

**Project Proposal for BEE**

1. Project Statement:

The project aims to develop a **E commerce website** using **Express.js** for handling server-side operations and routing, **React JS** for rendering dynamic pages, and **MongoDB** as the backend database for storing user and booking information. The app will allow users to:

* View a list of currently available items.
* Choose products based on real-time availability and add it to cart feature.

The system will also have a user login and registration feature to maintain history and facilitate personalized services.

1. Approximate duration (in hours) to complete the project:

* **Planning & Research**: 5-10 hours
* **Backend Development (Node.js, Express.js)**: 20-25 hours
* **Database Design (MongoDB)**: 10-15 hours
* **Frontend Development (ReactJS, HTML, CSS, JavaScript)**: 15-20 hours

1. Proposed Project In charge: Joel Matthew (2210990465)
2. Team Members along with roll no’s:
   1. Joel Matthew (2210990465)
   2. Karan Kumar Garg (2210990478)
   3. Kartavya Tomar (2210990484)
   4. Kashish (2210990495)
   5. Kshitij Gulati (2210990525)
3. Check Points:
   1. **Does the project statement result in a product? If yes, what type of product?**

Yes, it results in a fully functional e commerce website (URBANCART).

* 1. **If it is a product, can a prototype be made, if not, what is it, which we can produce that our teachers can evaluate.**

Yes, a functional prototype will be developed. It will include a user-friendly interface.

This prototype will also feature basic user authentication (registration and login) and show a simplified version of the system's intended final functionality.

* 1. **Does the project statement use multiple concepts to achieve the outcome? (yes/no)**

Yes, the project incorporates various concepts such as:

* **Server-side logic** using Express.js.
* **Frontend development** for interactive and responsive user interfaces.
* **Database management** using MongoDB to handle data storage and retrieval.
* **CRUD operations** for order management.
  1. **Does it have enough for our team members to do sufficient amount of work? (yes / no)**

Yes, the project is well-divided into different modules and tasks:

* **Backend development**: API routes, business logic, database interactions.
* **Frontend development**: User interfaces, seat selection, form validations.
* **Database management**: Schema design, database queries, and optimization.
* **Testing and debugging**: Manual and automated testing to ensure smooth functionality.

1. Technical Nodes

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| Subject / Area / Topic | Technical Nodes |
| Express.js (Nodejs framework) | Middleware setup, routing, REST API development, server management. |
| React JS | Dynamic page rendering, integrating backend data into HTML templates |
| MongoDB (Database) | Designing schemas (Products, Add to cart), CRUD operations using Mongoose, indexing |
| HTML, CSS, JavaScript | Designing the user interface, making forms interactive, seat booking interface, responsive layout |
| Authentication & Authorization | User login/registration, session management, JWT-based authentication |

1. Prerequisites (in terms of knowledge, concepts and material) for doing the Project:

* **JavaScript & Node.js**: Understanding of core JavaScript concepts like promises, asynchronous programming, and server-side development using Node.js.
* **Express.js**: Familiarity with middleware, routing, and error handling in Express.js.
* **MongoDB & Mongoose**: Knowledge of NoSQL databases, schema design, and performing CRUD operations with Mongoose.
* **Frontend Technologies**: Proficiency in HTML, CSS, and JavaScript to develop dynamic and responsive pages.
* **ReactJS**: Ability to use React for server-side rendering and passing data from backend to frontend.
* **Authentication**: Basics of session management and user authentication (using JWT or cookies).

1. Material that may be required to make the project and where it might be available

* **Software**:
* Node.js (Available from the [official website](https://nodejs.org/))
* MongoDB (Available from [MongoDB Atlas](https://www.mongodb.com/cloud/atlas) or local installation)
* VS Code or any preferred IDE (Available for free from [Visual Studio Code](https://code.visualstudio.com/))
* **Libraries & Frameworks**:
* Express.js, Mongoose, ReactJS, and other NPM packages (Install via Node.js package manager, NPM)
* **Documentation & Tutorials**:
* [Express.js Documentation](https://expressjs.com/), [MongoDB Documentation](https://docs.mongodb.com/), [EJS Guide](https://ejs.co/), [MDN Web Docs](https://developer.mozilla.org/en-US/)
* **APIs**:
* Stripe or PayPal for payment gateway integration (Available from their official websites).

1. What could the total cost of the project?

$0 (Using open-source tools like Node.js, MongoDB, and free-tier cloud services).

1. Resources available to us:

* **Laptops/PCs**: Each team member will have access to their own machine for development.
* **Internet**: For research, documentation, and collaboration.
* **Open-Source Libraries**: Use of Express.js, Mongoose, ReactJS, and other open-source NPM packages for development.
* **Free Online Tutorials**: Access to online learning platforms like YouTube, FreeCodeCamp, or MDN Web Docs for learning new concepts and troubleshooting issues.