

Car Zone - Project Planning Document

North East University Bangladesh
Department of Computer Science and Engineering
Spring-2025 - 6th Semester
Course: Project Work II

Information:

Project Title: Car Zone - Used Car Buying & Selling Platform

Technology Stack:

- **Frontend:** React
- **Backend:** Django
- **Database:** SQL

Student ID	Student Name
0562310005101007	Rayhan Aziz Chowdhury Shafi
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User Roles:

User Types	Description
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Unregistered User	Can browse available cars, view car details, and search/filter cars. Cannot post cars or contact sellers. Must register to access full functionality.
Registered Buyer	Can browse cars, view detailed information, contact sellers, save favorite cars, view purchase history, and manage their profile. Can also switch to seller mode.
Registered Seller	Can post cars for sale, manage their listings (edit, delete, mark as sold), respond to buyer inquiries, view their sales history, and access buyer functionalities.
Admin	Can manage all users (view, suspend, delete accounts), moderate car listings (approve, reject, remove), manage categories and car specifications, view system analytics, and handle reported content.
Super Admin	Has all admin privileges plus system configuration, user role management, backup/restore capabilities, and access to system logs.

User Story Planning:

Task	User Stories	Responsible	Deadlines
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M-1	Create responsive homepage with car search and featured listings	Mim	24/08/2025
P-1	Implement user registration and authentication system	Polash	24/08/2025
S-1	Set up database schema and basic car model with admin interface	Shafi	24/08/2025
M-2	Develop car browsing and filtering interface	Mim	31/08/2025
P-2	Create car listing submission form and backend API	Polash	31/08/2025
S-2	Implement user profile management and dashboard	Shafi	31/08/2025
M-3	Build detailed car view page with image gallery	Mim	07/09/2025
P-3	Develop messaging system between buyers and sellers	Polash	07/09/2025
S-3	Create admin panel for user and listing management	Shafi	07/09/2025
M-4	Implement favorites/wishlist functionality	Mim	05/10/2025

P-4	Add advanced search and filtering backend logic	Polash	05/10/2025
S-4	Develop reporting and analytics dashboard for admins	Shafi	05/10/2025
M-5	Create seller dashboard for managing listings	Mim	12/10/2025
P-5	Implement notification system for buyers and sellers	Polash	12/10/2025
S-5	Add content moderation and reporting features	Shafi	12/10/2025
M-6	Implement final UI polish and responsive design fixes	Mim	19/10/2025
P-6	Add security features and API optimization	Polash	19/10/2025
S-6	Create system backup features and final database optimization	Shafi	19/10/2025

The Product Backlog:

Story Number	User Story	Acceptance Tests
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M-1	Create responsive homepage with car search and featured listings	1. Homepage loads within 3 seconds (pass) 2. Search functionality returns relevant results (pass) 3. Featured cars display correctly on mobile and desktop (pass) 4. Navigation menu works on all screen sizes (pass)
P-1	Implement user registration and authentication system	1. User can register with valid email format (pass) 2. Duplicate email registration (fail) 3. Password must be at least 8 characters (fail if shorter) 4. Login with correct credentials (pass) 5. Login with incorrect credentials (fail)
S-1	Set up database schema and basic car model with admin interface	1. Database tables created successfully (pass) 2. Admin can create/edit/delete car records (pass)

		<p>3. Foreign key relationships maintained (pass)</p> <p>4. Database constraints prevent invalid data (fail for invalid data)</p>
M-2	Develop car browsing and filtering interface	<p>1. Cars display in grid/list view (pass)</p> <p>2. Filters work independently and in combination (pass)</p> <p>3. Pagination works correctly (pass)</p> <p>4. No results message displays appropriately (pass)</p>
P-2	Create car listing submission form and backend API	<p>1. All required fields must be filled (fail if empty)</p> <p>2. Price must be numeric and positive (fail otherwise)</p> <p>3. Image upload works for supported formats (fail for unsupported)</p> <p>4. Car listing saves to database correctly (pass)</p>

S-2	Implement user profile management and dashboard	1. Users can update their profile information (pass) 2. Password change requires current password (fail without) 3. Profile picture upload works (pass) 4. Dashboard shows user's activity summary (pass)
M-3	Build detailed car view page with image gallery	1. All car details display correctly (pass) 2. Image gallery navigation works (pass) 3. Contact seller button appears for logged-in users (pass) 4. Page is mobile responsive (pass)
P-3	Develop messaging system between buyers and sellers	1. Authenticated users can send messages (pass) 2. Users cannot message themselves (fail) 3. Message history displays chronologically (pass) 4. Notifications sent for new messages (pass)

S-3	Create admin panel for user and listing management	1. Admin can view all users and listings (pass) 2. Admin can suspend/delete users (pass) 3. Admin can approve/reject listings (pass) 4. Proper authorization prevents non-admin access (fail)
M-4	Implement favorites/wishlist functionality	1. Users can add/remove cars from favorites (pass) 2. Favorites persist across sessions (pass) 3. Favorites list displays correctly (pass) 4. Sold cars are marked in favorites (pass)
P-4	Add advanced search and filtering backend logic	1. Search by multiple criteria returns accurate results (pass) 2. Price range filtering works correctly (pass) 3. Location-based search functions properly (pass) 4. Search performance is optimized (pass)

S-4	Develop reporting and analytics dashboard for admins	1. User registration analytics display correctly (pass) 2. Listing statistics are accurate (pass) 3. Popular search terms are tracked (pass) 4. Export functionality works (pass)
M-5	Create seller dashboard for managing listings	1. Seller can view all their listings (pass) 2. Edit listing functionality works (pass) 3. Mark as sold/available works (pass) 4. Inquiries/messages are visible (pass)
P-5	Implement notification system for buyers and sellers	1. New message notifications work (pass) 2. Price drop alerts function correctly (pass) 3. Listing status updates notify interested users (pass) 4. Email notifications can be toggled (pass)

S-5	Add content moderation and reporting features	1. Users can report inappropriate listings (pass) 2. Reported content flags for admin review (pass) 3. Automatic content filtering works (pass) 4. Banned words are filtered out (fail if present)
M-6	Implement final UI polish and responsive design fixes	1. All pages are mobile responsive (pass) 2. Loading states display correctly (pass) 3. Error messages are user-friendly (pass) 4. UI consistency across all pages (pass)
P-6	Add security features and API optimization	1. SQL injection prevention (fail if vulnerable) 2. XSS protection implemented (fail if vulnerable) 3. API rate limiting works (fail if exceeded) 4. HTTPS enforced (fail if not)

S-6	Create system backup features and final database optimization	1. Database backup creates successfully (pass) 2. Backup restoration works (pass) 3. Database queries are optimized (pass) 4. Indexes improve query performance (pass)
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The Sprint Backlog:

Sprint 1 (August 18-24, 2025)

Story Number	User Story	Sprint Items	Responsible
M-1	Create responsive homepage with car search and featured listings	Frontend Tasks: <ul style="list-style-type: none"> - Set up React project structure - Create homepage component with hero section - Implement car search bar with basic UI - Design and implement featured cars grid 	Mim

		<ul style="list-style-type: none"> - Add responsive navigation menu - Implement basic routing structure 	
P-1	Implement user registration and authentication system	Backend Tasks: <ul style="list-style-type: none"> - Set up Django project and virtual environment - Create user authentication models - Implement user registration API endpoint - Create login/logout API endpoints - Add JWT token authentication - Create password validation logic 	Polash

S-1	Set up database schema and basic car model	Database Tasks: <ul style="list-style-type: none"> - Design complete database schema - Create Car model with all attributes (make, model, year, price, etc.) - Create User profile extensions - Set up database migrations - Create Django admin interface for car management - Add sample data for testing 	Shafi
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Sprint 2 (August 25-31, 2025)

Story Number	User Story	Sprint Items	Responsible
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M-2	Develop car browsing and filtering interface	Frontend Tasks: <ul style="list-style-type: none"> - Create car listing grid/list components - Implement filter sidebar (price, make, model, year) - Add sorting options (price, date, popularity) - Create pagination component - Add search results display - Implement loading states and error handling 	Mim
P-2	Create car listing submission form and backend API	Backend Tasks: <ul style="list-style-type: none"> - Create car listing creation API endpoint - Implement image upload functionality 	Polash

		<ul style="list-style-type: none"> - Add form validation for car details - Create car listing retrieval APIs - Implement search and filter backend logic - Add API permissions and authorization 	
S-2	Implement user profile management and dashboard	Database & Backend Tasks: <ul style="list-style-type: none"> - Extend user profile model - Create user dashboard API endpoints - Implement profile update functionality - Add user activity tracking - Create password change functionality - Set up user role management 	Shafi

Sprint 3 (September 1-14, 2025)

Story Number	User Story	Sprint Items	Responsible
M-3	Build detailed car view page with image gallery	Frontend Tasks: <ul style="list-style-type: none">- Create car detail page component- Implement image gallery with navigation- Add car specification display- Create contact seller interface- Implement breadcrumb navigation- Add social sharing buttons	Mim

P-3	Develop messaging system between buyers and sellers	Backend Tasks: <ul style="list-style-type: none">- Create Message model and APIs- Implement real-time messaging functionality- Add message thread management- Create notification system for new messages- Implement message status tracking- Add message filtering and search	Polash
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S-3	Create admin panel for user and listing management	Admin Interface: <ul style="list-style-type: none"> - Create admin dashboard layout - Implement user management interface - Add listing approval/rejection system - Create user suspension functionality - Implement content moderation tools - Add admin authentication and permissions 	Shafi
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Sprint 4 (September 15-28, 2025)

Story Number	User Story	Sprint Items	Responsible
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M-4	Implement favorites/wishlist functionality	Frontend Tasks: <ul style="list-style-type: none">- Add favorites button to car listings- Create favorites page display- Implement add/remove from favorites- Add favorites counter and status indicators- Create favorites management interface- Implement favorites persistence	Mim
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P-4	Add advanced search and filtering backend logic	Backend Tasks: <ul style="list-style-type: none">- Implement advanced search algorithms- Add location-based search functionality- Create saved search functionality- Implement search suggestion system- Add search analytics and tracking- Optimize search query performance	Polash
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S-4	Develop reporting and analytics dashboard for admins	Analytics & Reporting: <ul style="list-style-type: none"> - Create analytics data models - Implement user activity tracking - Add listing performance metrics - Create admin analytics dashboard - Implement report generation - Add data export functionality 	Shafi
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Sprint 5 (September 29- October 12, 2025)

Story Number	User Story	Sprint Items	Responsible

M-5	Create seller dashboard for managing listings	Frontend Tasks: <ul style="list-style-type: none"> - Create seller dashboard layout - Implement listing management interface - Add edit listing functionality - Create listing status management - Implement inquiry/message management - Add listing performance metrics 	Mim
P-5	Implement notification system for buyers and sellers	Backend Tasks: <ul style="list-style-type: none"> - Create notification model and system - Implement email notification service - Add push notification functionality - Create notification preferences 	Polash

		<ul style="list-style-type: none"> - Implement notification history - Add notification status tracking 	
S-5	Add content moderation and reporting features	Moderation System: <ul style="list-style-type: none"> - Create reporting system for users - Implement content filtering algorithms - Add automated moderation rules - Create admin moderation queue - Implement user blocking functionality - Add spam detection system 	Shafi

Sprint 6 (October 12-26, 2025)

Story Number	User Story	Sprint Items	Responsible
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M-6	Implement final UI polish and responsive design fixes	Frontend Polish: <ul style="list-style-type: none"> - Conduct comprehensive UI/UX review - Fix responsive design issues - Implement loading animations and transitions - Add error boundary components - Optimize image loading and caching - Perform cross-browser testing 	Mim
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P-6	Add security features and API optimization	Security & Performance: <ul style="list-style-type: none"> - Implement comprehensive input validation - Add API rate limiting and throttling - Implement CSRF protection - Add SQL injection prevention - Optimize database queries - Implement API caching strategies 	Polash
S-6	Create system backup features and final database optimization	System Management: <ul style="list-style-type: none"> - Implement database backup system - Create data migration scripts - Add database indexing optimization 	Shafi

		<ul style="list-style-type: none">- Implement system health monitoring- Create admin system utilities- Perform final database cleanup	
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