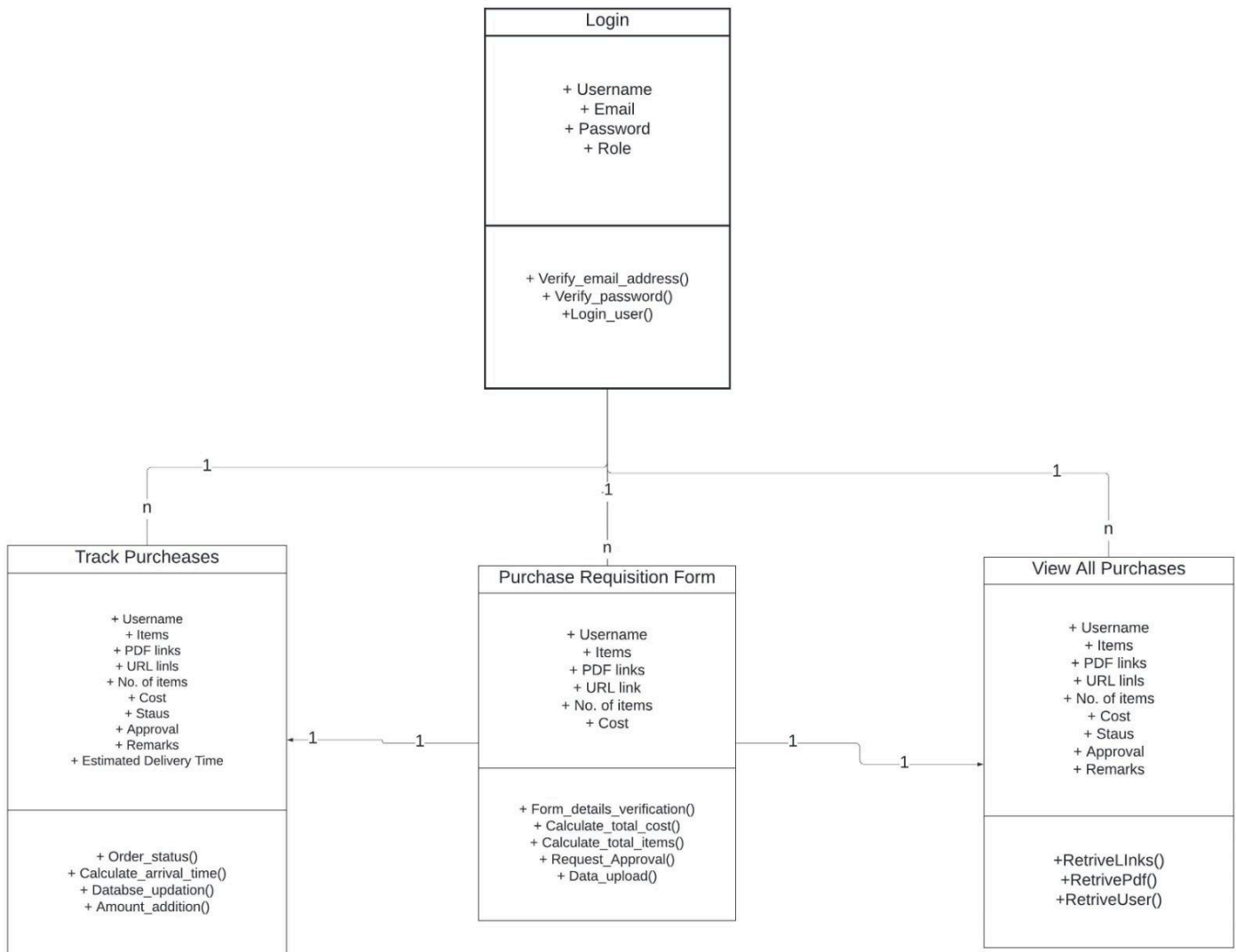


# Product Design

**Team** 31 (Automate R&D Workflow - Arka Aerospace)

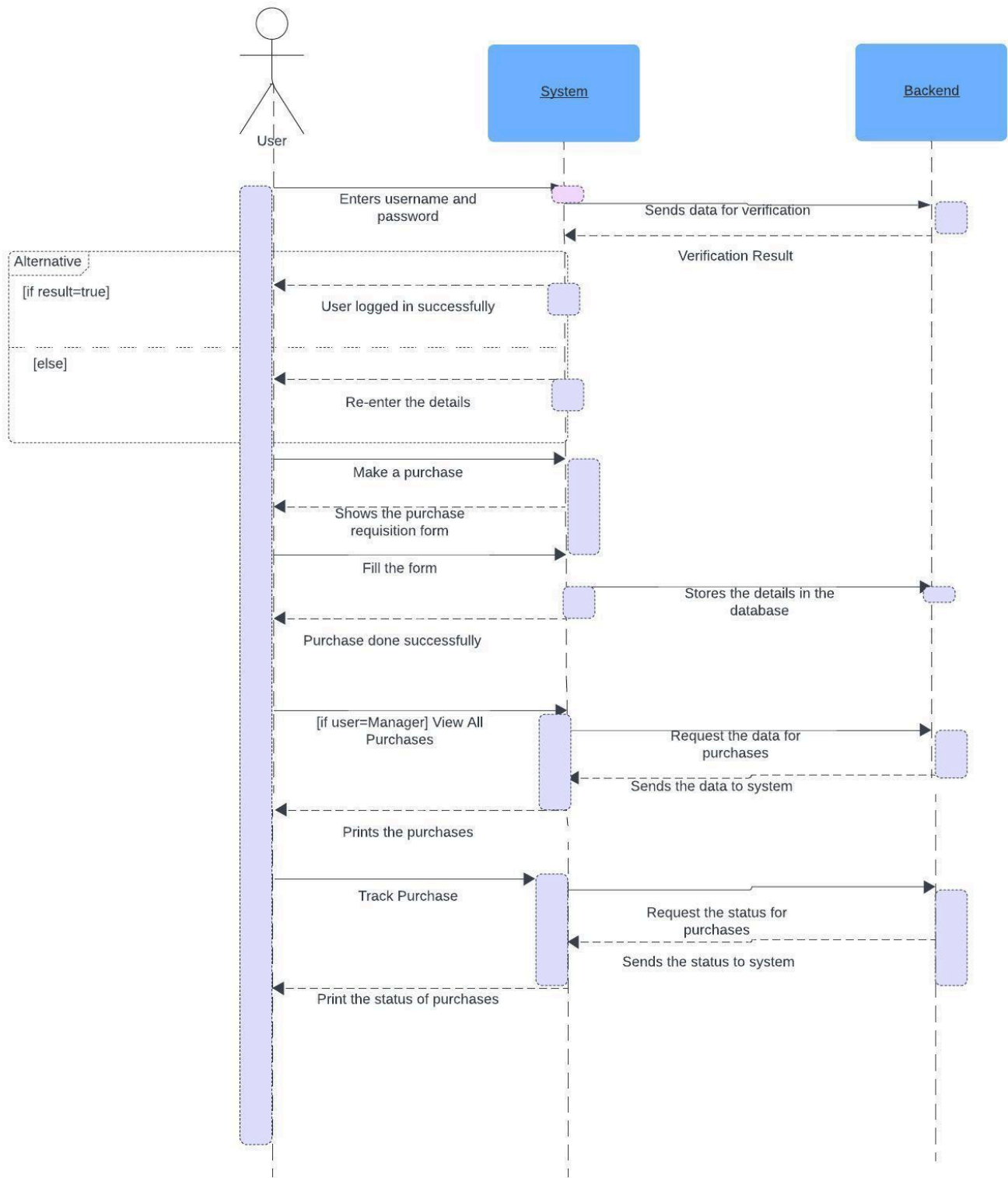
**Members** Aditya Garg, Agrim Mittal, Aniket Bansal, Atidipt Ashnin, Shivam Singh

## Design Model



Login	<p>Class state</p> <ul style="list-style-type: none"> <li>• Maintains information about the User credentials that include the Username, E-mail address, Password, and Role in the company.</li> </ul> <p>Class behavior</p> <ul style="list-style-type: none"> <li>• Validates and confirms if the data entered corresponds to a registered user.</li> <li>• If the user credentials match with the database, the page redirects to the Home page of the user.</li> <li>• If the credentials entered are incorrect, the system raises an alert and sends error/warning message.</li> </ul>
Purchase Requisition Form	<p>Class state</p> <ul style="list-style-type: none"> <li>• Temporarily stores the data filled in by the user in the form.</li> </ul> <p>Class behavior</p> <ul style="list-style-type: none"> <li>• Sends all data filled to the database on clicking the Submit button along with the username of the User.</li> <li>• In case any required field has been left unfilled then returns error message and does not send details.</li> <li>• Gives an alert message when the form is submitted successfully.</li> </ul>
View All Purchases	<p>Class state</p> <ul style="list-style-type: none"> <li>• Maintains records of purchases made by users using the system.</li> </ul> <p>Class behavior</p> <ul style="list-style-type: none"> <li>• View all purchases in a easy to use tabular format.</li> <li>• The Manager has the option to Approve the purchase request, change Status of the purchase, and leave Remarks.</li> </ul>
Track purchases	<p>Class state</p> <ul style="list-style-type: none"> <li>• Stores data about all the purchases made by the currently logged-in user.</li> </ul> <p>Class behavior</p> <ul style="list-style-type: none"> <li>• View the status of the purchases.</li> </ul>

# Sequence Diagram(s)



# Design Rationale

- **React for User Interface:**
  - React.js was preferred for frontend development as it provides essential features like routing, middleware support, and template engines.
  - React's component-based architecture promotes modular development, making it easier to manage complex UIs.
  - It's diverse libraries and tools helps to create interactive and responsive user interfaces with ease.
- **Incorrect Login Detection Failure:**
  - The system matches the string message returned on entering the login details to decide if the user should be allowed access to the system or not.
  - The unregistered users were also allowed access as the string matching wasn't working as desired.
  - This was changed to check the status returned. Status: 201 was used for correct users and Status: 210 was used for incorrect users.
  - Checking the status avoided any design errors and hence the login system worked as desired.
- **Using MongoDB for database management**
  - MongoDB is a NoSQL database, which means it does not require a predefined schema like traditional relational databases.
  - MongoDB is designed to scale out horizontally, making it suitable for handling large volumes of data and high throughput applications.
- **Data retrieval through Form**
  - Data in the Radio Button format needed to be retrieved.
  - We changed the radio buttons to a drop-down format. This simplified the data retrieval process.
  - Doing this was also a benefit from the design perspective as it shortened the form which otherwise was unnecessarily long.
- **Date display format**
  - Earlier the date type was used to both retrieve the current data and storing it in the database.
  - The date format during extraction was: "DD-MM-YYYY" while in the database it was stored in: "MM-DD-YYYY". This led to an erroneous date being displayed e.g. If the date is 11 March 2024, it was displayed as 03 November 2024.
  - The date was then stored in a string format. The day, month and year were extracted from the Date() function and were concatenated into a string.

