



TECHNICAL  
CODING  
RESEARCH  
INNOVATION

# MERN FULL STACK DEVELOPMENT

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INTERNSHIP PROGRAM | 3 MONTHS

Visit Us:

[tcrinnovation.co.in](https://tcrinnovation.co.in)

Contact Us:

[tcrinnovation@tcrinnovation.co.in](mailto:tcrinnovation@tcrinnovation.co.in)

# ABOUT US

## OUR MOTTO

TCR Innovation stands for Technical Coding & Research Innovation and believes in bridging the gap between students and their knowledge in the industrial field & bringing them a step closer to their Dream.

## TRENDING PROGRAMS

We conduct our Internship Programs based on the current trends and the need of the Industry. We provide Live 1:1 Training Sessions on Google Meet and also provide recordings for Life-Time. Get trained for industry.

## INTERSHIPS

Get first-hand exposure to working in the real world, build your professional network, integrate classroom knowledge and theory with practical application and skills developed in professional or community settings.

## RESEARCH AND INNOVATION

Investment in discovering new technology and increasing the capacity of a firm involves brainstorming, ideation, product and development research, or similar techniques to tap into creative thinking and test concepts within the company and its market.

# WHY SHOULD YOU JOIN TCR?

## Interactive Learning

The world has changed a lot with the due course of time and with that our traditional learning methods have also changed, Interactive Learning is the future where the mentor is not monotonous but has its own way of fun & Interactive Learning where you will get knowledge in a more profound way.

## Mentoring

To be the best version of yourself you need the best mentor who can help you carve your own journey. Mentors at TCR are experienced people and currently active members of the industry. We handpick the best available mentors for you so that you can focus more on learning and exploring.

## Projects

We handpick the best projects for you, so that not only get theoretical knowledge and practical knowledge but along with that you get a hands-on experience on working on live projects. Projects also help to clear the conceptual knowledge you get and also are an integral part of your resumes and help you to stand-out from the crowd.

## Self Development

Make yourself knowledgeable and proficient in your domain is not enough these days due to drastic increase in the competition in the industry. As a candidate you need to have Leadership, Communication, Presentation, Social skills as well which will help you grow and get your desired spot in the industry, TCR will not only give you opportunities to develop those skills but help you in developing them as well.

# SALIENT FEATURES OF THIS COURSE

- **70+ Hours of Live Intensive Training**
- **20+ Hours of Hands-on Assignments and Projects**
- **Career, Interview, Internship, and Placement guidance**
- **Lifetime Access to Latest Content**
- **Learn from the Experts**
- **24X7 Support through Discussion form**



# WHY MERN STACK IS IMPORTANT?

- The abbreviation for Mongo Database, Express (.js), React (.js), and Node is MERN Stack (.js). The foundation of MERN Stack is also composed of these four technologies. Web and mobile applications are increasingly the go-to resources for a variety of tasks, from buying household goods to booking overseas flights, as technology begins to take over our life.
- Using JavaScript and JSON, the MERN Stack makes it simple to create a 3-tier design (Frontend, Backend, and Database).
- Reason for the popularity of the MERN stack is that it's easy for Web Developers to learn and use. MERN is a full-stack solution that relies on just one primary language: JavaScript

# WHY PURSUE MERN STACK PROGRAM?

- **The Support for The MERN Stack Is Good**

The popularity of the MERN stack can also be largely credited to Facebook's backing, the support of React's author, and a passionate user base. Although though Facebook originally developed React as an internal tool to simplify the user interface and make the app easier to administer, they released the library as an open-source project just a few years after it was developed.

- **The MERN Stack is a Productive, Economical Solution.**

The MERN stack's effectiveness is one of the main factors contributing to its success. Because of the MERN stack's high degree of developer flexibility and developer friendliness, programmers may quickly and effectively build a website or application from the ground up. Additionally, because the entire stack is made up of open-source products, it is also inexpensive!

- **The MERN Stack is Used by Many Notable Organizations**

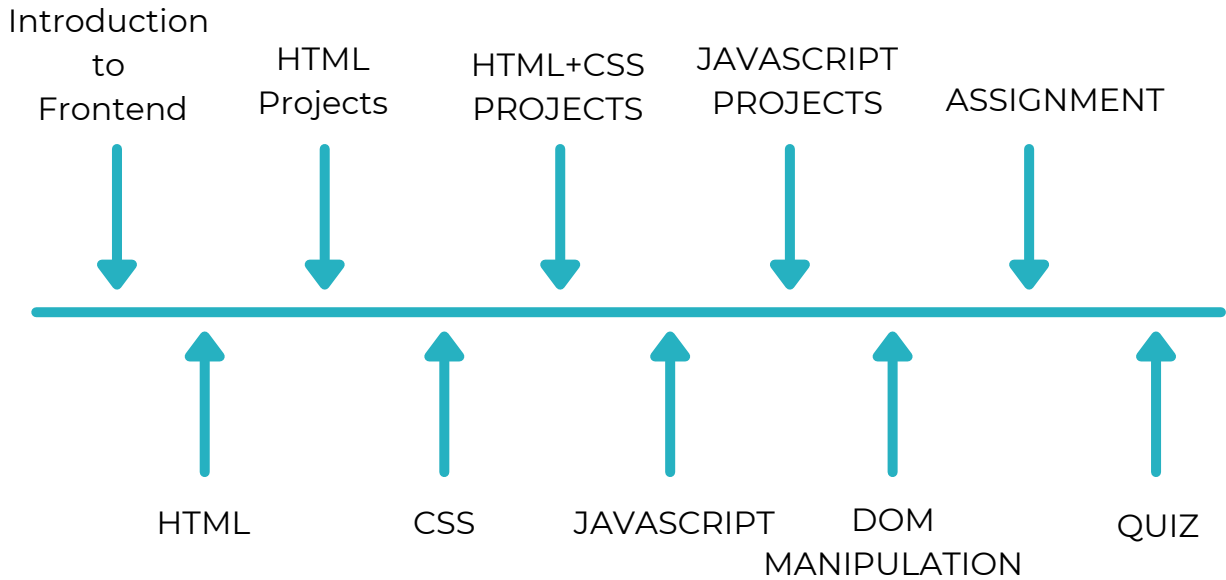
The adoption of MERN stack by well-known businesses to build their own websites and applications has also improved the technology's popularity. For instance, businesses like Apps Maven, Netflix, Instagram, and Airbnb currently employ the MERN stack.

# JOBS TO PITCH IN AFTER THIS INTERNSHIP PROGRAM

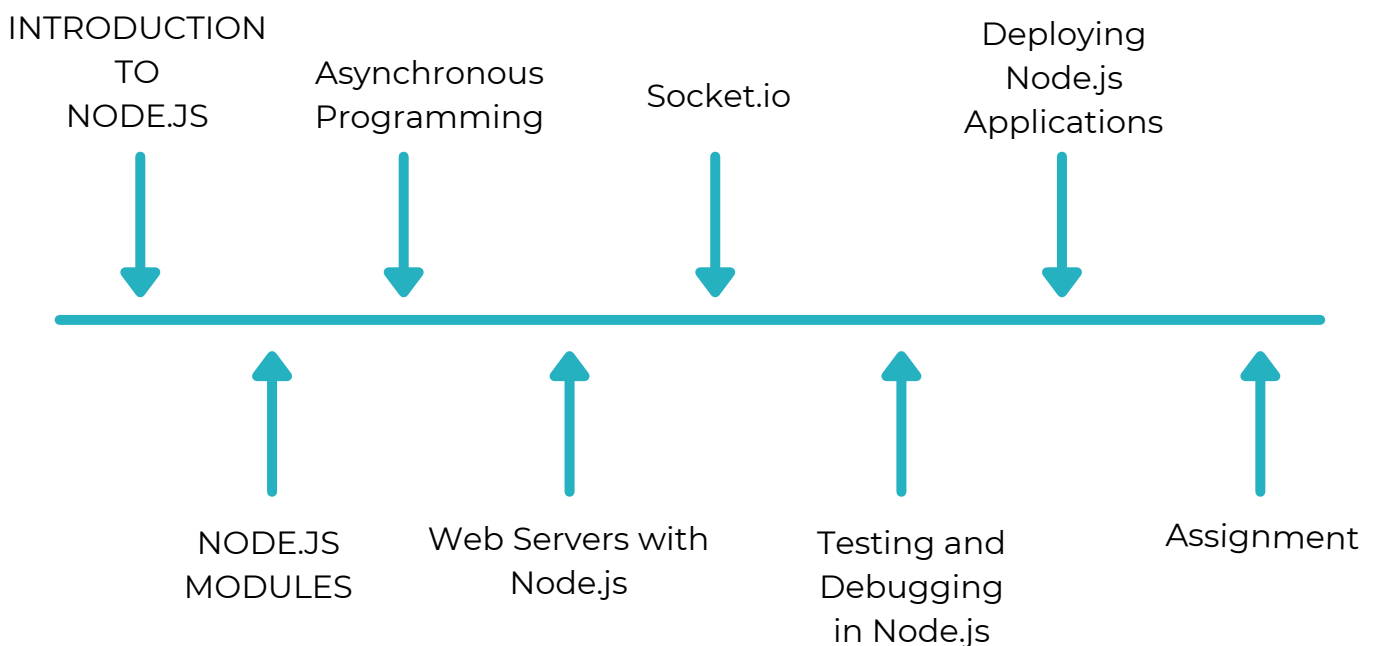
- **Front-end developer:** Average Salary \$78,753
- **Full-stack engineer:** Average Salary \$106,148
- **Back-end developer:** Average Salary \$82,327
- **Software engineer:** Average Salary \$110,140
- **Senior web developer:** Average Salary \$1,51,300
- **Computer Programmer:** Average Salary \$93,000
- **Animators:** Average Salary \$78,790
- **UX Developer:** Average Salary \$77,200



## TRAINING PERIOD 1:-

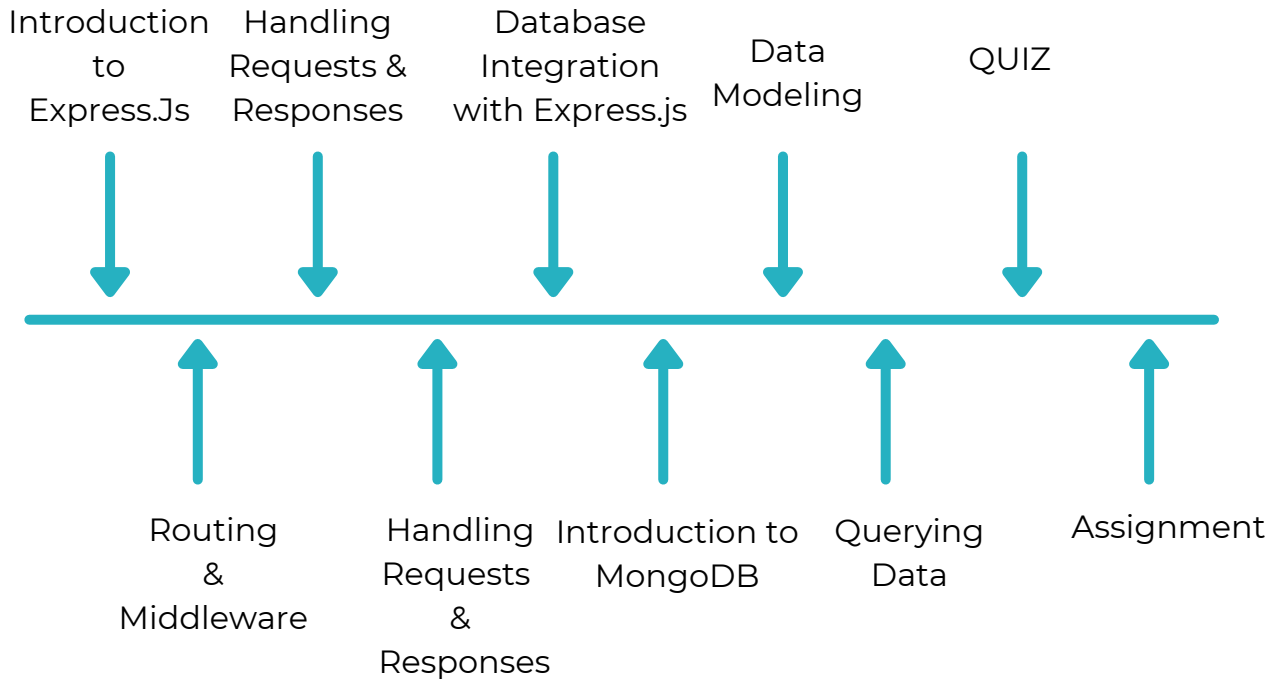


## TRAINING PERIOD 2:-

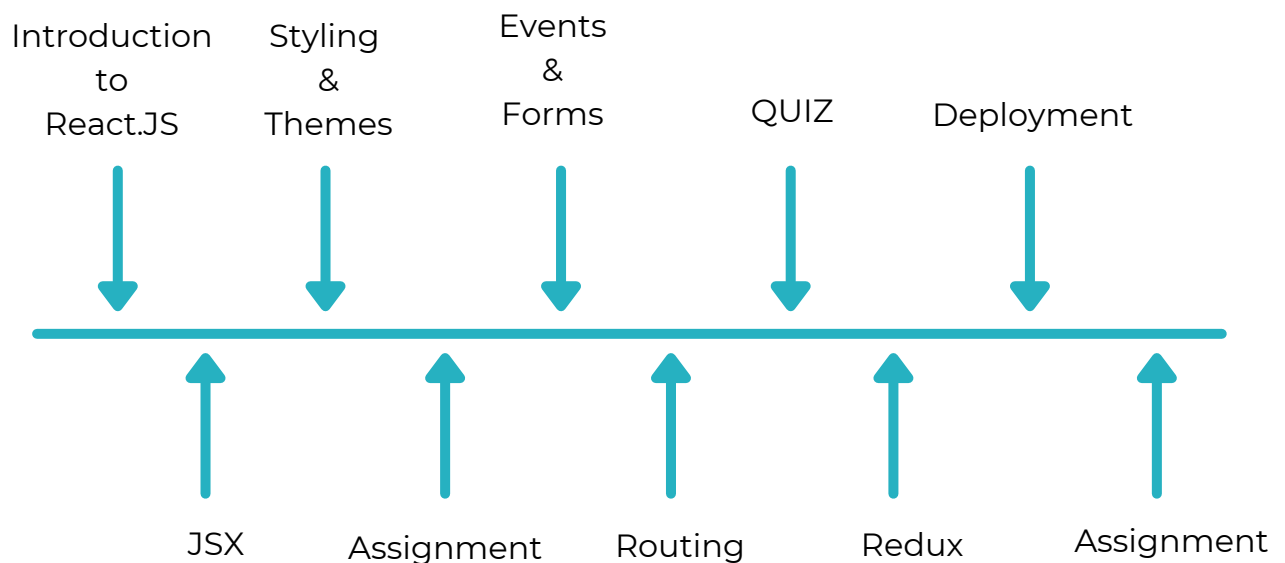




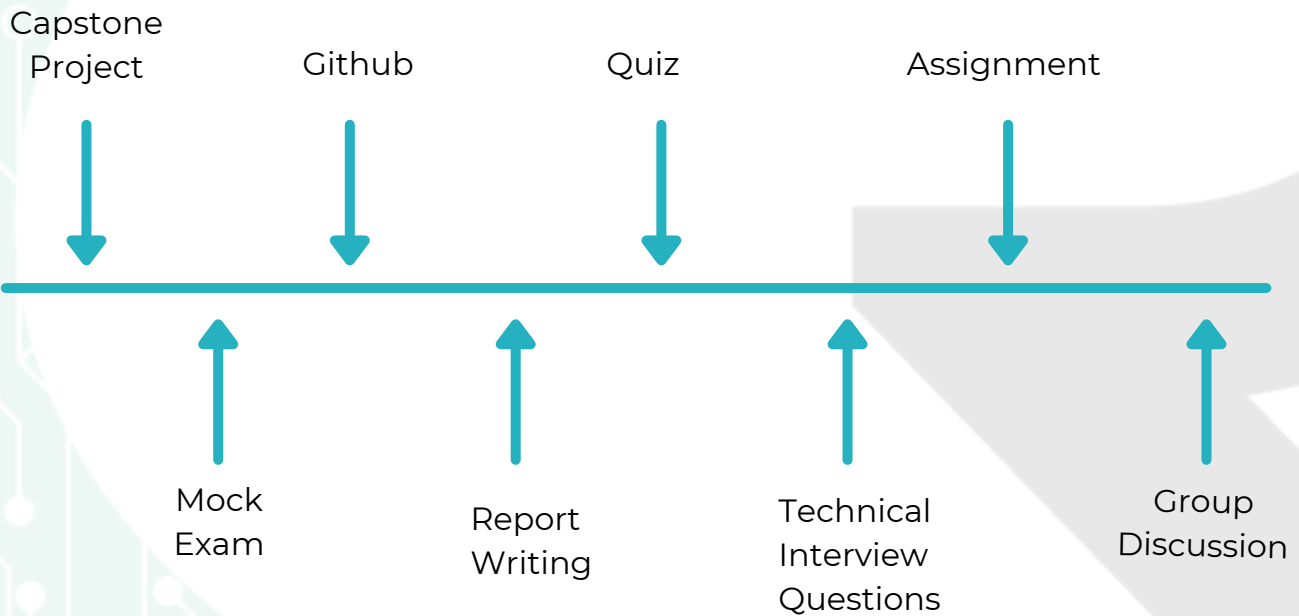
### TRAINING PERIOD 3:-



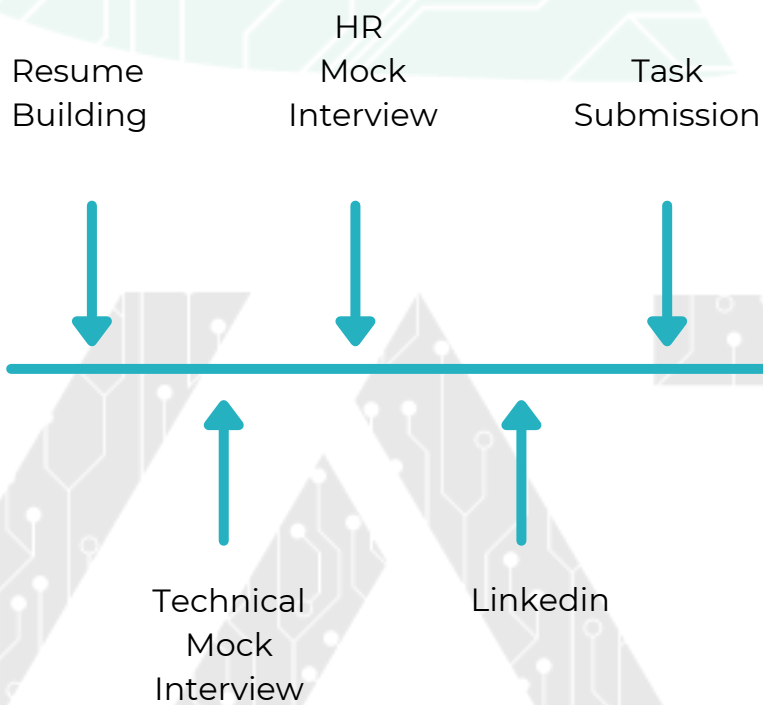
### TRAINING PERIOD 4:-



## INTERNSHIP PERIOD 1:-



## INTERNSHIP PERIOD 2:-



# PROGRAM PROPOSAL

MERN STACK DEVELOPMENT

# INTRODUCTION TO FULL STACK DEVELOPMENT

- Overview of Full Stack Development
- Introduction to MERN stack
- Setting up the development environment

## HTML

1. HTML Headings
2. HTML paragraphs
3. HTML links
4. HTML images
5. HTML Video
6. HTML Horizontal Rules
7. HTML Line Breaks
8. The HTML `<pre>` Element
9. Nested HTML Elements
10. HTML Lists-
  - a. HTML Unordered Lists
  - b. HTML ordered Lists
  - c. HTML Description Lists
11. HTML Tables
12. HTML Forms
13. HTML Input Types

## HTML

### 1.4 HTML Elements

- a. <input>
- b. <label>
- c. <select>
- d. <textarea>
- e. <button>
- f. <fieldset>
- g. <legend>
- h. <datalist>
- i. <output>
- j. <option>
- k. <optgroup>

### 15. HTML Attributes

- a. The Target Attribute
- b. The Method Attribute
- c. The Action Attribute
- d. src Attribute
- e. The width and height Attributes
- f. The value Attribute
- g. The alt Attribute
- h. The style Attribute
- i. The lang Attribute
- j. The title Attribute
- k. And many More

## HTML

16. Background Color
17. HTML Formatting Elements
  - a. <b> - Bold text
  - b. <strong> - Important text
  - c. <i> - Italic text
  - d. <em> - Emphasized text
  - e. <mark> - Marked text
  - f. <small> - Smaller text
  - g. <del> - Deleted text
  - h. <ins> - Inserted text
  - i. <sub> - Subscript text
  - j. <sup> - Superscript text
  - k. <span> - Span text
18. HTML Colors
19. HTML RGB and RGBA Colors
20. HTML HEX Colors
21. HTML HSL and HSLA Colors
22. HTML class Attribute
23. HTML id Attribute
24. HTML Responsive Web Design
25. HTML Semantic Elements
26. HTML Entities
27. HTML5 CANVAS

## CSS

- 1 what is CSS
- 2 Difference between HTML and CSS
- 3 Methods for adding CSS
  - a. Inline CSS
  - b. Internal CSS
  - c. External CSS
4. CSS selector
  - a. HTML tags
  - b. Class
  - c. Id
5. Colours in CSS
  - a. Colours name
  - b. HTML5 Colours names
  - c. Hexadecimal
  - d. RGB
6. Web safe fonts
  - a. Serif
  - b. Sans Serif

# PROGRAM PROPOSAL

**TCR**  
INNOVATION

## CSS

7. Box Model
  - a. Padding
  - b. Margin
  - c. Border
8. Positioning in CSS
  - a. Static
  - b. Relative
  - c. Absolute
  - d. Fixed
  - e. Initial
  - f. Inherit
9. Pseudo Element
  - a. First child
  - b. Last child
  - c. Nth child
  - d. Odd and even child
10. Flex box
11. Animation





## Java Script

1. Types of Output
2. Variables and Data Types
3. Arrays
4. Object Literals
5. methods for Strings , Arrays, objects
6. Loops
7. Conditions
8. Functions(normal and arrow)
9. construction function
10. DOM
11. DOM manipulation
12. Events
13. Basic Form Validation
14. Login form with js
15. Snake game

## Node.js

### Introduction to Node.js

- What is Node.js?
- Why use Node.js?
- Node.js architecture
- Installing Node.js
- Basic Node.js commands

### Node.js Modules

- Understanding modules in Node.js
- Built-in modules
- Installing third-party modules using npm
- Creating and publishing a module

### Asynchronous Programming

- Understanding modules in Node.js
- Built-in modules
- Installing third-party modules using npm
- Creating and publishing a module

### File System and Streams

- Reading and writing files
- Streams in Node.js
- Creating and piping streams
- Understanding file system operations

# PROGRAM PROPOSAL



## **Web Servers with Node.js**

- Creating a simple web server
- Handling HTTP requests and responses
- Serving static files
- Routing requests
- Working with databases

## **Real-time Communication with Socket.io**

- What is Socket.io?
- Setting up Socket.io
- Broadcasting and receiving messages
- Creating a real-time chat application

## **Testing and Debugging in Node.js**

- Understanding testing frameworks
- Testing with Mocha and Chai
- Debugging Node.js applications
- Using Node.js debugging tools

## **Deploying Node.js Applications**

- Preparing Node.js applications for deployment
- Hosting options for Node.js applications
- Deploying Node.js applications to Heroku
- Managing Node.js applications in production



## Express JS

### Introduction to Express.js

- What is Express.js?
- Why use Express.js?
- Express.js architecture
- Installing and setting up Express.js
- Basic Express.js commands

### Routing and Middleware

- Understanding routes in Express.js
- Creating routes in Express.js
- Route parameters and query strings
- Middleware in Express.js
- Custom middleware functions

### Handling Requests and Responses

- Handling GET and POST requests
- Working with request and response objects
- Understanding response codes
- Using template engines for dynamic content

# PROGRAM PROPOSAL



## Handling Forms and File Uploads

- Processing form data in Express.js
- File uploads in Express.js
- Validating form data
- Working with cookies and sessions

## Database Integration with Express.js

- Connecting to databases in Express.js
- Querying databases using SQL or NoSQL
- Using an ORM or ODM with Express.js
- Handling database errors and transactions

# MongoDB

## Introduction to MongoDB and NoSQL databases

- What is MongoDB?
- Why use MongoDB?
- MongoDB architecture and features
- Installing and setting up MongoDB
- Basic MongoDB commands



# PROGRAM PROPOSAL



## **Data Modeling in MongoDB**

- Understanding data modeling in MongoDB
- Creating collections and documents
- Designing schemas and indexes
- Embedding and referencing data

## **Querying Data in MongoDB**

- Understanding queries in MongoDB
- Querying data using CRUD operations
- Using aggregation framework for complex queries
- Indexing data for faster queries

## **Data Management in MongoDB**

- Updating and deleting data in MongoDB
- Bulk operations and atomicity
- Working with arrays and sub-documents
- Time-based queries and data expiration

## **Performance Tuning and Optimization in MongoDB**

- Analyzing performance metrics in MongoDB
- Tuning database and server settings
- Using sharding for horizontal scaling
- Understanding replica sets and failover



# PROGRAM PROPOSAL



## **Security and Authentication in MongoDB**

- Securing MongoDB against common threats
- Configuring access control and user authentication
- Using SSL and encryption for data security
- Auditing and logging for compliance

## **Integrating MongoDB with Other Tools and Technologies**

- Connecting MongoDB with Node.js
- Using MongoDB with Mongoose
- Integrating MongoDB with other databases and services
- Working with MongoDB in a microservices architecture

## **Deploying MongoDB**

- Preparing MongoDB for deployment
- Choosing the right hosting and deployment options
- Deploying MongoDB to the cloud
- Monitoring and managing MongoDB in production
- MongoDB CRUD operations
- Data modeling and schema design



## React JS

### Introduction to React.js

- What is React.js?
- Why use React.js?
- React.js architecture and features

### JSX and Components

- Understanding JSX syntax
- Creating and rendering components
- Working with props and state
- Using lifecycle methods

### Styling and Theming

- Adding styles to React.js components
- Using CSS Modules and CSS-in-JS libraries
- Theming with styled-components
- Animations and transitions

### Handling Events and Forms

- Handling events in React.js
- Working with forms and inputs
- Validating form data
- Implementing controlled components



# PROGRAM PROPOSAL



## **Routing and Navigation**

- Understanding client-side routing
- Configuring routing with React Router
- Working with dynamic routes and parameters
- Navigation and history management

## **State Management with Redux**

- Understanding state management
- Configuring Redux in a React.js app
- Working with actions and reducers
- Using selectors and thunks

## **Server-Side Rendering and Optimization**

- Understanding server-side rendering
- Configuring server-side rendering in a React.js app
- Implementing lazy loading and code splitting
- Optimizing performance with memoization and pure components

## **Testing and Deployment**

- Unit testing React.js components
- Integration testing with Jest and Enzyme
- Building and deploying a React.js app
- Continuous integration and deployment



# PROGRAM PROPOSAL



- JSX syntax and rendering elements
- Handling events and state management

## **React Components and Props**

- ·React component hierarchy and composition
- ·Props and state
- ·Conditional rendering and lists

## **React Forms and Validation**

- ·Handling forms and form validation in React
- ·Controlled and uncontrolled components
- Working with input and select elements

## **Testing and Deployment**

- Unit testing React.js components
- Integration testing with Jest and Enzyme
- Building and deploying a React.js app
- Continuous integration and deployment



# TOOLS COVERED

**HTML**



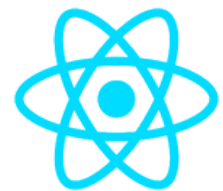
**CSS**



JavaScript



mongoDB



React JS

# ADDITIONAL SKILLS YOU WILL LEARN



**Linkedin**



**Github**



**Improved Communication skills**



**Interview cracking**



**Resume building**



**Leadership skills**

# APPLICANTS FROM HERE ARE WORKING IN FOLLOWING COMPANIES



# WHICH COMPANIES YOU CAN APPLY FOR:



Mercedes-Benz



# OUR PRESTIGIOUS PARTNERS



**GARGI COLLEGE**  
UNIVERSITY OF DELHI  
ACCREDITED WITH GRADE 'A+' BY NAAC



**RAMJAS COLLEGE**  
UNIVERSITY OF DELHI  
EST.1917



**SOMAIYA**  
VIDYAVIHAR UNIVERSITY  
K J Somaiya Institute of Management



**HINDU COLLEGE**  
UNIVERSITY OF DELHI



**PHCASC**  
Pillai HOCL Educational Campus, Rasayani



**D Y PATIL**  
DEEMED TO BE  
UNIVERSITY  
— RAMRAO ADIK —  
INSTITUTE OF TECHNOLOGY  
NAVI MUMBAI

# OUR ALUMNI



Suyog Jujum  
CAPGEMINI



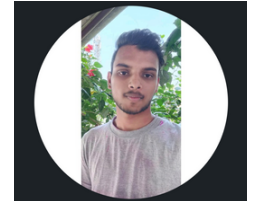
Tejas Vagade  
CAPGEMINI



Yadnesh Rane  
CAPGEMINI



Dharani Rajagopal  
JIO PLATFORMS  
LIMITED



Shailesh Gupta  
SKILROCK  
TECHNOLOGIES



Aiman Shaikh  
COGNIZANT



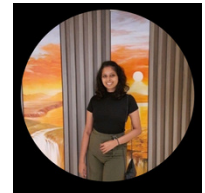
Aditya Singh  
MASTEK



Hrishikesh Godse  
HEXAWARE  
TECHNOLOGIES



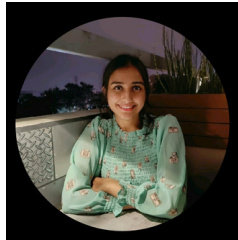
Kashish Gautam  
TATA  
CONSULTANCY  
SERVICES



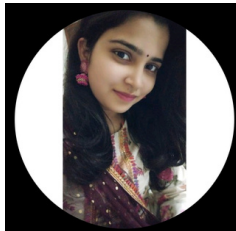
Ashwati Rao  
TATA  
CONSULTANCY  
SERVICES



Prashanth S  
TATA  
CONSULTANCY  
SERVICES



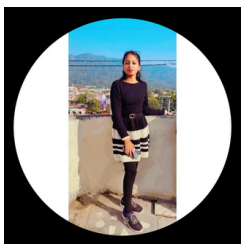
Dharani Rajagopal  
TRICON  
INFOTECH



Smriti Dwivedi  
TATA POWER



Neeraj Patil  
ERNST & YOUNG



Smriti Agarwal  
HARMAN INDIA



Anup Yadav  
RAZORPAY



Pratik v. Jagtap  
COGNIZANT

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# OUR ALUMNI



**Vikram Jha**  
**TATA**  
**CONSULTANCY**  
**SERVICES**



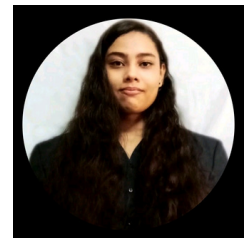
**Amrutha R**  
**ANZ**



**Nishita Gupta**  
**ACCENTURE**



**Sejal Holam**  
**ACCENTURE**



**Aanchal Shetty**  
**MERKLE**



**Saloni Rane**  
**MEDIA.NET**



**Arena Job**  
**COGNIZANT**



**Rishabh tandon**  
**HIGHRADIUS**



**Shayantan Banik**  
**ACCENTURE**

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to know more about our Alumni's.**

# MASTERS' GUEST SESSION



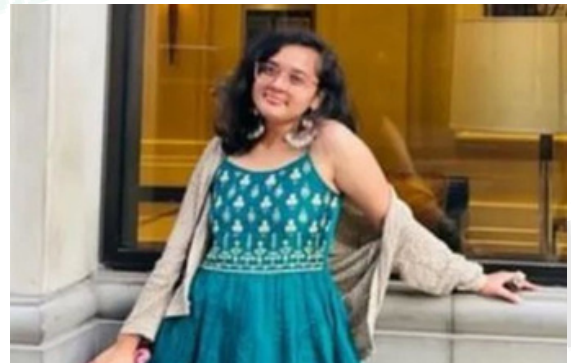
**Purva Sawant**  
ARIZONA STATE UNIVERSITY  
Masters in Engineering Management



**Dakshita**  
ARIZONA STATE UNIVERSITY  
Global Management



**Sejal Desai**  
NORTHEASTERN UNIVERSITY  
Masters of science in information  
systems



**Mansi Patel**  
ARIZONA STATE UNIVERSITY  
Management of Technology

# CERTIFICATE

**Training Completion Certificate**

**Internship Certificate**

**Letter of recommendation**

**Appreciation certificate**

## Internship Program Registration

Duration of the internship program: 3 Months

### How to Register & Fees:

Step 1: Attend the free orientation to get the detailed information about our internship program.

Step 2: Final Registration Form will be provided and fees will be disclosed in the orientation itself.

# WHERE TO FIND US?



Visit us at: <https://tcrinnovation.co.in>



**TCR INNOVATION**



[tcrinnovation@tcrinnovation.co.in](mailto:tcrinnovation@tcrinnovation.co.in)

**Contact us : 8369123572, 9819517276**

