🧩1️⃣UNIFIED USER FLOWS — Role-Based Operations & Permissions

Below is a **clear, consistent flow of actions (user journeys)** for each role in your system, defining exactly **who can do what, when, and how**.

A. Customer Flow (Main User)

1. Authentication & Profile

- **Login/Register** using email/password or Google OAuth.
- **Access restricted pages** only after login.
- **Edit profile**, **manage vehicles**, and **view notifications**.

2. Appointment Booking Process

Actions:

- Go to `Appointment Booking Page`.
- Select **vehicle**, **service type**, **date**, and **time**.
- System checks slot availability (conflict detection).
- Confirm booking → creates a record with:
  - **Status:** `Pending`
  - **Assigned Employee:** none (auto or manual later)
- Receives **confirmation notification**.

Status flow (for customer view):
`Pending → Accepted/Rejected`

Customer can:

- View upcoming appointments.
- **Cancel** before it's "Accept or Reject".
- **Reschedule** only if status is `Pending` or `Accepted`.

3. Modification / Project Request

Actions:

- Go to `Custom Modifications Page`.
- Submit modification request (description, image, etc.).
- Request becomes **Project** with:
  - **Status:** `Pending`
- Admin reviews → approves or rejects.
- Once approved:
  - Admin assigns employee(s).
  - Start & end dates defined.

Status flow (for modification/project):
`Pending → Approved → In Progress → Completed → Cancelled`

Customer can:

- View project status in real-time.
- Add feedback once completed.

4. Payments

Actions:

- View unpaid appointments/projects.
- Pay online (Stripe/PayPal).
- On success:
    - **Invoice generated (PDF)**
    - **Payment record created**
    - **Status → Paid**
    - Notification sent.

5. Notifications & Updates

- Receive push/email alerts for:
    - Appointment updates.
    - Project progress.
    - Payment confirmations.
    - Reminders.

B. Employee Flow (Technician / Mechanic)

1. Authentication

- Login as Employee → Redirect to Employee Dashboard.

2. Task Management

- View **assigned tasks** (appointments/projects).
- Each task includes:
    - Customer info.

    - Vehicle details.
    - Task status.
    - Start/end time (optional for scheduling).

Status actions allowed:

- `Accepted → In Progress → Completed`
- Can add **notes**, **photos**, or **logs**.

3. Time Logging

- Log hours for each task.
- Include duration, description, and notes.
- Submit logs → visible to Admin for reporting.

4. Reports

- View personal work summary.
- Export own report (PDF/CSV).

C. Admin Flow (Manager / Administrator)

1. Authentication

- Login as Admin → Redirect to Admin Dashboard.

2. Appointment Management

Admin can:

- View all appointments.

- Filter by date/employee/status.
- **Approve/Reject new bookings.**
    - (You can make auto-approve optional later)
- Reassign appointments if conflict.
- **Cancel** any appointment if needed.

Appointment Status (Admin view):
`Pending → Accepted → In Progress → Completed → Cancelled`

3. Project Management

Admin creates/controls modification projects.

- Approve/reject customer modification requests.
- Assign employees.
- Set start & end dates.
- Monitor progress.
- Mark as completed or cancelled.

4. Employee Management

- Assign roles (employee/customer).
- Reassign tasks (if employee unavailable).
- View time logs and reports.
- Approve/reject time entries.

5. Payment & Billing

- View all payments.
- Adjust pricing for services.
- Export invoices.
- Handle refund (optional).

6. Analytics & Reporting

- View dashboards (service count, revenue, workload).
- Filter and export analytics data.

Feature / Entity	Page(s)	Create	Read	Update	Delete / Cancel	Handled by Role(s)
User	Register / Profile	Register new user	View profile	Edit details	Delete account	Customer / Employee / Admin
Vehicle	Vehicle Management	Add vehicle	View vehicles	Edit details	Delete vehicle	Customer
Appointment	Booking / My Appointments / Admin Appointment	Book appointment	View appointments	Reschedule (Customer/ Admin)	Cancel (Customer/ Admin)	Customer / Admin
Project (Modification)	Custom Modifications / Project Management	Create request (Customer) / Approve	View project list/details	Update progress (Employee/ Admin)	Cancel (Customer/ Admin)	Customer / Employee / Admin

		(Admin)				
Time Log	Time Logging / Reports	Add log (Employee)	View logs	Edit log (Admin/Employee)	Delete (Admin)	Employee / Admin
Payment	Payments & Invoices	Initiate payment	View invoices	None	None	Customer / Admin
Notification	Notifications Page	System-triggered	View notification	Mark as read	None	All
Report / Analytics	Reports / Admin Dashboard	Generate report	View report	Filter data	Export (PDF/CSV)	Admin / Employee

🚗 AUTONOVA — USER STORIES, PAGES, AND TASKS

🧍 1. CUSTOMER USER STORIES

US1: Register and log into the system

- **As a customer**, I want to register with my details and log in securely, so that I can access my account and manage my vehicles and services.
- **Pages:** `Register Page`, `Login Page`
- **Tasks:**
  - Create registration form (name, email, phone, password).
  - Implement JWT-based login + Google OAuth.
  - Redirect to `Customer Dashboard` after login.

US2: Manage my profile and vehicles

- **As a customer**, I want to update my personal details and manage multiple vehicles, so that my appointments and projects are correctly linked to my cars.
- **Pages:** `Profile Page`, `Vehicle Management Page` `Vehicle(Make, Model, Year, VIN, LicensePlate)`
- **Tasks:**
  - CRUD operations for vehicles.
  - Link vehicles to appointments/projects.
  - Update personal details & change password.

US3: Book a new service appointment

- **As a customer**, I want to book a service appointment by selecting a date, time, and vehicle Id , service type, Customer ID, Time Slot, Notes, Status: `Pending` so that my car can be serviced conveniently.

  service types -

  General Service
  Oil Change
  Brake Service
  Engine Diagnostics
  AC Service
  Battery Replacement
  Tire Replacement
  Wheel Alignment
  Full Inspection
  Detailing Service

- **Pages:** `Appointment Booking Page`
- **Tasks:**

- Service type dropdown + calendar UI.
- Slot conflict detection.
- Submit appointment → create record with `Pending` status. (`Pending` → Rejected/Accepted)
- Confirmation notification

US4: View, reschedule, or cancel my appointments

- **As a customer**, I want to view my upcoming and past appointments, or cancel if needed, so that I can manage my bookings.
- **Pages:** `My Appointments Page`
- **Tasks:**
    - Display appointments with status.
    - Reschedule (if `Pending` or `Accepted`).
    - Cancel appointment (before `In Progress`).
    - Update UI based on status transitions.

US5: Request a custom vehicle modification

- **As a customer**, I want to request a custom modification and track its progress, so that I can monitor the project's completion.
- **Pages:** `Custom Modifications Page`, `Service & Project Progress Page`
- **Tasks:**

- Add form to submit modification request (description, photos).
- Track project status (`Pending Review → Approved → In Progress → Completed`).
- View assigned technician details & updates in real time.

US6: Make payments and view invoices

- **As a customer**, I want to make online payments for completed services or modifications, so that I can complete transactions easily.
- **Pages:** `Payments & Invoices Page`
- **Tasks:**
  - Integrate Stripe/PayPal sandbox.
  - Generate downloadable PDF invoices.
  - Show payment history.

US7: Get updates and notifications

- **As a customer**, I want to receive notifications and alerts for service progress, payments, or appointments, so that I stay informed.
- **Pages:** `Notifications Page`
- **Tasks:**
  - Push via WebSocket/SSE.
  - Notification settings (enable/disable).

US8: Review past services and reports

- **As a customer**, I want to see summaries of completed services, cost, and duration, so that I can track my service history.
- **Pages:** `Reports & History Page`
- **Tasks:**
  - View previous appointments/projects.
  - Filter by date, vehicle, service type.
  - Display cost and total hours summary.

🧰 2. EMPLOYEE USER STORIES

US9: View my assigned tasks

- **As an employee**, I want to see my assigned appointments and modification projects, so that I can manage my daily workload efficiently.
- **Pages:** `Project Page`
- **Tasks:**
  - Fetch assigned projects.
  - Filter by date, customer, or priority.
  - Highlight urgent/overdue tasks.

US10: View task details and update progress

- **As an employee**, I want to view detailed information about each task and update its status, so that I can report progress in real time.

- **Pages:** `Project page`
- **Tasks:**
  - Display task info (vehicle, customer, service type).
  - Update progress (`Accepted → In Progress → Completed`).
  - Add notes or upload progress images.

US11: Log working hours

- **As an employee**, I want to log my working hours and notes for each task, so that time tracking and reports are accurate.
- **Pages:** `Time Logging Page`
- **Tasks:**
  - Start/end time logging.
  - Add description and duration.
  - Submit logs to admin for approval.

US12: Review my work summary

- **As an employee**, I want to see total hours worked, completed projects, and export reports, so that I can track my performance.
- **Pages:** `Reports Page (Employee)`
- **Tasks:**
  - View total hours and task count.

    - Filter by date or project.
    - Export report to PDF/CSV.

US13: Receive notifications about tasks

- **As an employee**, I want to get notifications for new assignments or project updates, so that I don't miss any work.
- **Pages:** `Notifications Page`, `Employee Dashboard`
- **Tasks:**
    - WebSocket/SSE notification feed.
    - Mark as read.
    - Redirect to task/project on click.

🧑‍💼 3. ADMIN USER STORIES

US14: Manage user roles

- **As an admin**, I want to manage employee roles and permissions, so that I can control system access securely.
- **Pages:** `User Management Page`
- **Tasks:**
    - Promote/demote users between roles.
    - View user list and activity.

US15: Manage appointments

- **As an admin**, I want to approve or cancel customer appointmentsso that services run smoothly.
- **Pages:** `Appointment Management Page`
- **Tasks:**
    - Approve or reject `Pending` appointments.
    - Cancel any appointment.

US16: Manage modification projects

- **As an admin**, I want to review and approve modification requests, assign employees, and monitor project progress.
- **Pages:** `Project Management Page`
- **Tasks:**
    - Approve new modification requests.
    - Assign available employees (avoid overlap).
    - Track project progress and completion.

US17: Review employee time logs

- **As an admin**, I want to view employee time logs and generate reports, so that I can evaluate workload and efficiency.
- **Pages:** `Time Logging & Reports Page`
- **Tasks:**
    - View all time logs.

- Filter by employee or project.
- Export to CSV/PDF.

US18: Manage payments and pricing

- **As an admin**, I want to manage service pricing and monitor payments, so that billing remains accurate.
- **Pages:** `Service Pricing & Billing Page`
- **Tasks:**
  - Update service pricing or discounts.
  - View payment history.
  - Generate summary reports.

US19: View analytics and reports

- **As an admin**, I want to view system analytics like revenue, workload, and average service time, so that I can make informed decisions.
- **Pages:** `Admin Dashboard`, `System Analytics Page`
- **Tasks:**
  - Create charts (services completed, revenue trends).
  - Filter by date range.
  - Export data.

US20: Send system-wide notifications

- **As an admin**, I want to send global announcements or reminders to users, so that everyone stays updated.
- **Pages:** `Notifications Management Page`
- **Tasks:**
    - Compose custom message.

    - Notification when new appointment created
    - Notification when new modification request
    - Push to specific roles (Customer/Employee).