**ONLINE ATTENDENCE MANAGEMENT SYSTEM**

**MAJOR PROJECT PROJECT REPORT**

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**Certificate**

This is to certify that the work titled “**Online Attendence Management System”**submitted by “**Devansh Nigam(19102080) & Vishesh Jain(19102103)”**in partial fulfillment for the award of degree of Bachelor ofTechnology of Jaypee Institute of Information Technology, Noida has been carried out under my supervision. This work has not been submitted partially or wholly to any other University or Institute for the award of this or any other degree or diploma.

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6/12/2022

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Signature of Student  Name of Student : Vishesh Jain Date: 6/12/2022

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**Abstract**

In the era of COVID-19, virtual classes have become the norm. For teachers, however, taking attendance in these virtual classes is often a pain. They must keep track of when students join and leave among side conversations and distracting visuals. Many teachers at our college complain about the difficulty of taking virtual attendance, claiming that existing Google Chrome extensions are buggy and unreliable. Our Google Chrome extension, Attendance for Google Meet, streamlines the entire process of taking attendance in a Google Meet. All teachers have to do is login into their webkiosk and that it.Our extension will handle all the manual stuff which teacher had to face earlier providing them with some extra time to teach their students At any time, teachers may click on the attendance button to view each student's status (present, absent, previously present, or not on list), and export the data to a beautifully formatted Google Spreadsheet in their own Google Drive.

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**Chapter 1**

**Introduction**

**1.1 Objective:**

“Attendance Management System” is software developed for maintaining the attendance of the student on the daily basis in the collage. Here the staffs, who are handling the subjects, will be responsible to mark the attendance of the students. Each staff will be given with a separate username and password based on the subject they handle. An accurate report based on the student attendance is generated here. This system will also help in evaluating attendance eligibility criteria of a student.This will certainly improves ground reality of online education and also reduces the burden of the teachers so that they can invest their precious time on educating students.

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**Chapter 2**

**System Analysis**

**2.1 Introduction**

Analysis can be defined as breaking up of any whole so as to find out their nature, function etc. It defines design as to make preliminary sketches of; to sketch a pattern or outline for plan. To plan and carry out especially by artistic arrangement or in a skillful wall. System analysis and design can be characterized as a set of techniques and processes, a community of interests, a culture and an intellectual orientation.

The various tasks in the system analysis include the following

1. Understanding application.
2. Planning.
3. Scheduling.
4. Developing candidate solution.
5. Performing trade studies.
6. Performing cost benefit analysis.
7. Recommending alternative solutions.
8. Selling of the system.
9. Supervising, installing and maintaining the system.

This system manages to the analysis of the report creation and develops automatic entry of the student attendance. This project will helps the attendance system for the department calculate percentage and reports for eligibility criteria of examination .The application attendance entry system will provide flexible report for all students.

**2.2 Existing System**

The Existing system is a manual entry for the students. Here the attendance will be carried out in the hand written registers. It will be a tedious job to maintain

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the record for the user. The human effort is more here. The retrieval of the information is not as easy as the records are maintained in the hand written registers.

This application requires correct feed on input into the respective field. Suppose the wrong inputs are entered, the application resist to work. so the user find it difficult to use.[2]

**2.3 Proposed System:**

To overcome the drawbacks of the existing system, the proposed system has been evolved. This project aims to reduce the paper work and saving time to generate accurate results from the student’s attendance. The system provides with the best user interface.

The efficient reports can be generated by using this proposed system.

**2.3.1 Advantages of Proposed System**

* It is trouble-free to use.
* It is a relatively fast approach to enter attendance
* Is highly reliable, approximate result from user
* Best user Interface
* Efficient reports

**2.4. FEASIBILITY STUDY:**

Feasibility analysis begins once the goals are defined. It starts by generating broad possible solutions, which are possible to give an indication of what the new system should look lime. This is where creativity and imagination are used. Analysts must think up new ways of doing things- generate new ideas. There is no need to go into the detailed system operation yet. The solution should provide enough information to make reasonable estimates about project cost and give users an indication of how the new system will fit into the organization. It is important not to exert considerable effort at this stage only to find out that the

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project is not worthwhile or that there is a need significantly change the original goal.

Feasibility of a new system means ensuring that the new system, which we are going to implement, is efficient and affordable. There are various types of feasibility to be determined. They are,

**2.4.1 Economically Feasibility:**

Development of this extension is highly economically feasible. The only thing to be done is making an environment with an effective supervision.

It is cost effective in the sense that has eliminated the paper work completely. The system is also time effective because the calculations are automated.

**2.4.2 Technical feasibility:**

The technical requirement for the system is economic and it does not use any other additional Hardware and software. Technical evaluation must also assess whether the existing systems can be upgraded to use the new technology and whether the organization has the expertise to use it.

**2.4.3 Operational Feasibility:**

The system working is quite easy to use and learn due to its simple but attractive interface. User requires no special training for operating the system. Technical performance include issues such as determining whether the system can provide the right information for the Department personnel student details, and whether the system can be organized so that it always delivers this information at the right place and on time using intranet services. Acceptance revolves around the current system and its personel.

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**Chapter 3**

**System Specification**

**3.1 HARDWARE REQUIREMENTS (Minimum Requirement)**

1. Minimum RAM: 2 GB and above
2. Hard Disk: 128 GB
3. Processor: Intel Pentium 4( 1.50 GHZ) or above

**3.2 SOFTWARE REQUIREMENTS (Minimum Requirement)**

1. Operating system :Windows XP
2. Front end : Html, CSS, Javascript, ReactJs
3. Back end: Python

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**Chapter 4**

**Software description**

**4.1 Packages**

**4.1.1 Visual Studio 2010**

**Microsoft Visual Studio** is an integrated development environment (IDE) from Microsoft.It is used to develop console and graphical user interface applications along with Windows Forms or WPF applications, web sites, web applications, and web services in both native codetogether with managed code for all platforms supported by Microsoft Windows, Windows Mobile, Windows CE, .NET Framework, .NET Compact Framework and Microsoft Silver light.

Visual Studio supports different programming languages by means of language services, which allow the code editor and debugger to support (to varying degrees) nearly any programming language, provided a language-specific service exists.

Visual Studio also includes a web-site editor and designer that allows web pages to be authored by dragging and dropping widgets. It is used for developing VB.NET application efficiently to get input and output design easiest one. It will be run at windows application based services provide the user.[5]

**4.1.2 Node Package Manager**

Node Package Manager (NPM) is a command line tool that installs, updates or uninstalls Node.js packages in your application. It is also an online repository for open-source Node.js packages. The node community around the world creates useful modules and publishes them as packages in this repository.

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NPM is included with Node.js installation. After you install Node.js, verify NPM installation by writing the following command in terminal or command prompt.

NPM performs the operation in two modes: global and local. In the global mode, NPM performs operations which affect all the Node.js applications on the computer whereas in the local mode, NPM performs operations for the particular local directory which affects an application in that directory only.[7]

**4.1.3 Preferred Installer Program**

The Preferred Installer Program (pip) is the preferred installer program, it allows you to install and manage additional packages that are not part of the Python standard library. It is included by default with the Python binary installers.

There is one for each Python version : pip2.7 installs modules for Python 2.7, pip3.6 installs modules for Python 3.6 , and so on. Modules that you install for one Python version are not visible from others, so it's important to use the right one.

Once you've installed the library you want, be sure to include them in the beginning of each python file in which you want to use the library.[6]

**4.2 Development Tools and Technologies**

**4.2.1 Html**

The HyperText Markup Language or HTML is the standard [markup](https://en.wikipedia.org/wiki/Markup_language) [language](https://en.wikipedia.org/wiki/Markup_language) for documents designed to be displayed in a [web browser.](https://en.wikipedia.org/wiki/Web_browser) It can be

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assisted by technologies such as [Cascading Style Sheets](https://en.wikipedia.org/wiki/Cascading_Style_Sheets) (CSS) and [scripting](https://en.wikipedia.org/wiki/Scripting_language) [languages](https://en.wikipedia.org/wiki/Scripting_language) such as [JavaScript.](https://en.wikipedia.org/wiki/JavaScript)

[Web browsers](https://en.wikipedia.org/wiki/Web_browser) receive HTML documents from a [web server](https://en.wikipedia.org/wiki/Web_server) or from local storage and [render](https://en.wikipedia.org/wiki/Browser_engine) the documents into multimedia web pages. HTML describes the structure of a [web page](https://en.wikipedia.org/wiki/Web_page) [semantically](https://en.wikipedia.org/wiki/Semantic_Web) and originally included cues for the appearance of the document.[9]

**4.2.2 CSS**

Cascading Style Sheets (CSS) is a [style sheet language](https://en.wikipedia.org/wiki/Style_sheet_language) used for describing the [presentation](https://en.wikipedia.org/wiki/Presentation_semantics) of a document written in a [markup language](https://en.wikipedia.org/wiki/Markup_language) such as [HTML](https://en.wikipedia.org/wiki/HTML) or [XML](https://en.wikipedia.org/wiki/XML) (including XML dialects such as [SVG,](https://en.wikipedia.org/wiki/Scalable_Vector_Graphics) [MathML](https://en.wikipedia.org/wiki/MathML) or [XHTML)](https://en.wikipedia.org/wiki/XHTML). CSS is a cornerstone technology of the [World Wide Web,](https://en.wikipedia.org/wiki/World_Wide_Web) alongside HTML and [JavaScript.](https://en.wikipedia.org/wiki/JavaScript)

CSS is designed to enable the [separation of content and presentation,](https://en.wikipedia.org/wiki/Separation_of_content_and_presentation) including [layout,](https://en.wikipedia.org/wiki/Page_layout) [colors,](https://en.wikipedia.org/wiki/Color) and [fonts.](https://en.wikipedia.org/wiki/Typeface) This separation can improve content [accessibility;](https://en.wikipedia.org/wiki/Accessibility) provide more flexibility and control in the specification of presentation characteristics; enable multiple [web pages](https://en.wikipedia.org/wiki/Web_page) to share formatting by specifying the relevant CSS in a separate .css file, which reduces complexity and repetition in the structural content; and enable the .css file to be [cached](https://en.wikipedia.org/wiki/Cache_(computing)) to improve the page load speed between the pages that share the file and its formatting.[10]

**4.2.3 Javascript**

JavaScript is a [high-level,](https://en.wikipedia.org/wiki/High-level_programming_language) often [just-in-time compiled](https://en.wikipedia.org/wiki/Just-in-time_compilation) language that conforms to the [ECMAScript](https://en.wikipedia.org/wiki/ECMAScript) standard..It has [dynamic typing,](https://en.wikipedia.org/wiki/Dynamic_typing) [prototype-based](https://en.wikipedia.org/wiki/Prototype-based_programming)

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[object-orientation,](https://en.wikipedia.org/wiki/Object-oriented_programming) and [first-class functions.](https://en.wikipedia.org/wiki/First-class_function) It is [multi-paradigm,](https://en.wikipedia.org/wiki/Programming_paradigm) supporting [event-driven,](https://en.wikipedia.org/wiki/Event-driven_programming) [functional,](https://en.wikipedia.org/wiki/Functional_programming) and [imperative](https://en.wikipedia.org/wiki/Imperative_programming) [programming styles.](https://en.wikipedia.org/wiki/Programming_paradigm) It has [application](https://en.wikipedia.org/wiki/Application_programming_interface) [programming interfaces](https://en.wikipedia.org/wiki/Application_programming_interface) (APIs) for working with text, dates, [regular](https://en.wikipedia.org/wiki/Regular_expression) [expressions,](https://en.wikipedia.org/wiki/Regular_expression) standard [data structures,](https://en.wikipedia.org/wiki/Data_structure) and the [Document Object Model](https://en.wikipedia.org/wiki/Document_Object_Model) (DOM).

The ECMAScript standard does not include any [input/output](https://en.wikipedia.org/wiki/Input/output) (I/O), such as [networking,](https://en.wikipedia.org/wiki/Computer_network) [storage,](https://en.wikipedia.org/wiki/Data_storage) or [graphics](https://en.wikipedia.org/wiki/Computer_graphics) facilities. In practice, the web browser or other [runtime system](https://en.wikipedia.org/wiki/Runtime_system) provides JavaScript APIs for I/O.

[JavaScript engines](https://en.wikipedia.org/wiki/JavaScript_engines) were originally used only in web browsers, but are now core components of some [servers](https://en.wikipedia.org/wiki/Server_(computing)) and a variety of [applications.](https://en.wikipedia.org/wiki/Application_software) The most popular runtime system for this usage is [Node.js.](https://en.wikipedia.org/wiki/Node.js)

Although [Java](https://en.wikipedia.org/wiki/Java_(programming_language)) and JavaScript are similar in name, [syntax,](https://en.wikipedia.org/wiki/Syntax_(programming_languages)) and respective [standard libraries,](https://en.wikipedia.org/wiki/Standard_library) the two languages are distinct and differ greatly in design.[11]

**4.2.4 Python**

Python is a [high-level,](https://en.wikipedia.org/wiki/High-level_programming_language) [general-purpose programming language.](https://en.wikipedia.org/wiki/General-purpose_programming_language) Its design philosophy emphasises [code readability](https://en.wikipedia.org/wiki/Code_readability) with the use of [significant indentation](https://en.wikipedia.org/wiki/Off-side_rule).

Python is [dynamically-typed](https://en.wikipedia.org/wiki/Type_system#DYNAMIC) and [garbage-collected.](https://en.wikipedia.org/wiki/Garbage_collection_(computer_science)) It supports multiple [programming paradigms,](https://en.wikipedia.org/wiki/Programming_paradigm) including [structured](https://en.wikipedia.org/wiki/Structured_programming) (particularly [procedural),](https://en.wikipedia.org/wiki/Procedural_programming) [object-oriented](https://en.wikipedia.org/wiki/Object-oriented_programming) and [functional programming.](https://en.wikipedia.org/wiki/Functional_programming) It is often described as a batteries included" language due to its comprehensive [standard library.](https://en.wikipedia.org/wiki/Standard_library)[5]

**4.2.5 Google Chrome**

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**Google Chrome** is a [cross-platform](https://en.wikipedia.org/wiki/Cross-platform) [web browser](https://en.wikipedia.org/wiki/Web_browser) developed by [Google.](https://en.wikipedia.org/wiki/Google) It was first released in 2008 for [Microsoft Windows,](https://en.wikipedia.org/wiki/Microsoft_Windows) built with [free software](https://en.wikipedia.org/wiki/Free_software) components from [Apple WebKit](https://en.wikipedia.org/wiki/Apple_WebKit) and [Mozilla Firefox.](https://en.wikipedia.org/wiki/Mozilla_Firefox) Versions were later released for [Linux,](https://en.wikipedia.org/wiki/Linux) [macOS,](https://en.wikipedia.org/wiki/MacOS) [iOS,](https://en.wikipedia.org/wiki/IOS) and also for [Android,](https://en.wikipedia.org/wiki/Android_(operating_system)) where it is the default browser. The browser is also the main component of [ChromeOS,](https://en.wikipedia.org/wiki/ChromeOS) where it serves as the platform for [web applications.](https://en.wikipedia.org/wiki/Web_application)

Most of Chrome's [source code](https://en.wikipedia.org/wiki/Source_code) comes from Google's [free and](https://en.wikipedia.org/wiki/Free_and_open-source_software) [open-source software](https://en.wikipedia.org/wiki/Free_and_open-source_software) project [*Chromium*](https://en.wikipedia.org/wiki/Chromium_(web_browser)), but Chrome is licensed as proprietary [freeware.WebKit](https://en.wikipedia.org/wiki/WebKit) was the original [rendering engine,](https://en.wikipedia.org/wiki/Browser_engine) but Google eventually [forked](https://en.wikipedia.org/wiki/Fork_(software_development)) it to create the [Blink](https://en.wikipedia.org/wiki/Blink_(browser_engine)) engine all Chrome variants except iOS now use Blink.[8]

**4.3 Libraries**

**4.3.1 Express**

Express JS is a Node.js framework designed to build API's web applications cross-platform mobile apps quickly and make node js easy. It is web application framework that provides broad features for building web and mobile applications. It is used to build a single page, multipage, and hybrid web application. It's a layer built on the top of the Node js that helps manage servers and routes.

**4.3.2 Google APIs**

Google APIs give you programmatic access to Google Maps, Google Drive, YouTube, and many other Google products. To make coding against these APIs easier, Google provides client libraries that can reduce the amount of code you need to write and make your code more robust.[10]

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**4.3.3 Chrome APIs**

The Chrome Management API is a suite of services that allows administrators to programmatically view, manage, and get insights about policies and usage of ChromeOS devices and Chrome browsers in their organization. Reports API. App Details API. Telemetry API. Chrome Policy API.[7]

**4.3.4 Selenium**

Selenium is an open-source tool that automates web browsers. It provides a single interface that lets you write test scripts in programming languages like Ruby, Java, NodeJS, PHP, Perl, Python, and C#, among others. [Selenium](https://github.com/robotframework/SeleniumLibrary) [Library](https://github.com/robotframework/SeleniumLibrary) is a web testing library for [Robot Framework](https://robotframework.org/) that utilises the [Selenium](https://www.seleniumhq.org/) tool internally. The project is hosted on [GitHub](https://github.com/robotframework/SeleniumLibrary) and downloads can be found from [PyPI.](https://pypi.python.org/pypi/robotframework-seleniumlibrary) SeleniumLibrary works with Selenium 3 and 4. It supports Python 3.6 or newer. In addition to the normal [Python](https://python.org/) interpreter, it works also with [PyPy.](https://pypy.org/)[8]

**4.3.5 Pandas**

Pandas is an open-source library that is made mainly for working with relational or labelled data both easily and intuitively. It provides various data structures and operations for manipulating numerical data and time series. This library is built on top of the NumPy library. Pandas is fast and it has high performance & productivity for users. Pandas has been one of the most commonly used tools for Data Science and Machine learning, which is used for data cleaning and analysis. Here, Pandas is the best tool for handling this real-world messy data. And pandas is one of the open-source python packages built on top of NumPy.[9]

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**4.3.6 Numpy**

It offers high-level mathematical functions and a multi-dimensional structure (known as ndarray ) for manipulating large data sets. While NumPy on its own offers limited functions for data analysis, many other libraries that are key to analysis—such as SciPy, matplotlib, and pandas are heavily dependent on NumPy. Few major features of numpy are A powerful N-dimensional array object, Sophisticated (broadcasting) functions, Useful linear algebra, Fourier transform, and random number capabilities.

**4.3.7 Fetch**

The Fetch API provides an interface for fetching resources (including across the network). It will seem familiar to anyone who has used XMLHttpRequest , but the new API provides a more powerful and flexible feature set. Note: This feature is available in Web Workers.

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**Chapter 5**

**Project Description**

**5.1 Problem Definition**

So as addressing the above issue especially for colleges we have decided to make an extension for google meet meetings that will not only take the attendance of the people that are attending the class but also will present it in a beautiful format for easier and organised manner for the faculty to further make the decision over it. The need of calling the enrollment number of the student and marking the attendance will completely be erased off from the equation and will provide more time for the teaching the student rather than giving away 15 minutes of the class for the attendance. This will help the faculty for easier assessment of the students availability for the lectures. Not only in classes but will also help our training and placement cell for gaining the access to the people who attended the session of a particular company or not.

**5.2 Project Overview**

Attendance Management System basically has two main algorithm for proper functioning

1. Hashing Algorithm is used to map the students fetch from the teachers Webkiosk and the student present in the meeting.
2. Vigenere Cipher is used for encryption of the password of the faculty,as faculty enters their webkiosk password.

**5.3 Algorithm Description**

**5.3.1 Hashing**

Hashing is an algorithm that calculates a fixed-size bit string value from a file. A file basically contains blocks of data. Hashing transforms this data into a far

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shorter fixed-length value or key which represents the original string. The hash value can be considered the distilled summary of everything within that file.

A hash function algorithm is designed to be a one-way function, infeasible to invert. However, in recent years several hashing algorithms have been compromised. This happened to MD5, for example — a widely known hash function designed to be a cryptographic hash function, which is now so easy to reverse — that we could only use for verifying data against unintentional corruption

Hashing Algorithm is used to map the student fetch from the teachers Webkiosk and the student present in the meeting. After every 1 sec the Html DOM retrieves the student present in the meeting and map with the hash function sidewise increasing their count.To avoid collision the enrollment number is used for hashing as they are unique for each student[7]

**5.3.2 Vigenere Cipher**

Vigenere Cipher is a method of encrypting alphabetic text. It uses a simple form of polyalphabetic substitution. A polyalphabetic cipher is any cipher based on substitution, using multiple substitution alphabets. The encryption of the original text is done using the Vigenère square or Vigenère table.

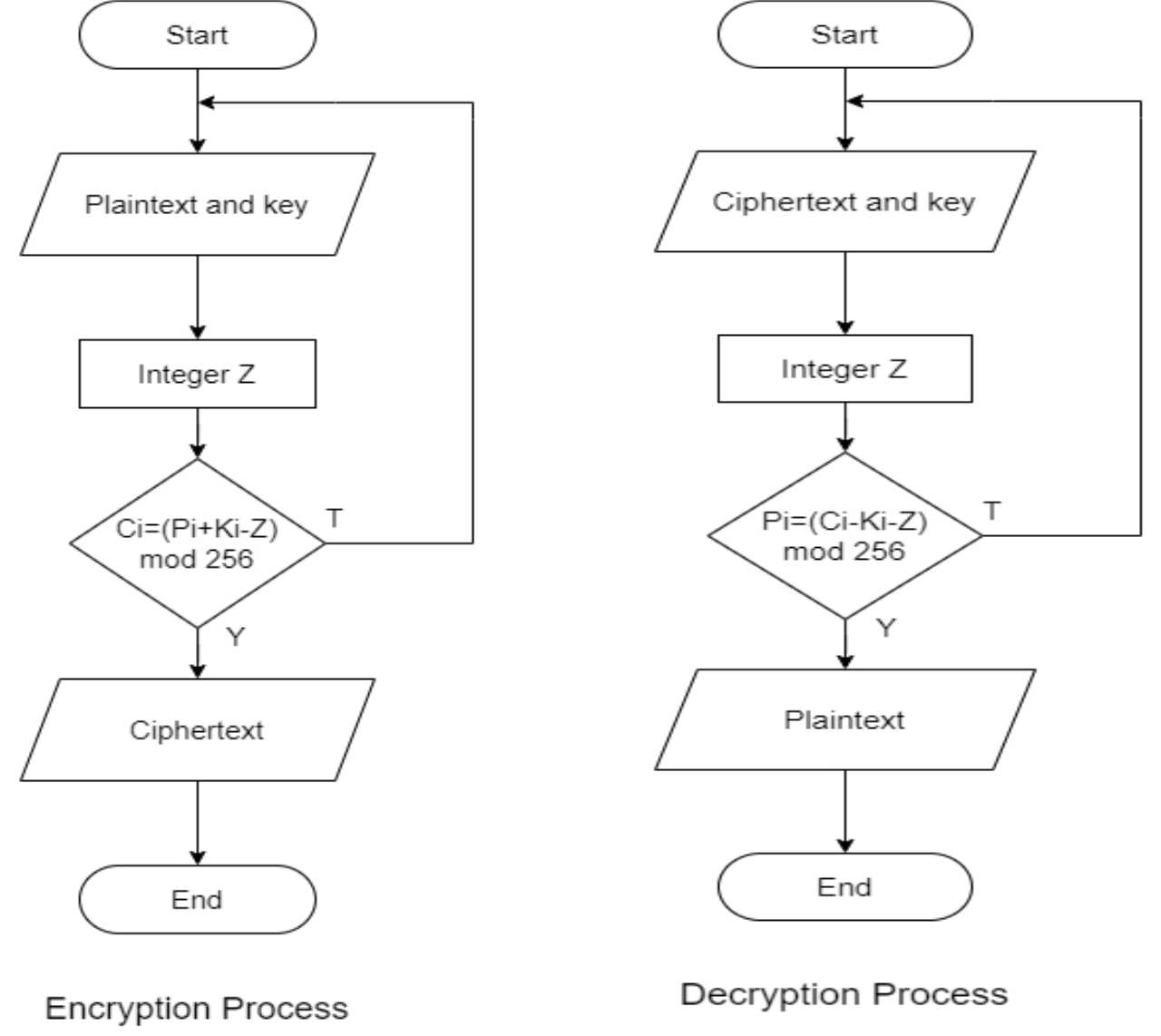
1. The table consists of the alphabets written out 26 times in different rows, each alphabet shifted cyclically to the left compared to the previous alphabet, corresponding to the 26 possible
2. At different points in the encryption process, the cipher uses a different alphabet from one of the rows.
3. The alphabet used at each point depends on a repeating keyword.

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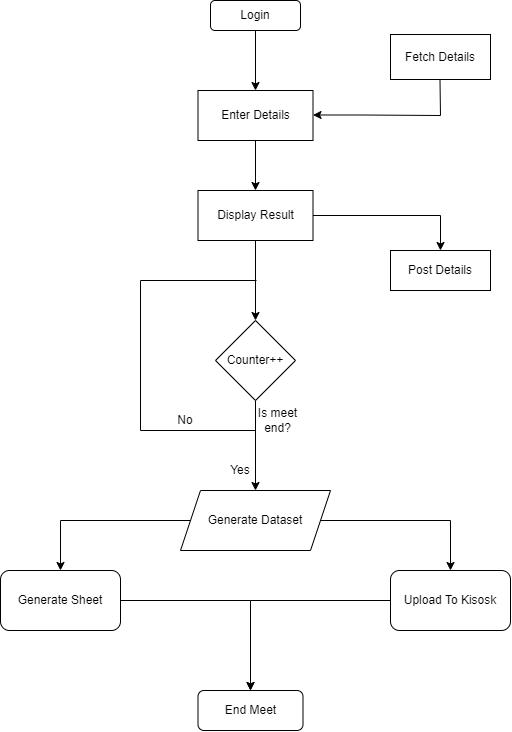
This is used for encryption of the password of the faculty,as faculty enters their webkiosk password.For security purpose the password is encrypted through Vigenere Cipher Technique and at the server side it get decrypted and is inputted by automation tool .In this the key used for this encryption is “JIITMAJORPROJECT”

For ex : IF the faculty password is “VISHESH” the password will get changed into “JZVTHSU” and the encrypted password is then pass on to to server where it gets decrypted and “VISHESH” will be decoded and written to Webkiosk.

**5.3.3 Flow Diagram of Vigenere Cipher**



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**5.4 System Flow Diagram**

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**Chapter 6**

**System Implementation**

**6.1 Working**

This project is made using Html, Javascript, Selenium and Css along with reactJs and all of this is integrated using different api of google and packages used which are a part of node package manager.

The working is as follows, In this the user enter the User id and password given by the college which the professor uses to access the webkiosk. After the input over the next page it asks for the details of the class and as all the input fields are been done and submitted, the password and the id been hashed using the cipher which is having a secret key which is only known in the backend part of system and no the frontend so even if someone tries to check the password then also it cannot as the password is safely hashed using the cipher algorithm the scraping starters from the webkiosk and fetches all the needful data from the kiosk and majorly the list of students form that class and displays it on the meet panel. Now as the students join in the meeting and the hashing starts in the background of the meet, it refreshes itself after every 3 seconds and checks how many people are present and how many are absent and makes a counter for each student in the class. And as the meeting finishes it then do the math to calculate the number of students that were present in the meeting more that 70% of the total class duration(it can be changed) and then uploades it to webkiosk as well as it creates an excel sheet which then sent to the respective faculty’s email id which contains all the student’s name along with the amount of time they were present in the class so as to keep the record with faculty too.

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**6.2 Features**

Some features are as follows:

1. Simple UI for Login.
2. Secure password transfer though encryption method.
3. Automatically fetches student enrolled in the class for that particular faculty.
4. Creates a hashing algorithm to track the students present in the class.
5. Keeps tracks of student entering and existing the class.
6. Keeps track of total Class time.
7. Automatically identify the present and absent students of the class.
8. Automatically update the Webkiosk List of the Faculty.
9. Generate a SpreedSheet which accounts the percentage of Individual Student of the class.

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**Chapter 7**

**Conclusion and Future Work**

**7.1 Conclusion**

To conclude,Project is easy to use and simple UI works like a component which can access all the databases and picks up different functions. It overcomes the many limitations incorporated in the attendance.

* Easy implementation Environment
* Generate report Flexibly

**7.2 Scope for future work**

The project has a very vast scope in future. The project can be implemented on intranet in future. Project can be updated in near future as and when requirement for the same arises, as it is very flexible in terms of expansion. With the proposed software of database Space Manager ready and fully functional the client is now able to manage and hence run the entire work in a much better, accurate and error free manner. The following are the future scope for the project.

* Discontinue of particular student eliminate potential attendance.
* Bar code Reader based attendance system.
* Individual Attendance system With photo using Student Login.

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**Chapter 8**

**Appendices**

**8.1 Source code:**

Manifest.json-

{

"name":"Attendance Collector",

"description":"Attendance Collector For JIIT Faculty",

"web\_accessible\_resources": [

"js/inject.js",

"icons/\*",

"js/hashing.js",

"assessts/check-green.gif"

],

"version":"1.0",

"manifest\_version":2,

"background":{

"service\_worker":"index.js"

},

"content\_scripts": [

{

"matches": ["\*://meet.google.com/\*\*-\*\*-\*\*"],

"css": ["css/material-components.min.css","css/style.css"],

"js": [

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"js/content.js"

]

}

],

"permissions": [

"storage",

"identity",

"tabs",

"notifications",

"\*://meet.google.com/\*\*-\*\*-\*\*"

],

"action": {

"default\_popup": "popup.html"

}

}

Content.js-

console.log("Content Script is Running...!!")

const parentDiv = document.querySelector('.crqnQb')

const image =

'https://user-images.githubusercontent.com/55575931/137891778-f884a63c-db3

6-4000-91fc-80dba4ec3fdb.jpg'

const checkGif = ".././assessts/check-green.gif"

chrome.storage.local.get(null,(result)=>{

function instantiate() {

chrome.runtime.sendMessage(

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{

data: 'instantiate',

},

()=>{

console.log('Successfully initialized extension.')

}

)

}

function definePressedProperty(element) { Object.defineProperty(element, 'pressed', {

get: function () {

return this.getAttribute('aria-pressed') === 'true'

},

set: function (value) {

this.setAttribute('aria-pressed', value)

},

})

}

function start(){

chrome.runtime.sendMessage({data:"active"},async(response)=>{ document.querySelector('[jsname="HlFzId"]').insertAdjacentHTML('afterend', panelHTML)

document.querySelector('.r6xAKc').insertAdjacentHTML('afterend', buttonHTML)

const attendancePanel = document.getElementById('panel')

const attendanceButton = document.getElementById('attendance')

const infoButton = document.querySelector('.r6xAKc button')

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const panelContainer = document.querySelector('.R3Gmyc.qwU8Me') const ariaPressedObserver = new MutationObserver(

(mutations, me) => {

mutations[0].target.setAttribute('aria-pressed', false)

me.disconnect()

}

)

const ariaPressedObserverOptions = {

attributes: true,

attributeFilter: ['aria-pressed'],

attributeOldValue: true,

}

const panelUnhiddenObserver = new MutationObserver( (mutations, me) => {

const mutation = mutations[0]

const target = mutation.target

if (

mutation.oldValue.includes('qdulke') && !target.classList.contains('qdulke')

* {

target.classList.add('qdulke')

attendancePanel.classList.remove('qdulke')

me.disconnect()

}

}

)

const panelSpawnedObserver = new MutationObserver( (mutations, me) => {

const mutation = mutations[0]

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if (mutation.addedNodes.length > 0) {

const addedNode = mutation.addedNodes[0]

if (addedNode.getAttribute('data-tab-id') === '5') { addedNode.classList.add('qdulke') attendancePanel.classList.remove('qdulke') me.disconnect()

}

}

}

)

definePressedProperty(infoButton) definePressedProperty(attendanceButton) infoButton.addEventListener('click', (event) => {

if (!infoButton.pressed) { //Info button panel is showing if condition is true

if (!attendanceButton.pressed) { //Attendance Button is not

clicked...

ariaPressedObserver.observe(

attendanceButton,

ariaPressedObserverOptions

)

}

else {

event.stopPropagation()

infoButton.pressed = true

document

.querySelector('[data-tab-id="5"]')

.classList.remove('qdulke')

attendanceButton.pressed = false

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attendancePanel.classList.add('qdulke')

}

}

})

attendanceButton.addEventListener('click', (event) => { if (!attendanceButton.pressed) {

const infoPanel =

document.querySelector('[data-tab-id="5"]')

if (infoPanel === null) {

panelSpawnedObserver.observe(panelContainer, {

childList: true,

})

} else { panelUnhiddenObserver.observe(

document.querySelector('[data-tab-id="5"]'),

{

attributes: true,

attributeFilter: ['class'],

attributeOldValue: true,

}

)

}

if (!infoButton.pressed) {

ariaPressedObserver.observe(

infoButton,

ariaPressedObserverOptions

)

} else { event.stopPropagation()

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infoButton.pressed = false

document

.querySelector('[data-tab-id="5"]')

.classList.add('qdulke') attendanceButton.pressed = true attendancePanel.classList.remove('qdulke')

}

}

})

instantiate()

})}

const obsereve = new MutationObserver((mutations, me) => { console.log("Mutation Observer i.e All changes in the DOM element is

being Noted")

if (document.querySelector('.c8mVDd')) { const s = document.createElement('script') s.src = chrome.runtime.getURL('js/inject.js') document.documentElement.appendChild(s) console.log("Inserted Inject File")

start()

me.disconnect()

}

})

obsereve.observe(parentDiv,{childList:true,subtree:true})

})

Attendance.js

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console.log('Attendance JS is running..!!!')

const absentPic =

"https://user-images.githubusercontent.com/55575931/143050133-745d992e-35

7c-4875-b7d5-45af35257858.jpg"

const presentPic =

"https://user-images.githubusercontent.com/55575931/143050443-061de911-a0

b8-40e4-a326-f848666ab5ab.png"

const port = chrome.runtime.connect()

const initialized = async (delay,time)=>{ return new Promise((resolve)=>{

setTimeout(() => {

document.querySelectorAll('.r6xAKc button')[2].click()

resolve();

}, delay);

})

}

async function setDisplay(){

await initialized(900,1);

await initialized(900,2);

}

setDisplay();

const generateKeys = (value)=>{

value = value.toLowerCase();

let newValue = "";

for(let i=0;i<value.length;i++){

if(value[i] == " "){

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continue

}

newValue = newValue +value[i];

}

return newValue

}

async function sleep(delay){

return new Promise ((resolve)=>{

setTimeout(()=>{

resolve();

},delay)

},(reject)=>{})

}

function isLetter(c) {

return isUppercase(c) || isLowercase(c);

}

function isUppercase(c) {

return 65 <= c && c <= 90;

}

function isLowercase(c) {

return 97 <= c && c <= 122;

}

function filterKey(key) {

var result = [];

for (var i = 0; i < key.length; i++) {

var c = key.charCodeAt(i); //ASCII VALUE if (isLetter(c))

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result.push((c - 65) % 26);

}

return result;

}

function crypt(input, key) {

var output = "";

for (var i = 0, j = 0; i < input.length; i++) { var c = input.charCodeAt(i);

output += String.fromCharCode(((((c-65)%26)+key[i])%26)+65); j++;

}

return output

}

const encryptPassword = (value)=>{ var keyStr = "JIITMAJORPROJECT"

var keyArray = filterKey(keyStr); return crypt(value,keyArray)

}

document.getElementById('submit\_button').addEventListener('click',async (e)=>{

const username = document.getElementById("facultyID").value const password =

encryptPassword(document.getElementById("password").value) document.querySelector('.login-view').style.display = "none"

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document.querySelector('.loading').style.display="block"

fetch("http://localhost:8000/loginDetails", {

method: "POST",

body: JSON.stringify({

username:username,

password:document.getElementById("password").value}),

headers: {

"Content-type": "application/json; charset=UTF-8",

"Access-Control-Allow-Origin":"http://localhost:8000"

}

}) .then(async (response) =>{

document.querySelector('.loading').style.display="none"

document.querySelector('.selection-view').style.display = "block"

})

})

document.getElementById('get\_list').addEventListener('click',async ()=>{ document.querySelector('.selection-view').style.display = "none" document.querySelector('.loading').style.display = "block" fetch("http://localhost:8000/getList",{

method:"GET",

headers:{

"Content-type": "application/json; charset=UTF-8", "Access-Control-Allow-Origin":"http://localhost:8000"

}

}).then((response)=>{

return response.json()

}).then(async (response)=>{

await sleep(2000)

30

document.querySelector('.loading').style.display="none" document.querySelector('.student-view').style.display = "block" let ul = document.createElement('ul') document.querySelector('.generateList').appendChild(ul)

response.forEach((e)=>{

let id = generateKeys(e)

let li = document.createElement('li')

ul.appendChild(li)

li.classList.add('mdc-list-item')

li.innerHTML +=`<div class="flex-container">

<div class="flex-items">

<img src=${absentPic} class="absent" id="${id}absent" alt="absent" width="30" >

<img src=${presentPic} class="present"

id="${id}present"alt="present" width="30" style="margin-top:-10px" hidden >

</div>

<div class="flex-items">

<div style="">${e}</div>

<div style="color:grey;"

id="${id}StatusA">Absent</div>

<div style="color:grey;" id="${id}StatusP"

hidden>Present</div>

</div>

</div> `

})

const swe = document.createElement('script')

swe.src = chrome.runtime.getURL('js/hashing.js')

document.documentElement.appendChild(swe)

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})

})

Hashing.Js

const enrolledStudent = new Map()

const presentStudent = new Map()

const sendDataNames = []

const sendDataValues = []

sendData = []

let count = 0;

const present =

"https://user-images.githubusercontent.com/55575931/143246100-bc8141dd-a8

3b-4af8-af95-fa4355c50590.png"

const absent =

"https://user-images.githubusercontent.com/55575931/143248972-5bc6d1db-9e

d8-4e7c-8c1c-55a38779af89.png"

const sheetImg =

"https://user-images.githubusercontent.com/55575931/145341414-d37ff881-bba

f-4395-bbd8-07f013e0b23c.png"

const generateKey = (value)=>{

value = value.toLowerCase();

let newValue = "";

for(let i=0;i<value.length;i++){

if(value[i] == " "){

continue

}

newValue = newValue +value[i];

}

return newValue

}

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function startFunction(){

count = count +1;

}

fetch("http://localhost:8000/getList",{

method:"GET",

headers:{

"Content-type": "application/json; charset=UTF-8", "Access-Control-Allow-Origin":"http://localhost:8000"

}

}).then((response)=>{

return response.json()

}).then((response)=>{

response.forEach((e)=>{

enrolledStudent.set(e.toLowerCase(),0); //Settinh Hash Function...

})

})

const checkingFunction = function(){

let a = document.querySelectorAll('span.zWGUib')

presentStudent.clear()

for(let i = 0;i<a.length;i++){ presentStudent.set(a[i].innerText.toLowerCase(),0)

}

console.log(presentStudent)

for (let [key, value] of enrolledStudent) { let id = generateKey(key); if(presentStudent.get(key)>=0){

enrolledStudent.set(key,value+1)

document.getElementById(`${id}absent`).style.display = "none"

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document.getElementById(`${id}present`).style.display = "block"

document.getElementById(`${id}StatusA`).style.display = "none"

document.getElementById(`${id}StatusP`).style.display = "block"

}else{

//Set color to Red

document.getElementById(`${id}absent`).style.display = "block"

document.getElementById(`${id}present`).style.display = "none"

document.getElementById(`${id}StatusA`).style.display = "block"

document.getElementById(`${id}StatusP`).style.display = "none"

}

}

}

const startCount = setInterval(startFunction,1000)

const reloader = setInterval(checkingFunction,1000)

async function sleep(delay){

return new Promise ((resolve)=>{

setTimeout(()=>{

resolve();

},delay)

},(reject)=>{})

}

const convertDataToCsv = async () =>{

const arnav = new Promise(async (resolve)=>{ console.log('CSV function running...!!!')

sendData.push(sendDataNames)

sendData.push(sendDataValues)

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fetch("http://localhost:8000/generateCSV",{

method:"POST",

headers:{

"Content-type": "application/json; charset=UTF-8", "Access-Control-Allow-Origin":"http://localhost:8000"

},

body: JSON.stringify(sendData)

}).then(async (response)=>{

return response.json()

}).then(async(response)=>{

resolve(response.url)

})

},(reject)=>{})

return await arnav

}

document.querySelector('.uploadButton').addEventListener('click',async ()=>{ console.log('Stop taking')

let minThreshold = count\*0.70;

clearInterval(reloader)

clearInterval(startCount)

document.querySelector('.student-view').style.display = "none"

document.querySelector('.loading').style.display="block"

await sleep(2000)

document.querySelector('.loading').style.display="none"

document.querySelector('.teacher-view').style.display = "block"

let uls = document.createElement('ul')

document.querySelector('.uploadList').appendChild(uls)

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for (let [key, value] of enrolledStudent) {

sendDataNames.push(key.toUpperCase())

sendDataValues.push(value)

let lis = document.createElement('li')

uls.appendChild(lis)

lis.classList.add('mdc-list-item')

const firstDiv = document.createElement('div')

firstDiv.classList.add('flex-container')

lis.appendChild(firstDiv)

const secondDiv = document.createElement('div')

secondDiv.classList.add('flex-items-teach')

firstDiv.appendChild(secondDiv)

secondDiv.appendChild(document.createTextNode(key.toUpperCase()))

const thirdDiv = document.createElement('div')

firstDiv.appendChild(thirdDiv)

const img = document.createElement('img') img.classList.add('img-teach') if(value>minThreshold){

//Present Style

img.src = present

thirdDiv.appendChild(img)

}else{

//absent Style

img.src = absent

thirdDiv.appendChild(img)

}

}

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})

document.querySelector('.webkisok').addEventListener('click',async ()=>{ document.querySelector('.teacher-view').style.display = "none" document.querySelector('.loading').style.display="block" console.log('Started')

let link = await convertDataToCsv()

console.log('Ended')

document.querySelector('.loading').style.display="none"

document.querySelector('.finally').style.display = "block"

let anchorTag = document.createElement('a')

anchorTag.href=link

anchorTag.target = "\_blank"

document.querySelector('.sheetLink').appendChild(anchorTag)

let imgSheet = document.createElement('img')

imgSheet.src = sheetImg

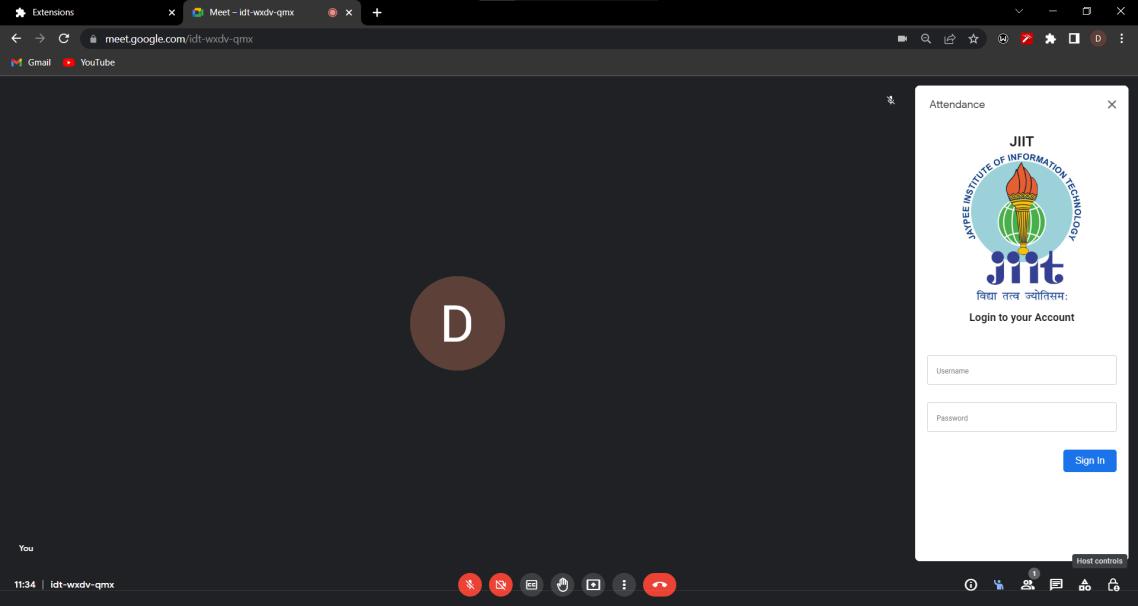
imgSheet.classList.add('imgSheet')

anchorTag.appendChild(imgSheet)

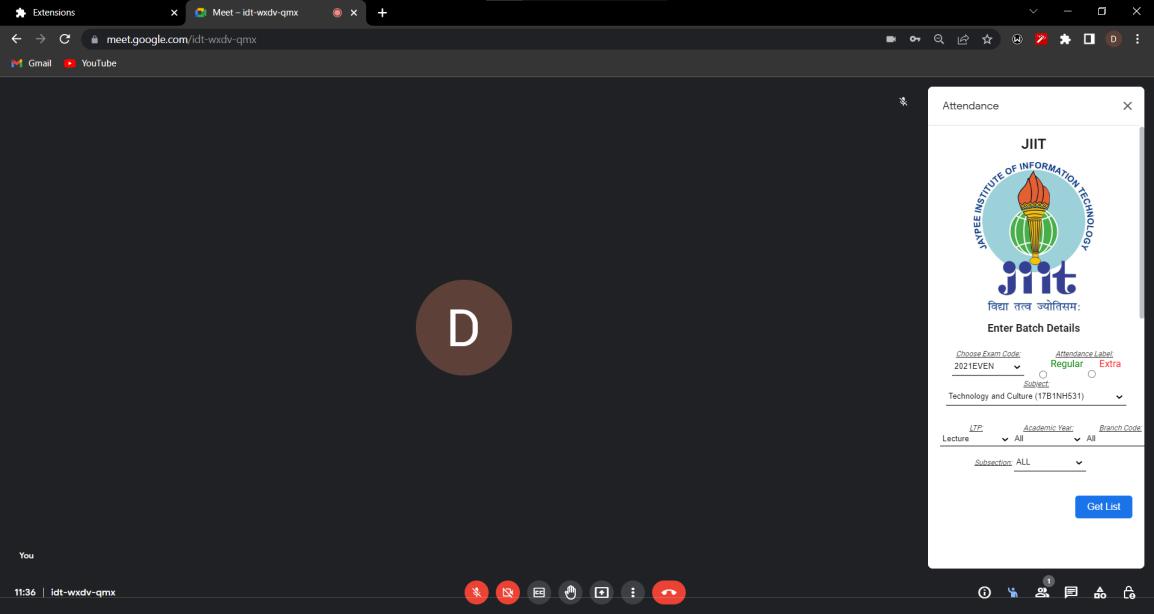
})

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**8.2 Screenshots**

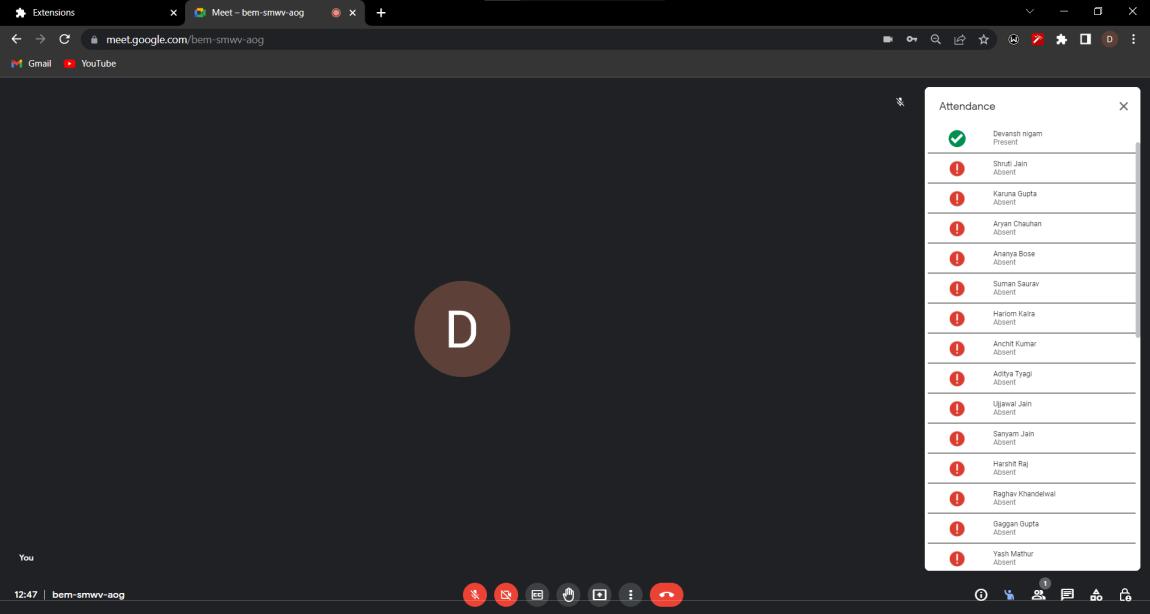


8.2.1 Login menu

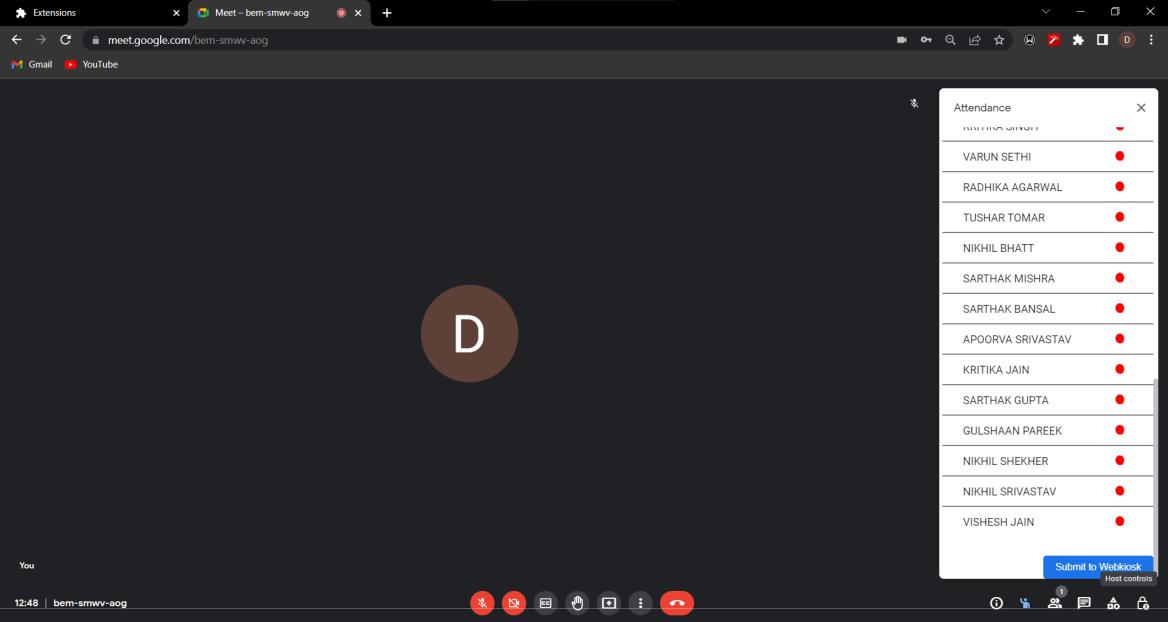


8.2.2 Batch Details

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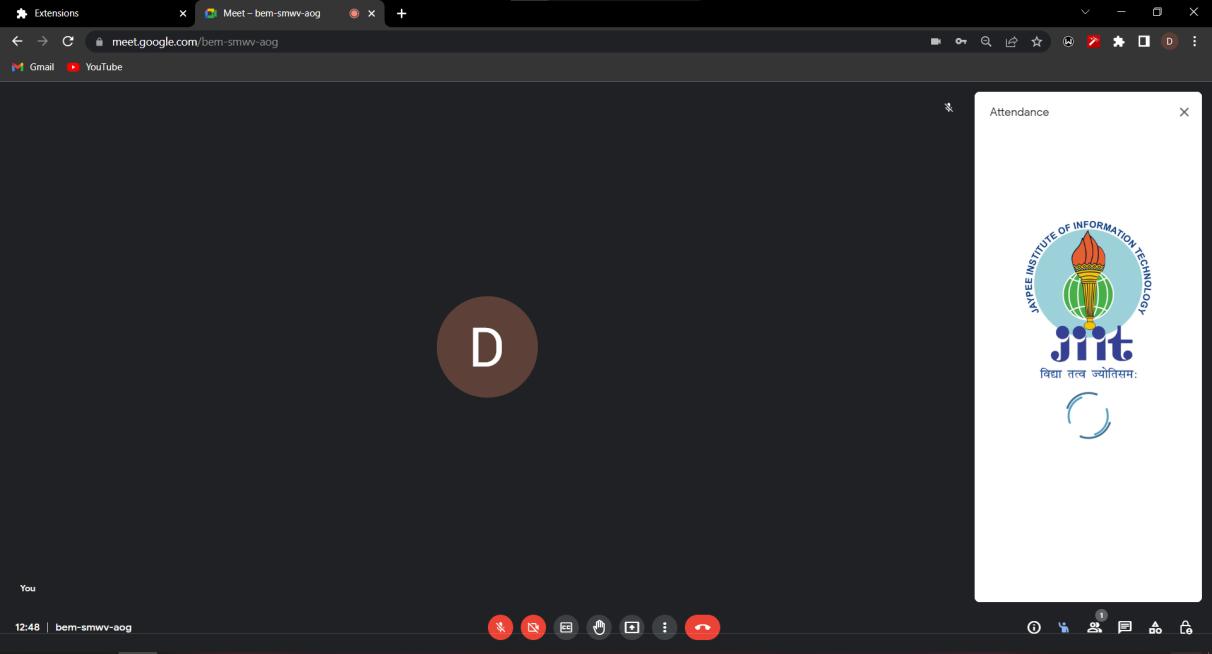


8.2.3 Student list

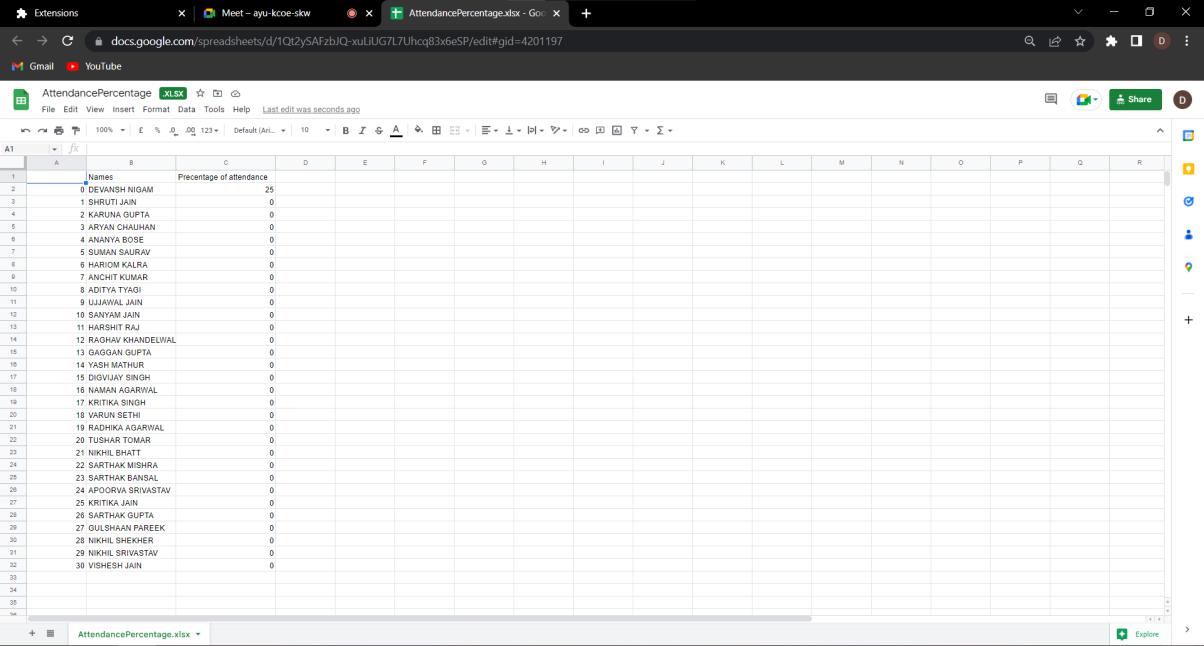


8.2.4 Final Attendence

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8.2.5 End meet



8.2.6 Excel Sheet Prepared

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**Chapter 9**

**References**

[1 ] Mohammad Ausaf Anwar, Durgaprasad Gangodkar, “Design and Implementation of Mobile Phones based Attendance Marking System”, Department of Computer Science Engineering, Graphic Era University, Dehradun, Uttarakhand, India, 2015.

1. Ekta Chhatar, Heeral Chauhan, Shubham Gokhale, Sompurna Mukherjee, Prof. Nikhil Jha, “Survey on Student Attendance Management System”, S.B. Jain Institute of Technology, Management and Research, Nagpur, 2016.
2. Karwan Jacksi, Falah Ibrahim, Shahab Ali, “Student Attendance Management

System”, University of Zakho, Iraq, 2018.

1. Jun Lio, “Attendance Management System using a Mobile Device and a Web Application”, Department of Socio-informatics, Faculty of Letters Chuo University 742-1 Higashinakano, Hachioji-shi, Tokyo 192-0393, Japan, 2016.
2. http://www.msdn.net/
3. http://msdn.microsoft.com/en-us/library/orm-9780596518455-02.aspx
4. <http://www.w3schools.com/asp.net/>
5. http://www.cramerz.com/aspdotnet
6. http://www.dotnetspider.net/
7. <http://www.stackoverflow.com>
8. http://www.codeproject.com

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