

# SOFTWARE ENGINEERING (CS3009)

## PROJECT TITLE:

Turbo Torque - Your Ultimate Destination for Buying and Selling Cars!

## Group Members:

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## 1. PROBLEM STATEMENT

The problem of	lack of a centralized and reliable platform for buying, selling, and reviewing automobiles in the market
affects	vehicle buyers, sellers, and automobile enthusiasts
the impact of which is	difficulty in finding trustworthy listings, price comparisons, and user reviews, leading to poor car purchase decisions
a successful solution would be	a user-friendly, web-based platform that connects buyers and sellers while providing verified listings, real-time market prices, detailed car reviews, and ownership experiences. The platform would integrate secure payment options, vehicle inspection services, and AI-driven recommendations to enhance user experience. Users would be able to access the system via web application, ensuring a seamless and secure experience.

## 2. FEATURES

### Vehicle Listing & Search

- User-friendly interface for browsing vehicle listingsAdvanced search filters (make, model, year, price range, condition, fuel type, etc.)
- Location-based search for nearby listings
- AI-driven personalized recommendations
- Saved searches and favorite listings

### Buying & Selling Features

- Easy vehicle listing process with guided form input
- Option to upload multiple images and videos of the vehicle
- Real-time price estimation tool based on market trends
- Verified seller and buyer badges for trusted transactions
- Chat and call functionality for direct communication between buyers and sellers

### Vehicle Comparison & Reviews

- Side-by-side vehicle comparison based on specifications and pricing
- User reviews and ratings for vehicles based on ownership experience
- Vehicle history reports and accident checks

### Payment & Security

- Secure payment processing for online transactions
- Fraud detection and scam prevention measures
- Verified dealer listings with ratings and certifications

### Services & Value-Added Features

- Integration with car inspection services for vehicle verification
- Loan and financing calculators with bank collaboration
- Insurance quotes and policy comparisons

### Accessibility

- Fully responsive web design for seamless experience on all devices
- Offline mode for saved vehicle details

### 3. USER STORIES

#### Story ID: 1

**Story Title:** User Account Creation

**User Story:** As a user, I want to create an account using my email or phone number so that I can access all features.

**Acceptance Criteria:**

And I know I am done when:

- The user can enter their email or phone number and create an account.
- A verification email or SMS is sent to confirm the account.
- The user can successfully log in after account creation.

**Type:** Manage Data

#### Story ID: 2

**Story Title:** Secure Login

**User Story:** As a user, I want to log in securely using my username and password so that I can manage my listings and searches.

**Acceptance Criteria:**

And I know I am done when:

- The user can enter their username and password to log in.
- The system verifies credentials securely.
- A "Forgot Password" option is available for recovery.

**Type:** Manage Data

#### Story ID: 3

**Story Title:** Edit Profile Information

**User Story:** As a user, I want to edit my profile information so that I can update my contact details when needed.

**Acceptance Criteria:**

And I know I am done when:

- The user can update their name, phone number, and email.
- The system saves changes and reflects updates immediately.
- Validation ensures valid contact details are entered.

**Type:** Manage Data

**Story ID: 4**

**Story Title:** Identity Verification

**User Story:** As a user, I want to verify my identity so that other users can trust me when buying or selling a vehicle.

**Acceptance Criteria:**

And I know I am done when:

- The user can submit identity documents for verification.
- The system verifies documents and provides a "Verified" badge.
- Verification status is displayed on the user's profile.

**Type:** Manage Data

**Story ID: 5**

**Story Title:** Delete Account

**User Story:** As a user, I want to delete my account so that I no longer wish to use the platform.

**Acceptance Criteria:**

And I know I am done when:

- The user can request account deletion.
- A confirmation step is required before deletion.
- All user data is permanently removed from the system.

**Type:** Manage Data

## **Story ID: 6**

**Story Title:** Vehicle Search with Filters

**User Story:** As a buyer, I want to search for vehicles using filters like make, model, year, and price so that I can find a car that meets my needs.

**Acceptance Criteria:**

And I know I am done when:

- The user can enter filters for make, model, year, and price.
- The system displays relevant results based on filters.
- Users can refine searches dynamically.

**Type:** Search

## **Story ID: 7**

**Story Title:** Sort Listings

**User Story:** As a buyer, I want to sort listings by price, mileage, and location so that I can quickly compare options.

**Acceptance Criteria:**

And I know I am done when:

- The user can sort results by price, mileage, and location.
- Sorting options work in ascending and descending order.
- The system updates listings dynamically based on sorting.

**Type:** Search

## **Story ID: 8**

**Story Title:** Save Favorite Listings

**User Story:** As a buyer, I want to save my favorite listings so that I can easily come back to them later.

**Acceptance Criteria:**

And I know I am done when:

- The user can mark a listing as a favorite.
- Saved listings are accessible in a "Favorites" section.
- The system retains favorites across sessions.

**Type:** Manage Data

## **Story ID: 9**

**Story Title:** Chat with Sellers

**User Story:** As a buyer, I want to chat with sellers directly so that I can ask questions about the vehicle.

**Acceptance Criteria:**

And I know I am done when:

- The user can send messages to a seller.
- The seller can reply to inquiries.
- Messages are stored in a conversation history.

**Type:** Workflow

## **Story ID: 10**

**Story Title:** Seller Identity Verification

**User Story:** As a buyer, I want to verify the seller's identity before making a purchase so that I can avoid fraud.

**Acceptance Criteria:**

And I know I am done when:

- The system displays verified sellers with a badge.
- Buyers can check seller verification status before contacting.
- Sellers can complete a verification process.

**Type:** Manage Data

## **Story ID: 11**

**Story Title:** View Car Model Reviews

**User Story:** As a buyer, I want to see reviews from other users about a specific car model so that I can make a better decision.

**Acceptance Criteria:**

And I know I am done when:

- Users can view reviews for a specific car model.
- Reviews include ratings and comments from other users.
- The system displays an average rating for each model.

**Type:** Report/View

## **Story ID: 12**

**Story Title:** Search Vehicles by Fuel Type

**User Story:** As a buyer, I want to search for vehicles based on fuel type (petrol, diesel, hybrid, and electric) so that I can find the right type of car for me.

**Acceptance Criteria:**

And I know I am done when:

- Users can select a fuel type filter (petrol, diesel, hybrid, electric).
- The system displays only vehicles matching the selected fuel type.
- Users can combine fuel type filters with other search filters.

**Type:** Search

## **Story ID: 13**

**Story Title:** Check Vehicle History

**User Story:** As a buyer, I want to check the vehicle history so that I know if the car has been in any accidents.

**Acceptance Criteria:**

And I know I am done when:

- Buyers can request and view a vehicle's history report.
- The report includes accident records, previous ownership details, and service history.
- The system ensures data is accurate and up to date.

**Type:** Report/View



## **Story ID: 14**

**Story Title:** Set Maximum Budget for Search

**User Story:** As a buyer, I want to set a maximum budget and see only cars within my price range so that I don't waste time on expensive listings.

**Acceptance Criteria:**

And I know I am done when:

- Users can enter a maximum price in the search filter.
- The system only displays listings within the specified price range.
- Users can combine this filter with other search criteria.

**Type:** Search

## **Story ID: 15**

**Story Title:** List a Vehicle for Sale

**User Story:** As a seller, I want to list my vehicle by providing details like make, model, price, and condition so that I can find a buyer.

**Acceptance Criteria:**

And I know I am done when:

- The seller can enter vehicle details such as make, model, price, year, and condition.
- The listing is published and visible to buyers.
- The system validates required fields before posting.

**Type:** Manage Data

## **Story ID: 16**

**Story Title:** Upload Vehicle Photos

**User Story:** As a seller, I want to upload multiple photos of my car so that buyers can see its condition.

**Acceptance Criteria:**

And I know I am done when:

- The seller can upload multiple images of the vehicle.
- The system allows images to be previewed before posting.
- Buyers can view images in a gallery format.

**Type:** Manage Data

## **Story ID: 17**

**Story Title:** Edit Listing Details

**User Story:** As a seller, I want to edit my listing details if I make a mistake or need to update information.

**Acceptance Criteria:**

And I know I am done when:

- The seller can update price, description, and other details.
- The system saves changes and updates the listing in real-time.
- Buyers see the latest updated information.

**Type:** Manage Data

## **Story ID: 18**

**Story Title:** Mark Vehicle as Sold

**User Story:** As a seller, I want to mark my vehicle as sold so that buyers don't contact me about it anymore.

**Acceptance Criteria:**

And I know I am done when:

- The seller can mark a listing as "Sold."
- The system updates the listing status accordingly.
- The listing no longer appears in active search results.

**Type:** Manage Data

## **Story ID: 19**

**Story Title:** Receive Messages from Buyers

**User Story:** As a seller, I want to receive messages from interested buyers so that I can negotiate a deal.

**Acceptance Criteria:**

And I know I am done when:

- Buyers can send messages to sellers regarding a listing.
- Sellers receive notifications for new messages.
- Conversations are stored and accessible for reference.

**Type:** Workflow

## **Story ID: 20**

**Story Title:** View Listing Engagement

**User Story:** As a seller, I want to check how many people have viewed my listing so that I can understand the interest level.

**Acceptance Criteria:**

And I know I am done when:

- Sellers can see the number of views on their listings.
- The system updates view counts in real-time.
- Sellers can analyze engagement trends over time.

**Type:** View

## **Story ID: 21**

**Story Title:** Compare Multiple Vehicles

**User Story:** As a buyer, I want to compare multiple vehicles side by side so that I can choose the best option for me.

**Acceptance Criteria:**

And I know I am done when:

- Buyers can select multiple vehicles for comparison.
- The system displays a side-by-side comparison of specifications, price, and features.
- Buyers can add and remove vehicles from the comparison list.

**Type:** View

## **Story ID: 22**

**Story Title:** Secure Payments

**User Story:** As a buyer, I want to pay securely through the platform so that I don't have to worry about fraud.

**Acceptance Criteria:**

And I know I am done when:

- Buyers can make payments through a secure checkout process.
- The platform encrypts payment details and processes transactions securely.
- Payment status is updated and shared with both buyer and seller.

**Type:** Payment

**Story ID: 23**

**Story Title:** Verify Payments Before Handover.

**User Story:** As a seller, I want to verify payments before handing over my vehicle so that I don't get scammed.

**Acceptance Criteria:**

And I know I am done when:

- The seller receives a confirmation when payment is completed.
- The system verifies the transaction before notifying the seller.
- Sellers can view payment details and transaction history.

**Type:** Payment

**Story ID: 24**

**Story Title:** Report Suspicious Listings

**User Story:** As a user, I want to report suspicious listings so that scammers can be removed from the platform.

**Acceptance Criteria:**

And I know I am done when:

- Users can flag a listing as suspicious.
- The system reviews reported listings and takes action if necessary.
- Users receive updates on the status of their report.

**Type:** Workflow

## **Story ID: 25**

**Story Title:** Compare Vehicles by Features and Reviews

**User Story:** As a user, I want to compare two or more vehicles based on features, price, and reviews so that I can make a better choice.

**Acceptance Criteria:**

And I know I am done when:

- Users can select vehicles for comparison.
- The system displays a table comparing specifications, price, and user reviews.
- Users can sort and filter comparison results.

**Type:** Report/View

## **Story ID: 26**

**Story Title:** Find Car Loan and Financing Information

**User Story:** As a user, I want to find information about car loans and financing so that I can plan my purchase.

**Acceptance Criteria:**

And I know I am done when:

- Users can access a section with car loan and financing options.
- The platform provides loan calculators to estimate monthly payments.
- Users can apply for financing through partnered financial institutions.

**Type:** Report/View

## **Story ID: 27**

**Story Title:** Get Car Insurance Quotes

**User Story:** As a user, I want to get car insurance quotes so that I can find the best deal for my vehicle.

**Acceptance Criteria:**

And I know I am done when:

- Users can enter vehicle details and get insurance quotes.
- The system displays multiple insurance providers for comparison.
- Users can proceed with an insurance application through the platform.

**Type:** Report/View

## **Story ID: 28**

**Story Title:** Schedule Car Inspection

**User Story:** As a user, I want to schedule a car inspection service so that I can verify the condition of a vehicle before buying.

**Acceptance Criteria:**

And I know I am done when:

- Users can book an inspection service through the platform.
- The system confirms the appointment and notifies both buyer and seller.
- Users receive a detailed inspection report after the service.

**Type:** Workflow

## **Story ID: 29**

**Story Title:** Access Platform on Laptop or PC

**User Story:** As a user, I want to use the platform on my laptop or PC so that I can browse and manage listings anywhere.

**Acceptance Criteria:**

And I know I am done when:

- The platform is responsive and works across desktop and laptop devices.
- Users can access all features from any web browser.
- The system maintains a seamless experience across devices

**Type:** Workflow

## **Story ID: 30**

**Story Title:** Offline Mode for Saved Listings

**User Story:** As a user, I want to use the platform in offline mode so that I can check my saved listings even without the internet.

**Acceptance Criteria:**

And I know I am done when:

- Users can save listings for offline access.
- The system allows viewing saved listings without an internet connection.
- Saved listings sync with the latest data when the user goes online.

**Type:** Workflow

## 4. TEAM ROLES & DUTIES

- **Muhammad Taha – Scrum Master**

**Duty:**

- Organizing and moderating Daily Stand-ups, Sprint Planning, Sprint Reviews, and Retrospectives.
- Ensuring meetings are effective and time-boxed.
- Helping the team from unnecessary distractions to maintain focus.
- Helping the team self-organize and continuously improve.
- Assisting in managing the Product Backlog by ensuring clear requirements.
- Facilitating communication between the Product Owner and Development Team.
- Using Agile metrics (like burndown charts and velocity tracking) to monitor progress.

- **Arshaq Kirmani – Product Owner**

**Duty:**

- Establishing a clear vision for the product based on stakeholder needs and market demands.
- Ensuring the development team understands the business objectives.
- Creating, prioritizing, and maintaining the Product Backlog (list of features, enhancements, and bug fixes).
- Ensuring backlog items are well-defined and provide value.
- Determining what features should be developed first based on business impact.
- Acting as a bridge between customers, business teams, and the development team.
- Writing User Stories and Acceptance Criteria.
- Participating in sprint reviews to ensure deliverables meet requirements.
- Approving or rejecting features based on defined acceptance criteria.

- **Ali Asif – Scrum Team**

**Duty:**

- Developing, testing, and integrating features according to the Product Backlog.
- Ensuring each sprint delivers a usable and potentially shippable product.
- Attending Sprint Planning, Daily Stand-ups, Sprint Reviews, and Sprint Retrospectives.
- Providing updates on progress and challenges.
- Collaborating to break user stories into manageable development tasks.
- Writing clean, maintainable, and well-documented code.
- Ensuring features meet acceptance criteria before marking them as done.

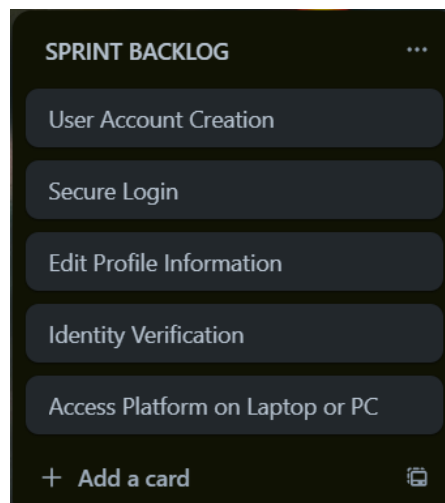
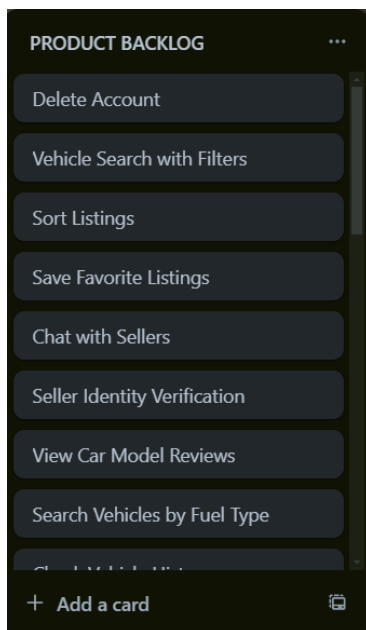
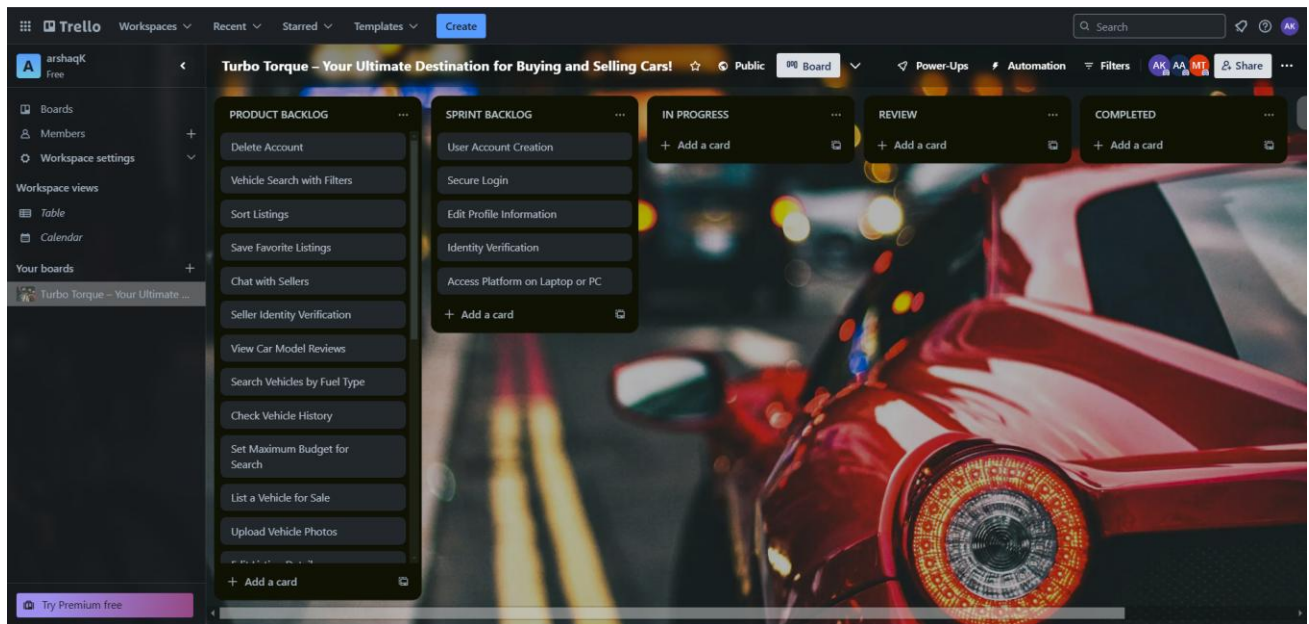


- Fixing defects and improves product quality through rigorous testing.
- Providing feedback on the feasibility of features and backlog items.
- Ensuring requirements are clear and implementable.

## 5. TEAM AGREEMENT

- **Method of Communication:**
  - WhatsApp
  - Phone
  - Zoom
- **Meeting Attendance:**
  - Weekly meeting will be held based on the availability of each individual.
  - In case of any emergency or unavailability, the team member should inform the team as early as possible.
- **Running Meetings:**
  - Meetings will be held online.
  - Scrum master will note the meeting minutes.
- **Version Control:**
  - The team will be using GitHub for version control.
  - Commit only source code, documentation and test cases (if required).
  - Do not commit any sensitive information.
- **Work Submission:**
  - The work should be submitted at least 12 hours before the deadline so the team can review it.
  - The product owner will review the work.
- **Contingency Planning**
  - In case a team member drops out, tasks will be redistributed among the team.
  - In case a team member doesn't follow the guidelines, a meeting will be held to discuss the matter.

## 6. TRELLO



## 7. GITHUB

Link: [Turbo Torque GitHub Link](#)

