a library for managing email messages, including MIME and other RFC 2822-based message documents. It is specifically not designed to do any sending of email messages to SMTP (RFC 2821), NNTP, or other servers; those are functions of modules such as smtplib and nntplib. The email package attempts to be as RFC-compliant as possible, supporting in addition to RFC 2822, such MIME-related RFCs as RFC 2045, RFC 2046, RFC 2047, and RFC 2231.

The primary distinguishing feature of the email package is that it splits the parsing and generating of email messages from the internal object model representation of email. Applications using the email package deal primarily with objects; you can add sub-objects to messages, remove sub-objects from messages, completely re-arrange the contents, etc. There is a separate parser and a separate generator which handles the transformation from flat text to the object model, and then back to flat text again.

5. NLTK

NLTK is a leading platform for building Python programs to work with human language data. It provides easy-to-use interfaces to over 50 corpora and lexical resources such as WordNet, along with a suite of text processing libraries for classification, tokenization, stemming, tagging, parsing, and semantic reasoning, wrappers for industrial-strength NLP libraries, and an active discussion forum. NLTK is available for Windows, Mac OS X, and Linux. Best of all, NLTK is a free, open source, community-driven project.

NLTK has been called "a wonderful tool for teaching, and working in, computational linguistics using Python," and "an amazing library to play with natural language."

CHAPTER-04 PROJECT DETAILS

1. INTRODUCTION

In this project I have built a portal where students will do their assignments/ quizzes etc. This application will provide secure platform to conduct official exams for the institutes. This application will generate plagiarism reports which can only be seen by the concerned teachers. This platform will give authority over an assignment or exam to the teacher. . It will help to reduce illicit means used by students to score good marks. It will also help to identify any plagiarized assignments. Thus each student will have to give his/her own self-written assignments thus students will get fair results. Thus, the solution of this problem will help to make the education system better in the long run.

This project is Desktop Application. It is built in Python and sqlite is used as the database system as it highly efficient. Tkinter is used to develop the Graphical User Interface. OpenCv is used for building the Face Recognition sytem as well as the Blink Count System. NLTK library is used to develop speech recognition system as well as Plagarism Report Generator

FEATURES:

- FACE AND BLINKS RECOGNITION
- REAL-TIME BASED ASSIGNMENT
- SPEECH RECOGNITION
- PLAGARISM CHECKER
- EMAIL ASSIGNMENTS
- TIMER BASED ASSIGNMENTS

2. FEATURES DESCRIPTION

2.1. FACE AND BLINK RECOGNITION:

Student's official email-ids provided by their institute would already be stored in the application database. Thus, student's can only register using their official email-ids. All the necessary details will be already present in the system database. Thus, student only need to set his password.

2.1.1. STUDENT REGISTRATION

When student register himself he needs to set a password. Then the application will recognize and save his facial features. The system will capture 15 Images of the student's face after a small interval.

2.1.2. STUDENT LOGIN

During the login, student again needs to enter his email and password. Then the system will test the current facial features with images stored during registration. Along with this the system will keep on counting the Number of Blinks. If number of blinks are LESS than 2 than the system will not let the person login. This will help us to ensure real-time liveliness detection and will help us to stop photograph spoofing.

2.2. REAL – TIME BASED ASSIGNMENTS

Teachers can enable and disable assignments at any point of time. If a student is giving his assignment and the teacher disable's the assignment then the student won't be able to submit his assignment even if he is currently doing the assignment. This feature will be very effective. It will give the teacher to conduct physical classroom like exams. It will also compel students to do their assignements in the specific time assignened for the assignment by the teacher.

2.3. TIMER BASED ASSIGNMENTS

The assignments given by teacher will be time based. After the time decided by teacher is finished, the assignment will be automatically get submitted. The timer will be shown to the student when the student is giving his assignment. This feature will enable this system to conduct online examination

2.4. SPEECH RECOGNITION

Some students may have less typing speed than other students and thus such students are at a loss during online assignments as they require more time to type the answer. To prevent this, my application has the option of SPEECH TO TEXT in the assignment portal. It will automatically close when the student says 'QUIT'. This will help students to do their assignments at a faster pace.

2.5. EMAIL ASSIGNMENTS

Once the assignment is submitted by the student it will be immediately be emailed to teacher. Thus, teacher can grade the students immediately after their assignments. Also a copy of the student's assignment will be automatically downloaded in the local computer of the student for future references.

2.6. PLAGARISM CHECKER

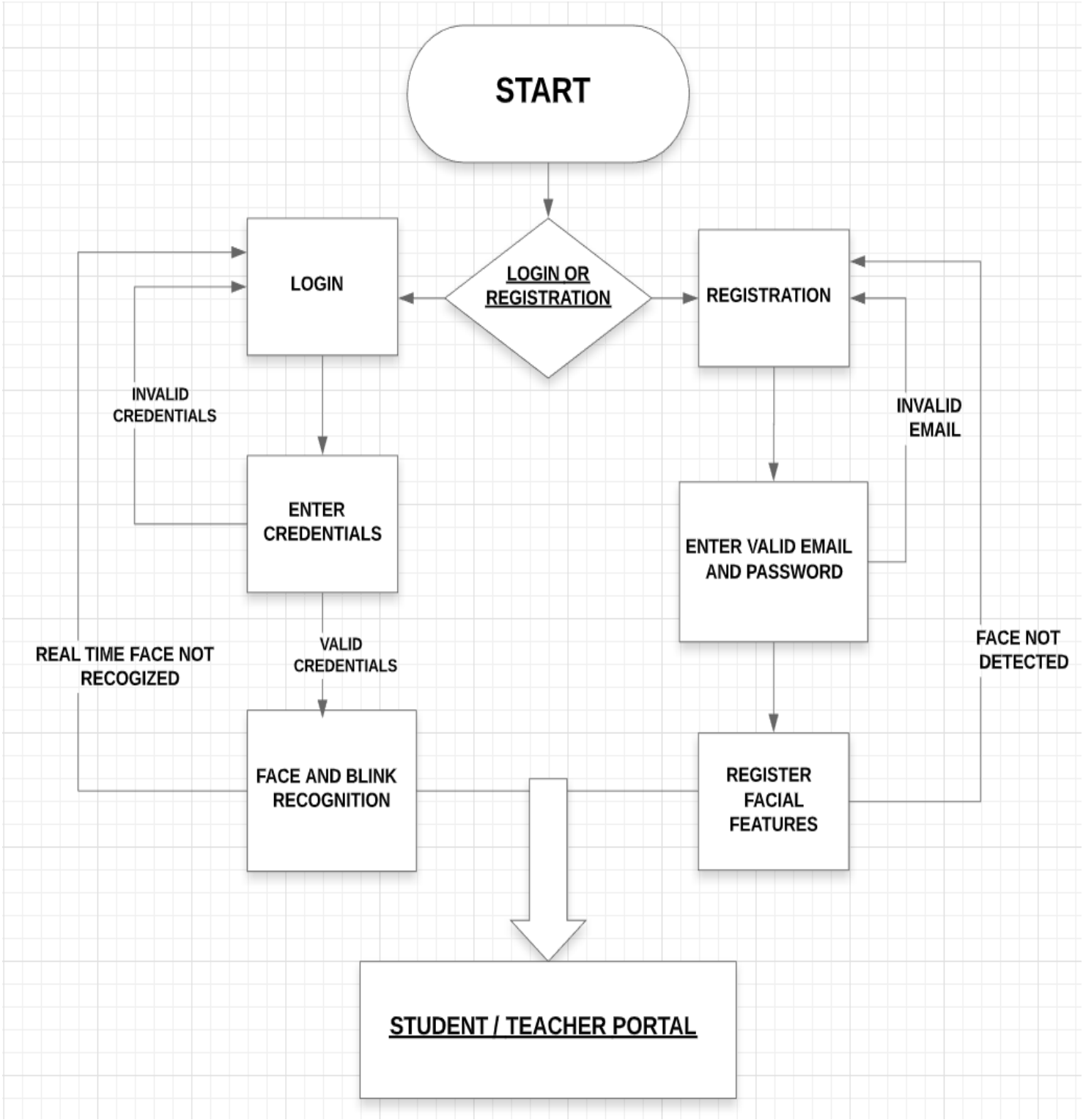
Teacher can generate a Plagiarism Report of a specific Assignment he has assigned. The Report will mention all the Pair of students who have their assignments more than 50% copied. The report will be automatically downloaded in the local computer of the teacher. Report will help the teacher to identify all the students who copied from each other.

2.7. GUI APPLICATION

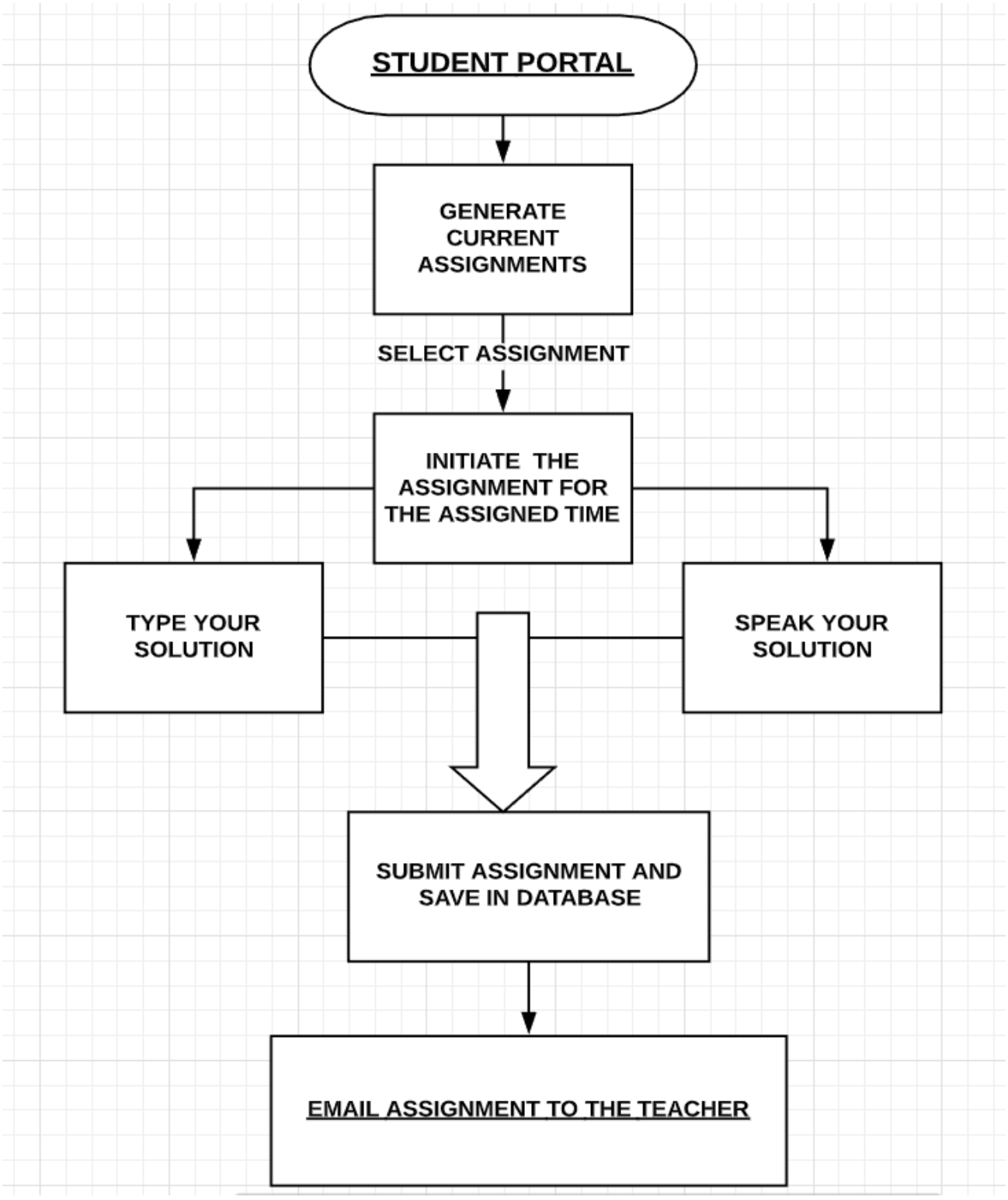
All these features are provided in a simple user friendly GUI, so that students have no difficulty in accessing the portal. The application also provide a GUI portal for teachers also. Thus, teacher's can access all the features using the GUI portal. GUI model helps to give a nice object oriented structure to my application

3. SYSTEM FLOWCHARTS

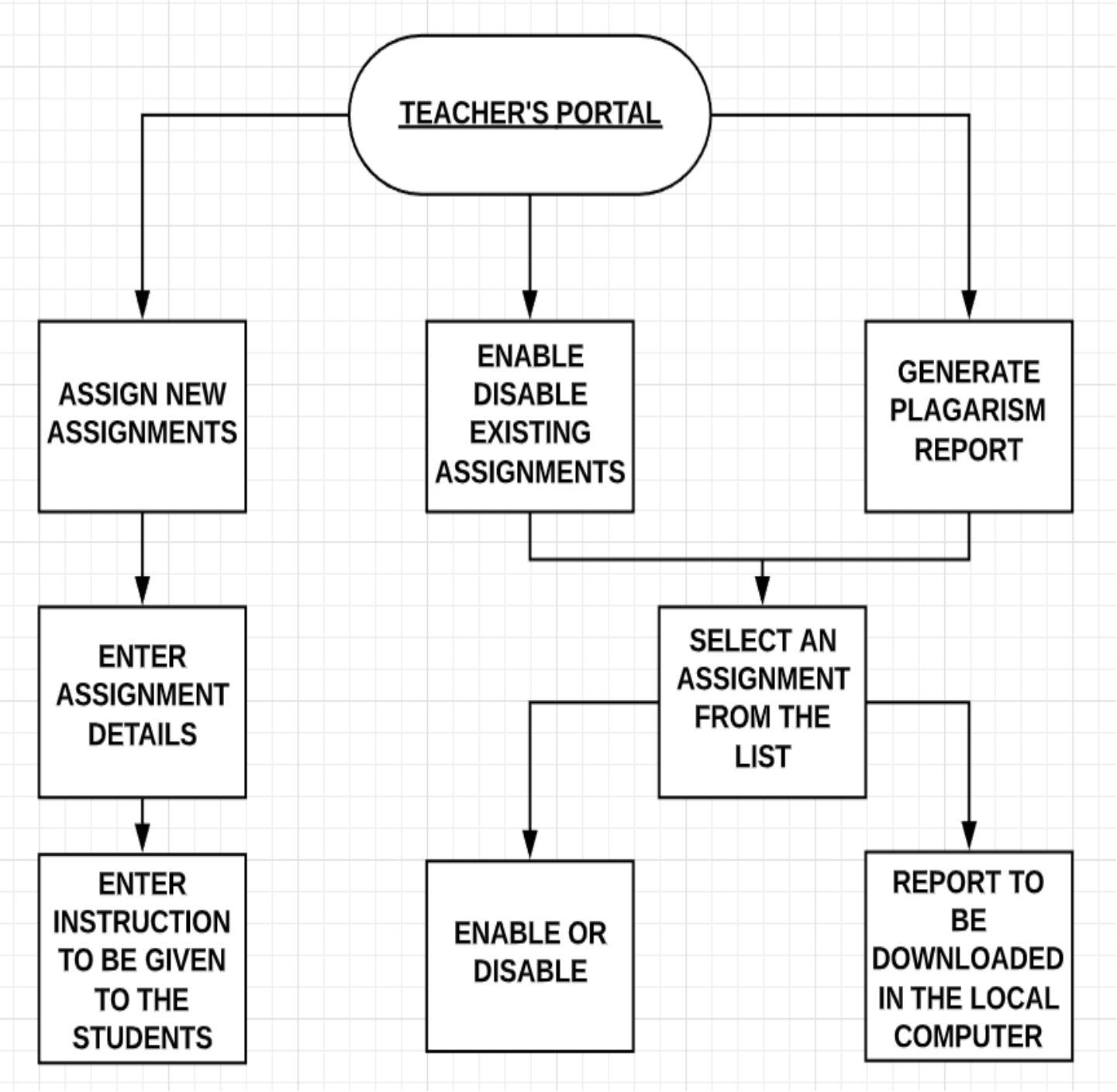
3.1. LOGIN/ REGISTRATION SYSTEM



3.2. STUDENT'S PORTAL



3.3 TEACHER'S PORTAL



4. DATABASE STRUCTURE

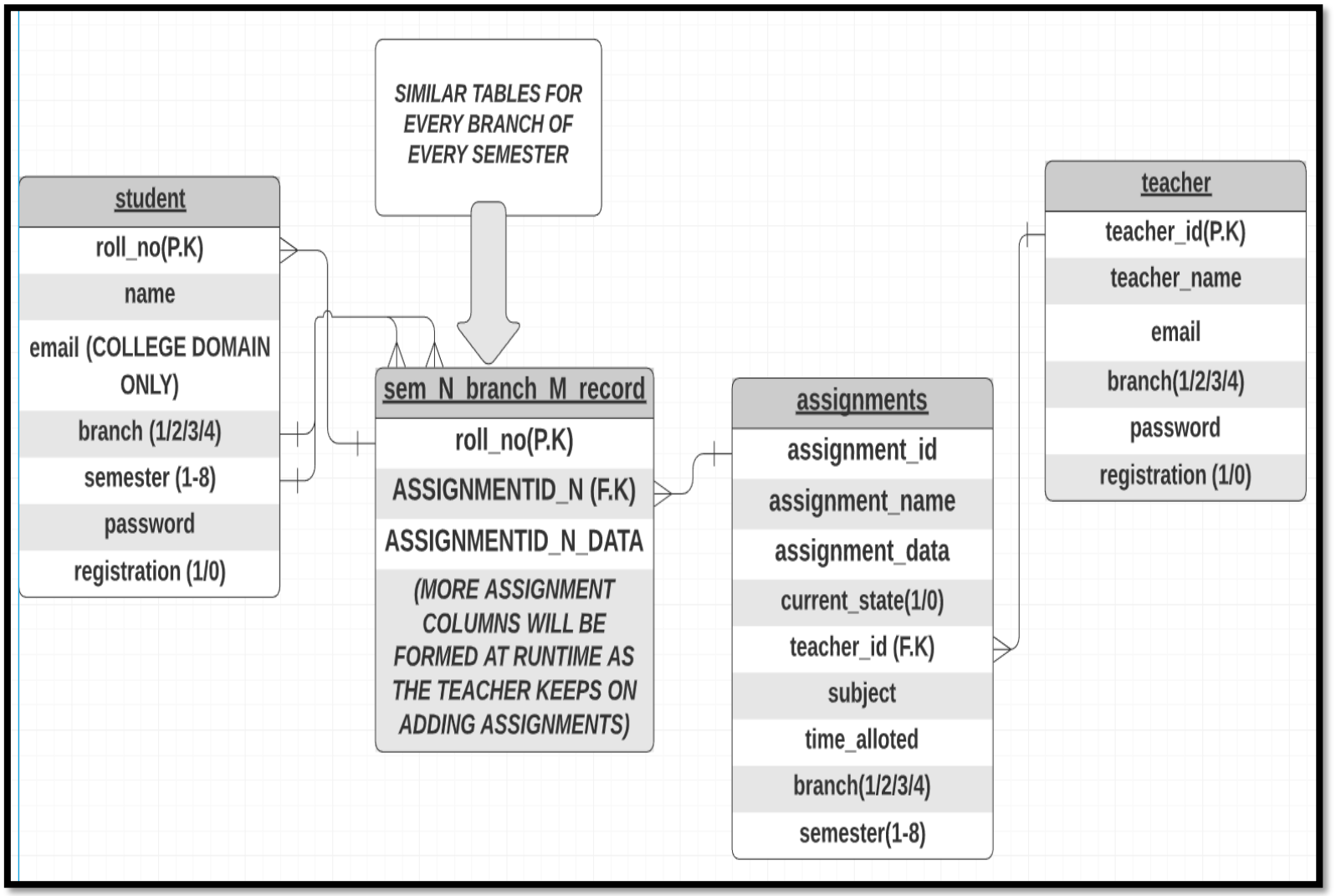
4.1. KEY-WORDS

ENABLE – 1 DISABLE – 0

CSE – 1; ECE – 2; MECH – 3; CIVIL – 4;

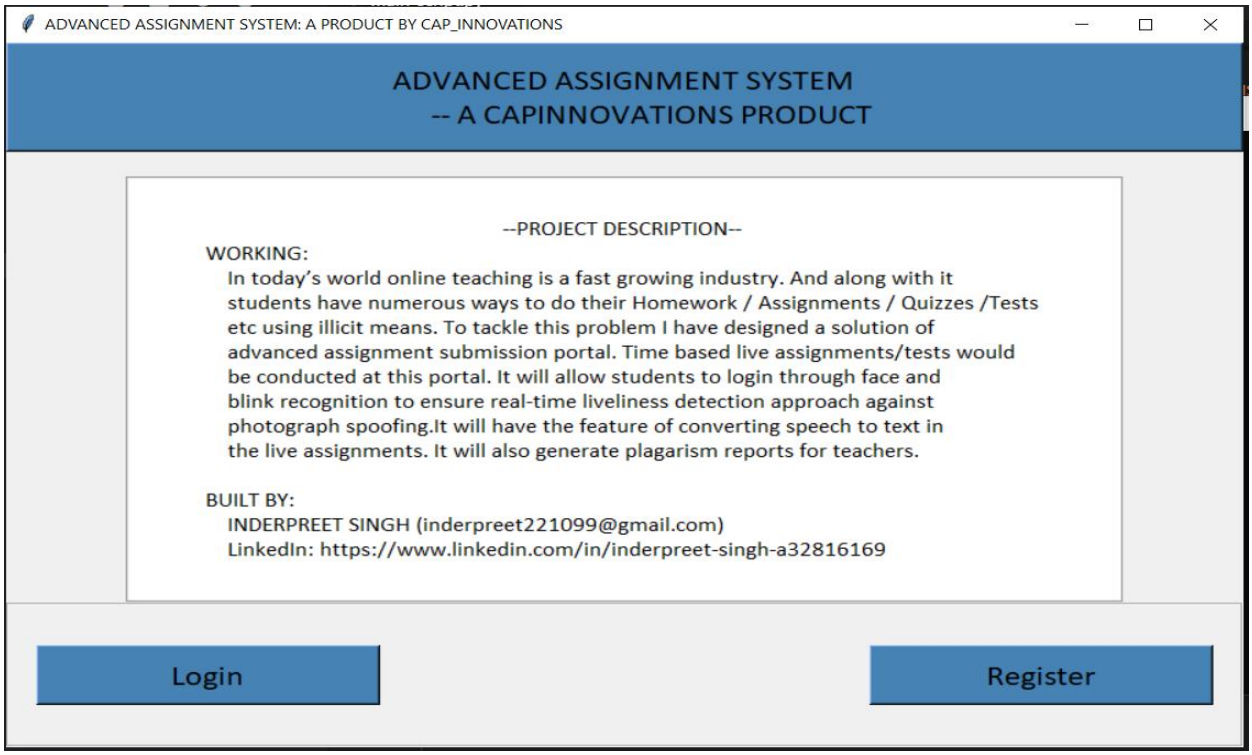
(Numbers are used instead of Text as database iteration speed increases exponentially when it goes through numeric rather than text, and it makes a lot of difference for large databases)

4.2. DATABASE DIAGRAM

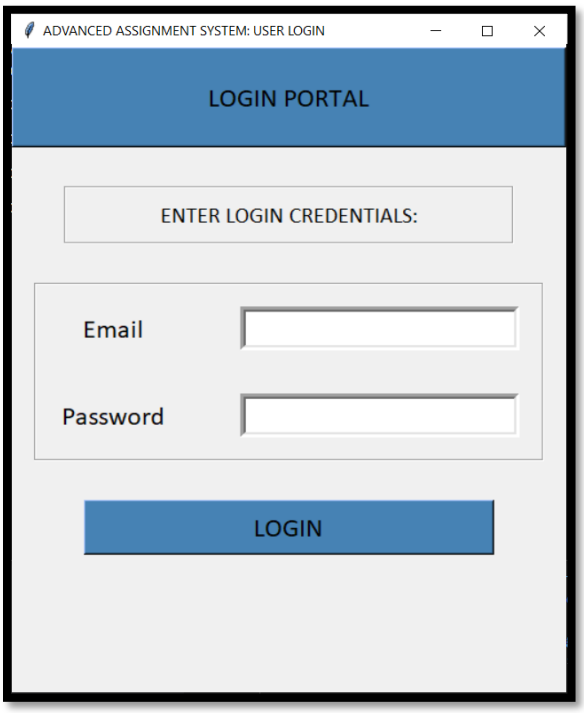


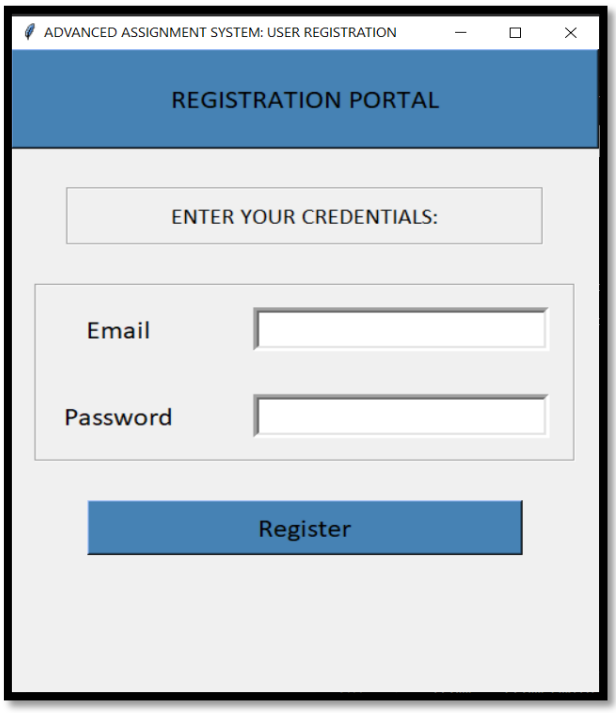
5. OUTPUT

5.1.1. INTRODUCTION

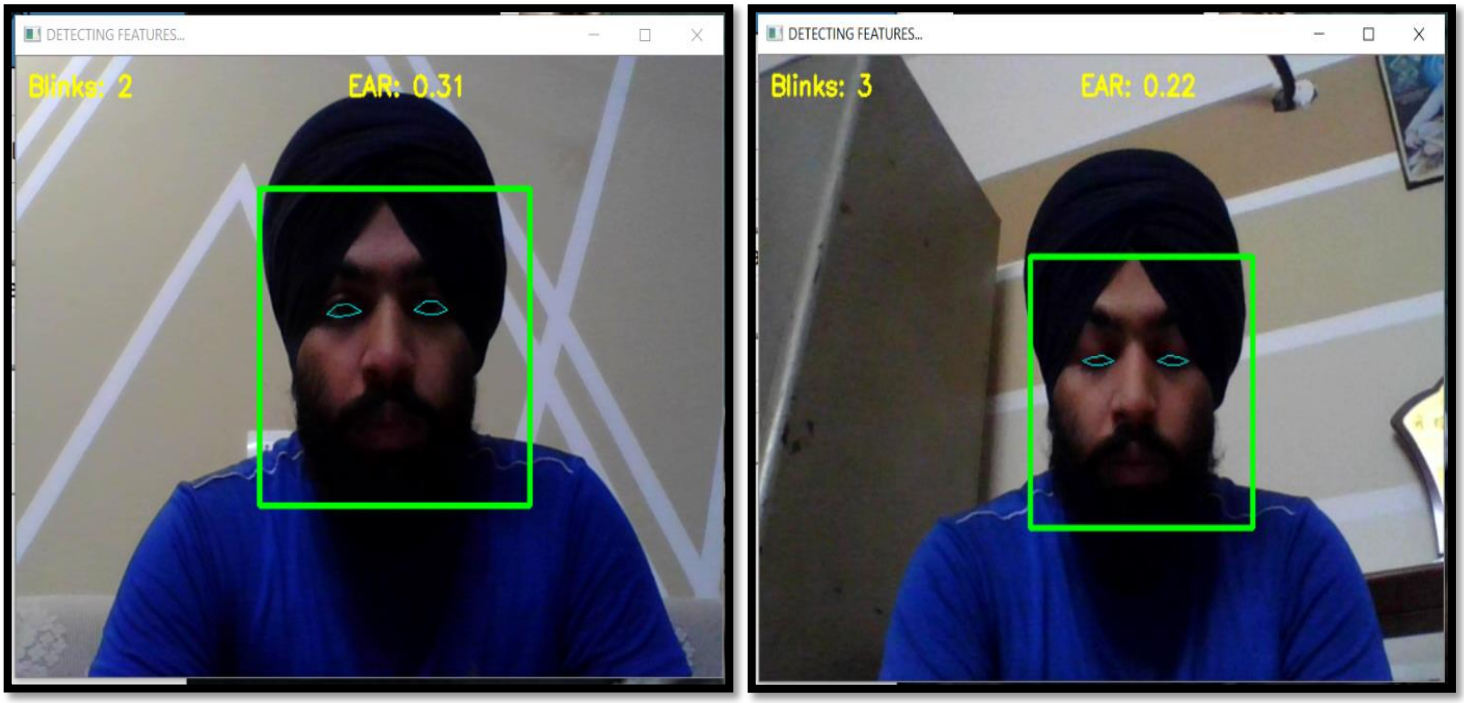


5.1.2. LOGIN AND REGISTRATION PORTAL

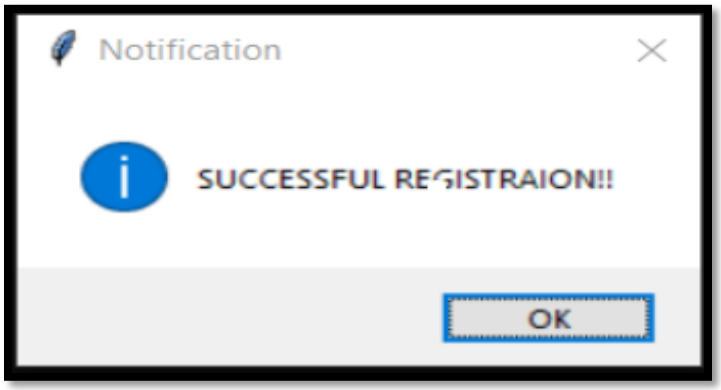


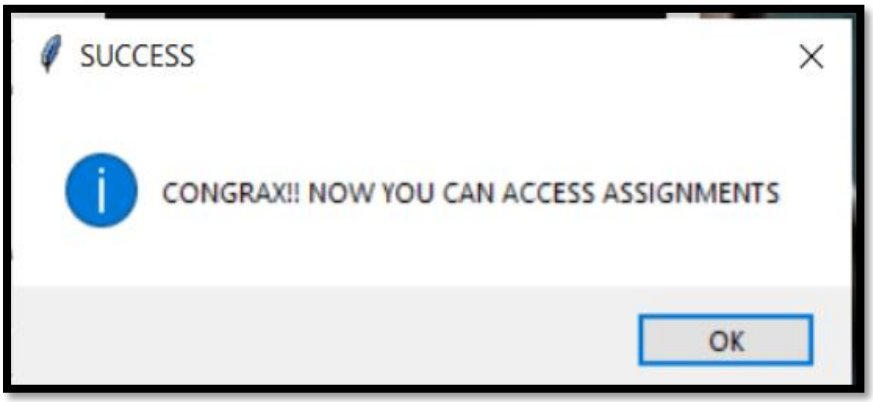


5.1.3. FACE AND BLINK RECOGNITION SYSTEM



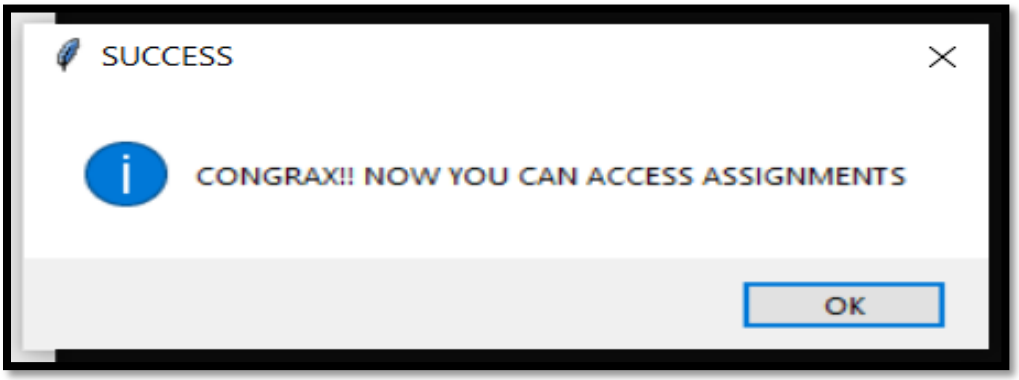
DIFFERENCE BETWEEN TWO EAR SHOWS OPEN EYES AND CLOSED EYES

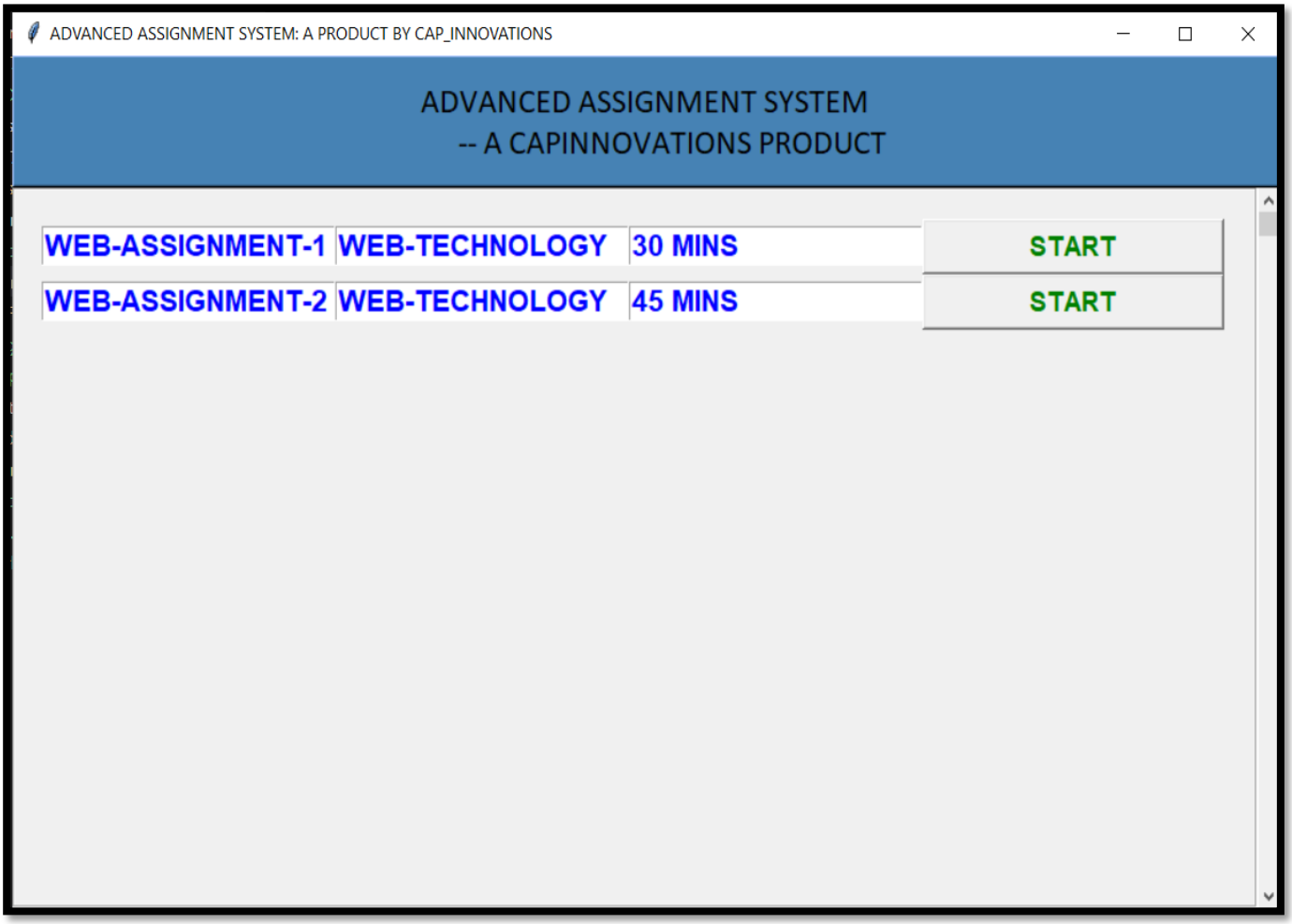




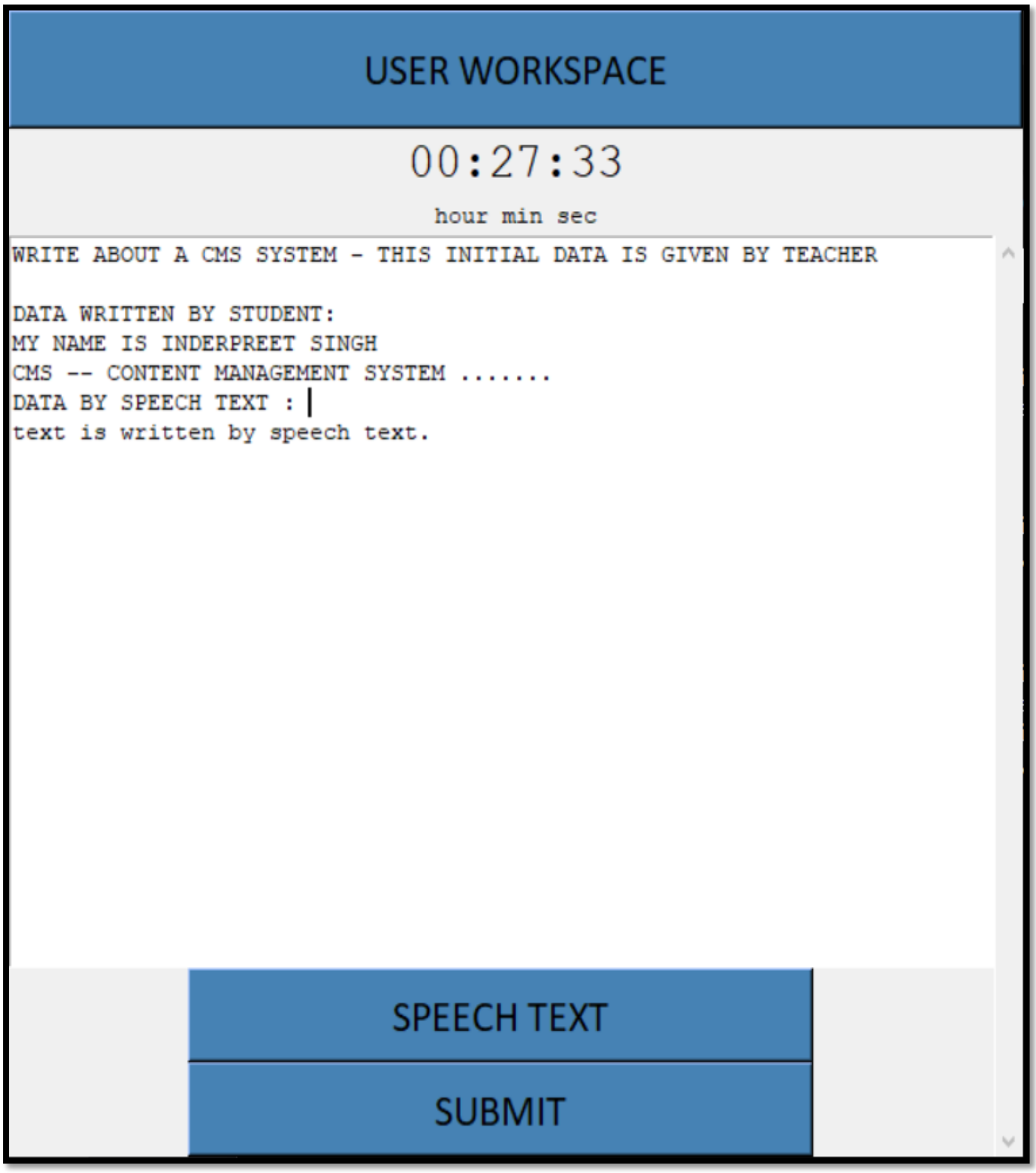
5.2. STUDENT'S SECTION

5.2.1. STUDENT'S PORTAL

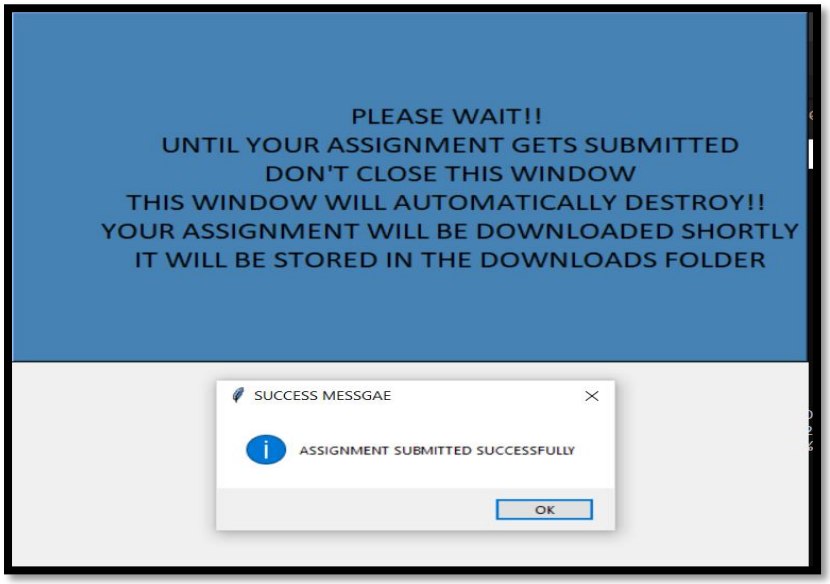




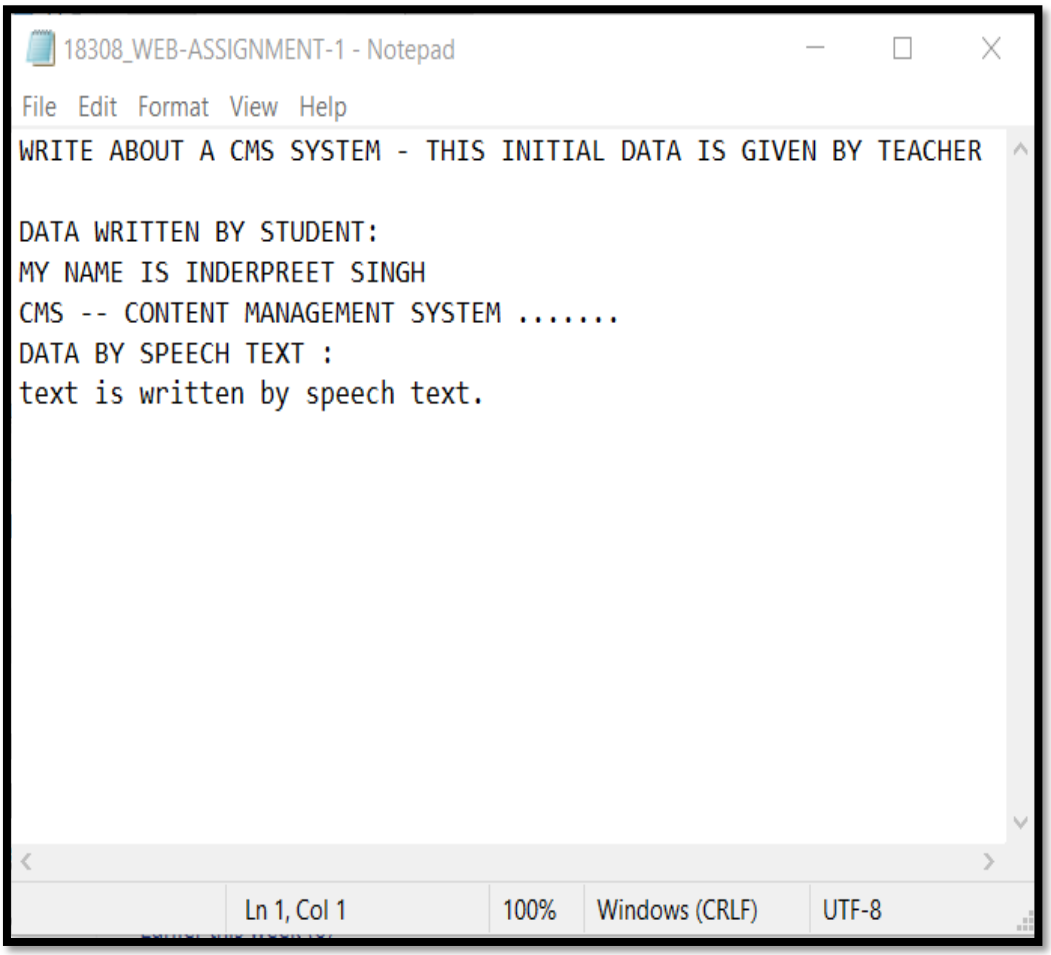
5.2.2 STUDENT WORKSPACE



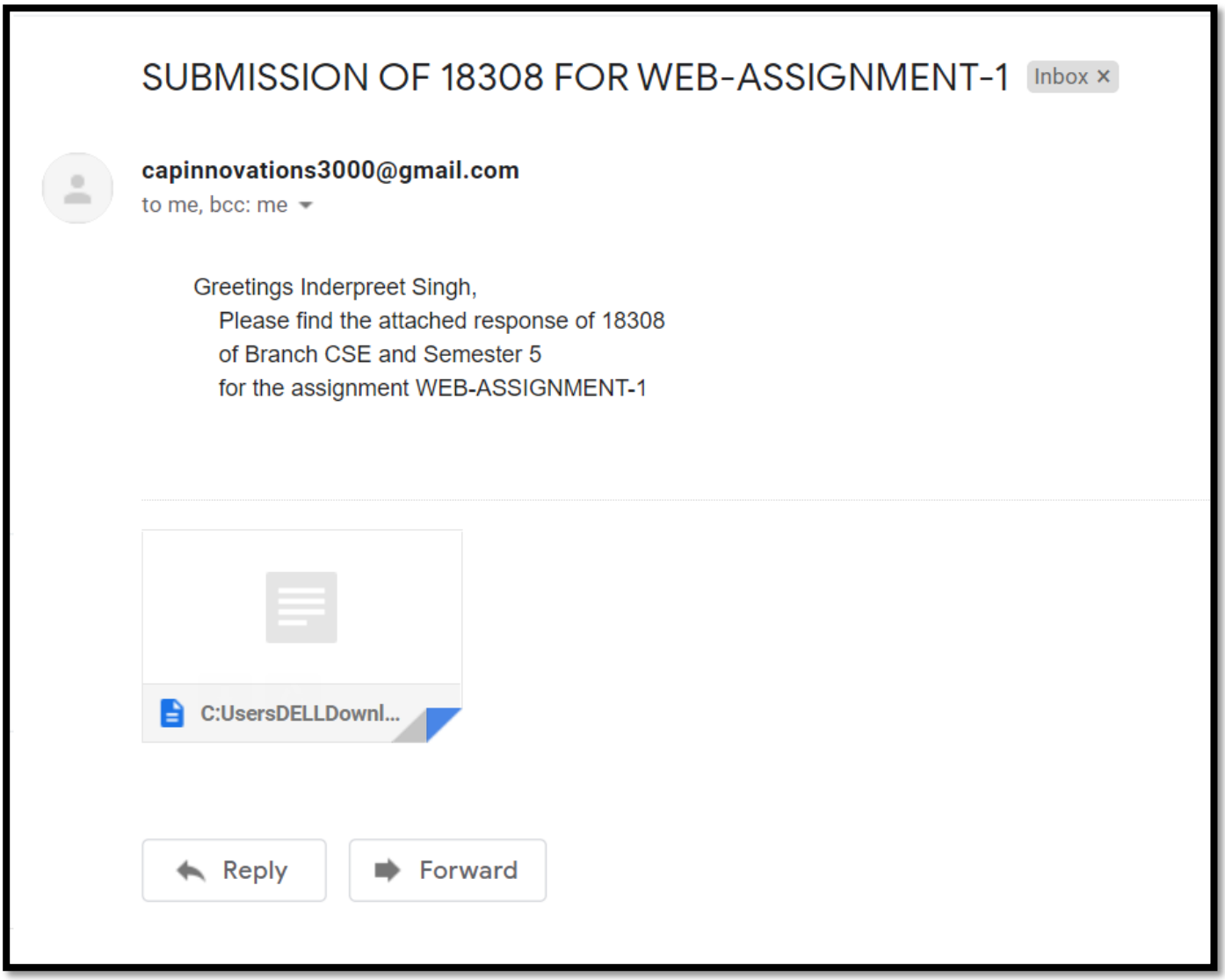
5.2.3. AFTER SUBMISSION



5.2.4. DOWNLOADED TEXT FILE

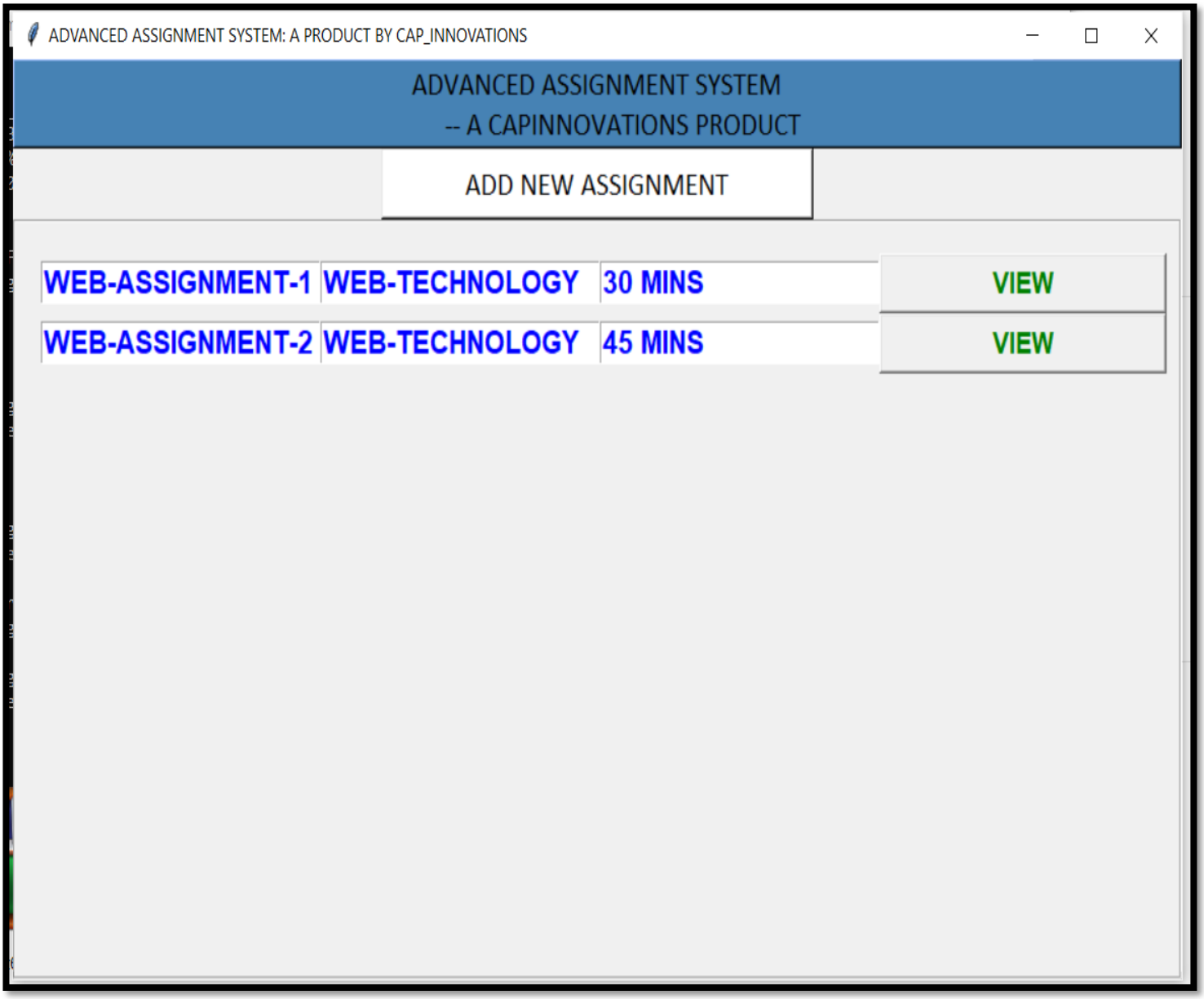


5.2.5 EMAIL TO THE TEACHER:

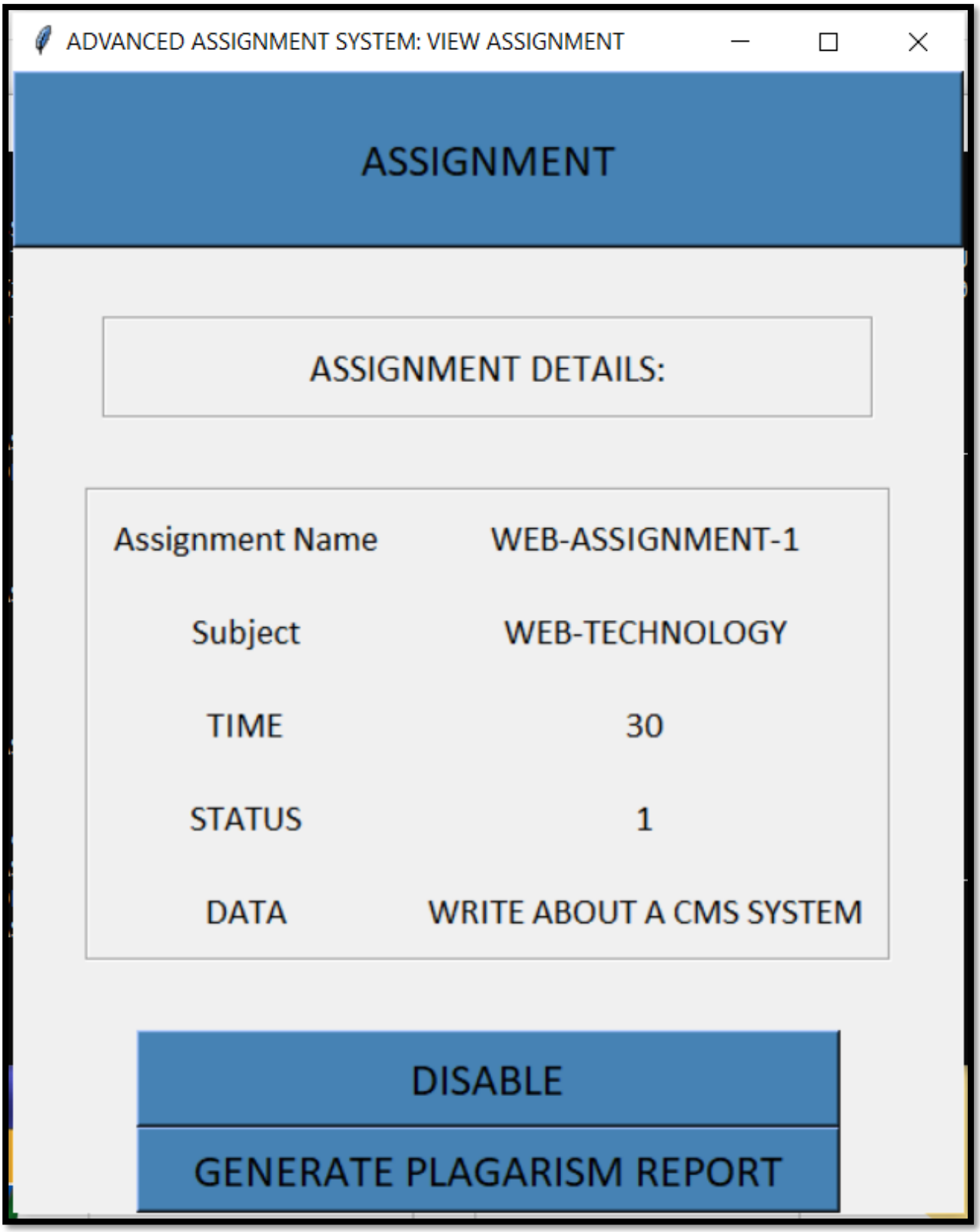


5.3. TEACHER'S SECTION

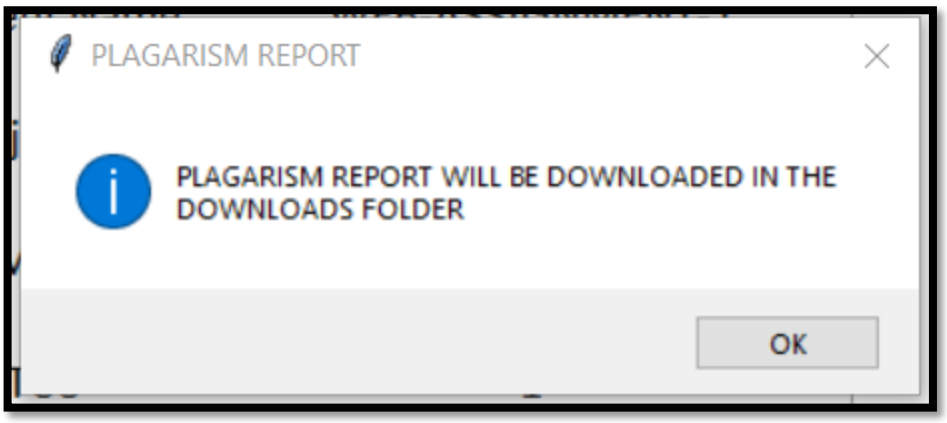
5.3.1. TEACHER'S PORTAL

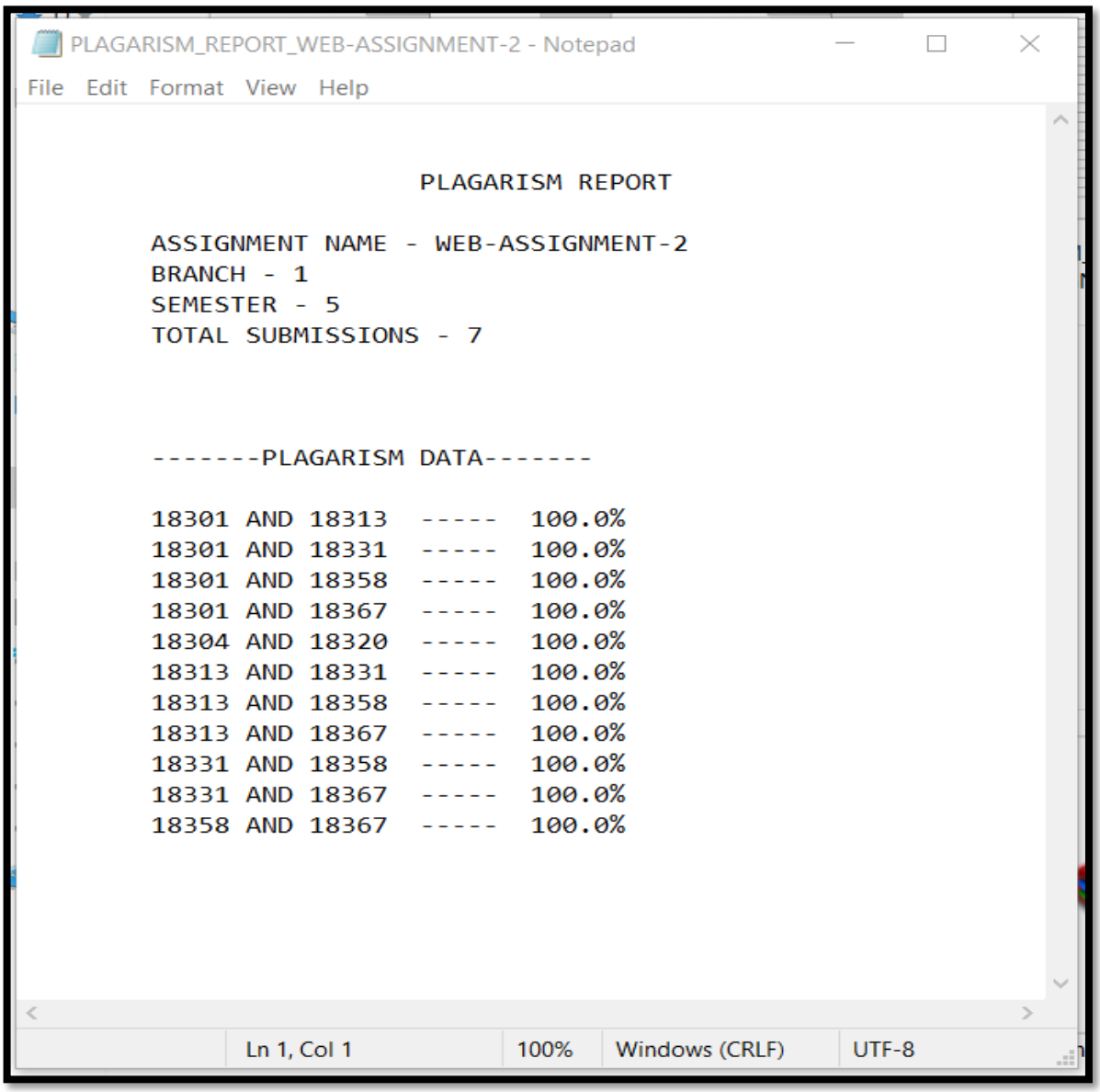


5.3.2. VIEW ASSIGNMENT DETAILS

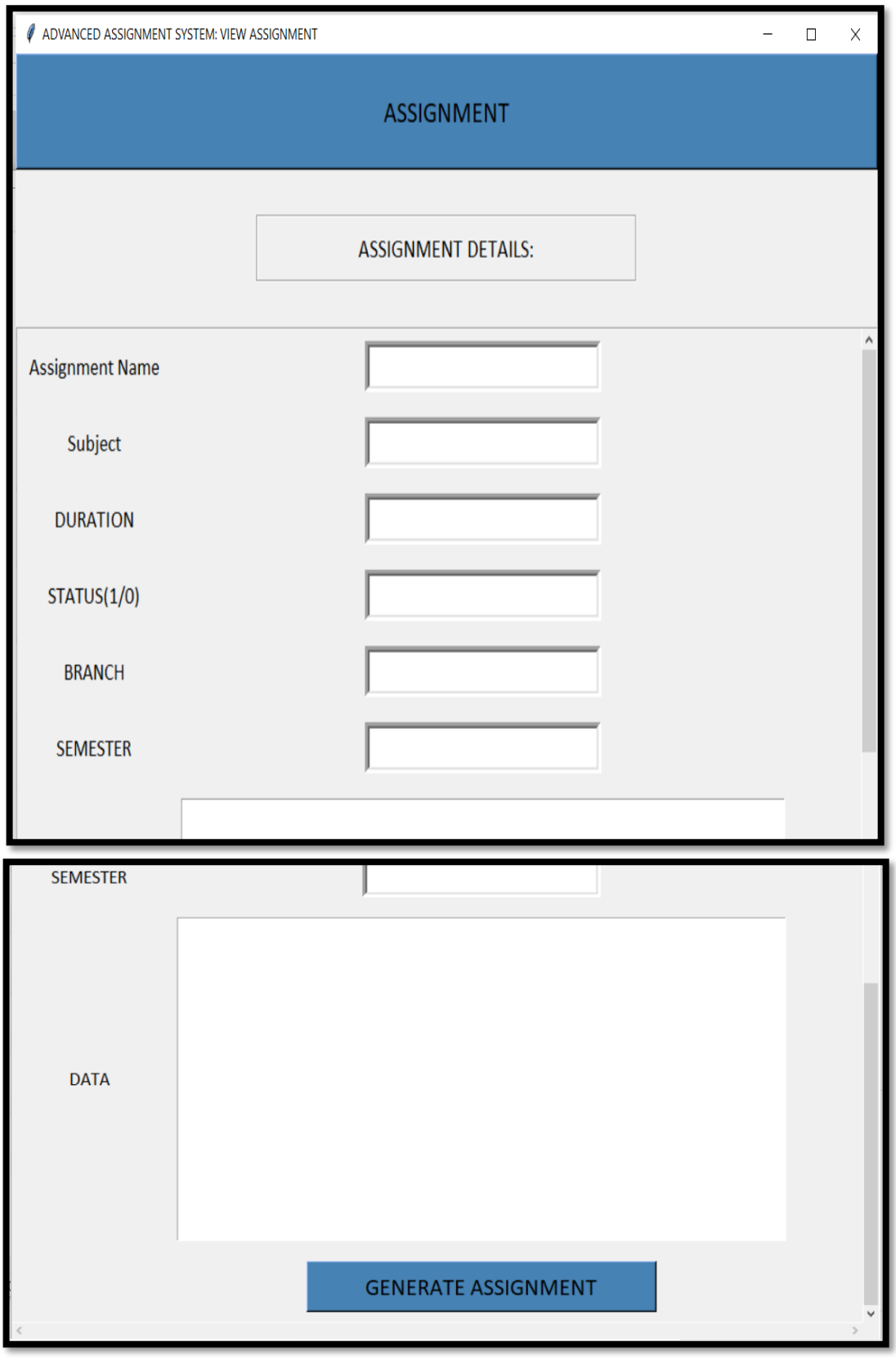


5.3.3. PLAGARISM REPORT





5.3.4. GENERATE NEW ASSIGNMENT



6. FUTURE ADVANCEMENTS

This is project has a lot of scope of expansion and innovation. Some which I will do in near future are:

- **REAL TIME MONITORING**
- **HANDWRITTEN ASSIGNMENT UPLOAD**
- **HANDWRITTING TO TEXT SYSTEM**
- **EXPANSION OF TEACHER'S PORTAL**
- **MARKS DISPLAY MODULE**
- **STUDENT-TEACHER INTERACTION PORTAL**
- **INTERNET PLAGIARISM CHECK SYSTEM USING A PAID API**

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    - Vol.(10)Issue(2), pp.270-272 DOI: http://dx.doi.org/10.21172/1.102.43
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