

WEB DEVELOPMENT - FRONTEND AND BACKEND

With HTML, CSS, PHP and MySQL



WEB 
DEVELOPMENT

Prepared by :


- Anamika Singh 2023CSB030
- Shahrin Fatima 2023CSB061
- Diptanil Guha 2023CSB077
- Jyotirmoy Dutta 2023CSB110

Under the mentorship of
Prof. Biplab K Sikdar

OBJECTIVE

To make a replica of our department website with improved functionalities.

Old WebsiteNIRFहिंदी मेंWhy IEST, Shibpur?AdmissionPress ReleaseAlumni Portal

**IEST, Shibpur**
आई आई ई एस टि, शिवपुर
Erstwhile B.E. College (Estd 1856)

Indian Institute of Engineering Science and Technology, Shibpur
An Institute of National Importance
भारतीय अभियांत्रिकी विज्ञान एवं प्रौद्योगिकी संस्थान, शिवपुर

HomeInstituteAcademicResearchStudentFacultyIndustryQuick LinksDigital EduNotifications

Computer Science and Technology

Home

Academic Programs

Facilities

Research Areas

Faculty Members

Staff Members

Research Scholars

Projects

Publications

Gallery

Updates

Contact Us

About the Department

The Department of Computer Science and Technology (CST) was established in 1982. Since its inception, the department has played an important role in developing a vibrant and forward-looking academic environment. Currently, the department offers B.Tech, M.Tech, and PhD programs.

The department always maintains state of the art infrastructure and facilities for advanced research and consultancy. The department was accredited by the National Board of Accreditation (NBA) as an 'A' grade department and received ISO 9000 certification in 1999-2000. The department was also honored as the DST-FIST sponsored department in 2004. The department was ranked 10 in a nationwide survey conducted by Silicon India in 2012.

Vision & Mission

Vision

To be recognized globally for excellence in academic programs and innovative, applied and socially relevant research.

Mission

To provide the students with a firm foundation of both the theory and practice of Computer Science and Technology through a comprehensive undergraduate and postgraduate curricula, and to strengthen creativity, nurture innovation, and develop the ability to carry out research and solve real-world problems.

Updates

- ▶ **Notice:** Academic and Placement Brochure [18/06/2024](#)
- ▶ **Notice:** Time Table for PG 2nd semester, 2022-23 [30/12/2022](#)
- ▶ **Notice:** Time Table for UG 8th semester, 2022-23 [30/12/2022](#)
- ▶ **Notice:** Time Table for UG 6th semester, 2022-23 [30/12/2022](#)
- ▶ **Notice:** Time Table for IIG 4th

Know more

Content

- **HTML and CSS**
- **Initial Design of the Website**
- **New Technologies used to improve the website**
 - Bootstrap
 - PHP
 - MySQL
- **New Website - Design of Home Page**
 - Screenshot
 - Some important Codes
- **New Website - Design of BKS sir's homepage**
 - Screenshot
 - Features and Functionalities
 - Important code and backend database
- **New Website - Design of BKS sir's mentorship page**
 - User Interface Overview
 - Features and Functionalities
 - Backend Overview
- **Conclusion**

HTML and CSS

- HTML stands for HyperText Markup Language
- HTML elements form the **building blocks** of any websites
 - like **headings, paragraphs, links, images**, and more
- It provides the **skeleton** of a website
- It uses **tags** to structure content
 - Eg: <html>,<head>,<body>,etc
- It provides foundation for **CSS and JavaScript**
- It is case **insensitive**
- **CSS** stands for Cascade Style sheet
- It controls look and feel of website
- It styles the HTML
 - With colour, fonts, spacings, etc.
- Enables responsive design

```
<!DOCTYPE html>
<html>

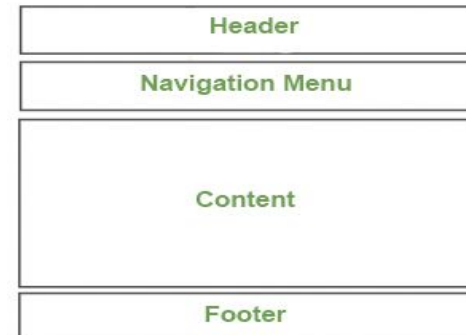
<head>
  <title>Page Title</title>
</head>

<body>
  <h2>Heading Content</h2>
  <p>Paragraph Content</p>
</body>

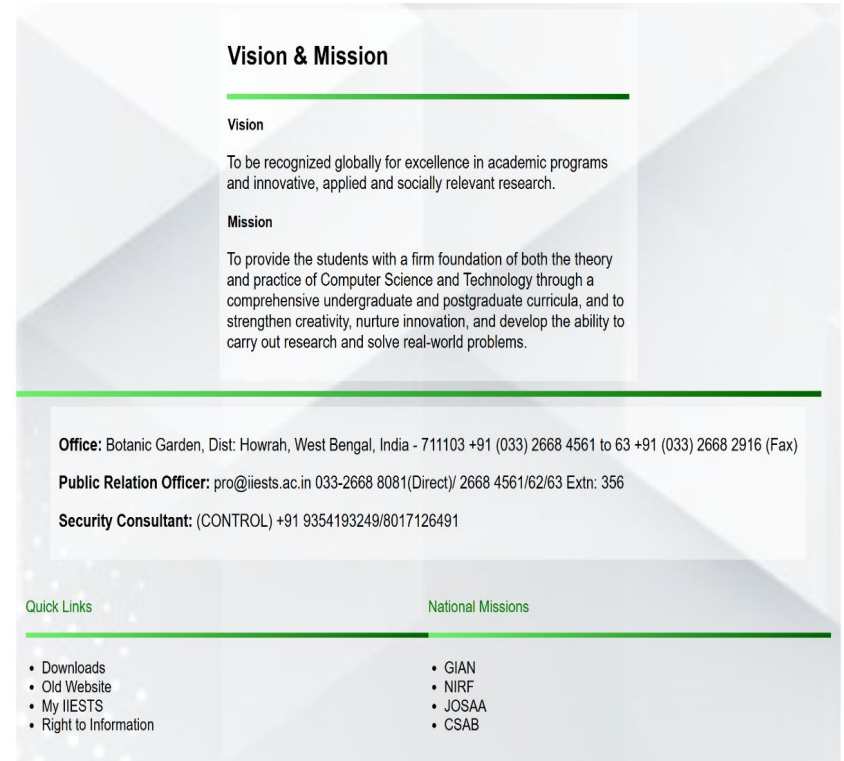
</html>
```

Standard Structure
of HTML code

Skeleton of a
website

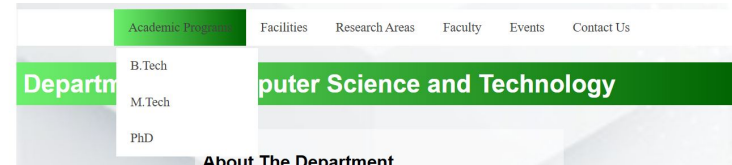
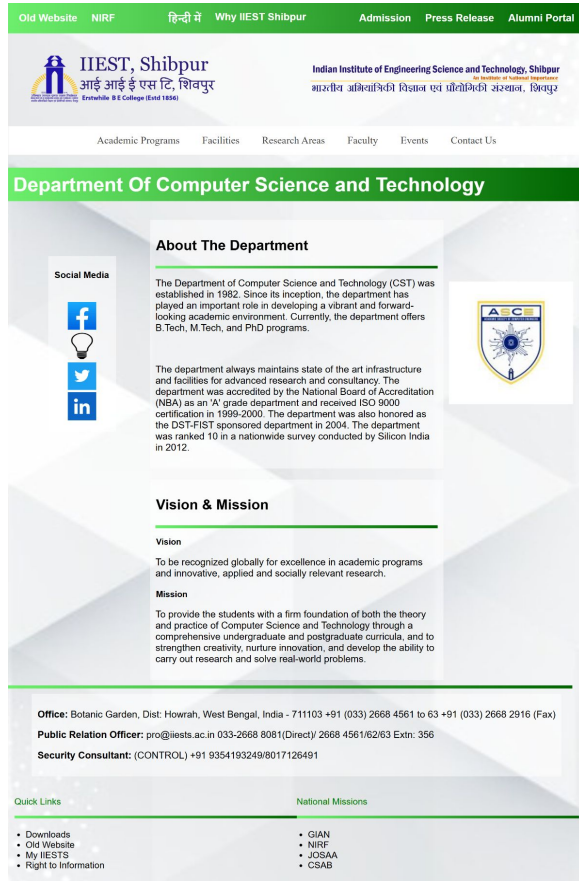


Initial Design of the website



Screenshot of the website made by us

Initial Design contd...



The menu has submenus

Advantages and Disadvantages

- Made from scratch has full control over the design
- The website is properly organised
 - Header, Menu, Main Div, Footer
 - Main Div was further divided into 3 parts
- Hyperlinks are provided
 - Social media, External Websites, etc
- However the website is not responsive in nature and has limited functionalities

New technologies used to improve the website

Bootstrap (frontend)

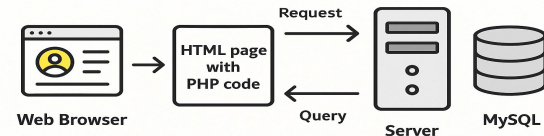
- The problem of unresponsive web page is solved using bootstrap
- It is a popular open source CSS framework
- It comes with predefined classes
 - Layouts, buttons, forms, etc
- Uses 12 - column grid system
- Saves time

MySQL (backend)

- Relational database management system
 - Manage, store and retrieve data
- Works with PHP to create data-driven web pages
- Uses Structured Query language to interact

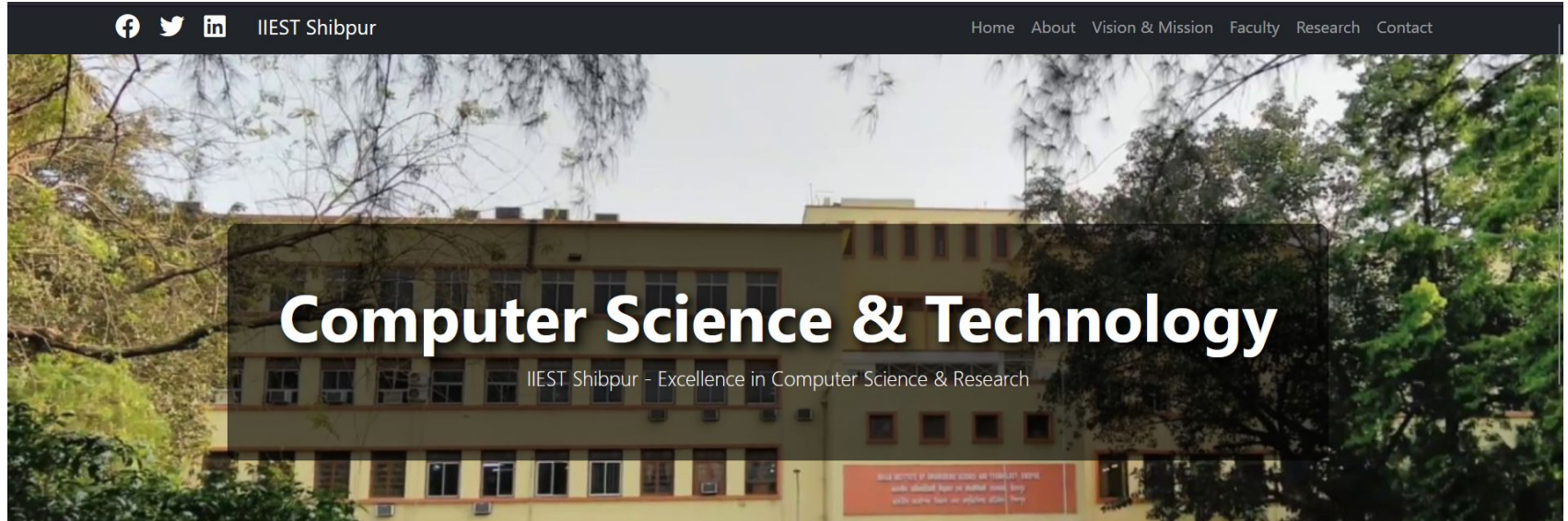
PHP (backend)

- PHP - Hypertext Preprocessor is a server-side scripting language
- Used to create interactive web page
 - read/write data, handle forms, etc
- Works with HTML to display content based on
 - logic , user input
- Executed on the server - result sent to the browser



New Website - Design of Home Page

Screenshot :-



Design of Home Page contd..

ABOUT THE DEPARTMENT

The Department of Computer Science and Technology (CST) was established in 1982. Since its inception, the department has played an important role in developing a vibrant and forward-looking academic environment. Currently, the department offers B.Tech, M.Tech, and PhD programs. The department always maintains state of the art infrastructure and facilities for advanced research and consultancy. The department was accredited by the National Board of Accreditation (NBA) as an 'A' grade department and received ISO 9000 certification in 1999-2000. The department was also honored as the DST-FIST sponsored department in 2004. The department was ranked 10 in a nationwide survey conducted by Silicon India in 2012.

VISION & MISSION

Vision

To be recognized globally for excellence in academic programs and innovative, applied and socially relevant research.

Mission

- To provide the students with a firm foundation of both the theory and practice of Computer Science and Technology through a comprehensive undergraduate and postgraduate curricula.
- To strengthen creativity, nurture innovation, and develop the ability to carry out research and solve real-world problems.

Design of Home Page contd..

Some important codes :-

1. Header & Metadata

```
<head>  
<meta charset="UTF-8">  
<meta name="viewport" content="width=device-width, initial-scale=1">  
<title>Department of Computer Science & Technology - IEST Shibpur</title>
```

Purpose: Sets up proper encoding, responsive behavior, and the page title for SEO/browser tabs.

2. CSS and Icons (Styling & Fonts)

```
<link rel="stylesheet"
href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css">
<link rel="stylesheet"
href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.4.0/css/all.min.css">
```

Purpose: Adds **Bootstrap** (for responsive layout) and **Font Awesome** (for social media icons).

3. Bootstrap JS Bundle

```
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></script>
```

Purpose: Enables **interactive components** like collapsible navigation.

New Website - Design of BKS sir's home page

Screenshot :-


Prof. Biplab K. Sikder

Home

Research

Contact

Mini Project



Professor Biplab K. Sikder

Professor Biplab K. Sikder, a distinguished faculty member of the Department of Computer Science and Technology at IEST Shibpur, holds a PhD from Bengal Engineering and Science University, Shibpur, and has a strong academic background with degrees in Computer Science & Engineering and Physics from Calcutta University and Presidency College.

His research primarily focuses on Cellular Automata and Computer Architecture, exploring innovative applications and advancements in these fields. With a rich educational history and a keen interest in cutting-edge technologies, Professor Sikder continues to contribute significantly to the academic community through his work.

Research Publications

Evaluation of Face Recognition Schemes for Low-computation IoT System Design

Authors : Jayanta Paul, Rajat S Bhowmick, Riom Sen, Dwaipayan Ray, Suman S Marjhi, Soumya Sen, Biplab K Sikder

2020 24th International Symposium on VLSI Design and Test (VDATE), Pages 1-6

[Edit](#)[Delete](#)

Exploring Hard to Detect Sequential Hardware Trojans

Authors : Nilanjana Das, Joy Halder, Baisakhi Das, Biplab K Sikder

2020 24th International Symposium on VLSI Design and Test (VDATE), Pages 1-6

[Edit](#)[Delete](#)

Periodic Boundary Cellular Automata Based Wear Leveling for Resistive Memory

Authors : Sutapa Sarkar, Manisha Ghosh, Biplab Kumar Sikder, Mousumi Saha

IAENG International Journal of Computer Science, Volume 47, 2020

[Edit](#)[Delete](#)

Modeling Remapping Based Fault Tolerance Techniques for Chip Multiprocessor Cache with Design Space Exploration

Authors : Avishek Choudhury, Biplab K Sikder

Journal of Electronic Testing, Pages 1-15, 2020

[Edit](#)[Delete](#)

An Efficient Clocking Scheme for Quantum Dot Cellular Automata

Authors : Mrinal Goswami, Anindan Mondal, Mahabub Hasan Mahalat, Bibhash Sen, Biplab K Sikder

International Journal of Electronics Letters, Volume 8, Pages 83-96, 2020

[Edit](#)[Delete](#)

Effect of Trojans on Write Data Access in Memory

Authors : Baisakhi Das, Nilanjana Das, Biplab K Sikder

2019 9th International Symposium on Embedded Computing and System Design (ISED), Pages 1-5

[Edit](#)[Delete](#)

Add New Publication

[+ Add New Record](#)

Contact Information

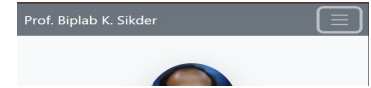
Email: biplab@cs.iests.ac.in
Phone: +91 - 33 - 26684561/62/63 Ext.

Design of BKS sir's home page contd...

Features and functionalities :-



Every record is fetched from database and is live updated



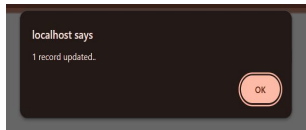
Update Record

ID:

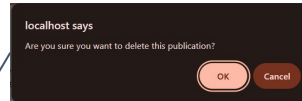
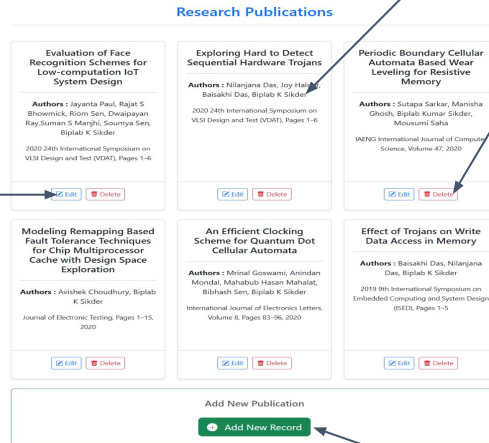
Title:

Author:

Description:



Update record from database



Delete record from database

Add Record

Title:

Author:

Description:

Add new record to database



Responsive Behaviour of the Webpage

Design of BKS sir's home page contd...

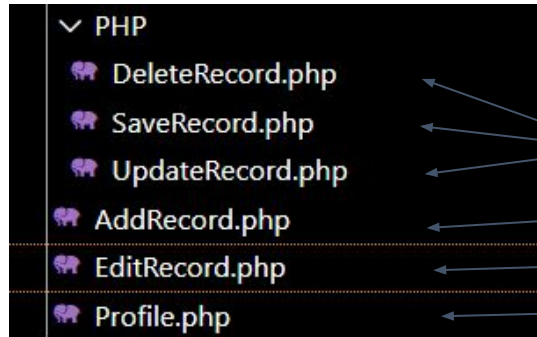
Important code and backend Database

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 ID	int(3)		UNSIGNED	No	None		AUTO_INCREMENT	Change Drop More
<input type="checkbox"/>	2 Title	text	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/>	3 Author	text	utf8mb4_general_ci		No	None			Change Drop More
<input type="checkbox"/>	4 Description	text	utf8mb4_general_ci		No	None			Change Drop More



The Structure of Database which is being used for the BKS sir's home page

The structure of PHP files



The three php files contains code to connect to database and contains SQL query to perform respective operations in the database

Form to add new record

Form to edit record (database connection used)

Main profile Page

```
<?php  
$con=mysqli_connect("localhost","jyotirmoy","12345","iists");  
$query="select * from research where ID='".$_$_GET['id']."'";  
$result=mysqli_query($con,$query);  
?>
```

Code to connect to the database
In this case the connection has been used to fetch data with a given ID (Edit Record)

```
<a href="EditRecord.php?id=<?php echo $row['ID']; ?>"
```

The particular record which the user wants to edit is known using the unique ID
In profile.php whenever the user clicks on edit of a particular record its ID is transferred to EditRecord.php

Design of BKS sir's home page contd...

Important code and backend Database

```
<?php
$con=mysqli_connect("localhost","Jyotirmoy","12345","iiests");
$query="delete from research where ID='".$_GET['id']."'";
$result=mysqli_query($con,$query);

echo '<script>
alert("1 record deleted..");
window.location= "../Profile.php";
</script>';
?>
```

The code in deleteRecord.php


```
<?php
$con=mysqli_connect("localhost","Jyotirmoy","12345","iiests");
$ID = $_GET['id'];
$Name = $_GET['name'];
$Auth = $_GET['author'];
$Desc = $_GET['desc'];
$query="UPDATE `research` SET `Title` = '$Name', `Author` = '$Auth', `Description` = '$Desc' WHERE `research`.`ID` = '$ID';";
$result=mysqli_query($con,$query);
```

The code in UpdateRecord.php

New Website - Design of BKS sir's Mentorship page

User Interface Overview:

Mentor



Professor Biplab K. Sikdar

View Profile

2nd Year

Search By Name


Search By Topic

Search

2nd Year

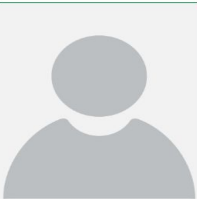
Topic: Web Dev

Description: Make a replica of our department website with improved functionalities



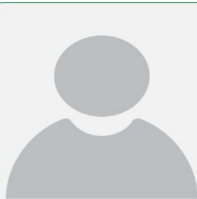
Shahrin Fatima

EditDelete




Anamika Singh

EditDelete



Jyotirmoy Dutta

EditDelete



Diptanil Guha

EditDelete

Design of BKS sir's home page contd...

Features and functionalities :-

Dynamic filtering of mentees using year, topic, or name

Year wise and topic wise grouping of students for clean display

1st Year

Search By Name

Search By Topic

Search

1st Year Year

Topic: Topic Name

Topic Description

Student1

Edit Delete

Student2

Edit Delete

Student3

Edit Delete

Records can be updated or deleted directly from the interface.

2nd Year

Topic: Web Dev

Shahrin Fatima

Edit Delete

Anamika Singh

Edit Delete

Jyotirmoy Dutta

Edit Delete

Diptanil Guha

Edit Delete

Topic: Computer Architecture

Student1

Edit Delete

Student2

Edit Delete

Student3

Edit Delete

1st Year

Topic: Topic Name

Topic Description

Backend Overview:

Data managed through a MySQL database with PHP handling server-side logic

#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
1	id	int(100)			No	None			Change Drop More
2	Name	text	utf8mb4_general_ci		Yes	NULL			Change Drop More
3	year	varchar(10)	utf8mb4_general_ci		Yes	NULL			Change Drop More
4	topic	text	utf8mb4_general_ci		Yes	NULL			Change Drop More
5	Description	text	utf8mb4_general_ci		Yes	NULL			Change Drop More

search and filter form on the frontend of the web portal.

```
<div class="container text-center mt-4">
  <form method="get" action="">
    <div class="row mb-3">
      <div class="col-md-3">
        <select class="form-select border-success" name="year">
          <option value="">—Academic Year—</option>
          <option value="1st Year">1st Year</option>
          <option value="2nd Year">2nd Year</option>
          <option value="3rd Year">3rd Year</option>
          <option value="4th Year">4th Year</option>
        </select>
      </div>
      <div class="col-md-3">
        <input type="text" class="form-control border-success" placeholder="Search By Name" name="name">
      </div>
      <div class="col-md-3">
        <input type="text" class="form-control border-success" placeholder="Search By Topic" name="topic">
      </div>
      <div class="col-md-3 text-start">
        <button type="submit" class="btn btn-success">
          <i class="bi bi-search"> Search</i>
        </button>
      </div>
    </div>
  </form>
</div>
```

Data Fetching and Filtering (PHP + MySQL)

```
<?php
error_reporting(E_ALL);
ini_set('display_errors', 1);

// Creating DB connection
$connect = mysqli_connect("localhost", "shahrin04", "12345", "mentee");
if (!$connect) {
    die("Connection failed: " . mysqli_connect_error());
}

// Getting filter values
$year = $_GET['year'] ?? '';
$name = $_GET['name'] ?? '';
$topic = $_GET['topic'] ?? '';

// Build query based on filters
$query = "SELECT * FROM students_info WHERE 1=1";
if (!empty($year)) {
    $query .= " AND Year = '" . mysqli_real_escape_string($connect, $year) . "'";
}
if (!empty($name)) {
    $query .= " AND Name LIKE '%" . mysqli_real_escape_string($connect, $name) . "%'";
}
if (!empty($topic)) {
    $query .= " AND Topic LIKE '%" . mysqli_real_escape_string($connect, $topic) . "%'";
}

$result = mysqli_query($connect, $query);
```

Conclusion

- **Studied Web development Fundamentals:** We gained a decent understanding of the core concepts of Web development including HTML, CSS.
- **Made an initial prototype of CST website :** Initially after studying about the basics of HTML and CSS we made a prototype of CST website from scratch. However it had limited functionality and had large scope of improvements. Hence we studied about Bootstrap, PHP, MySQL and improved our website.
- **Made a new website with four web pages :**
 - The Home Page :- Responsive in nature
 - BKS Sir's Home Page :- Responsive, has Database Support, Can edit, add, delete records.
 - Mini Project Student Directory :- Responsive, has Database Support, Can edit, add, delete records
- **Areas for Improvement:**
 - Combine the four webpages and deploy the website
 - Further expand the Scope of the Website
 - Add data type checks and authentication when adding and editing data for more security