

1. Introduction

The Student Registration Website is a web-based portal developed in XAMPP Server. It can be used by educational institutes or colleges to maintain the records of students easily who are registering with their details for admission in the colleges and schools. It also provides a less time-consuming process for viewing, adding, editing and deleting the details of the students because they are stored in the database. This Student Registration Website will allow submission of student application, Student Registration, Searching, Modifying and Printing individual Students Registration Certificates. Achieving this objective is difficult using a manual system as the information is scattered, can be redundant and collecting relevant information may be very time consuming. This Project consists of four functional webpages: an enhanced Personal Details Input (Page), Academic Details Input (Page), Searching and modifying data (Page) and the last one is Printing Student's Registration Certificate (Page). The project provides facilities like registration and profile creation of students thus reducing paperwork and automating the record generation process in an educational institution. Student Information system will store all the details of the students including their background information, educational qualifications, personal details and all the information related to their resume.

This software which is helpful for students as well as the school authorities. Proposed student registration system will eliminate all the manual intervention and increase the speed of whole process. In our proposed system we have the provision for adding the details of the students by themselves. So the overhead of the school authorities and the teachers is become less.

The objective of Student Registration Website is to allow the administrator of any organization to edit and find out the personal details of a student and allows the student to keep up to date his profile. This project mainly explains the various actions related to student details.

2. Motivation

In the early days the organizations stored the data of every student in a file containing a hardcopy with pen and paper which was a very tedious job for every employee. This early system increased the work so much that there was no assurance of every student's data storage in the database. This increased the risk of wrong inputs and outputs of the data. This early system increased the data redundancy which is a very tedious job to find the input and correct it as per convenience and requirements.

In the new generation, the student registration website is a systematic web portal used in managing and maintaining the personal and academic details of the student very easily connecting directly to the database excluding the data redundancy. This new system reduced the risks of errors. It helps in improved data sharing, data security, effective data integration, increased productivity and better decision making.

The motive of the project is to illustrate the requirements of the project student registration website and is intended to help any organization to maintain and manage its students' personal and academic data. This project is used to allow the students to register in a particular course easily and effectively.

It is intended to be complete specifications of what functionality the registration of the admission provides. It will also facilitate keeping all the records of the students, such as name, address, DOB, class 10 and class 12 marks, etc. So all the information of the students will be available in few seconds.

3. Overview of the project

The screenshot shows a web browser window with the URL 'localhost / 127.0.0.1 | phpMyAdmin' and 'Personal Details'. The page title is 'Personal Details' and the URL is 'nce.com/personaldetails.php'. The background is a dark blue starry space. The form is titled 'NATIONAL COLLEGE OF ENGINEERING' in yellow and 'Personal Details' in white. It contains input fields for 'Name', 'Address', and 'Student's Phone'. Below these is a 'Gender' section with radio buttons for 'Male', 'Female', and 'Others'. At the bottom, there are links for 'ABOUT' and 'CONTACT', followed by the college's address: 'National College Of Engineering, 56/8 Satyajit Sarani, Kolkata-700088', the copyright notice 'Official Site, Copyright@2000', and the timestamp 'Wed May 11 2022 13:36:08 GMT+0530 (India Standard Time)'.

Figure 1 : First web-page

Student registration website is a vital part of any university's running because students are what keep a university alive. The student admission is one of the most important activities within a university as one cannot survive without students. A poor admissions system can mean fewer students being admitted into a university because of mistakes or an overly slow response time. Online Student Registration is the software which is helpful for students as well as the department. In this project, the student is facilitated by the online system for registering students, add subjects and fee structure. Our Student Registration System deals with the various activities related to the students and registration. According to the website,

- XAMPP Server – This handles the domain and the backend processes of the website.
- Personal Details – This web page will take input and store the personal data from students.
- Academic Details – This web page will take input and store the academic data from students.
- Print certificate - This web page will take input user name of the students and will print the registration certificate.
- Search and modify personal details - This web page can be used to search students' personal details and they can be later modified.
- Search and modify academic details - This web page can be used to search students' academic details and they can be later modified.
- About – This web page tells us about the credits behind this project and functions of the web pages.
- Contact – This web page provides users with contact details of the college in case of inconvenience.

4. Detailed description of the project

4.1 Introduction

The Student Registration Website is a web-based portal developed in XAMPP Server. It can be used by educational institutes or colleges to maintain the records of students easily who are registering with their details for admission in the colleges and schools. It also provides a less time-consuming process for viewing, adding, editing and deleting the details of the students because they are stored in the database. This Student Registration Website will allow submission of student application, Student Registration, Searching, Modifying and Printing individual Students Registration Certificates. Achieving this objective is difficult using a manual system as the information is scattered, can be redundant and collecting relevant information may be very time consuming.

This Project consists of four functional webpages: an enhanced Personal Details Input (Page), Academic Details Input (Page), Searching and modifying data (Page) and the last one is Printing Student's Registration Certificate (Page). The project provides facilities like registration and profile creation of students thus reducing paperwork and automating the record generation process in an educational institution. Student Information system will store all the details of the students including their background information, educational qualifications, personal details and all the information related to their resume.

4.2 Project Perspective

In the new generation, the student registration website is a systematic web portal used in managing and maintaining the personal and academic details of the student very easily connecting directly to the database excluding the data redundancy. This new system reduced the risks of errors. It helps in improved data sharing, data security, effective data integration, increased productivity and better decision making.

The motive of the project is to illustrate the requirements of the project student registration website and is intended to help any organization to maintain and manage its students' personal and academic data. This project is used to allow the students to register in a particular course easily and effectively.

It is intended to be complete specifications of what functionality the registration of the admission provides. It will also facilitate keeping all the records of the students, such as name, address, DOB, class 10 and class 12 marks, etc. So, all the information of the students will be available in few seconds.

4.3 System Study

System study is a detailed study of the various operations performed by a system and their relationships within and outside of the system. Here the key question is what are the all problems exist in the present system and what can be done to solve the problems. Analysis begins when a user or manager begins a study of the program using existing system.

System study can be categorized into four parts:

- System planning
- Initial investigation
- Proposed system with objectives
- Feasibility study

4.3.1 System Planning

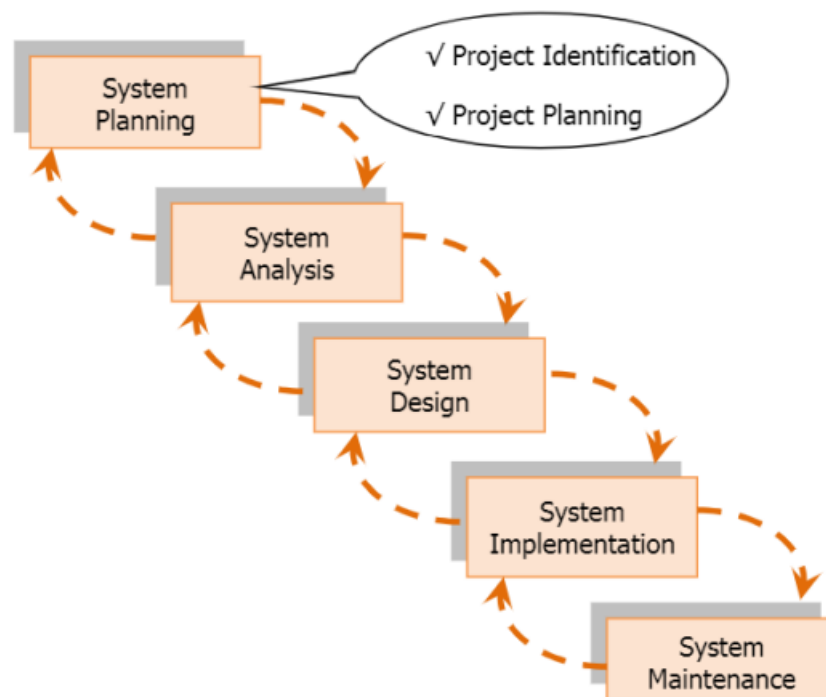


Figure 2 : System Planning

Today, the demands for a new or enhancement of the system exceeds the ability and resources of most organizations to conduct system development projects.

System planning is the first phase in the system development life cycle. System planning is where an organization's total information needs are identified, analysed, prioritized and arranged. Organization creates and assesses the original goals and expectation of a new system.

There are reasons why the organization need to develop a new or improved system, for example is to add value to the organization.

In this phase, we will learn how information system projects get started and how the team evaluate a proposed system and determine its feasibility before it will be developed.

Planning phase starts with reviewing the request towards system development. Above figure shows two major activities involved in system planning:

- i. identifying the system development project
- ii. planning the system development project

There are two ways on how to identify the needs for system development either by top-down planning and bottom-up planning. Top-down planning is where the top management asks the IT support or unit within their organization to develop a system. They will identify and assesses if there is any possible system development projects organization can be done. Bottom-up planning is also known as a user request planning. User's request is when users need the system in order to help their daily job easily. For the following discussion, we'll consider the second option; the system request is from user.

4.3.2 Initial Investigation

The initial investigation is the first step in the analysis phase of our project. It is a fact-finding mission in which we aim to find out as much as we can about our user, the current problem and what the user needs from a computer system in order to solve the problem. We will use a variety of methods of fact-finding in order to give we as full a picture as possible.

What we find out from our investigation will form the basis of the rest of the analysis phase and the design phase and it is therefore essential that it is thorough and well-planned. It is extremely difficult to create an appropriate and useful computer system and to write a quality project report

without first carrying out a genuine, well-planned and comprehensive initial investigation with a real user or users.

We should make sure that we read ahead to the analysis and design phase guidelines so that we have a clear idea of what we are aiming to find out.

As a starting point, we need our investigation to enable us to outline the following:

- Background to the problem/identify the problem
- Identify the user(s) having the problem
- Identify what the user(s) would need in order to be able to solve the problem
- Outline the limitations of the solution we propose
- Identify two or more possible ways of providing a solution
- Choose the best way of providing a solution and explain why it is the best way
- Identify the sources and destinations of the data used by the system and the processes used on the data.
- Identify all the data used by the system data requirements and draw an ER model if appropriate.
- Give a clear, comprehensive, specific list of objectives of the project (what the project will need to do in order to be successful)

To get a top mark for our project we will need to provide evidence that we have carried out an extensive and structured investigation into the problem.

To do this we will need to document the aims of our investigation, the methods we used, why those methods were suitable for our project and the results we gained from them. Note that lengthy transcripts of observations or interviews and completed questionnaires should be included in an appendix and referred to rather than included in the write-up of this section of the project report.

4.3.3 Proposed System

In our proposed system we have the provision for adding the details of the students by themselves. So, the overhead of the school authorities has become less.

Another advantage of the system is that it is very easy to edit the details of the student and delete the data of the student whenever it is found unnecessary.

The objective of Student Registration Website is to allow the administrator of any organization to edit and find out the personal details of a student and allows the student to keep up to date his profile. This project mainly explains the various actions related to student details. The motive of the project is to illustrate the requirements of the project student registration website and is intended to help any organization to maintain and manage its students' personal and academic data. This project is used to allow the students to register in a particular course easily and effectively.

4.3.4 Feasibility Analysis

Whatever we think need not to be feasible as it is wise to think about the feasibility of any problem we undertake. Feasibility is the study of impact which takes place in the organization by the development of the system. The impact can be either positive or negative. When the positives dominate the negatives, then the system is considered feasible. Hence the feasibility study can be performed in two ways

➤ *Economic feasibility*

Development of this application is highly economically feasible. The organization don't need to spend much money for the development of the system already available. The only thing is to be done is making an environment for the development with an effective supervision. If we are doing so, we can attain the maximum usability of the corresponding resources. Even after the development, the organization will not be in the condition to invest more. Therefore, the system is economically feasible.

➤ *Technical feasibility*

Technical feasibility is the formal process of assessing whether it is technically possible to manufacture a product or service. Before launching a new offering or taking up a client project, it is essential to plan and prepare for every step of the operation. Technical feasibility helps determine the efficacy of the proposed plan by analysing the process, including tools, technology, material, labour and logistics. A technical feasibility study helps organisations determine whether they have the technical resources to convert the idea into a fully functional

and profitable working system. It helps in troubleshooting the project before commencing work. The study identifies potential challenges and uncovers ways to overcome them. It also helps in long-term planning, as it can serve as a flowchart for how products and services evolve before they reach the market.

A technical feasibility study helps to find the answers to many questions

If it is possible to develop the product with the available technology in the company

If the organisation equipped with the necessary technology for project completion

If the technically strong employees who can deliver the product on time and within budget using the available technology

If there are any scope in the company's budget to add more technical resources

If the available technology the right choice to help the product team save time and complete development within budget

If the client requires specific technology, or is the client open to developing the product, irrespective of the technology.

4.4 Interfaces

In computing, an interface is a shared boundary across which three separate components of computer system exchange information. An interface is defined as a point of connect between entities working on a common project. This point can be:

- Physical - Physical interaction between components
- Functional - Functional Requirements between systems
- Contractual - Interactions between subcontractors/suppliers
- Organizational - Information exchanged between disciplines
- Knowledge - General information exchanged between parties
- Resource - Points of dependencies between equipment, material, and labour suppliers

These interfaces have the potential to negatively impact the cost and schedule of the project. Interface Management is the method of managing interfaces and mitigating these risks. As the number of different entities and scope of a project increases, so does the risk associated with interfaces. A properly implemented interface management process utilizing an interface management system helps ensure the proper communication and transparency between multiple interfacing sub-systems. Failure to properly manage interfaces contributes to the failure of large development projects. Improper interfacing can cause significant delays in commissioning and lead to excessive re-work. Interface Management is an important process that should be enforced to ensure that a project meets safety requirements, is on time, and is on budget. The types of interfaces in a project are:

➤ *Hardware Interfaces*

- Minimum 350 MB hard disk space for installation.
- 4 GB space required for a typical live server system with 1000-2000 events.
- Recommended minimum CPU – Pentium 4, 3.2 GHz
- Operating System – Windows 8 or above / Linux.
- Recommended 1 GB RAM for a central server with 3 nodes
- Network Card
- Printer (if required)

Server Side

The web application will be hosted on XAMPP server consisting of Apache and phpMyAdmin. The web server is listening on the web standard port, port 80.

Client Side

The system is a web-based application. The clients require a modern web browser such as Mozilla Firefox, Internet Explorer or Google Chrome(recommended).

➤ *Software Interfaces*

- HTML 5

- CSS 3
- JAVASCRIPT ES2015
- PHP 8.1.5
- XAMPP Server for Windows (Apache and phpMyAdmin)
- MySQL 8.0 for database in backend development

Server Side

An Apache web server will accept all the requests from the clients. A development database will be hosted locally using MySQL. The data of the students of the students will be stored in phpMyAdmin.

4.5 Front end languages

The project, Student registration website is developed with front end languages such as

➤ HTML (*Hyper Text Markup Language*)

The Hyper Text Markup Language or HTML is the standard markup language for documents designed to be displayed in a web browser. It can be assisted by technologies such as Cascading Style Sheets (CSS) and scripting languages such as JavaScript. Web browsers receive HTML documents from a web server or from local storage and render the documents into multimedia web-pages. HTML describes the structure of a web page semantically and originally included cues for the appearance of the document. HTML elements are the building blocks of HTML pages. With HTML constructs, images and other objects such as interactive forms may be embedded into the rendered page. HTML provides a means to create structured documents by denoting structural semantics for text such as headings, paragraphs, lists, links, quotes and other items. HTML elements are delineated by tags, written using angle brackets. Tags such as `` and `<input />` directly introduce content into the page. Other tags such as `<p>` surround and provide information about document text and may include other tags as sub-elements. Browsers do not display the HTML tags but use them to interpret the content of the page.

HTML can embed programs written in a scripting language such as JavaScript, which affects the behaviour and content of web pages. Inclusion of CSS defines the look and layout of content. The World Wide Web Consortium (W3C), former maintainer of the HTML and current maintainer of the CSS standards, has encouraged the use of CSS over explicit presentational HTML since 1997. A form of HTML, known as HTML5, is used to display video and audio, primarily using the `<canvas>` element, in collaboration with Javascript.

HTML markup consists of several key components, including those called tags (and their attributes), character-based data types, character references and entity references. HTML tags most commonly come in pairs like `<h1>` and `</h1>`, although some represent empty elements and so are unpaired, for example ``. The first tag in such a pair is the start tag, and the second is the end tag (they are also called opening tags and closing tags). Another important component is the HTML document type declaration, which triggers standards mode rendering.



Figure 3 : HTML

The following is an example of the classic "Hello, World!" program:

```
<!DOCTYPE html>
<html>
  <head>
    <title>This is a title</title>
  </head>
  <body>
    <div>
      <p>Hello world!</p>
    </div>
  </body>
</html>
```

The text between `<html>` and `</html>` describes the web page and the text between `<body>` and `</body>` is the visible page content. The markup text `<title>` defines the browser page title shown in browser tabs and window titles. The tag `<div>` defines a division of the page for easy styling. Between `<head>` and `</head>` a meta element can be used to define webpage metadata.

The Document Type Declaration `<!DOCTYPE html>` is for HTML5. If a declaration is not included, various browsers will revert to "quirks mode" for rendering.

HTML documents imply a structure of nested HTML elements. These are indicated in the document by HTML tags, enclosed in angle brackets thus: `<p>`.

In the simple, general case, the extent of an element is indicated by a pair of tags: a "start tag" `<p>` and "end tag" `</p>`. The text content of the element, if any, is placed between these tags.

Tags may also enclose further tag markup between the start and end, including a mixture of tags and text. This indicates further (nested) elements, as children of the parent element.

The start tag may also include element's attributes within the tag. These indicate other information, such as identifiers for sections within the document, identifiers used to bind style information to the presentation of the document, and for some tags such as the `` used to embed images, ``.

Some elements, such as the line break `
`, or `
` do not permit any embedded content, either text or further tags. These require only a single empty tag (akin to a start tag) and do not use an end tag. many tags, particularly the closing end tag for the very commonly used paragraph element `<p>`, are optional. An HTML browser or other agent can infer the closure for the end of an element from the context and the structural rules defined by the HTML standard. These rules are complex and not widely understood by most HTML coders. The general form of an HTML element is therefore: `<tag attribute1="value1" attribute2="value2">"content"</tag>`. Some HTML elements are defined as empty elements and take the form `<tag attribute1="value1" attribute2="value2">`. Empty elements may enclose no content, for instance, the `
` tag or the inline `` tag. The name of an HTML element is the name used in the tags. Note that the end tag's name is preceded by a slash character, `/`, and that in empty elements the end tag is neither required nor allowed. If attributes are not mentioned, default values are used in each case.

Most of the attributes of an element are name-value pairs, separated by `=` and written within the start tag of an element after the element's name. The value may be enclosed in single or double quotes, although values consisting of certain characters can be left unquoted in HTML (but not XHTML). Leaving attribute values unquoted is considered unsafe. In contrast with name-value pair attributes, there are some attributes that affect the element simply by their presence in the start tag of the element, like the `ismap` attribute for the `img` element.

There are several common attributes that may appear in many elements:

- The `id` attribute provides a document-wide unique identifier for an element. This is used to identify the element so that stylesheets can alter its presentational properties, and scripts

- may alter, animate or delete its contents or presentation. Appended to the URL of the page, it provides a globally unique identifier for the element, typically a sub-section of the page.
- The `class` attribute provides a way of classifying similar elements. This can be used for semantic or presentation purposes. For example, an HTML document might semantically use the designation `<class="notation">` to indicate that all elements with this class value are subordinate to the main text of the document. In presentation, such elements might be gathered together and presented as footnotes on a page instead of appearing in the place where they occur in the HTML source. Class attributes are used semantically in microformats
- An author may use the `style` attribute to assign presentational properties to a particular element. It is considered better practice to use an element's `id` or `class` attributes to select the element from within a stylesheet, though sometimes this can be too cumbersome for a simple, specific, or ad hoc styling.
- The `title` attribute is used to attach subtextual explanation to an element. In most browsers this attribute is displayed as a tooltip.
- The `lang` attribute identifies the natural language of the element's contents, which may be different from that of the rest of the document. For example, in an English-language document
- `<p>Oh well, c'est la vie, as they say in France. </p>`

This example displays as HTML; in most browsers, pointing the cursor at the abbreviation should display the title text "Hypertext Markup Language."

Most elements take the language-related attribute `dir` to specify text direction, such as with "rtl" for right-to-left text in, for example, Arabic, Persian or Hebrew.

As of version 4.0, HTML defines a set of 252 character entity references and a set of 1,114,050 numeric character references, both of which allow individual characters to be written via simple markup, rather than literally. A literal character and its markup counterpart are considered equivalent and are rendered identically.

Escaping also allows for characters that are not easily typed, or that are not available in the document's character encoding, to be represented within element and attribute content. For example, the acute-accented `e` (`é`), a character typically found only on Western European and South American keyboards, can be written in any HTML document as the entity reference `&execute;` or as the numeric references `é` or `é` using characters that are available on all keyboards and are supported in all character encodings. Unicode character encodings such as UTF-8 are compatible with all modern browsers and allow direct access to almost all the characters of the world's writing systems.

- *CSS (Cascading Style Sheet)*

Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language such as HTML. CSS is a cornerstone technology of the World Wide Web, alongside HTML and JavaScript.

CSS is designed to enable the separation of presentation and content, including layout, colors, and fonts. This separation can improve content accessibility; provide more flexibility and control in the specification of presentation characteristics; enable multiple web pages 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 to improve the page load speed between the pages that share the file and its formatting.

Separation of formatting and content also makes it feasible to present the same markup page in different styles for different rendering methods, such as on-screen, in print, by voice (via speech-based browser or screen reader), and on Braille-based tactile devices. CSS also has rules for alternate formatting if the content is accessed on a mobile device.

The name cascading comes from the specified priority scheme to determine which style rule applies if more than one rule matches a particular element. This cascading priority scheme is predictable.

The CSS specifications are maintained by the World Wide Web Consortium (W3C). Internet media type (MIME type) `text/css` is registered for use with CSS by RFC 2318 (March 1998). The W3C operates a free CSS validation service for CSS documents.

In addition to HTML, other markup languages support the use of CSS including XHTML, plain XML, SVG, and XUL.



Figure 4 : CSS

CSS has a simple syntax and uses a number of English keywords to specify the names of various style properties. A style sheet consists of a list of rules. Each rule or rule-set consists of one or more selectors, and a declaration block.

In CSS, selectors declare which part of the markup a style applies to by matching tags and attributes in the markup itself.

Selectors may apply to the following:

- all elements of a specific type, e.g. the second-level headers `h2`
- elements specified by attribute, in particular:
 - id: an identifier unique within the document, identified with a hash prefix e.g. `#id`
 - class: an identifier that can annotate multiple elements in a document, identified with a period prefix e.g. `classname`
- elements depending on how they are placed relative to others in the document tree.

Classes and IDs are case-sensitive, start with letters, and can include alphanumeric characters, hyphens, and underscores. A class may apply to any number of instances of any elements. An ID may only be applied to a single element.

Pseudo-classes are used in CSS selectors to permit formatting based on information that is not contained in the document tree. One example of a widely used pseudo-class is: `hover`, which identifies content only when the user "points to" the visible element, usually by holding the mouse cursor over it. It is appended to a selector as in `a: hover` or `#elementid: hove`.

Selectors may be combined in many ways to achieve great specificity and flexibility. Multiple selectors may be joined in a spaced list to specify elements by location, element type, id, class, or any combination. A declaration block consists of a list of declarations in braces. Each declaration itself consists of a property, a colon (:), and a value. If there are multiple declarations in a block, a semi-colon (;) must be inserted to separate each declaration. An optional semi-colon after the last (or single) declaration may be used.

Properties are specified in the CSS standard. Each property has a set of possible values. Some properties can affect any type of element, and others apply only to particular groups of elements. These eight units were a feature of CSS 1 and retained in all subsequent revisions. The proposed CSS Values and Units Module Level 3 will be done.

Before CSS, nearly all presentational attributes of HTML documents were contained within the HTML markup. All font colors, background styles, element alignments, borders and sizes had to be explicitly described, often repeatedly, within the HTML. CSS lets authors move much of that information to another file, the style sheet, resulting in considerably simpler HTML.

For example, headings (`h1` elements), sub-headings (`h2`), sub-sub-headings (`h3`), etc., are defined structurally using HTML. In print and on the screen, choice of font, size, color and emphasis for these elements is presentational.

Before CSS, document authors who wanted to assign such typographic characteristics to, say, all `h2` headings had to repeat HTML presentational markup for each occurrence of that heading type. This made documents more complex, larger, and more error-prone and difficult to maintain. CSS allows the separation of presentation from structure. CSS can define color, font, text alignment, size, borders, spacing, layout and many other typographic characteristics, and can do so independently for on-screen and printed views. CSS also defines non-visual styles, such as reading speed and emphasis for aural text readers. The W3C has now deprecated the use of all presentational HTML markup.

For example, under pre-CSS HTML, a heading element defined with red text would be written as:

```
<h1><font color="red">Chapter 1. </font></h1>
```

Using CSS, the same element can be coded using style properties instead of HTML presentational attributes:

```
<h1 style="color: red;">Chapter 1. </h1>
```

The advantages of this may not be immediately clear but the power of CSS becomes more apparent when the style properties are placed in an internal style element or, even better, an external CSS file. For example, suppose the document contains the style element:

```
<style>
h1 {
  color: red;
}
</style>
```

All `h1` elements in the document will then automatically become red without requiring any explicit code. If the author later wanted to make `h1` elements blue instead, this could be done by changing the style element to:

```
<style>
h1 {
  color: blue;
}
</style>
```

The styles can also be placed in an external CSS file, as described below, and loaded using syntax similar to:

```
<link href="path/to/file.css" rel="stylesheet" type="text/css">
```

This further decouples the styling from the HTML document and makes it possible to restyle multiple documents by simply editing a shared external CSS file.

Inheritance is a key feature in CSS; it relies on the ancestor-descendant relationship to operate. Inheritance is the mechanism by which properties are applied not only to a specified element, but also to its descendants. Inheritance relies on the document tree, which is the hierarchy of XHTML elements in a page based on nesting. Descendant elements may inherit CSS property values from any ancestor

element enclosing them. In general, descendant elements inherit text-related properties, but their box-related properties are not inherited. Properties that can be inherited are color, font, letter-spacing, line-height, list-style, text-align, text-indent, text-transform, visibility, white-space and word-spacing. Properties that cannot be inherited are background, border, display, float and clear, height, and width, margin, min- and max-height and -width, outline, overflow, padding, position, text-decoration, vertical-align and z-index.

Inheritance can be used to avoid declaring certain properties over and over again in a style sheet, allowing for shorter CSS.

Inheritance in CSS is not the same as inheritance in class-based programming languages, where it is possible to define class B as "like class A, but with modifications". With CSS, it is possible to style an element with "class A, but with modifications". However, it is not possible to define a CSS class B like that, which could then be used to style multiple elements without having to repeat the modifications.

Advantages of using CSS are:

- Separation of content from presentation:

CSS facilitates publication of content in multiple presentation formats based on nominal parameters. Nominal parameters include explicit user preferences, different web browsers, the type of device being used to view the content (a desktop computer or mobile device), the geographic location of the user and many other variables.

- Site-wide consistency:

When CSS is used effectively, in terms of inheritance and "cascading", a global style sheet can be used to affect and style elements site-wide. If the situation arises that the styling of the elements should be changed or adjusted, these changes can be made by editing rules in the global style sheet. Before CSS, this sort of maintenance was more difficult, expensive and time-consuming.

- Bandwidth:

A stylesheet, internal or external, specifies the style once for a range of HTML elements selected by class, type or relationship to others. This is much more efficient than repeating style information inline for each occurrence of the element. An external stylesheet is usually stored in the browser cache, and can therefore be used on multiple pages without being reloaded, further reducing data transfer over a network.

- Page reformatting:

With a simple change of one line, a different style sheet can be used for the same page. This has advantages for accessibility, as well as providing the ability to tailor a page or site to different target devices. Furthermore, devices not able to understand the styling still display the content.

- Accessibility:

Without CSS, web designers must typically lay out their pages with techniques such as HTML tables that hinder accessibility for vision-impaired users.

➤ *Javascript (can be used as both frontend and backend)*

Javascript often abbreviated as js is a programming language that is one of the core technologies of the World Wide Web alongside HTML and CSS. Over 97% of websites use JavaScript on the client side for web page behaviour, often incorporating third-party libraries. All major web browsers have a dedicated JavaScript engine to execute the code on users' devices.

Javascript being a high level compiled language has been having the feature dynamic typing, prototype-based object-orientation, and first-class functions. It is multi-paradigm, supporting event-driven, functional, and imperative programming styles. It has application programming interfaces (APIs) for working with text, dates, regular expressions, standard data structures, and the Document Object Model (DOM).

The ECMAScript standard does not include any input/output (I/O), such as networking, storage, or graphics facilities. In practice, the web browser or other runtime system provides JavaScript APIs for I/O.

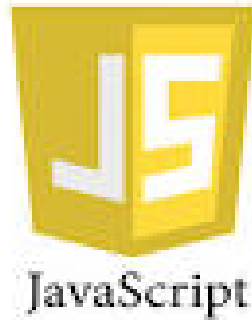


Figure 5 : Javascript

JavaScript engines were originally used only in web browsers, but are now core components of some servers and a variety of applications. The most popular runtime system for this usage is Node.js. Although Java and JavaScript are similar in name, syntax, and respective standard libraries, the two languages are distinct and differ greatly in design.

Prototypal inheritance in JavaScript is described by Douglas Crockford as: You make prototype objects, and then ... make new instances. Objects are mutable in JavaScript, so we can augment the new instances, giving them new fields and methods. These can then act as prototypes for even newer objects. We don't need classes to make lots of similar objects... Objects inherit from objects.

Unlike many object-oriented languages, there is no distinction between a function definition and a method definition. Rather, the distinction occurs during function calling; when a function is called as a method of an object, the function's local `this` keyword is bound to that object for that invocation. Javascript functions are first-class; a function is considered to be an object. As such, a function may have properties and methods, such as `.call()` and `.bind()`. A nested function is a function defined within another function. It is created each time the outer function is invoked. In addition, each nested function forms a lexical closure: the lexical scope of the outer function (including any constant, local variable, or argument value) becomes part of the internal state of each inner function object, even after execution of the outer function concludes. JavaScript also supports anonymous functions.

JavaScript supports implicit and explicit delegation.

- Functions as roles (Traits and Mixins)
JavaScript natively supports various function-based implementations of Role patterns like Traits and Mixins. Such a function defines additional behaviour by at least one method bound to the `this` keyword within its function body. A Role then has to be delegated explicitly via `call` or `apply` to objects that need to feature additional behaviour that is not shared via the prototype chain.
- Object composition and inheritance
Whereas explicit function-based delegation does cover composition in JavaScript, implicit delegation already happens every time the prototype chain is walked in order to, e.g., find a method that might be related to but is not directly owned by an object. Once the method is found it gets called within this object's context. Thus inheritance in JavaScript is covered by a delegation automatism that is bound to the prototype property of constructor functions.

JS is a zero-index language.

- Run-time environment
JavaScript typically relies on a run-time environment (e.g., a web browser) to provide objects and methods by which scripts can interact with the environment (e.g., a web page DOM). These environments are single-threaded. JavaScript also relies on the run-time environment to provide

the ability to include/import scripts (e.g., HTML `<script>` elements). New message, creating a call stack frame with the function's arguments and local variables. The call stack shrinks and grows based on the function's needs. When the call stack is empty upon function completion, JavaScript proceeds to the next message in the queue. This is called the event loop, described as "run to completion" because each message is fully processed before the next message is considered. However, the language's concurrency model describes the event loop as non-blocking: program input/output is performed using events and callback functions. This means, for instance, that JavaScript can process a mouse click while waiting for a database query to return information.

- Array and object literals

Like many scripting languages, arrays and objects (associative arrays in other languages) can each be created with a succinct shortcut syntax. In fact, these literals form the basis of the JSON data format.

- Regular expressions

JavaScript also supports regular expressions in a manner similar to Perl, which provide a concise and powerful syntax for text manipulation that is more sophisticated than the built-in string functions.

- Promises and Async/await

JavaScript supports promises and Async/await for handling asynchronous operations. A built-in Promise object provides functionality for handling promises and associating handlers with an asynchronous action's eventual result. Recently, combinator methods were introduced in the JavaScript specification, which allows developers to combine multiple JavaScript promises and do operations based on different scenarios. The methods introduced are: Promise.race, Promise.all, Promise.allSettled and Promise.any. Async/await allows an asynchronous, non-blocking function to be structured in a way similar to an ordinary synchronous function. Asynchronous, non-blocking code can be written, with minimal overhead, structured similar to traditional synchronous, blocking code.

Simple examples

Variables in JavaScript can be defined using either the `var`, `let` or `const` keywords.

```
// Declares a function-scoped variable named `x`, and implicitly assigns the
// special value `undefined` to it. Variables without value are automatically
// set to undefined.
var x;
```

```
// Variables can be manually set to `undefined` like so
var x2 = undefined;
```

```
// Declares a block-scoped variable named `y`, and implicitly sets it to
// `undefined`. The `let` keyword was introduced in ECMAScript 2015.
let y;
```

```
// Declares a block-scoped, un-reassignable variable named `z`, and sets it to
// a string literal. The `const` keyword was also introduced in ECMAScript 2015,
// and must be explicitly assigned to.
```

```
// The keyword `const` means constant, hence the variable cannot be reassigned
// as the value is `constant`.
const z = "this value cannot be reassigned!";
```

```
// Declares a variable named `myNumber`, and assigns a number literal (the value
// `2`) to it.
let myNumber = 2;
```

```
// Reassigns `myNumber`, setting it to a string literal (the value `"foo"`).  
// JavaScript is a dynamically-typed language, so this is legal.  
myNumber = "foo";
```

Note the comments in the example above, all of which were preceded with two forward slashes. There is no built-in Input/output functionality in JavaScript; the run-time environment provides that. The ECMAScript specification in edition 5.1 mentions:
indeed, there are no provisions in this specification for input of external data or output of computed results.

However, most runtime environments have a `console` object that can be used to print output. Here is a minimalist Hello World program in JavaScript:

```
console.log ("Hello, World!");
```

4.6 Back-end Languages

➤ PHP (Hypertext Preprocessor)

PHP is general-purpose scripting language geared toward web development. It was originally created by Danish-Canadian programmer Rasmus Lerdorf in 1994. The PHP reference implementation is now produced by The PHP Group. PHP originally stood for Personal Home Page, but it now stands for the recursive initialism PHP: Hypertext Preprocessor.

PHP code is usually processed on a web server by a PHP interpreter implemented as a module, a daemon or as a Common Gateway Interface (CGI) executable. On a web server, the result of the interpreted and executed PHP code – which may be any type of data, such as generated HTML or binary image data – would form the whole or part of an HTTP response. Various web template systems, web content management systems, and web frameworks exist which can be employed to orchestrate or facilitate the generation of that response. Additionally, PHP can be used for many programming tasks outside the web context, such as standalone graphical applications and robotic drone control. PHP code can also be directly executed from the command line.



Figure 6 : PHP

The standard PHP interpreter, powered by the Zend Engine, is free software released under the PHP License. PHP has been widely ported and can be deployed on most web servers on a variety of operating systems and platforms.

The PHP language evolved without a written formal specification or standard until 2014, with the original implementation acting as the de facto standard which other implementations aimed to follow. Since 2014, work has gone on to create a formal PHP specification.

The only complete PHP implementation is the original, known simply as PHP. It is the most widely used and is powered by the Zend Engine. To disambiguate it from other implementations, it is sometimes unofficially called "Zend PHP". The Zend Engine compiles PHP source code on-the-fly into an internal format that it can execute, thus it works as an interpreter. It is also the "reference implementation" of PHP, as PHP has no formal specification, and so the semantics of Zend PHP define

the semantics of PHP. Due to the complex and nuanced semantics of PHP, defined by how Zend works, it is difficult for competing implementations to offer complete compatibility.

PHP's single-request-per-script-execution model, and the fact that the Zend Engine is an interpreter, leads to inefficiency; as a result, various products have been developed to help improve PHP performance. In order to speed up execution time and not have to compile the PHP source code every time the web page is accessed, PHP scripts can also be deployed in the PHP engine's internal format by using an opcode cache, which works by caching the compiled form of a PHP script (opcodes) in shared memory to avoid the overhead of parsing and compiling the code every time the script runs. An opcode cache, Zend Opcache, is built into PHP since version 5.5. Another example of a widely used opcode cache is the Alternative PHP Cache (APC), which is available as a PECL extension.

While Zend PHP is still the most popular implementation, several other implementations have been developed. Some of these are compilers or support JIT compilation, and hence offer performance benefits over Zend PHP at the expense of lacking full PHP compatibility. Alternative implementations include the following:

- HHVM (HipHop Virtual Machine) – developed at Facebook and available as open source, it converts PHP code into a high-level bytecode (commonly known as an intermediate language), which is then translated into x86-64 machine code dynamically at runtime by a just-in-time (JIT) compiler, resulting in up to 6× performance improvements. However, since version 7.2 Zend has outperformed HHVM, and HHVM 3.24 is the last version to officially support PHP.
- Parrot – a virtual machine designed to run dynamic languages efficiently; Pip transforms the PHP source code into the Parrot intermediate representation, which is then translated into the Parrot's bytecode and executed by the virtual machine.
- PeachPie – a second-generation compiler to .NET Common Intermediate Language (CIL) bytecode, built on the Roslyn platform; successor of Phalanger, sharing several architectural components
- Quercus – compiles PHP into Java bytecode
- HipHop – developed at Facebook and available as open source, it transforms the PHP scripts into C++ code and then compiles the resulting code, reducing the server load up to 50%. In early 2013, Facebook deprecated it in favour of HHVM due to multiple reasons, including deployment difficulties and lack of support for the whole PHP language, including the `create_function()` and `eval()` constructs

There are two primary ways for adding support for PHP to a web server – as a native web server module, or as a CGI executable. PHP has a direct module interface called Server Application Programming Interface (SAPI), which is supported by many web servers including Apache HTTP Server, Microsoft IIS and iPlanet Web Server. Some other web servers, such as OmniHTTPd, support the Internet Server Application Programming Interface (ISAPI), which is Microsoft's web server module interface. If PHP has no module support for a web server, it can always be used as a Common Gateway Interface (CGI) or FastCGI processor; in that case, the web server is configured to use PHP's CGI executable to process all requests to PHP files.

PHP-FPM (FastCGI Process Manager) is an alternative FastCGI implementation for PHP, bundled with the official PHP distribution since version 5.3.3. When compared to the older FastCGI implementation, it contains some additional features, mostly useful for heavily loaded web servers. When using PHP for command-line scripting, a PHP command-line interface (CLI) executable is needed. PHP supports a CLI server application programming interface (SAPI) since PHP 4.3.0. The main focus of this SAPI is developing shell applications using PHP. There are quite a few differences between the CLI SAPI and other SAPIs, although they do share many of the same behaviours.

PHP has a direct module interface called SAPI for different web servers; in case of PHP 5 and Apache 2.0 on Windows, it is provided in form of a DLL file called `php5apache2.dll`, which is a module that, among other functions, provides an interface between PHP and the web server, implemented in a form that the server understands. This form is what is known as a SAPI.

There are different kinds of SAPIs for various web server extensions. For example, in addition to those listed above, other SAPIs for the PHP language include the Common Gateway Interface and command-line interface.

PHP can also be used for writing desktop graphical user interface (GUI) applications, by using the PHP-GTK extension. PHP-GTK is not included in the official PHP distribution, and as an extension it can be used only with PHP versions 5.1.0 and newer. The most common way of installing PHP-GTK is compiling it from the source code.

When PHP is installed and used in cloud environments, software development kits (SDKs) are provided for using cloud-specific features. For example:

- Amazon Web Services provides the AWS SDK for PHP
- Microsoft Azure can be used with the Windows Azure SDK for PHP.

Numerous configuration options are supported, affecting both core PHP features and extensions. Configuration file `php.ini` is searched for in different locations, depending on the way PHP is used. The configuration file is split into various sections, while some of the configuration options can be also set within the web server configuration.

The following "Hello, World!" program is written in PHP code embedded in an HTML document:

```
<!DOCTYPE html>
<html>
<head>
<title>PHP "Hello, World!" program</title>
</head>
<body>
<?php
echo '<p>Hello, World!</p>';
?>
</body>
</html>
```

However, as no requirement exists for PHP code to be embedded in HTML, the simplest version of Hello, World! may be written like this, with the closing tag `?>` omitted as preferred in files containing pure PHP code.

```
<?php
echo 'Hello, World!';
?>
```

Basic object-oriented programming functionality was added in PHP 3 and improved in PHP 4. This allowed for PHP to gain further abstraction, making creative tasks easier for programmers using the language. Object handling was completely rewritten for PHP 5, expanding the feature set and enhancing performance. In previous versions of PHP, objects were handled like value types. The drawback of this method was that code had to make heavy use of PHP's "reference" variables if it wanted to modify an object it was passed rather than creating a copy of it. In the new approach, objects are referenced by handle, and not by value.

➤ *MySQL*

MySQL ,open-source relational database management system (RDBMS). Its name is a combination of "My", the name of co-founder Michael Widenius's daughter, and "SQL", the abbreviation for Structured Query Language. A relational database organizes data into one or more data tables in which data may be related to each other; these relations help structure the data. SQL is a language programmers use to create, modify and extract data from the relational database, as well as control user access to the database. In addition to relational databases and SQL, an RDBMS like MySQL works with an operating

system to implement a relational database in a computer's storage system, manages users, allows for network access and facilitates testing database integrity and creation of backups.

MySQL is free and open-source software under the terms of the GNU General Public License, and is also available under a variety of proprietary licenses. MySQL was owned and sponsored by the Swedish company MySQL AB, which was bought by Sun Microsystems (now Oracle Corporation). In 2010, when Oracle acquired Sun, Widenius forked the open-source MySQL project to create MariaDB.



Figure 7 : MySQL

MySQL has stand-alone clients that allow users to interact directly with a MySQL database using SQL, but more often, MySQL is used with other programs to implement applications that need relational database capability. MySQL is a component of the LAMP web application software stack (and others), which is an acronym for Linux, Apache, MySQL, Perl/PHP/Python. MySQL is used by many database-driven web applications, including Drupal, Joomla, phpBB, and WordPress. MySQL is also used by many popular websites, including Facebook, Flickr, Media Wiki, Twitter, and YouTube.

MySQL is offered under two different editions: the open source MySQL Community Server and the proprietary Enterprise Server. MySQL Enterprise Server is differentiated by a series of proprietary extensions which install as server plugins, but otherwise shares the version numbering system and is built from the same code base.

Major features as available in MySQL 8.0:

- A broad subset of ANSI SQL 99, as well as extensions
- Cross-platform support
- Stored procedures, using a procedural language that closely adheres to SQL/PSM^[79]
- Triggers
- Cursors
- Updatable views
- Online Data Definition Language (DDL) when using the InnoDB Storage Engine.
- Information schema
- Performance Schema that collects and aggregates statistics about server execution and query performance for monitoring purposes.
- A set of SQL Mode options to control runtime behavior, including a strict mode to better adhere to SQL standards.
- X/Open XA distributed transaction processing (DTP) support; two phase commit as part of this, using the default InnoDB storage engine
- Transactions with savepoints when using the default InnoDB Storage Engine. The NDB Cluster Storage Engine also supports transactions.
- ACID compliance when using InnoDB and NDB Cluster Storage Engines
- SSL support
- Query caching
- Sub-SELECTs (i.e. nested SELECTs)
- Built-in replication support
 - Asynchronous replication: master-slave from one master to many slaves or many masters to one slave
 - Semi synchronous replication: Master to slave replication where the master waits on replication

- Synchronous replication: Multi-master replication is provided in MySQL Cluster.
- Virtual Synchronous: Self managed groups of MySQL servers with multi master support can be done using: Galera Cluster or the built in Group Replication plugin
- Full-text indexing and searching
- Embedded database library
- Unicode support
- Partitioned tables with pruning of partitions in optimizer
- Shared-nothing clustering through MySQL Cluster
- Multiple storage engines, allowing one to choose the one that is most effective for each table in the application.
- Native storage engines InnoDB, MyISAM, Merge, Memory (heap), Federated, Archive, CSV, Blackhole, NDB Cluster.
- Commit grouping, gathering multiple transactions from multiple connections together to increase the number of commits per second.

MySQL can be built and installed manually from source code, but it is more commonly installed from a binary package unless special customizations are required. On most Linux distributions, the package management system can download and install MySQL with minimal effort, though further configuration is often required to adjust security and optimization settings.

XAMPP software bundle, displayed here together with Squid. Though MySQL began as a low-end alternative to more powerful proprietary databases, it has gradually evolved to support higher-scale needs as well. It is still most commonly used in small to medium scale single-server deployments, either as a component in a LAMP-based web application or as a standalone database server. Much of MySQL's appeal originates in its relative simplicity and ease of use, which is enabled by an ecosystem of open source tools such as phpMyAdmin. In the medium range, MySQL can be scaled by deploying it on more powerful hardware, such as a multi-processor server with gigabytes of memory.

There are, however, limits to how far performance can scale on a single server ('scaling up'), so on larger scales, multi-server MySQL ('scaling out') deployments are required to provide improved performance and reliability. A typical high-end configuration can include a powerful master database which handles data write operations and is replicated to multiple slaves that handle all read operations. The master server continually pushes binlog events to connected slaves so in the event of failure a slave can be promoted to become the new master, minimizing downtime. Further improvements in performance can be achieved by caching the results from database queries in memory using memcached, or breaking down a database into smaller chunks called shards which can be spread across a number of distributed server clusters.

4.7 Server

➤ XAMPP

XAMPP is a free and open-source cross-platform web server solution stack package developed by ApacheFriends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages. Since most actual web server deployments use the same components as XAMPP, it makes transitioning from a local test server to a live server possible.

XAMPP's ease of deployment means a WAMP or LAMP stack can be installed quickly and simply on an operating system by a developer, with the advantage that common add-in applications such as WordPress and Joomla! can also be installed with similar ease using Bitnami. XAMPP is regularly updated to the latest releases of Apache, MariaDB, PHP and Perl.

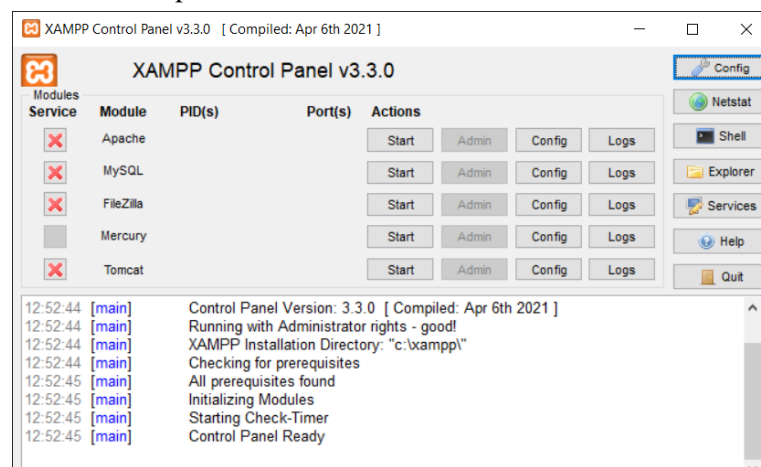


Figure 8 : XAMPP Server

It also comes with number of other modules including OpenSSL, phpMyAdmin, Joomla, WordPress and more. Self-contained, multiple instances of XAMPP can exist on a single computer, and any given instance can be copied from one computer to another. XAMPP is offered in both a full and a standard version (Smaller version).

The most obvious characteristic of XAMPP is the ease at which a WAMP webserver stack can be deployed and instantiated. Later some common packaged applications that could be easily installed were provided by Bitnami.

Officially, XAMPP's designers intended it for use only as a development tool, to allow website designers and programmers to test their work on their own computers without any access to the Internet. To make this as easy as possible, many important security features are disabled by default.^[12] XAMPP has the ability to serve web pages on the World Wide Web. A special tool is provided to password-protect the most important parts of the package.

XAMPP also provides support for creating and manipulating databases in MariaDB and SQLite among others.

Once XAMPP is installed, it is possible to treat a localhost like a remote host by connecting using an FTP client. Using a program like FileZilla has many advantages when installing a content management system (CMS) like Joomla or WordPress. It is also possible to connect to localhost via FTP with an HTML editor.

➤ *phpMyAdmin*

phpMyAdmin is a free and open source administration tool for MySQL and MariaDB. As a portable web application written primarily in PHP, it has become one of the most popular MySQL administration tools, especially for web hosting services.

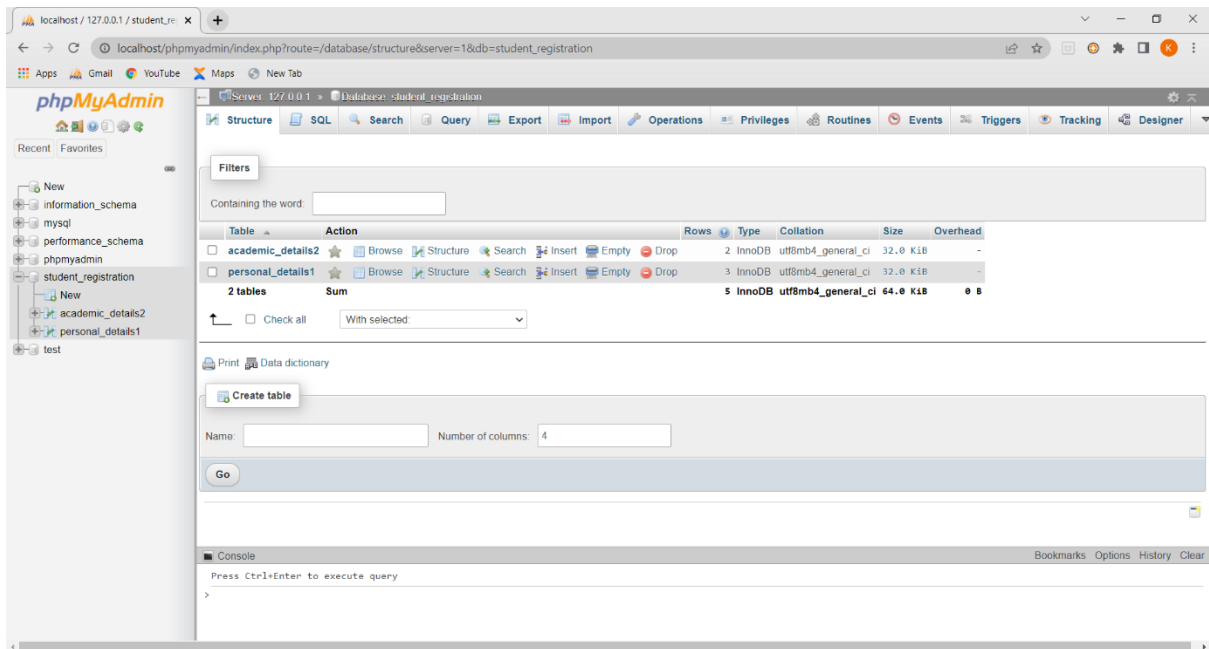


Figure 9 : phpMyAdmin database

Features provided by the program include:

- Web interface
- MySQL and MariaDB database management
- Import data from CSV, JSON and SQL
- Export data to various formats: CSV, SQL, XML, JSON, PDF (via the TCPDF library), ISO/IEC 26300 - OpenDocument Text and Spreadsheet, Word, Excel, LaTeX, SQL, and others
- Administering multiple servers
- Creating PDF graphics of the database layout
- Creating complex queries using query-by-example (QBE)
- Searching globally in a database or a subset of it
- Transforming stored data into any format using a set of predefined functions, like displaying BLOB-data as image or download-link
- Live charts to monitor MySQL server activity like connections, processes, CPU/memory usage, etc.
- Network traffic to the SQL server
- Working with different operating systems like Windows, Linux, OS/2, Free BSD Unix (such as Sun Solaris , AIX) and others.
- Make complex SQL queries easier.

4.8 Description of Web pages

➤ *Personal Details(nce.com/personaldetails.php)*

This is the first web page of the Student registration website whose front end is developed with HTML5, CSS3 and Javascript. The back end of the webpage is developed with PHP and MySQL. This web page is used to take input from the student user about their personal details such as:

- ✓ Name
- ✓ Address
- ✓ Student's phone
- ✓ Gender

- ✓ Father's name
- ✓ Mother's name
- ✓ Guardian phone
- ✓ H.S. Registration number
- ✓ Landmark
- ✓ Date of birth

NATIONAL COLLEGE OF ENGINEERING

Personal Details

Name

Address

Student's Phone

Gender : ☐ Male ☐ Female ☐ Others

[ABOUT](#) | [CONTACT](#)

National College Of Engineering, 56/8 Satyajit Sarani, Kolkata-700088

Official Site. Copyright@2000

Wed May 11 2022 13:36:08 GMT+0530 (India Standard Time)

Figure 10 : Personal Details(first part)

Mother's Name

Guardian's Phone

H.S. Registration Number

Landmark

Date Of Birth

[ABOUT](#) | [CONTACT](#)

National College Of Engineering, 56/8 Satyajit Sarani, Kolkata-700088

Official Site. Copyright@2000

Wed May 11 2022 14:38:37 GMT+0530 (India Standard Time)

Figure 11 : Personal Details (second part)

Here the H.S. Registration number field is kept as the PRIMARY key and UNIQUE key so that any duplicate registration number can be avoided. The duplicate numbers are avoided using the UNIQUE key in the phpMyAdmin database using MySQL.

The student need to enter all the details in the fields otherwise he/she will be stopped from submitting the personal details.

Javascript validations are used to validate if the fields are empty or the input is not a number, in case the pop ups are coded to display on the screen if the validations does not satisfy the requirements. The form of HTML is designed inside a dialog box which is designed with CSS. CSS has also been used to design the input fields, submit and reset buttons, the heading of web page named National College Of Engineering. One background image has been used for the whole page and the other one for the dialog box of form of HTML. There are two hyperlinks in the form tag of HTML named SUBMIT and RESET. The about us and contact section has been coded in bottom section of the web page with the address and current time of visiting the website. This bottom section is common in all the web pages which consists of two hyperlinks(ABOUT US and CONTACT).

The SUBMIT button hyperlink – **nce.com/academicdetails.php**

It redirects the student to Academic details input web page.

The RESET button hyperlink – **nce.com/personaldetails.php**

It resets the input values to null.

The ABOUT_US hyperlink – **nce.com/aboutus.php**

It redirects the to the credits and functions of web pages.

The CONTACT hyperlink when clicked, it redirects user to gmail so that they can contact.

➤ *Academic Details(nce.com/academicdetails.php)*

This is the second web page of the Student registration website after Personal details web page whose front end is developed with HTML5, CSS3 and Javascript. The back end of the webpage is developed with PHP and MySQL. This web page is used to take input from the student user about their academic details such as:

- ✓ H.S. Registration number
- ✓ Year of Passing(10th)
- ✓ Year of Passing(12th)
- ✓ School(10th)
- ✓ School(12th)
- ✓ Board(10th)
- ✓ Board(12th)
- ✓ Percentage(10th)
- ✓ Marks(12th)
 - English
 - Bengali
 - Physics
 - Chemistry
 - Mathematics

NATIONAL COLLEGE OF ENGINEERING

Academic Details

H.S. Registration Number

Year of Passing(10th)

Year of Passing(12th)

School(10th)

[ABOUT](#) [CONTACT](#)

National College Of Engineering, 56/8 Satyajit Sarani, Kolkata-700088

Official Site, Copyright@2000

Fri May 13 2022 03:09:43 GMT+0530 (India Standard Time)

Figure 12 : Academic Details(first part)

School(12th)

Board(10th)

Board(12th)

Percentage(10th):*

Marks(12th) :

English Bengali

Physics Chemistry

Mathematics

[Print Registration Certificate](#)

Figure 13 : Academic Details (second part)

Here the H.S. Registration number field is kept as the PRIMARY key and UNIQUE key so that any duplicate registration number can be avoided. The duplicate numbers are avoided using the UNIQUE key in the phpMyAdmin database using MySQL.

The student need to enter all the details in the fields otherwise he/she will be stopped from submitting the academic details.

Javascript validations are used to validate if the fields are empty or the input is not a number, in case the pop ups are coded to display on the screen if the validations does not satisfy the requirements.

The extra validations are that if the students does not get more than 75 marks out of 100 then he/she will not be allowed to submit their registration form. The form of HTML is designed inside a dialog box which is designed with CSS. CSS has also been used to design the input fields, submit and reset buttons, the heading of web page named National College Of Engineering. One background image has been used for the whole page and the other one for the dialog box of form of HTML.

The SUBMIT, RESET, ABOUT_US and CONTACT has same function inside this web page also. One extra hyperlink has been added at the end of the dialog box named Print Registration Certificate, if the user has nothing to edit or search or modify their details.

The SUBMIT button hyperlink – **nce.com/academicdetails.php**

It redirects the student to Academic details input web page.

The RESET button hyperlink – **nce.com/academicdetails.php**

It resets the input values to null.

The ABOUT_US hyperlink – **nce.com/aboutus.php**

It redirects the to the credits and functions of web pages.

The CONTACT hyperlink when clicked, it redirects user to gmail so that they can contact.

PRINT REGISTRATION CERTIFICATE hyperlink – **nce.com/print.php**

It redirects the user to the web page where they can print their registration certificate.

➤ *Print Certificate(nce.com/print.php)*

This is the third web page of the Student registration website after clicking the hyperlink named Print Registration Certificate consisting in the web page named Academic details whose front end is developed with HTML5, CSS3 and Javascript. The back end of the webpage is developed with PHP and MySQL. This web page is used to take the name as input, check the database for the availability of the name in database and would print the registration certificate after clicking the PRINT button.

Input fields used in this web page:

✓ Name

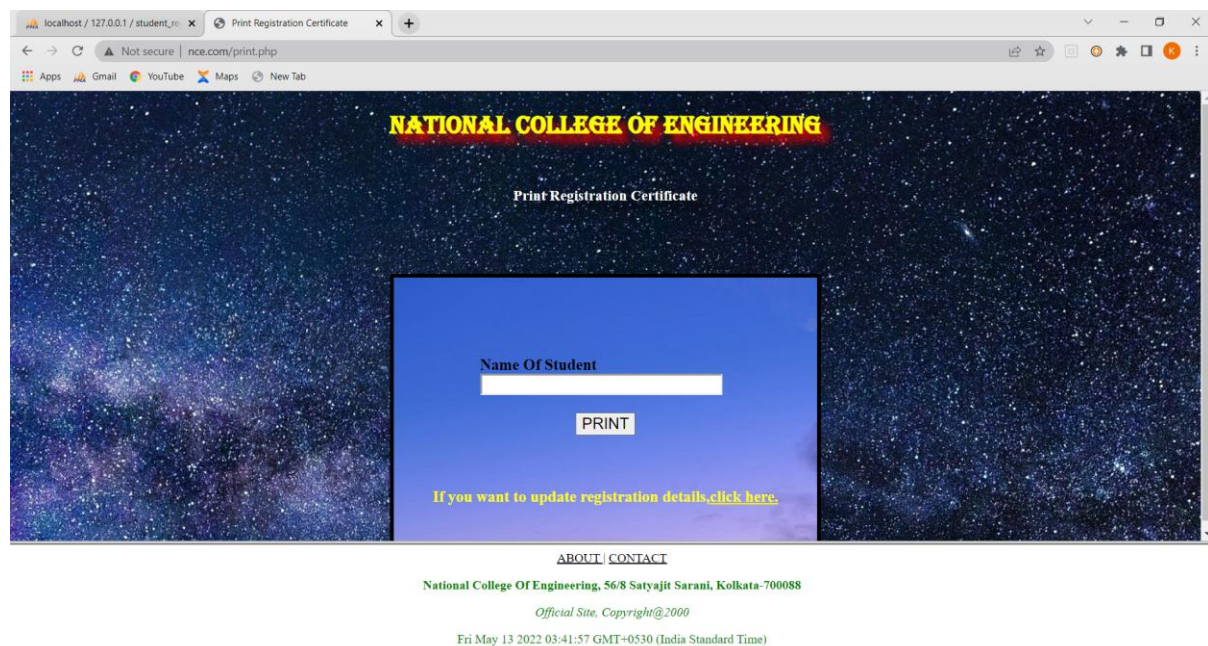


Figure 14 : Print Registration Certificate

Javascript validations are used to validate if the fields are empty or the input is not a number, in case the pop ups are coded to display on the screen if the validations does not satisfy the requirements.

The form of HTML is designed inside a dialog box which is designed with CSS. CSS has also been used to design the input fields, the heading of web page named National College Of Engineering. One background image has been used for the whole page and the other one for the dialog box of form of HTML.

The ABOUT_US and CONTACT has same function inside this web page also. One extra hyperlink has been added at the end of the dialog box named (click here) if the user want to modify their personal and academic details.

The ABOUT_US hyperlink – **nce.com/aboutus.php**

It redirects the to the credits and functions of web pages.

The CONTACT hyperlink when clicked, it redirects user to gmail so that they can contact.

CLICK HERE hyperlink – **nce.com/searchmodify.php**

It redirects the user to search and modify personal details web page.

➤ *Search and Modify Personal Details(nce.com/searchmodify.php)*

This is the fourth web page of the Student registration website after clicking the hyperlink named Click here in the web page named Print certificate consisting whose front end is developed with HTML5, CSS3 and Javascript. The back end of the webpage is developed with PHP and MySQL. This web page is used to take the H.S. Registration number as input and will check the availability of the same number in the database to search the student personal details. H.S. Registration number is kept as the PRIMARY field to be able to search and modify.

After searching personal details the user can modify the details if previously they occurred any error during submission.

The input details required in this web page:

- ✓ H.S. Registration number

NATIONAL COLLEGE OF ENGINEERING

Search Student Personal Details

H.S. Registration Number

Name : Address :

Phone : Gender :

Father's Name : Mother's Name :

Guardian Phone : Landmark :

Date Of Birth : dd-mm-yyyy

[Check Academic Details](#)

[ABOUT](#) [CONTACT](#)

National College Of Engineering, 56/8 Satyajit Sarani, Kolkata-700088

Official Site, Copyright@2000

Fri May 13 2022 04:11:25 GMT+0530 (India Standard Time)

Figure 15 : Search Student Personal Details(Design)

NATIONAL COLLEGE OF ENGINEERING

Search Student Personal Details

H.S. Registration Number
23234

Name : Avijit Biswas Address : 34/8 E.J Das road, Kolka

Phone : 8450867789 Gender : Male

Father's Name : ABC Sadhukan Mother's Name : Sneha Sadhukan

Guardian Phone : 9681125500 Landmark : Purulia

Date Of Birth : 07-05-2022

[Check Academic Details](#)

[ABOUT](#) [CONTACT](#)

National College Of Engineering, 56/8 Satyajit Sarani, Kolkata-700088

Official Site, Copyright@2000

Fri May 13 2022 04:11:25 GMT+0530 (India Standard Time)

Figure 16 : Search Student Personal Details(After searching)

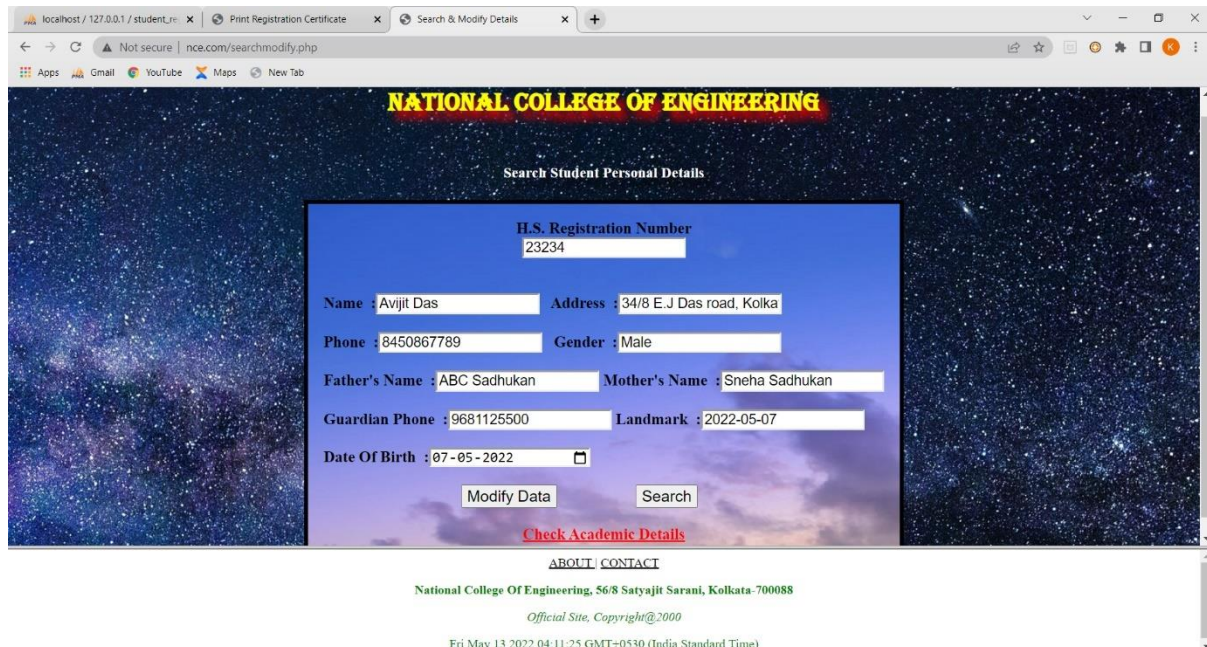


Figure 17 : Search Student Personal Details(After modifying)

Javascript validations are used to validate if the fields are empty or the input is not a number, in case the pop ups are coded to display on the screen if the validations does not satisfy the requirements.

The form of HTML is designed inside a dialog box which is designed with CSS. CSS has also been used to design the input fields, the heading of web page named National College Of Engineering. One background image has been used for the whole page and the other one for the dialog box of form of HTML.

The ABOUT_US and CONTACT has same function inside this web page also. One extra hyperlink has been added at the end of the dialog box named Check Academic Details if the user want to modify their academic details.

The ABOUT_US hyperlink – **nce.com/aboutus.php**

It redirects the to the credits and functions of web pages.

The CONTACT hyperlink when clicked, it redirects user to gmail so that they can contact.

CHECK ACADEMIC DETAILS hyperlink – **nce.com/searchmodify1.php**

It redirects the user to search and modify academic details web page.

SEARCH button – redirects to the same web page after searching and providing the values.

MODIFY button – redirects to the same web page after updating and providing the values.

➤ *Search and Modify Academic Details(nce.com/searchmodify1.php)*

This is the fifth web page of the Student registration website after clicking the hyperlink named Check Academic Details in the web page named Search and Modify Personal Details consisting whose front end is developed with HTML5, CSS3 and Javascript. The back end of the webpage is developed with PHP and MySQL. This web page is used to take the H.S. Registration number as input and will check

the availability of the same number in the database to search the student academic details. H.S. Registration number is kept as the PRIMARY field to be able to search and modify.

After searching academic details the user can modify the details if previously they occurred any error during submission.

The input details required in this web page:

- ✓ H.S. Registration number

H.S. Registration Number

Year of Passing(10th) : Year of Passing(12th) :

School(10th) : School(12th) :

Board(10th) : Board(12th) :

Percentage(10th) :

Marks(12th) :

English : Bengali :

Physics : Chemistry : Maths :

Modify Data Search

[Print Registration Certificate](#)

[ABOUT](#) | [CONTACT](#)

National College Of Engineering, 56/8 Satyajit Sarani, Kolkata-700088

Official Site, Copyright@2000

Fri May 13 2022 04:25:52 GMT+0530 (India Standard Time)

Figure 18 : Search Student Academic Details(Design)

H.S. Registration Number

23234

Year of Passing(10th) : 2017 Year of Passing(12th) : 2019

School(10th) : B.N. Roy School School(12th) : Kendriya Vidyalaya

Board(10th) : CBSE Board(12th) : CBSE

Percentage(10th) : 79

Marks(12th) :

English : 88 Bengali : 84

Physics : 90 Chemistry : 88 Maths : 92

Modify Data Search

[Print Registration Certificate](#)

[ABOUT](#) | [CONTACT](#)

National College Of Engineering, 56/8 Satyajit Sarani, Kolkata-700088

Official Site, Copyright@2000

Fri May 13 2022 04:25:52 GMT+0530 (India Standard Time)

Figure 19 : Search Student Academic Details(After searching)

localhost / 127.0.0.1 / student_16 x Print Registration Certificate x Search & Modify Details x +

Not secure | nce.com/searchmodify1.php

H.S. Registration Number
23234

Year of Passing(10th) : 2017 Year of Passing(12th) : 2019

School(10th) : E.M.Academy School(12th) : Kendriya Vidyalaya

Board(10th) : CBSE Board(12th) : CBSE

Percentage(10th) : 79

Marks(12th) :

English : 88 Bengali : 84

Physics : 90 Chemistry : 88 Maths : 92

Modify Data Search

[Print Registration Certificate](#)

[ABOUT](#) | [CONTACT](#)

National College Of Engineering, 56/8 Satyajit Sarani, Kolkata-700088

Official Site. Copyright@2000

Fri May 13 2022 04:25:52 GMT+0530 (India Standard Time)

Figure 20 : Search Student Academic Details(After modifying)

Javascript validations are used to validate if the fields are empty or the input is not a number, in case the pop ups are coded to display on the screen if the validations does not satisfy the requirements. The form of HTML is designed inside a dialog box which is designed with CSS. CSS has also been used to design the input fields, the heading of web page named National College Of Engineering. One background image has been used for the whole page and the other one for the dialog box of form of HTML.

The ABOUT_US and CONTACT has same function inside this web page also. One extra hyperlink has been added at the end of the dialog box named Print registration certificate if the user want to print their registration certificates.

The ABOUT_US hyperlink – **nce.com/aboutus.php**

It redirects the to the credits and functions of web pages.

The CONTACT hyperlink when clicked, it redirects user to gmail so that they can contact.

PRINT REGISTRATION CERTIFICATE hyperlink – **nce.com/print.php**

It redirects the user to sprint their registration certificate.

SEARCH button – redirects to the same web page after searching and providing the values.

MODIFY button – redirects to the same web page after updating and providing the values.

➤ *Certificate*

CERTIFICATE OF APPRECIATION

This award is presented to

Kaniska Das

for successful registration in Online Entrance
Exam 2022 arranged by our college

Abhishek Karmakar, NCE, Vice
Principal

Figure 21 : Registration Certificate

This is the certificate that is being stored on the device after being printed with the name of the student in both .png and .pdf format.

➤ About

This is a special web page designed to provide the credits behind the whole project and also the contact details. This is the only web page in the website which have no functions of back end programming. The credits contain their social media accounts with hyperlinks in their image.

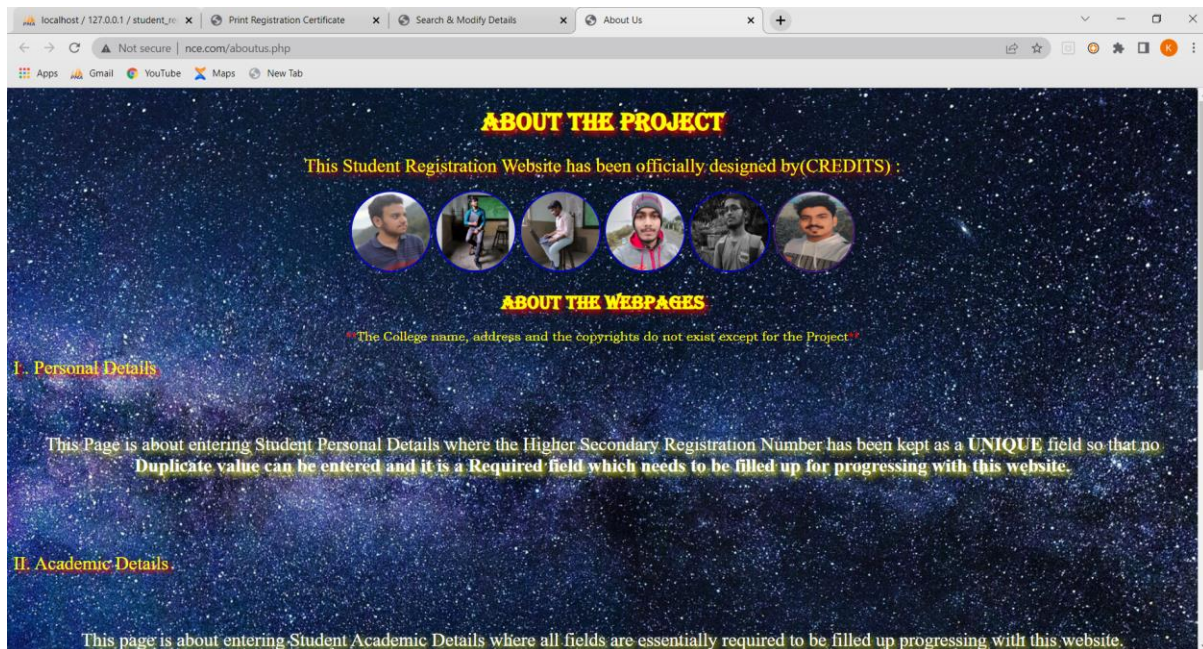


Figure 22 : About the project(first part)

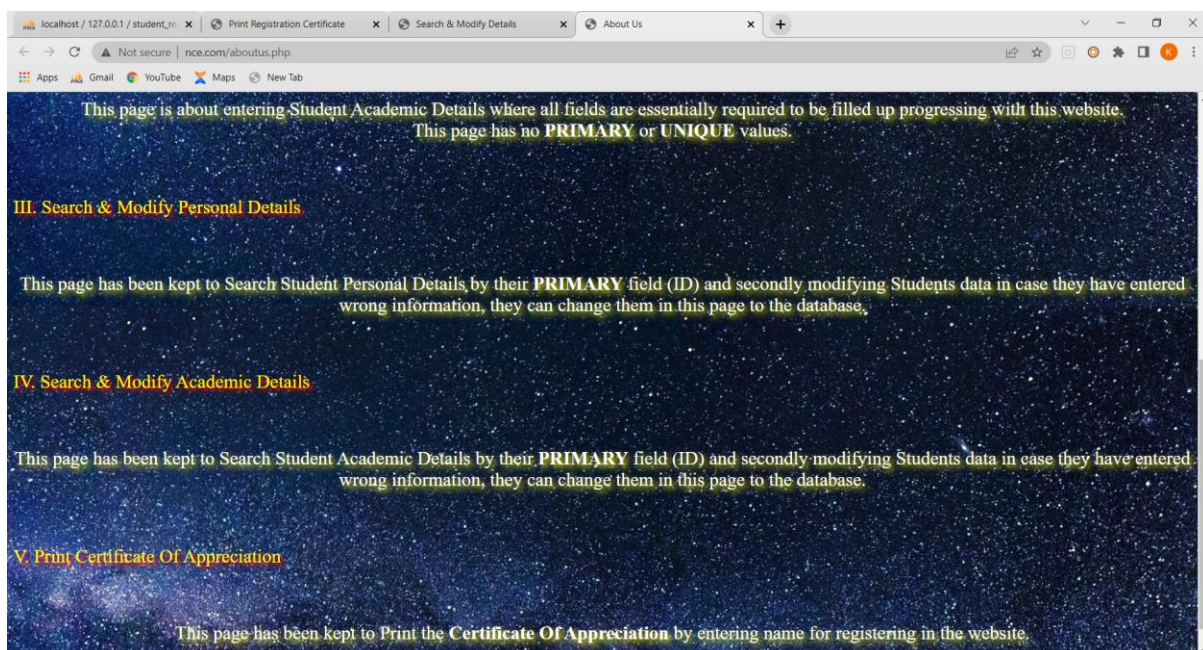


Figure 23 : About the project(second part)

➤ *Contact*

This hyperlink requires no displaying of web pages rather than displaying the Gmail interface for users to contact us.

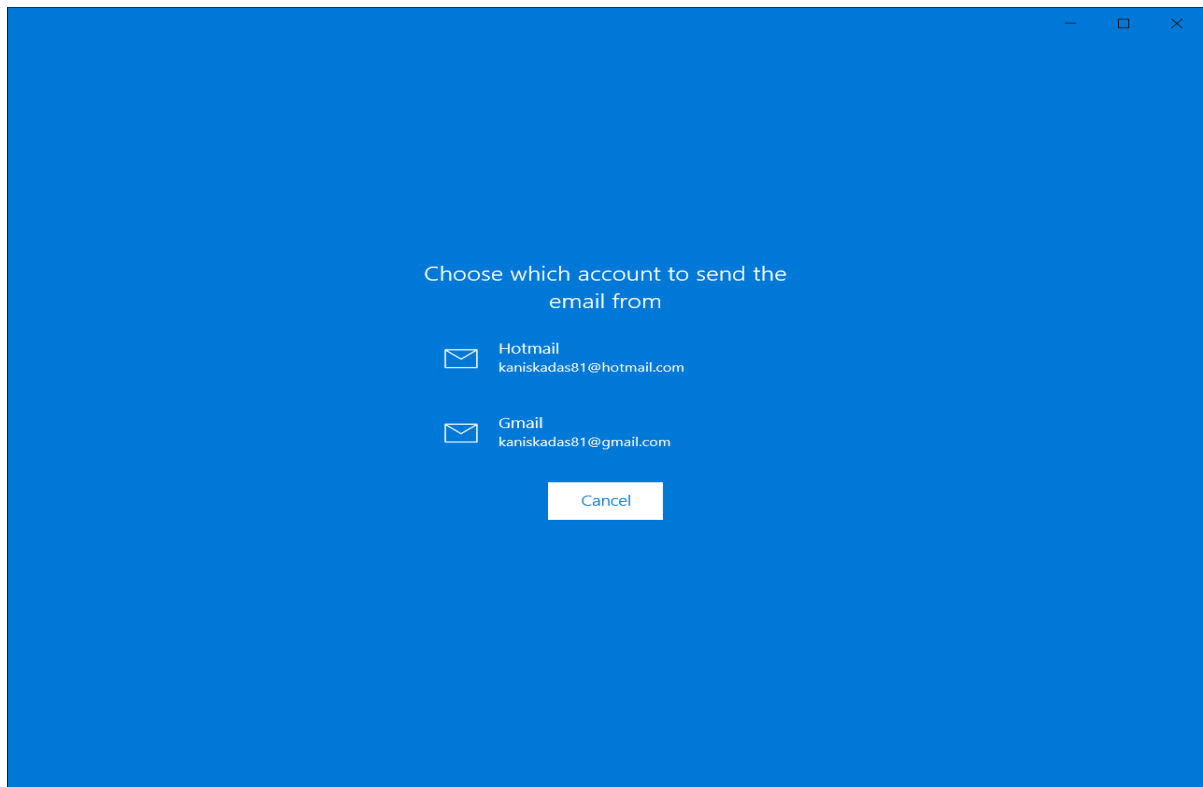


Figure 24 : Mail interface for contact

5. Conclusion and Scope of Further Studies

5.1 Conclusion

The Student Registration website has been designed to be user friendly and easy to fill. It leads to saving of time and money as compared to multiple forms filled manually by the students. This project not only improves efficiencies and eliminates unnecessary paperwork. It also maximizes participation. This project is developed to serve an idea to the universities to have a way to manage all day-to-day registrations. It provides a simple set up of programs for student enrolment.

The Student Registration website is the next generation address book which will provide these two basic services like security and portability. The future scope includes the expanding of the technologies like HTML, CSS, JAVASCRIPT, MYSQL and PHP. The project will be useful for many schools and colleges with slightly modification project is flexible which means any modification in database maybe performing easily. More updates can be made to the project as there is no limitation to web development. Many latest versions of the above mentioned languages can change the idea or the design of the project. This study would serve as a handy reference for the other researchers who would embark on a similar study. In the future, especially on certain aspects not derived into by the present.

5.2 Limitations

- All the input fields need to be filled up before submitting the form.
- The input fields like Name, Address, Father's name, Mother's name, Landmark, 10th, 12th Schools and Boards need to be filled with characters only. The input fields like Student's phone, Guardian's phone, H.S. Registration number, 10th, 12th years of passing, 10th percentage and 12th subject marks need to be filled with numbers only.
- No input fields should be left blank or a pop-up box will be notified in the web-page regarding the blank field.
- Phone numbers are limited to 10 numbers. (only INDIA)
- H.S. Registration number should be maximum of 10 digits.
- H.S. Registration number should not be repeated by any other user because it has been kept as Primary and Unique key.
- Class 10th percentage should be atleast 75 percentage.
- Class 12 subject marks should be more than 75 out of 100.
- E-mail can be sent only by Gmail and Hotmail accounts.
- During searching personal and academic details, the H.S. Registration number cannot be altered in the form.
- Google chrome is the recommended browser for the website.

6. References

- [1] <https://www.pdfdrive.com/php-learn-php-in-24-hours-or-less-a-beginners-guide-to-learning-php-programming-now-d187009432.html>
- [2] <https://youtu.be/In0nB0ABaUk>
- [3] <https://youtu.be/fV8ointgMeQ>
- [4] <https://youtu.be/DwHxDlaOsyw>
- [5] <https://youtu.be/ILyf16MEvHM>
- [6] https://youtu.be/qm4Eih_2p-M
- [7] https://youtu.be/f85jvD_Y8Ck
- [8] <https://youtu.be/bfV8kTCiMG8>