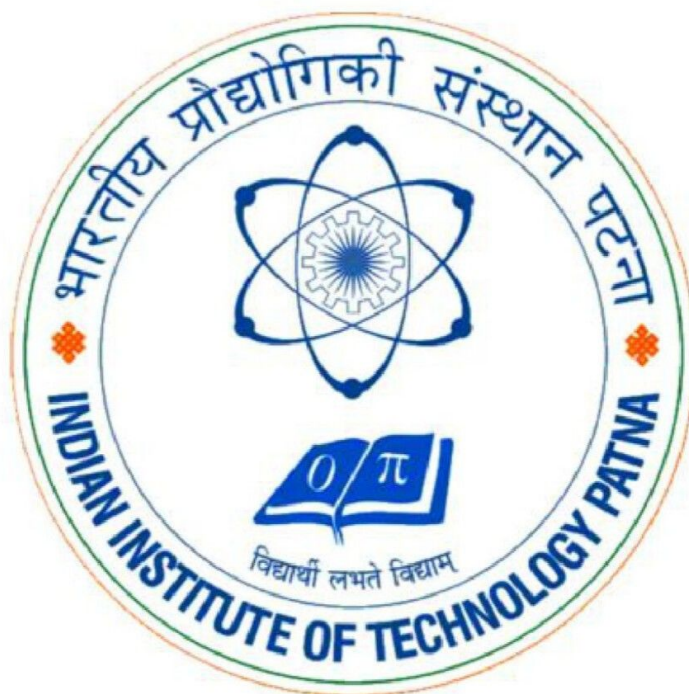


# Project 1

# FULL STACK DEVELOPMENT



NIHAL GUPTA  
Roll No - 2312res1019



**INDIAN INSTITUTE OF TECHNOLOGY PATNA**  
**BIHTA 801106, INDIA**

## **Declaration**

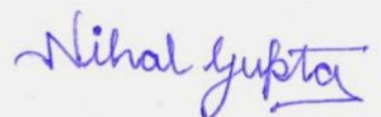
I hereby declare that this submission is my own work and that, to the best of our knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma of the university or other institute of higher learning, except where due acknowledgment has been made in the text.

**Student Name:** *Nihal Gupta*

**Roll No:** *2312res1019*

**Date:** *2/08/2025*

**Signature:**



# *Summary of the Project*

## Goal of our Project:

**This project aims to digitize the student registration process to overcome the inefficiencies and errors of manual data entry. By creating a structured online form using HTML, CSS, and JavaScript for validation, and integrating it with a Java-based backend that stores student data in a MySQL database via JDBC, the system ensures accurate, consistent, and secure registration. The result is an 80% improvement in accuracy and a significant reduction in administrative workload, providing a reliable, easily accessible digital record system.**

# Content

## 1. Introduction [FSD]

## 2. Frontend Development

◆ *HTML*

◆ *CSS*

◆ *JAVA SCRIPT*

## 3. Backend Development

◆ *MY SQL*

◆ *JAVA*

◆ *PHP*

## 4. Our Website (Students Registration Form) & Reference



# **1. Introduction to [FSD]**

Full stack web development is the process of building both the front end (client side) and back end (server side) of a web application. This means handling everything users see and interact with in their browser, as well as all underlying server logic, databases, and application infrastructure.

- ◆ The front end involves technologies like HTML, CSS, and JavaScript frameworks (e.g., React, Angular), which focus on user interface and experience.
- ◆ The back end includes programming languages and frameworks like Node.js, Python, Java, PHP, and databases such as MySQL or MongoDB, which manage data storage, application logic, and serve operations.

## 2. Frontend Development

1. **Languages:** Frontend development primarily involves three core languages: HTML (Hypertext Markup Language), CSS (Cascading Style Sheets), and JavaScript. HTML provides the structure of a webpage, CSS determines its presentation and styling, and JavaScript adds interactivity and dynamic behavior.

2. **HTML:** HTML is the standard markup language used to create the structure of web pages. It consists of a series of elements or tags that define different parts of the content, such as headings, paragraphs, links, images, and forms.

3. **CSS:** CSS is used to style HTML elements, controlling their appearance and layout on the webpage. It allows developers to define attributes like colors, fonts, margins, padding, and positioning, thus shaping the visual presentation of the content.

4. **JavaScript:** JavaScript is a powerful scripting language that enables interactive and dynamic features on web pages. It can be used to manipulate HTML and CSS, handle user input, perform calculations, fetch data from servers asynchronously (AJAX), and create complex interactions such as animations and form validations.

**HTML**



HTML the Skeleton

**CSS**

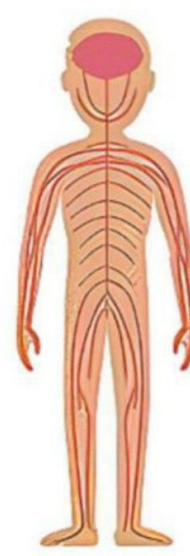


CSS the Skin

**JS**



Javascript the Brain



## ***Here are some key points on Frontend Development, HTML, CSS, and JavaScript***

### **1. Frontend Development Overview:**

- Frontend development involves building the visible parts of websites or applications that users interact with directly.
- It focuses on creating a user-friendly and visually appealing interface.



### **2. HTML (HyperText Markup Language):**

- HTML is the standard markup language for creating web pages.
- It defines the structure and content of web pages using a series of elements and tags.
- Elements like `

`, `

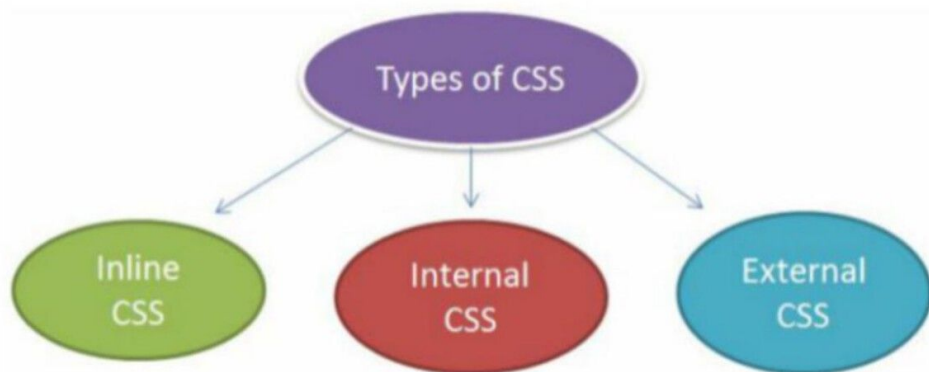
`, `

# ` to ``, ` `, ` `, ``, etc., are used to organize and present content.



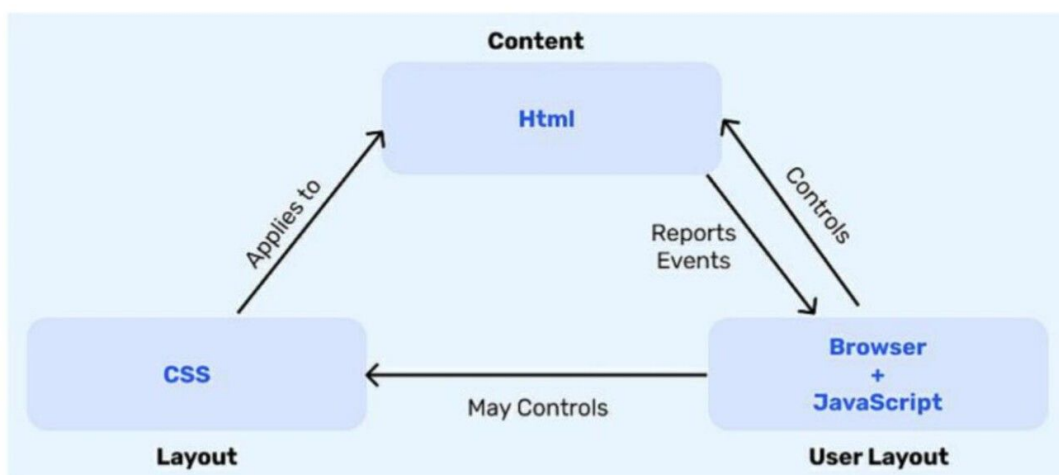
### 3. CSS (Cascading Style Sheets):

- CSS is used for styling HTML elements to control the layout, colors, fonts, and overall appearance of web pages.
- It allows developers to create visually engaging designs and ensure consistency across a website or application.
- CSS can be applied internally (within HTML file), externally (linked CSS file), or inline (directly in HTML elements).



### 4. JavaScript:

- JavaScript is a versatile scripting language used to add interactivity and dynamic behavior to web pages.
- It enables functionalities like form validation, animations, interactive maps, sliders, and more.
- JavaScript frameworks and libraries such as React.js, Angular, Vue.js, and jQuery simplify frontend development tasks and enhance productivity.








## 5. Responsive Design:

- Frontend developers ensure that websites and applications are responsive, meaning they adapt and display correctly on various devices and screen sizes.
- CSS media queries are used to design responsive layouts that adjust based on viewport dimensions.

## 6. Accessibility:

- Frontend developers prioritize accessibility to ensure that web content is usable by people with disabilities.
- They implement accessible HTML structures, provide alternative text for images, use semantic HTML, and adhere to accessibility guidelines such as WCAG (Web Content Accessibility Guidelines).

			
Language	HTML	CSS	Javascript
Purpose	Structure, Objects, Things	Looks, Style	Actions
Syntax	<code>&lt;p&gt; &lt;h1&gt; &lt;br&gt;</code>	<code>P {color: red;}</code>	<code>var x = 5;</code>
Grammar	nouns	adjectives	verbs
Building	Walls, structure	Paint, curtains	Electrical, Plumbing, AC

# 3. Backend Development

Backend development focuses on the server-side logic and infrastructure of web applications. It involves writing code that handles requests from clients, interacts with databases to store and retrieve data, and generates responses that are sent back to the client-side (frontend). Key aspects include using languages and frameworks like Python, Java, or Node.js, managing databases, creating APIs for communication, ensuring security through authentication and encryption, optimizing performance for scalability, and deploying applications to servers or cloud platforms. Backend development is crucial for creating robust, secure, and efficient web applications that meet the needs of users and businesses alike.

## Backend Components

1. **Web Framework:** Use a Python web framework like Flask or Django to handle HTTP requests, routing, and views.
  - **Flask:** Lightweight and flexible, good for small to medium-sized applications.
  - **Django:** Full-featured, including ORM (Object-Relational Mapping) for database interaction, admin interface, and more. Suitable for larger applications.
2. **Database:** MySQL is a relational database management system that is widely used and well-supported.
  - **MySQL Connector:** Use a Python MySQL connector library like ``mysql-connector-python`` or ``pymysql`` to interact with MySQL from your Python application.
3. **ORM (Optional):** If using Django, you can leverage its built-in ORM (Object-Relational Mapping) to simplify database interactions without writing raw SQL queries. For Flask, you might choose SQLAlchemy as an ORM.

#### 4. Our website design



## Student Registration Form

Fill out the form to apply for the training courses. You can consider your application accepted after you receive a confirmation email.

### Student Information \*

First Name	Middle Name	Last Name
<input type="text"/>	<input type="text"/>	<input type="text"/>
Date of Birth	Student ID	
<input type="text" value="dd - mm - yyyy"/>	<input type="text"/>	
Roll Number	Student Photo:	
<input type="text"/>	<input type="button" value="Choose file"/> No file chosen	
Father's Name	Mother's Name	
<input type="text"/>	<input type="text"/>	

### Address

Street Address	
<input type="text"/>	
City	State / Province
<input type="text"/>	<input type="text"/>
Country	PIN Code
<input type="text"/>	<input type="text"/>

### Contact Information \*

E-mail	Mobile No
<input type="text"/>	<input type="text"/>
Gender : <input type="radio"/> Male <input type="radio"/> Female	

### Courses \*

+ Add new record

Course	Stream	Language	Start Date
<input type="text" value="Course"/>	<input type="text" value="Stream"/>	<input type="text" value="Language"/>	<input type="text" value="dd - mm - yyyy"/>

Comments

Submit



# Student Registration Form

Fill out the form to apply for the training courses. You can consider your application accepted after you receive a confirmation email.

## Student Information \*

First Name	Middle Name	Last Name
NIHAL	KUMAR	GUPTA
Date of Birth	Student ID	
31 - 01 - 2004	nihal_2312res1019@iitp.ac.in	
Roll Number	Student Photo:	
2312res1019	Choose file 123.jpg	
Father's Name	Mother's Name	
Pankaj Kumar Gupta	Manju Devi	

## Address

Street Address	
Arya Samaj Road , Ballia	
City	State / Province
BALLIA	UTTAR PRADESH
Country	PIN Code
INDIA	277001

## Contact Information \*

E-mail	Mobile No
nihalgupta.iitp@gmail.com	8052009139
Gender : <input checked="" type="radio"/> Male <input type="radio"/> Female	

## Courses \*

+ Add new record

Course	Stream	Language	Start Date
B.tech	C S E	English / Hindi	01 - 03 - 2022
12th	P C M	English	06 - 02 - 2020
Course	Stream	Language	dd - mm - yyyy
Course	Stream	Language	dd - mm - yyyy

## Comments

comments if any?

Submit





Caps lock is off

NG

# Student Registration Form

Fill out the form to apply for admission. Your application will be accepted after you receive a confirmation email.

We can Add more records  
And also upload students  
Photo in registration form

## Student Information \*

First Name

NIHAL

Middle Name

KUMAR

Last Name

GUPTA

Date of Birth

dd - mm - yyyy

August, 2025 ▾



Mo Tu We Th Fr Sa Su

28 29 30 31 1 2 3

4 5 6 7 8 9 10

11 12 13 14 15 16 17

18 19 20 21 22 23 24

25 26 27 28 29 30 31

1 2 3 4 5 6 7

Clear

Today

Student ID

Student Photo:

Choose file 123.jpg

Mother's Name

Country

State / Province

PIN Code

## Contact Information \*

E-mail

Mobile No

Gender : ☐ Male ☐ Female

## Courses \*

+ Add new record



Course	Stream	Language	Start Date
<input type="text" value="Course"/>	<input type="text" value="Stream"/>	<input type="text" value="Language"/>	<input type="text" value="dd - mm - yyyy"/>
<input type="text" value="Course"/>	<input type="text" value="Stream"/>	<input type="text" value="Language"/>	<input type="text" value="dd - mm - yyyy"/>
<input type="text" value="Course"/>	<input type="text" value="Stream"/>	<input type="text" value="Language"/>	<input type="text" value="dd - mm - yyyy"/>
<input type="text" value="Course"/>	<input type="text" value="Stream"/>	<input type="text" value="Language"/>	<input type="text" value="dd - mm - yyyy"/>

Comments

Submit



Stu

Fill out the form and submit it to receive a confirmation email.

This page says

Further more information about to connect us!!

nihalgupta.iitp@gmail.com 805209139

OK

In submission of form  
The submit button hover-  
hover say alert by also  
Using Java script

## Student Information \*

First Name	Middle Name
NIHAL	KUMAR
Date of Birth	Student ID
31-01-2004	nihal_2312res1019@iitp.ac.in
Roll Number	Student Photo:
2312res1019	Choose file 123.jpg
Father's Name	Mother's Name
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Country	PIN Code
INDIA	277001

## Contact Information \*

E-mail	Mobile No
nihalgupta.iitp@gmail.com	8052009139
Gender :	
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12th	P C M	English	06-02-2020
Course	Stream	Language	dd-mm-yyyy
Course	Stream	Language	dd-mm-yyyy

## Comments

comments if any?

Submit

# 5. Reference

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1. **Mozilla Developer Network (MDN)** - MDN Web Docs is an excellent resource for web developers. It covers HTML, CSS, JavaScript, and more advanced topics like Web APIs and browser extensions.
2. **W3Schools** - W3Schools provides simple and easy-to-understand tutorials on various web technologies such as HTML, CSS, JavaScript, and many others. It's a great resource for beginners.
3. **CSS-Tricks** - This website offers tutorials, tips, and tricks for CSS and front-end development. It also covers topics like JavaScript and design principles.
4. **Stack Overflow** - While not a tutorial site, Stack Overflow is invaluable for troubleshooting and finding answers to specific programming questions related to web development.
5. **GitHub** - GitHub is not just for version control but also hosts countless repositories of open-source projects. You can find examples of code, libraries, and frameworks that can help you in your web development journey.
6. **Smashing Magazine** - This site provides articles, tutorials, and resources for web developers and designers, covering a wide range of topics from front-end to UX/UI design.
7. **CodePen** - CodePen is a playground for front-end developers. You can experiment with HTML, CSS, and JavaScript directly in the browser, explore other developers' pens, and learn from their code.
8. **DevDocs** - DevDocs combines multiple API documentations in a fast, organized, and searchable interface. It covers HTML, CSS, JavaScript, and many other programming languages and libraries.