

TECHFEST 2023-24

AI Enabled Code Generator for MERN Stack

Creating a tool specifically tailored for the MERN stack (MongoDB, Express.js, Reactjs, and Node.js) development can greatly enhance developers' productivity and efficiency. Success of a MERN stack-focused code assistant tool will depend on its ability to understand the specific needs of MERN stack developers and provide valuable, context-aware suggestions throughout the development lifecycle.

PROBLEM STATEMENT

Participating teams have to build a **MERN** stack-focused code assistant tool with the following features:

1. **Natural Language Interaction:** Enable developers to interact with the assistant using queries, making it easier to find solutions and get guidance.
2. **Intelligent Code Completion**
 - **Reactjs:** The AI model generates React.js code based on the user's input and the learned patterns from the training data. Ensure the generated code is well-structured, adheres to best practices, and follows React.js conventions
 - **Node.js API Assistance:** Provide suggestions and code snippets for creating RESTful APIs using Express.js. Assist with routing, middleware, error handling, and database interactions. Suggest best practices for security, input validation, and authentication.
3. **Test Case Generation:** For Reactjs components - the tool can automatically create test cases for component functions, event handlers, and template interactions. It can identify DOM elements and simulate user interactions. For Express.js routes - the tool can create test cases for each route, mocking HTTP requests and responses. It should handle different HTTP methods (GET, POST, PUT, and DELETE) and various request parameters.
4. **Continuous Learning:** Feedback Loop: Implement a feedback loop where developers can review and modify the generated test cases. The AI system should learn from these modifications to improve its future test case generation accuracy.

STRUCTURE:

There will be two stages to the competition -

Round 1: Abstract review meet

Shortlisted teams will showcase their work.

Improvements will be suggested by the experts

Round 2: Final review meet

Updated report will be showcased based on which 5 teams will be shortlisted for the final presentation.

Round 3: Presentation and Working Demonstration

Working demonstration and presentation of the solution

Top 5 teams shortlisted from Stage 2 will present their solution at Techfest 2023-24

ABSTRACT SUBMISSION:

- Prepare a report and send it to mern@techfest.org
- Subject of the mail: MERN_TeamID_TeamLeaderName
- Mention all your team details clearly in the mail.

TEAM SPECIFICATIONS AND ELIGIBILITY

- All students with a valid identity card from their respective educational institutions are eligible to participate in the competition
- A team can have a maximum of 4 members.
- Students from different institutes can be a part of the same team.

GENERAL RULES

1. Every team has to register online on our website for the competition. A Team ID will be allocated to the team on registration which shall be used for future references.
2. A team can register at any point of time before 19th November 2023 and submit the final abstract.
3. The decision of the organizers or judges shall be treated as final and binding on all. Techfest has all the rights to verify the identity and accuracy of the details provided by the participants.
4. No responsibility will be held by Techfest, IIT Bombay for any late, lost or misdirected entries.
5. The idea presented by the teams should be original (not protected by means of patent/copyright/technical publication by anyone else).
6. Note that at any point of time the latest information will be that which is on the website. However, registered participants will be informed through mail about any changes on the website.
7. All modes of official communication will be through the Techfest e-mail.

TIMELINE

Last date for registration	19th November	Participants need to register before this date
Last date for abstract submission	19th November	Submission of First Draft Report
Round 1	22nd November	Experts will review your abstract and guide you for improvements
Round 2	Mid-December	Participants will showcase updated report and 5 teams will be shortlisted
Round 3	27th-29th December	Final Live presentation in front of Judges

CERTIFICATE POLICY

1. Top three teams in the grand finale will be awarded Certificate of Excellence.
2. E-Certificate of participation will be given to the teams scoring more than the critical marks which will be decided later.

PRIZE MONEY

The Prize money will be awarded to the **top 3** Winners via NEFT and will be processed within **30** working days after receiving the Prize Money from Sponsors.

The Winners have to mail the following information (immediately after the announcement of the results) to akshat@techfest.org.

Subject: Competition name, team id - your position (example- Boeing Aeromodelling, Boei-2309234 – 1st position)

Body of mail-

1. Account Holder's Name
2. Account Number
3. Bank name and Branch name
4. IFSC Code
5. Photograph of Bank Passbook as a proof