5. IMPLEMENATION

Python is a high-level, interpreted, interactive, and object-oriented scripting language. Python is designed to be highly readable. It uses English keywords frequently where other languages use punctuation, and it has fewer syntactical constructions than other languages. Python was developed by Guido van Rossum in the late eighties and early nineties at the National Research Institute for Mathematics and Computer Science in the Netherlands. Python is derived from many other languages, including ABC, Modula-3, C, C++, Algol-68, Smalltalk, the UNIX shell, and other scripting languages.

Python is copyrighted like Perl, and Python source code is now available under the GNU General Public Licence (GPL). Python is now maintained by a core development team at the institute, although Guido van Rossum still plays a vital role in directing its progress. Below are some facts about Python: Python is currently the most widely used multipurpose, high-level programming language. Python allows programming in Object-Oriented and Procedural paradigms. Python programmes are generally smaller than those in other programming languages, like Java. Programmers hae to type relatively little, and the indentation requirement of the language makes them readable all the time. The Python language is being used by almost all tech giants like Google, Amazon, Facebook, Instagram, DropBox, Uber, etc. The biggest strength of Python is its huge collection of standard libraries, which can be used for the following:

- Machine Learning
- GUI Applications (like Kivy, Tkinter, and PyQt etc.)
- Web frameworks like Django(used by YouTube, Instagram, Drop box)
- Image processing(like Opencv, Pillow)
- Web scraping(like Scrapy, Beautiful Soup, Selenium)
- Test frameworks
- Multimedia

Features of Python

1. Easy to code

Python is a high-level programming language. Python is a very easy-to-learn language as compared to other languages like C, C#, Java script, Java, etc. It is very easy to code in the Python language, and anybody can learn the basics of Python in a few hours or days. It is also a developer-friendly language.

2. Free and Open Source

The Python language is freely available at the official website, and you can download it from the given download link below by clicking on the Download Python keyword. Since it is open-source, the source code is also available to the public. So, you can download it, use it, and share it.

3. Object-Oriented Language

One of the key features of Python is Object-Oriented programming. Object-oriented language and concepts of classes and object encapsulation.

4. GUI Programming Support

Graphical user interfaces can be made using a module such as PyQt5, Python, or TK Python.

5.High-Level Language

Python is a high-level language. When we write programmes in Python, we do not need to remember the system architecture, nor do we need to manage the memory.

6. Extensible feature

Python is an Extensible language. We can write some Python code into the C or C++ language, and we can also compile that code in the C or C++ language.

7.Python is a portable language

Python is also a portable language. For example, if we have python code for Windows and want to run this code on other platforms such as Linux, UNIX, and Mac, we do not need to change it; we can run this code on any platform.

8. Python is an integrated language

Python is also an integrated language because we can easily integrate it with other languages like C, C++, etc.

Advantages of Python

Let's see how Python dominates over other languages.

Extensive Libraries

Python downloads with an extensive library and contains code for various purposes like regular expressions, documentation generation, unit testing, web browsers, threading, databases, CGI, email, image manipulation, and more. So, we don't have to write the complete code for that manually.

Extensible

As we have seen earlier, Python can be extended to other languages. You can write some of your code in languages like C++ or C. This comes in handy, especially for projects.

Embeddable

In addition to extensibility, Python is embeddable as well. You can put your Python code in the source code of a different language, like C++. This lets us add scripting capabilities to our code in the other language.

How to Install Python on Windows

There have been several updates to the Python version over the years. The question is, How do I install Python? It might be confusing for the beginner who is willing to start learning Python, but this tutorial will solve your query. The latest or newest version of Python is version 3.7.4, or in other words, Python 3.

Note: Python version 3.7.4 cannot be used on Windows XP or earlier devices. Before you start with the installation process of Python, First, you need to know about your System Requirements. Based on your system type, i.e., operating system and processor, you must download the Python version. My system type is a Windows 64-bit operating system. So the steps below are to install Python version 3.7.4 on a Windows 7 device or to install Python3. Download the Python Cheat sheet here.

The steps on how to install Python on Windows 10, 8, and 7 are divided into 4 parts to help you understand them better.

Download the Correct version into the system

Step 1: Go to the official site to download and install python using

Google Chrome or any other web browser. OR Click on the following link: **https://www.python.org**

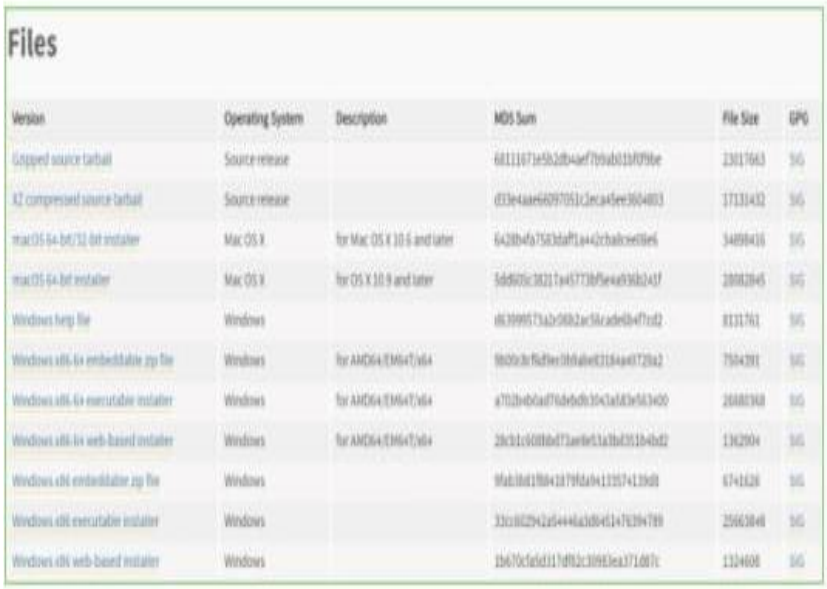
Now, check for the latest and the correct version for your operating system.

Step2: Click on the Download Tab

Step 3: You can either select the Download Python for windows 3.7.4 button in Yellow Color or you can scroll further down and click on download with respective to their version. Here, we are downloading the most recent python version for windows3.7.4

Step4: Scroll down the page until you find the Files option.

Step5: Here you see a different version of python along with the operating system.

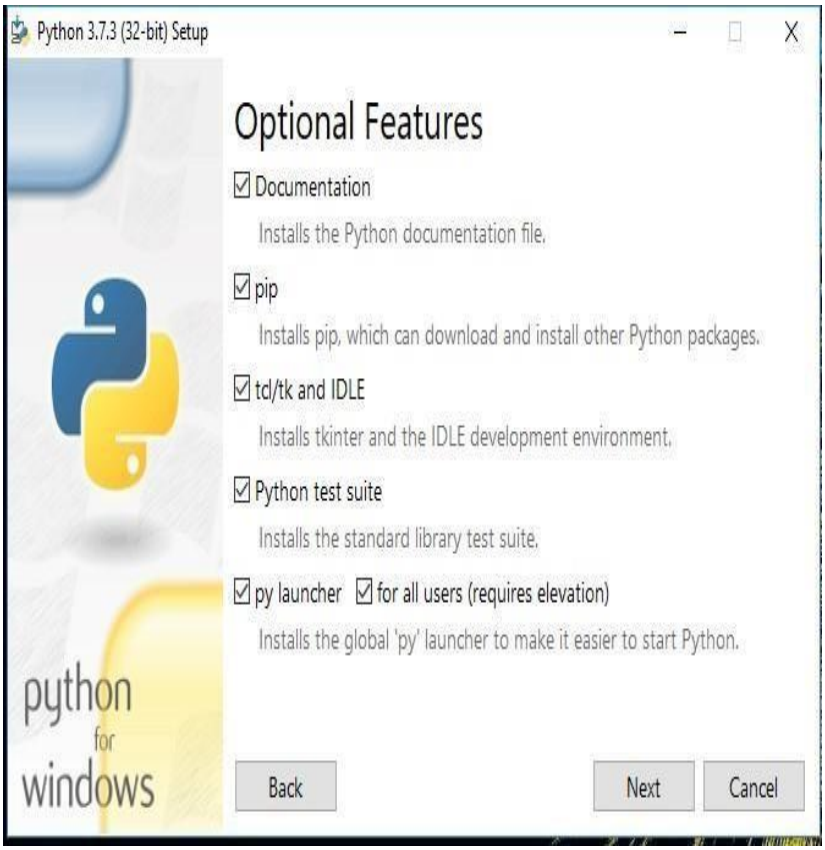


Installation of Python

Step1: Go to Download and Open the downloaded python version to carry out the installation process.

Step2: Before you click on Install Now, Make sure to put a tick on Add Python3.7 to PATH.

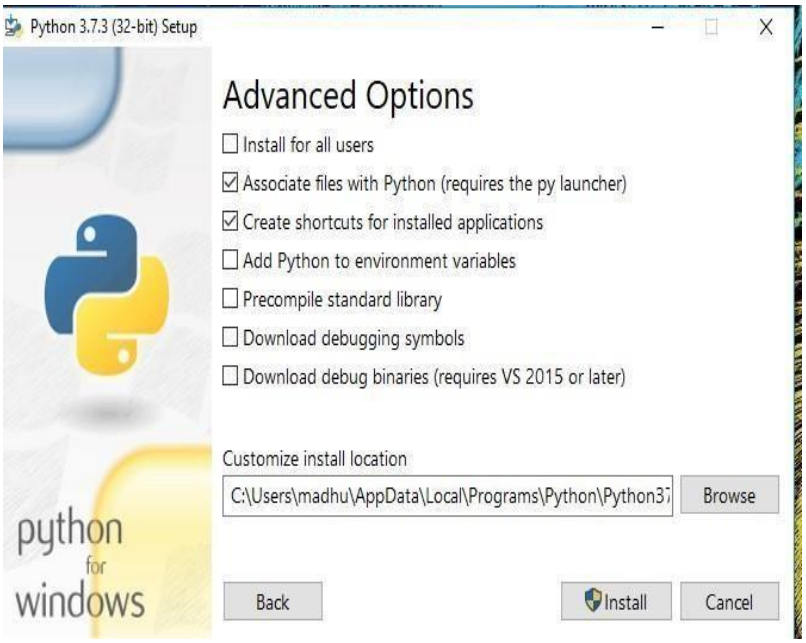
- Select Customize installation.
- Choose the optional features by checking the following checkboxes:
- Documentation
- pip
- tcl/tk and IDLE(to install tinker and IDLE)
- Python test suite(to install the standard library test suite of Python)
- Install the global launcher for`.py`files. This makes it easier to start Python
- Install for all users.



- Click Next
- This takes you to Advanced Options available while installing Python. Here, select the Install for all users and Add Python to environment variables checkboxes. Optionally, you can select the Associate files with Python**,** Create shortcuts for installed applications and other

advanced options.

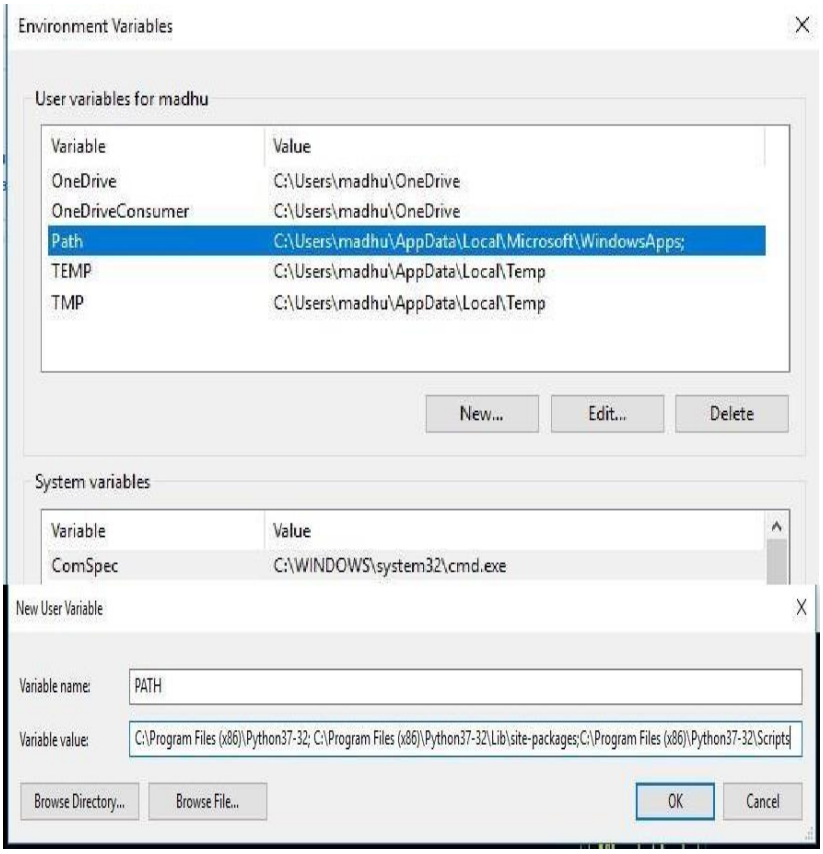
- Make note of the python installation directory displayed in this step. You would need it for the next step. After selecting the advanced options, click Install to start installation.



- Once the installation is over, you will see a Python Setup Successful window.

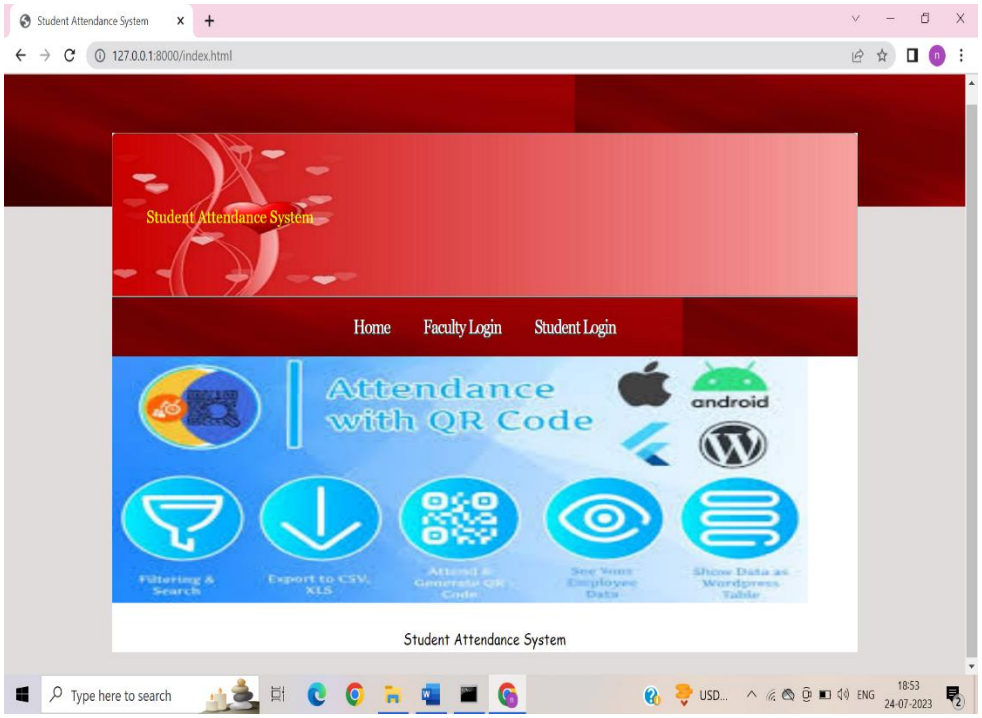
Step 3: Add Python to environmental variables The last (optional) step in the installation process is to add Python Path to the System Environment variables. This step is done to access Python through the command line. In case you have added Python to environment variables while setting the advanced options during the installation procedure, you can avoid this step. Else, the step is manually as Follows In this Start menu, search for "advanced system settings". Select "View advanced system settings". In the "System Properties" window, click on the "Advanced" tab and then click on the "Environment Variables" button. Locate the Python installation directory on your system. If you followed the steps exactly as above, python will be installed in below locations:

The folder name may be different from "Python37-32" if you installed a different version. Look for a folder whose name starts with Python.
Append the following entries to PATH variable as shown below:



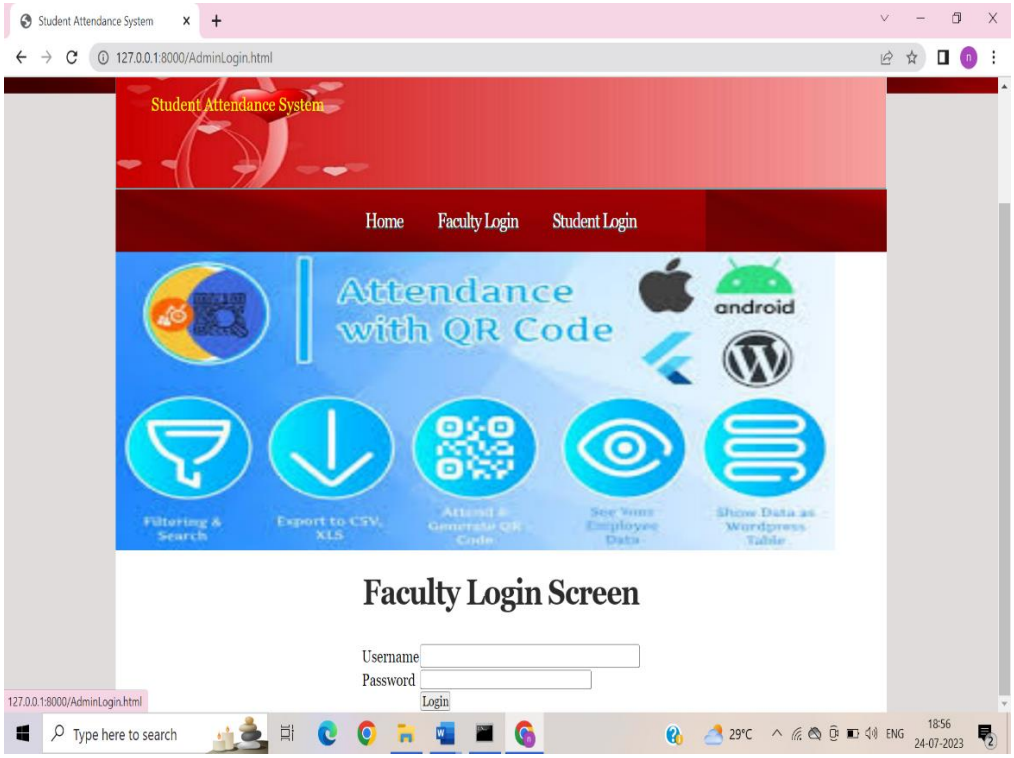
Step 4: Verify the Python Installation You have now successfully installed Python 3.7.3 on Windows 10. You can verify if the Python installation is successful either through the command line or through the IDLE app that gets installed along with the installation. Search for the command prompt and type “python”. You can see that Python3.7.3 is successfully installed.

5.1 Sample Screens



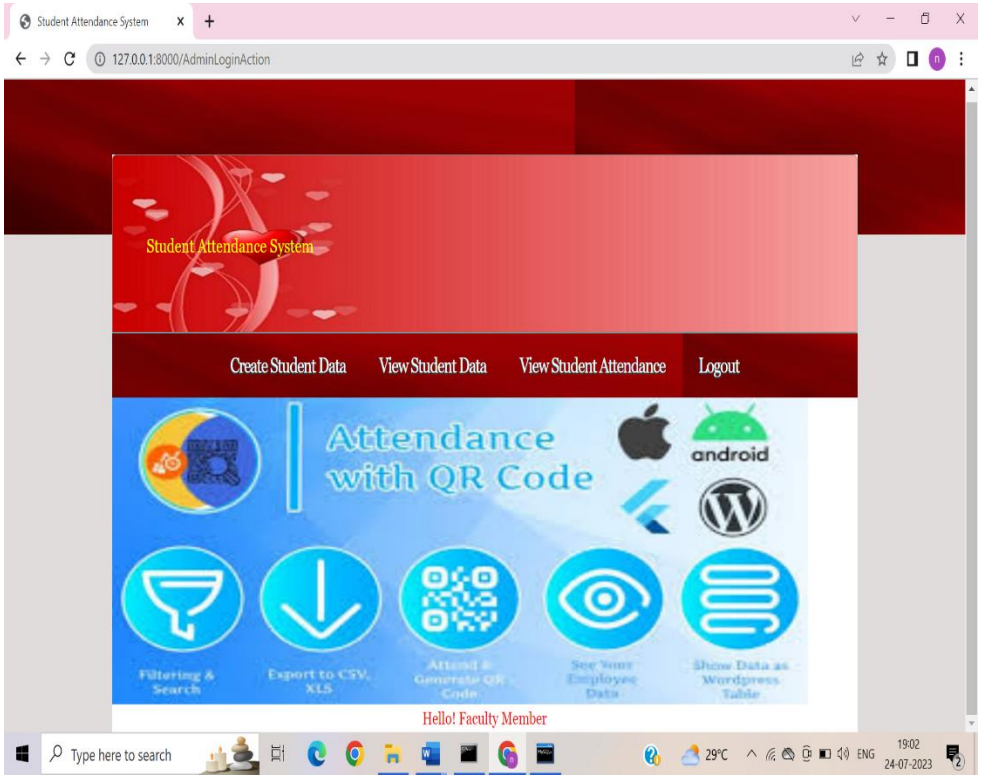
Screen 5.1.1: Home page

Description: This Screen shows Home page



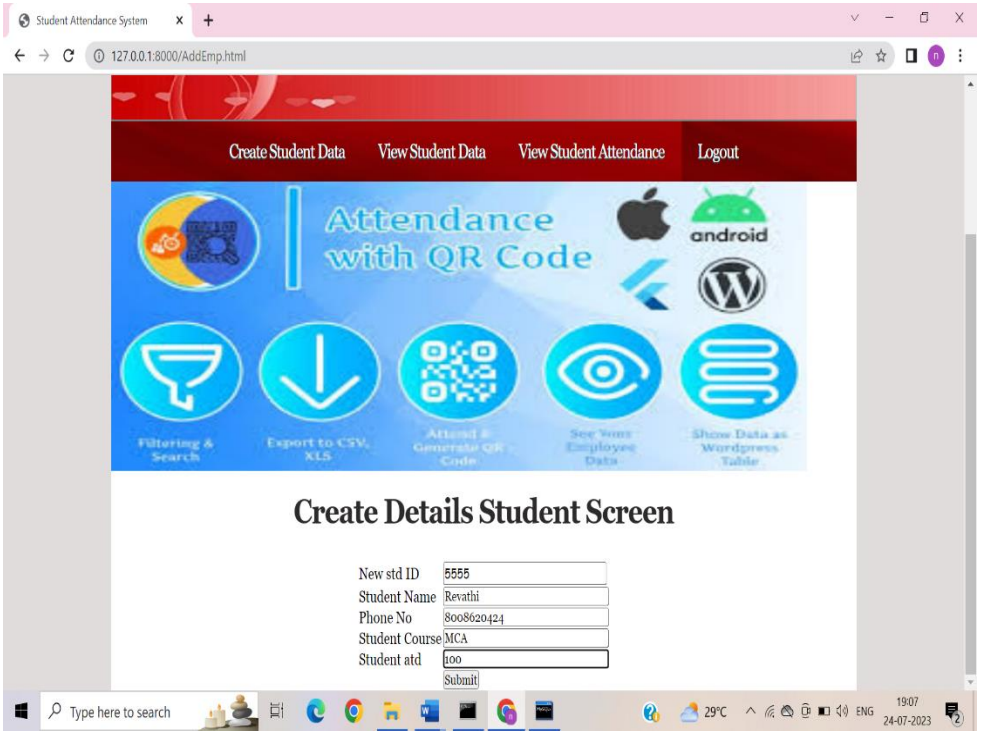
Screen 5.1.2: Faculty Login page

Description: This Screen shows Faculty Login page



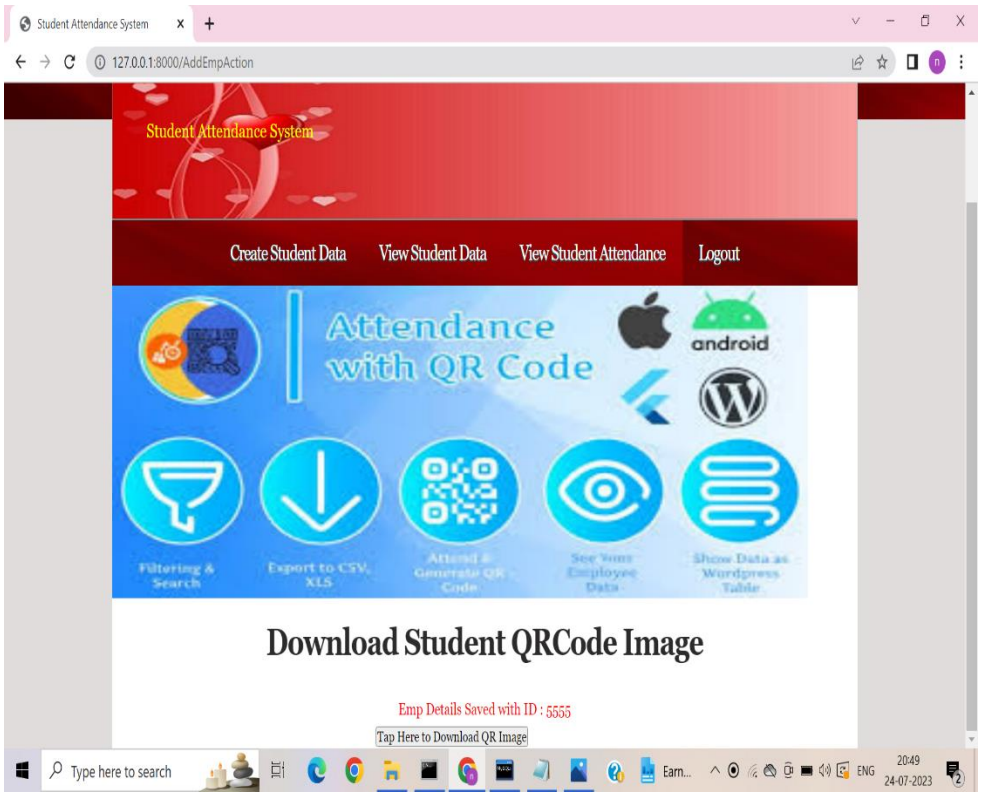
Screen 5.1.3: Faculty Home page

Description: This Screen shows Faculty Home page



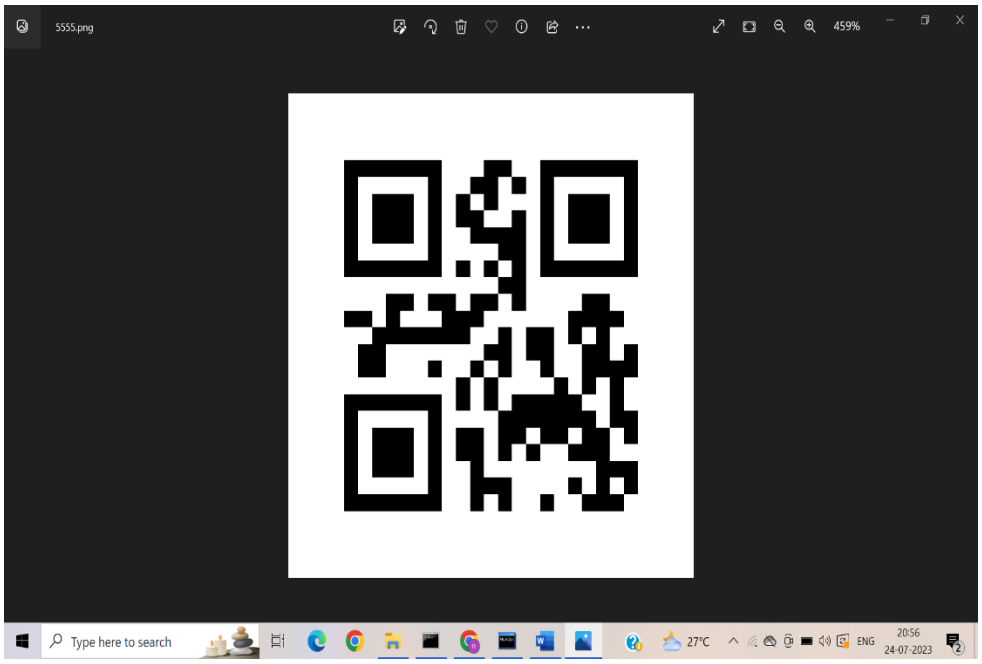
Screen 5.1.4: Create student data page

Description: This Screen shows Create student data page



Screen 5.1.5: Generate QR Code page

Description: This Screen shows Generate QR Code page

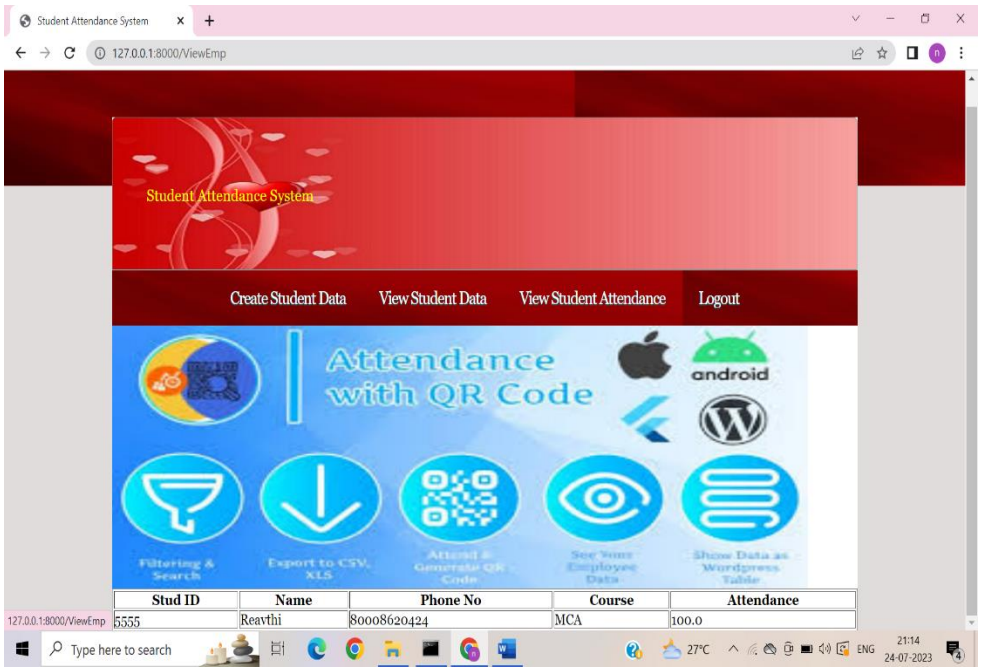


Screen 5.1.6: QR Code Image page

Description: This Screen shows QR Code Image page

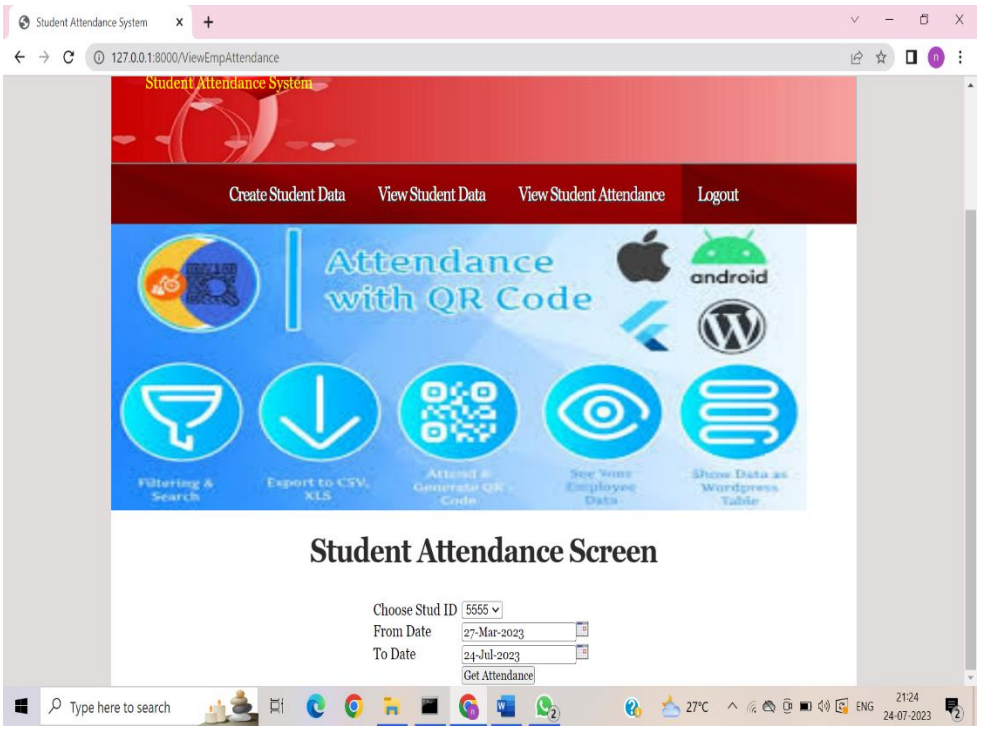
Screen 5.1.7: QR Code Scanning page

Description: This Screen shows QR Code Scanning page



Screen 5.1.8: View student data page

Description: This Screen shows View student data page

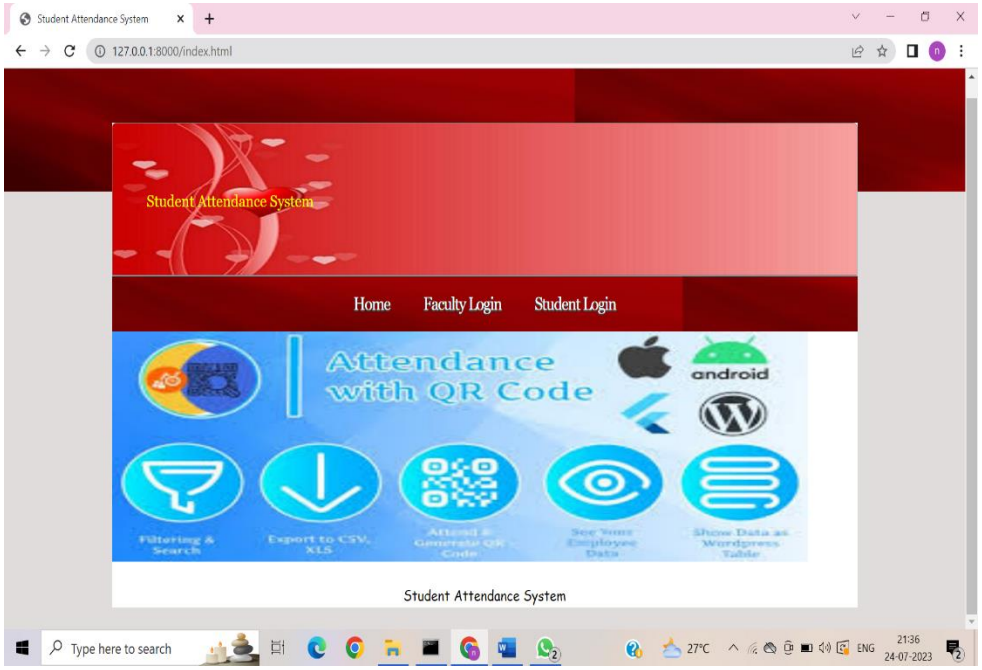


Screen 5.1.9: View student Attendance Login page

Description: This Screen shows View student Attendance Login page

Screen 5.1.10: View student Attendance Home page

Description: This Screen shows View student Attendance Home page



Screen 5.1.11: Faculty Logout page

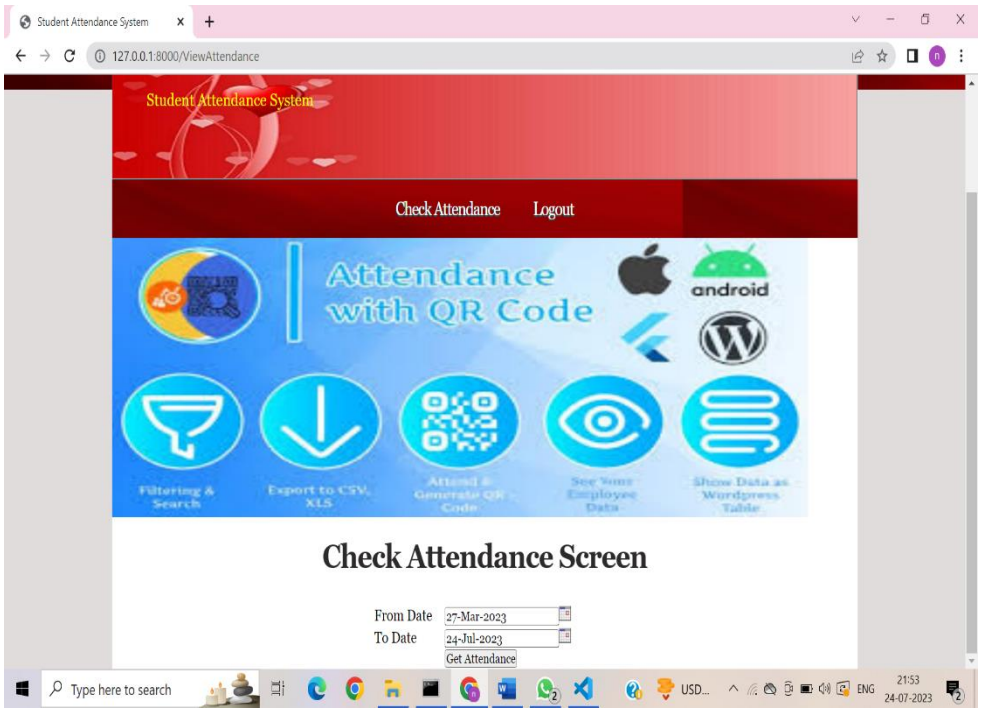
Description: This Screen shows Faculty Logout page

Screen 5.1.12: Student Login page

Description: This Screen shows Student Login page

Screen 5.1.13: Student Home page

Description: This Screen shows Student Home page

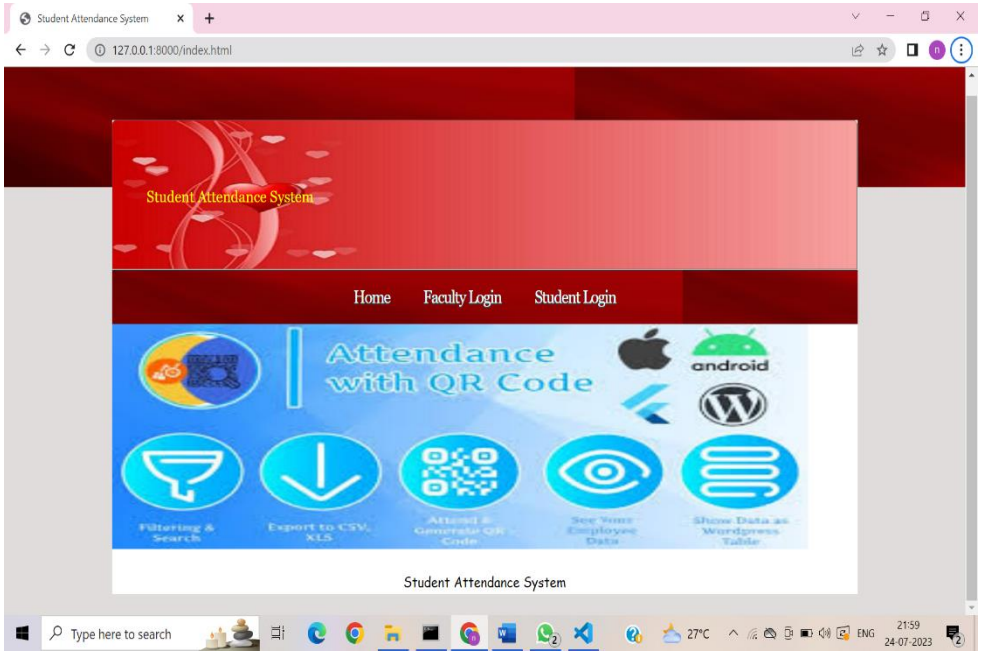


Screen 5.1.14: Student Check Attendance Login page

Description: This Screen shows Student Check Attendance Login page

Screen 5.1.15: Student Check Attendance Home page

Description: This Screen shows Student Check Attendance Home page



Screen 5.1.16: Student Logout page

Description: This Screen shows Student Logout page