IS2102
Group Project

Group 1
Valerian Lunadict Tedja | A0266295R
Zhang Yiming | A0302694A
Aiken Lim Wenen | A0308904A
Daniel Ang Jun Hao | A0309523H
Yang Zhenduo |

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Business Context & Vision
1. Business Environment

LaundryDash will operate in Singapore's on-demand service economy, which has rapidly grown due to the increasing adoption of cashless payments, gig-economy logistics, and mobile-first consumer behaviour.

Despite this growth, most neighbourhood laundry shops still rely on walk-in, self-drop and self-collect models, which create inconvenience for busy urban professionals, dual-income households, and students.

Competitors such as GrabExpress, Lalamove, and small WhatsApp-based laundry pick-up services have demonstrated strong demand for door-to-door garment-care delivery, but there is still a market gap for a dedicated laundry-focused platform that integrates pick-up, cleaning, subscription billing, and partner support in one ecosystem.

2. Target Audience

- **Primary Customers:**
  Busy working adults, parents with young children, and students who value time-saving and convenient laundry services at affordable prices.
- **Drivers / Couriers:**
  Gig-economy drivers and part-time couriers seeking flexible first-mile and last-mile delivery jobs.
- **Laundry Partners:**
  Small and medium neighbourhood laundries and independent dry-cleaners that wish to increase their order volume without building their own IT platform.
- **Admin / Operations Staff:**
  LaundryDash internal staff who oversee partner onboarding, handle disputes, and manage subscription billing.

3. Key Stakeholders

- **LaundryDash Management & Operations Team:**
  Responsible for platform strategy, pricing, subscription plans, and day-to-day issue resolution.
- **Customers:**
  End-users placing orders for laundry and dry-cleaning services.
- **Drivers:**
  Provide pick-up and return logistics between customers and laundry partners.
- **Laundry Partners:**
  Deliver garment-care services (washing, dry-cleaning, pressing).
- **Payment & Notification Service Providers**
  Third-party integrations for cashless payment, SMS / push notifications.

4. Business Model Summary

LaundryDash is a three-sided on-demand laundry platform that connects customers who need garment-care services with local laundry partners through a network of gig-economy drivers for door-to-door convenience.

Revenue Streams

1. Per-Order Service Commission: a percentage commission charged on every completed order between customer and laundry partner.
2. Subscription Plans: customers can purchase monthly packages with a set number of pick-up / delivery cycles at a discounted rate, providing predictable recurring revenue.
3. Delivery-Based Fees: additional surcharge for express or late-night delivery slots.

Unique Value Proposition

- Seamless end-to-end convenience: one platform handles scheduling, payment, and status tracking.
- Hybrid pay-per-use plus subscription model: caters to both occasional and frequent customers, improving retention and lifetime value.
- Real-time order tracking and secure cashless payment: improves transparency and trust.
- Partner-friendly onboarding: empowers small laundry businesses to access digital customers without heavy IT investment.

Project Scope

1. Scope Overview

The initial release of LaundryDash will focus on enabling **end-to-end door-to-door laundry services** for individual customers in Singapore.

The scope covers the **core mobile and web components** required to support the main service flow — from order placement to pick-up, cleaning, delivery, payment, and basic issue resolution.

Advanced optimization features, marketing modules, and enterprise contracts are excluded from the first launch in order to deliver a **lean and viable MVP**.

2. In-Scope for Initial Launch (MVP)

A. Customer Mobile Application

- Account creation, login, and profile management
- Service selection: standard wash, dry-clean, special-care items
- Scheduling of pick-up and return delivery (time slot & address)
- Up-front price quotation and secure in-app payment
- Real-time order-status tracking (Picked-Up → In-Process → Ready → Delivered)
- Push notifications & basic email/SMS alerts
- Subscription plan purchase and automatic deduction of package credits

B. Driver Mobile Application

- Registration and profile verification
- Order assignment / matching based on location and availability
- Accept / reject order with ETA display
- Navigation to pick-up & drop-off locations
- Proof-of-pickup / proof-of-delivery (photo or e-signature)
- Daily/weekly earnings summary and payment history

C. Laundry Partner Web Portal

- Partner onboarding and service-menu setup
- Order intake and garment check-in / check-out
- Status updates to signal "In-Process", "Ready for Pickup"
- Basic reporting dashboard for daily order volume and revenue

D. Admin Web Portal

- User and partner account management
- Subscription plan configuration and billing reconciliation
- Order-flow monitoring and manual intervention for exceptions
- Basic dispute-ticket management between customers, drivers, and partners
- Operational dashboard (high-level metrics: active orders, cancellations, revenue)

E. Core Business Features

- **Hybrid revenue model:** per-order commission & subscription package logic
- Cashless payment integration (e-wallet / credit card)
- Notification service (push / email / SMS)
- English–Chinese bilingual UI to serve Singapore market
- Minimal data-privacy and security compliance (user authentication, encrypted payments)

3. Out-of-Scope for Initial Launch

The following features and enhancements will **not be included** in the first release but may be considered for future phases:

Category	Out-of-Scope Items
Advanced Customer Features	Loyalty / rewards points, coupon engine, referral programme, live chat with drivers
AI & Automation	AI-driven garment recognition, automated stain-type detection, predictive pricing
Logistics Optimisation	Multi-order route optimisation, surge-pricing engine, fleet-level driver allocation
Enterprise / Cross-Border	Bulk or contract-based laundry for hotels, hospitals or cross-border services
Partner Operations	Full inventory management for partner shops (beyond basic order-level tracking)
Customer Support	Intelligent chatbot or 24/7 call-centre integration (initially use simple email / ticket system)
Marketing & CRM	Campaign management tools, personalised promotions, third-party ads integration
Regulatory & Compliance Extensions	GST-ready accounting module, extensive audit trail beyond standard transactions
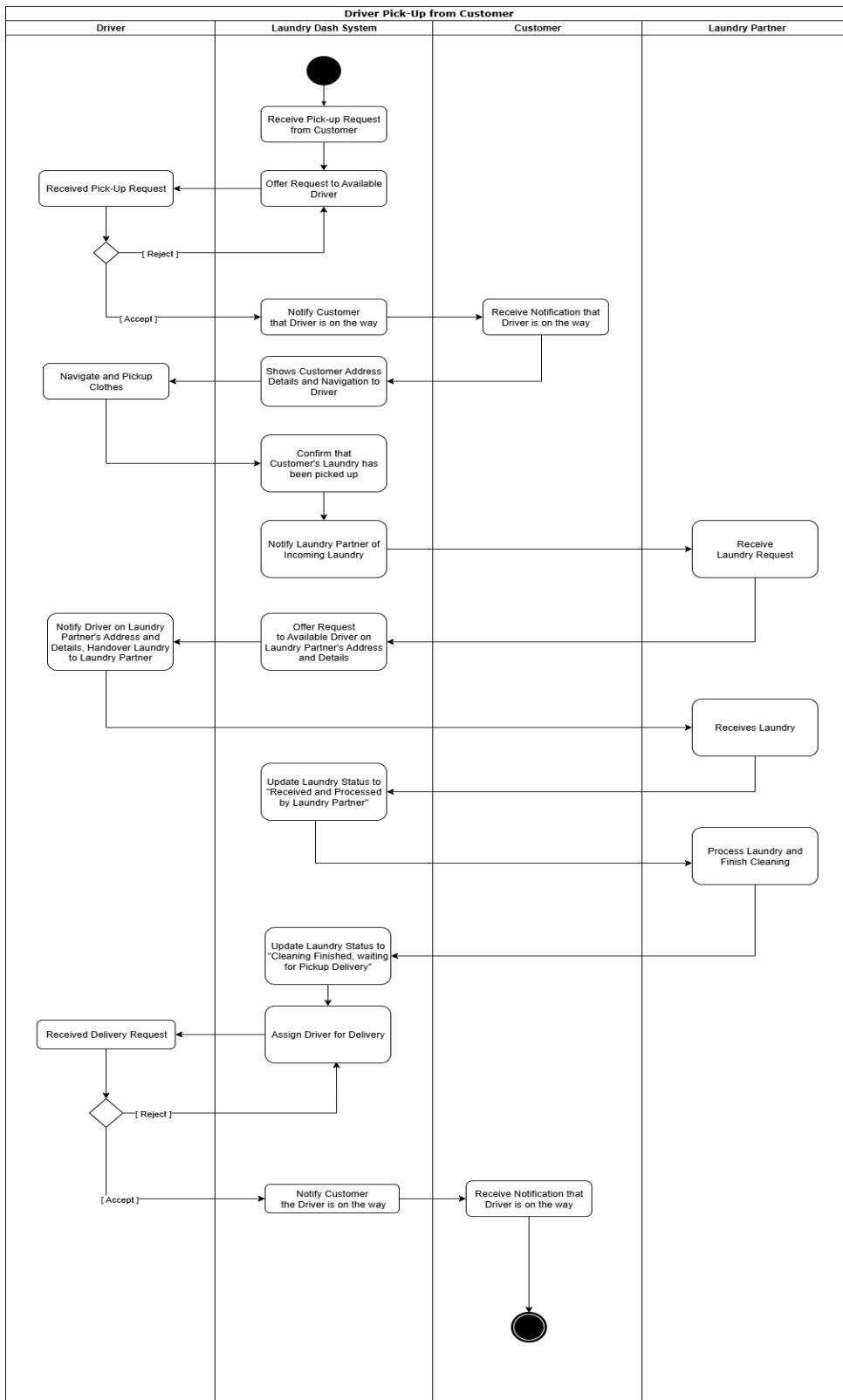
4. Assumptions

- The MVP targets **individual B2C customers within Singapore only**.
- All payments will be processed through integrated third-party payment gateways.
- Core logistics will rely on **gig-economy drivers**, not a dedicated in-house fleet.
- Customer support at launch will be limited to email / in-app ticketing.

Activity Diagrams

Order Placement & Payment

Driver Pick-Up from Customer

Laundry Partner Processing

laundry partner | platform | driver

- check order details
- send notification to laundry partner
- driver recives information and delivers to laundry partner shop
- [reject job]
- check quantity and condition of laundry
- send notification to another laundry partner
- send laundry partner's information to driver
- [accept job]
- [no issues]
- [issues with quantity or condition]
- report issue to admin in platform
- notify customer and assign admin to rectify situation
- process laundry
- [customer approve order]
- wait for resolution
- [completed with no damages]
- [completed with laundry damages]
- mark order as completed
- [customer cancels order]
- report issue to admin in platform
- create a chat for customer and laundry partner to discuss resolution
- driver recives information and delivers to laundry partner shop
- notifies driver to pickup laundry

Driver Return Delivery to Customer & Order Completion

Subscription Management

Customer	Laundry Dash System	Admin	Payment Gateway

- ● (start)
- Opens LaundryDash App
- Displays available subscription plans (price, credits, validity)
- Selects preferred plan and clicks "Purchase"
- Sends payment request with plan details
- Processes transaction
- [Payment successful] / [Payment unsuccessful]
- Customer received notification and remake retry
- Notify customer "Payment failed"
- Creates subscription record (plan type, credits, expiry date)
- Sends confirmation notification "Subscription activated"
- Views new subscription in dashboard for reconciliation
- Sees updated balance (e.g., 5 credits left)
- Updates customer's credit balance display
- Subscription expired?
- [No] / [Yes]
- Notify "Subscription expired — please renew"
- continue to auto-deduction logic
- When order placed, check if active subscription exists
- [Yes] / [No]
- Auto-deduct one credit, update remaining balance
- Redirect order to normal payment flow
- Logs deduction for admin review
- Verifies transaction in billing reconciliation panel
- ● (end)

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Issue Resolution Management

Customer	LaundryDash System	Driver/Laundry Partner	Admin

Customer:
- ● (start)
- Opens App
- navigates to "Help / Support"
- Selects issue type, fills description, uploads photo if needed
- submits
- Receives notification and reviews outcome
- Customer satisfied?
  - [Yes] → Allow "Re-open ticket" action → return to Admin review step
  - [No] → Close ticket

LaundryDash System:
- Displays issue categories (Delay / Damaged Item / Wrong Item / Billing)
- Creates support ticket (status = Pending), assigns Ticket ID
- Issue type?
  - [Delay] → assign to Driver
  - [Billing / Subscription] → assign to Admin
  - [Damage / Wrong Item] → assign to Laundry Partner
- Updates ticket status to "Under Review"
- notifies Admin
- Updates ticket status to "Resolved" and notifies Customer

Driver/Laundry Partner:
- Receives ticket notification
- Reviews case details and provides response/evidence (e.g., proof-of-delivery, cleaning record)

Admin:
- Receives ticket notification
- Reviews case details and provides response/evidence
- Evaluates evidence and decides on resolution
- Customer compensation required?
  - [Yes] → Approves refund/credit
  - [No] → Rejects with explanation, mark ticket Resolved
- Final decision logged
- ticket archived
- ● (end)

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Requirement Analysis

1.   LaundryDash Customer Mobile App

a.   Personas

<u>**The Busy Parent:**</u>

Demographics: 35 - 45 years old, working full time with young children.

Background: Has limited time for household chores, often multitasks between work and family.

Goals:
- Get laundry done quickly with minimal steps.
- Avoid repetitive setup for frequent orders.

Frustrations:
- Time constraints and repetitive manual entry.
- Waiting or unclear pickup timing.

Motivations: Convenience, reliability, and clear delivery times.

Preferred Features: Repeat Order, order tracking, instant confirmation.

<u>**The Conservative User:**</u>

Demographics : 40 - 60 years old

Background: Not entirely comfortable with new digital platforms but willing to try them if they appear credible and straightforward. Prefers human assurance over automation and expects consistent service quality.

Goals: Prioritizes laundry quality and safety.

Frustrations: Complex app workflows, unclear pricing, poor trust indicators.

Motivations: Simple, guided process flow with clear communication and service quality assurance.

Preferred Features: Step-by-step order flow, Transparent pricing breakdown.

<u>**The Budget-Consious Student:**</u>

Demographics: 19–25, living in dorms or shared housing.

Background: Laundry machines in dorms are unreliable or fully booked; limited budget.

Goals:
- Affordable, predictable pricing (no hidden fees).
- Occasional usage for bulk washes during exam weeks.

Frustrations:
- Delivery fees that make small orders expensive.
- Lack of transparency in promotions.

Motivations: Cheap, clear, flexible pricing models (subscription or "lite" plans).

Preferred Features: Student discounts, per-bag pricing, optional self-drop-off.

b.   Epic and User Stories

Epic: "Transparent and Reliable Order Experience"

Description:
Enable LaundryDash customers to place, review, and track their laundry orders with full transparency at every stage, from pricing to pickup to delivery. The system should minimize uncertainty by providing clear cost breakdowns, real-time status updates, and guided interactions that reduce errors and build trust.

User Stories:

1.   As a customer, I want to view a clear price breakdown before confirming my order so that I know exactly what I'm paying for.

2.   As a customer, I want to see estimated pickup and delivery times so that I can plan my schedule better.

3.   As a customer, I want to track my laundry status in real-time so that I feel assured my clothes are being handled properly.

4.   As a customer, I want to receive push notifications for every order stage so that I stay updated without constantly checking the app.

5.   As a customer, I want to edit my order details before pickup so that I can fix mistakes or add last-minute items.

6.   As a customer, I want a simple, step-by-step order flow so that I can place an order easily without confusion.

7.   As a customer, I want to view verified laundry partner ratings and reviews so that I can trust who handles my clothes.

8.   As a customer, I want to apply available promotions or discounts automatically so that I get the best possible price.

9.   As a customer, I want to receive a summary receipt after delivery so that I can verify the charges and completion.

10.   As a customer, I want to provide quick feedback or a rating after service so that I can share my experience and improve service quality.

Acceptance Criteria:

User Story 1 : Clear Price Breakdown

Scenario 1 : Display full breakdown before order confirmation
            Given the user has selected laundry items and delivery options
When the user proceeds to the order summary page
Then the system displays an itemized list including base cost, service fees, delivery fee, and any discounts
And the total price is clearly shown before the user confirms the order

Scenario 2 : Price updates dynamically when changes are made
Given the user is on the order summary page
When the user modifies the service type or delivery option
Then the total price automatically updates to reflect the new selection

User Story 3 : Real-Time Order Tracking
Scenario 1 : Display live order status updates
Given the user has an active order
When the driver or partner updates the order status
Then the app displays the current stage (Picked Up, In Cleaning, Out for Delivery, Delivered)
And the timestamp of the latest update

Scenario 2 : Refresh on reopen
Given the user has minimized or closed the app
When the user reopens the app and views the active order
Then the system refreshes and displays the latest order status in real time

User Story 4 : Push Notifications for Every Stage
Scenario 1 : Receive notifications at key order milestones
Given the user has an active order
When the order reaches a new stage (Pickup Confirmed, Laundry In Progress, Out for Delivery, Delivered)
Then the system sends a push notification summarizing the update

Scenario 2 : Manage notification preferences
Given the user opens the notification settings
When the user toggles notification preferences
Then the app saves the new settings and only sends notifications for the selected stages

User Story 10 : Service Feedback After Delivery

Scenario 1 : Prompt for rating after delivery
Given the order status is marked as Delivered
When the user opens the app
Then the system displays a feedback prompt asking for a star rating and optional comment

Scenario 2 : Submit feedback successfully
Given the user has entered a rating and comment
When the user taps "Submit"
Then the feedback is stored successfully and confirmation is displayed

c.   Use Case Models and Use Case Description

Use Case Diagram

Use Case Description

Use Case	Place laundry order
Triggering event	User taps "New Order" on the home screen
Brief description	"Place Laundry Order" allows a customer to create and confirm a new laundry order through the LaundryDash Customer Mobile App. The user selects services, pickup and

	delivery times, and views a transparent price breakdown before confirming the order. Once confirmed, the system generates the order record and sends the request to the assigned driver and partner.	
Actors	**Primary Actor:** Customer **Secondary Actors:** LaundryDash System, Payment Gateway, Laundry Partner System	
Pre-conditions	1. Customer is logged into the app.	
	2. At least one delivery address and contact number are saved.	
	3. Customer has a stable internet connection.	
Post-conditions	1. Order record is successfully created in the system.	
	2. Confirmation page and order summary are displayed.	
	3. Notification is sent to the driver and laundry partner for pickup scheduling.	
Flow of events	**actor**	**system**
	1. User taps "New Order" on the home screen.	1.1. System loads the New Order form and auto-fills saved address and service preferences (if available).
		1.2. System displays service categories (e.g., Wash & Fold, Dry Cleaning) and pricing per item/bag.
	2. User reviews auto-filled details and modifies service type or address if needed.	2.1. System updates the displayed information accordingly.
		2.2. System recalculates the subtotal and displays updated price breakdown.
		2.2a. If user changes delivery address, system verifies service availability in new area and updates delivery fee.
	3. User selects preferred pickup and delivery time slots.	3.1. System checks slot availability.
		3.1a. If selected slot is unavailable,

		system displays the nearest available alternatives and prompts user to select.
		3.1b. If no slots available today, system suggests next available date.
	4. User optionally applies promo code or discount voucher.	4.1. System validates the promo code.
		4.1a. If promo code is valid, system updates total cost with discount and shows confirmation message.
		4.1b. If promo code is invalid/expired, system displays error message and removes invalid discount.
	5. User reviews the final price summary and taps "Confirm Order."	5.1. System processes payment through the payment gateway.
		5.1a. If payment succeeds, system generates order record and continues to step 6.1.
		5.1b. If payment fails, system displays error message with retry option and suggests alternative payment methods.
	6. —	6.1. System displays confirmation screen with order number, pickup time, and tracking link.
		6.2. System sends order notifications to assigned driver and laundry part ner.
		6.3. System sends push notification to customer confirming order receipt.
Exception conditions	A1: User cancels order during process	System returns to home screen without saving incomplete order
	A2: Network connection lost	System saves draft locally and syncs when connection restored
	A3: User has insufficient funds	System suggests wallet top-up or alternative payment method

d.   Wireframes & Prototype

2. ...

3. LaundryDash Partner Web Portal
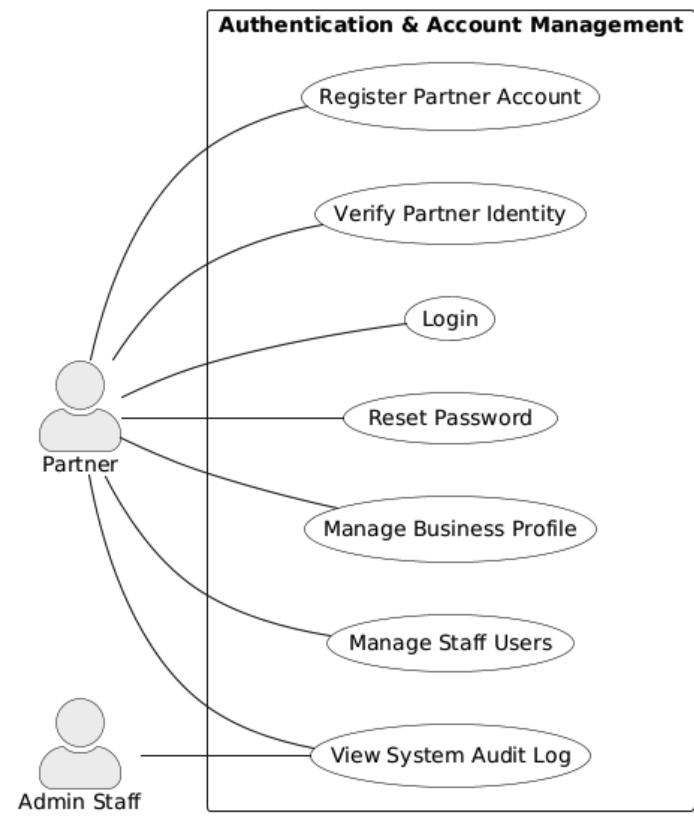
a. High-Level Purpose
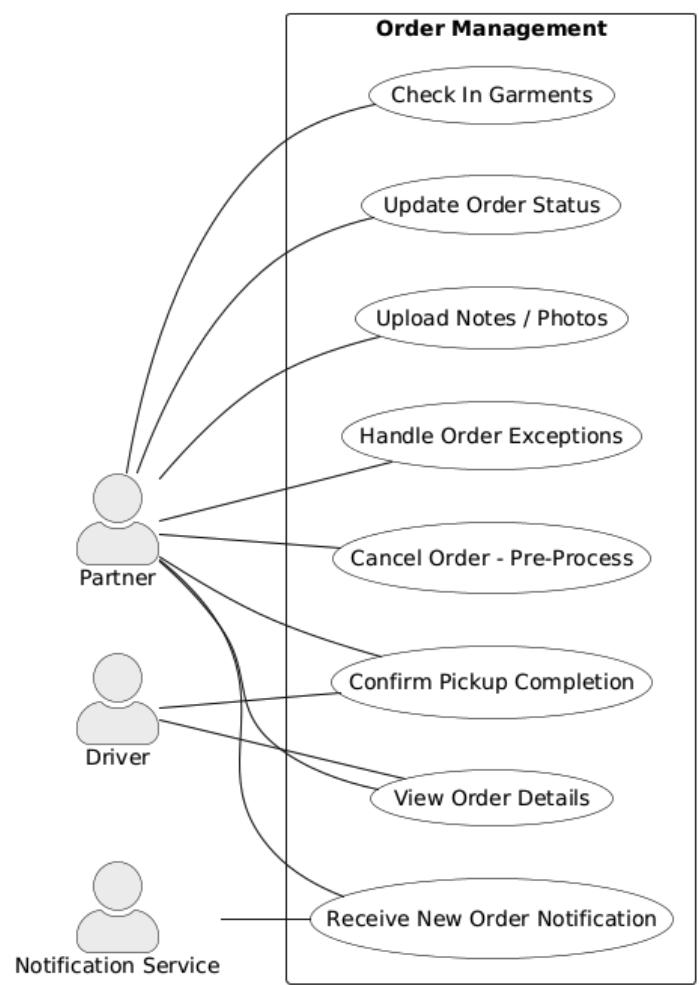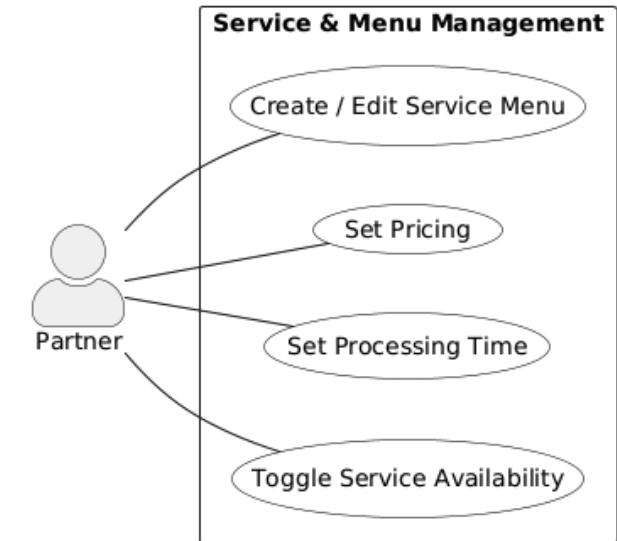
Main Purpose:
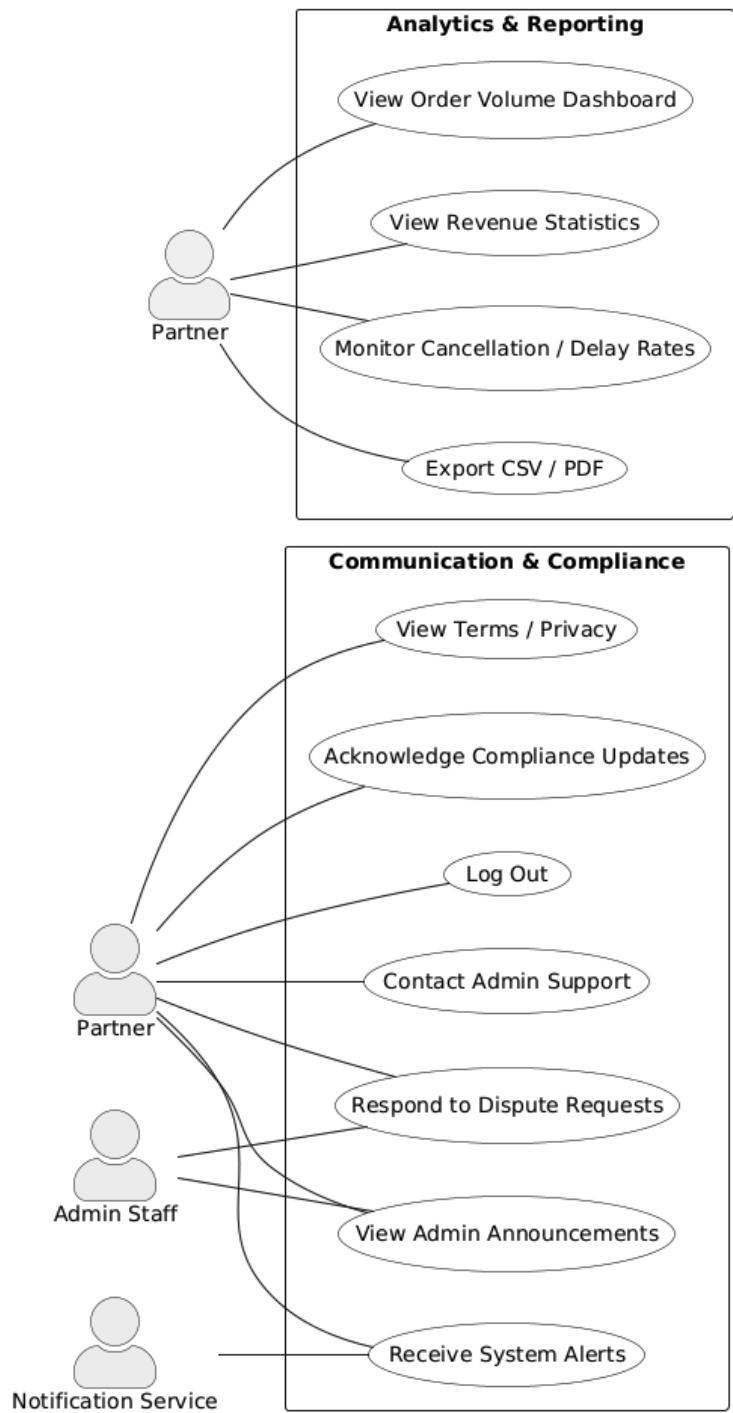
The **LaundryDash Partner Web Portal / App** serves as the primary interface for local laundromat owners and dry-cleaning partners to manage their daily operations on the LaundryDash platform. Its main purpose is to streamline partner-side order handling—from garment check-in and processing updates to reporting daily revenue—while maintaining real-time synchronization with customer and driver activities. The portal enables partners to onboard easily, configure their service menus, and update order statuses such as "In-Process" or "Ready for Pickup." By offering a simple dashboard view of performance metrics and orders, it empowers small and medium laundry businesses to participate in the digital service ecosystem without requiring significant IT investment.

Primary User: Laundry shop owners and staff who handle order intake, processing, and coordination with drivers for customer deliveries.

b. Use Case Diagrams (LaundryDash Partner Web Portal)

Service & Menu Management

- Create / Edit Service Menu
- Set Pricing
- Set Processing Time
- Toggle Service Availability

Partner

Order Management

- Check In Garments
- Update Order Status
- Upload Notes / Photos
- Handle Order Exceptions
- Cancel Order - Pre-Process
- Confirm Pickup Completion
- View Order Details
- Receive New Order Notification

Partner

Driver

Notification Service

Analytics & Reporting

- View Order Volume Dashboard
- View Revenue Statistics
- Monitor Cancellation / Delay Rates
- Export CSV / PDF

Partner

Communication & Compliance

- View Terms / Privacy
- Acknowledge Compliance Updates
- Log Out
- Contact Admin Support
- Respond to Dispute Requests
- View Admin Announcements
- Receive System Alerts

Partner

Admin Staff

Notification Service

c. Key User Stories

User Story 1 — Order Tracking & Management
As a laundry partner, I want to view and update all incoming orders with their current processing status,so that I can manage my workflow efficiently and keep customers informed of progress.

User Story 2 — Service Configuration
As a laundry partner, I want to customize my service menu, pricing, and available time slots,so that customers can see accurate offerings that match my shop's real capacity.

User Story 3 — Payment Transparency
As a laundry partner, I want to view detailed payment summaries and commission breakdowns,so that I can verify my earnings and maintain financial clarity with LaundryDash.

User Story 4 — Notifications & Alerts
As a laundry partner, I want to receive system alerts for new orders, payment updates, and admin messages,so that I never miss critical actions that affect my daily operations.

User Story 5 — Communication & Support
As a laundry partner, I want to contact the LaundryDash admin team directly for dispute resolution or technical issues, so that I can resolve problems quickly and maintain smooth business operations.
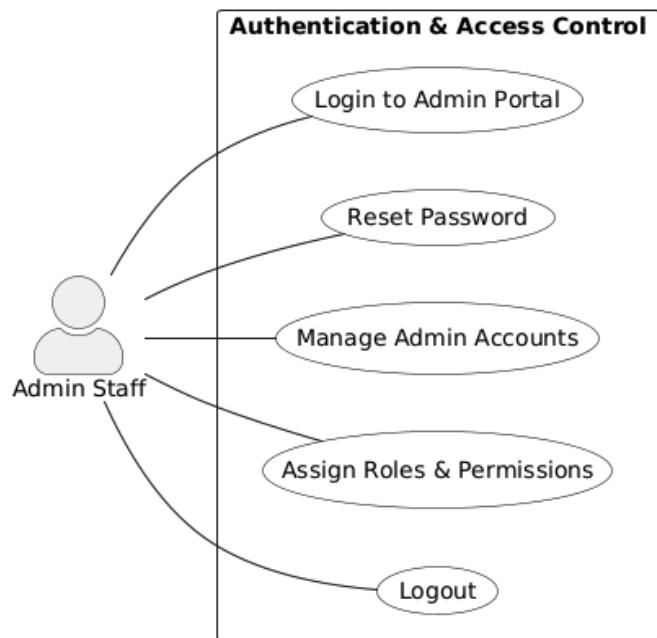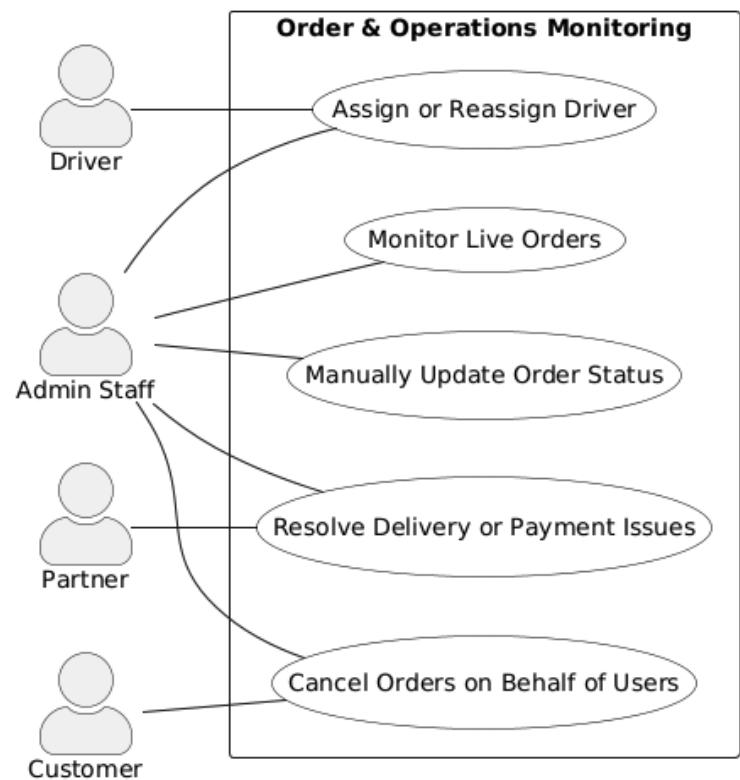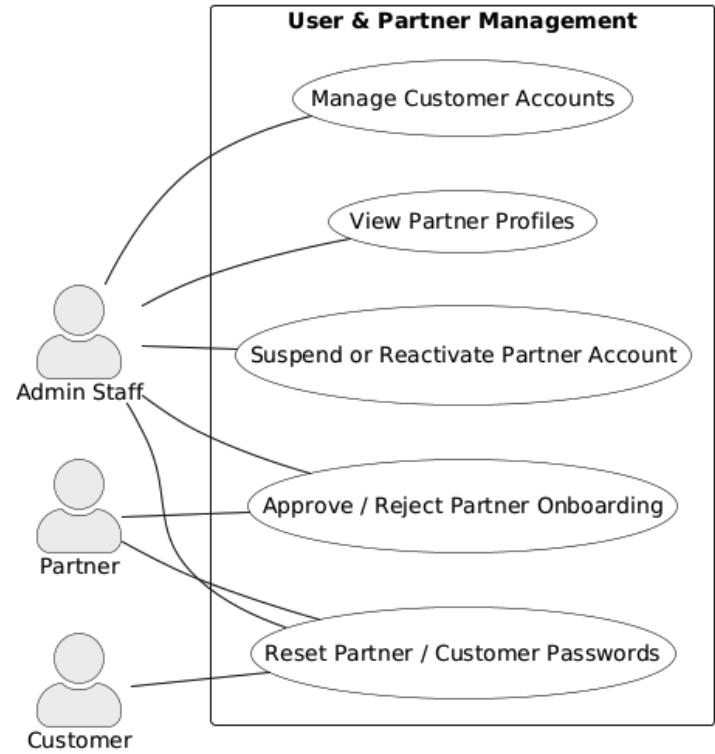
4.   LaundryDash Admin Web Portal
## a.   High-Level Purpose
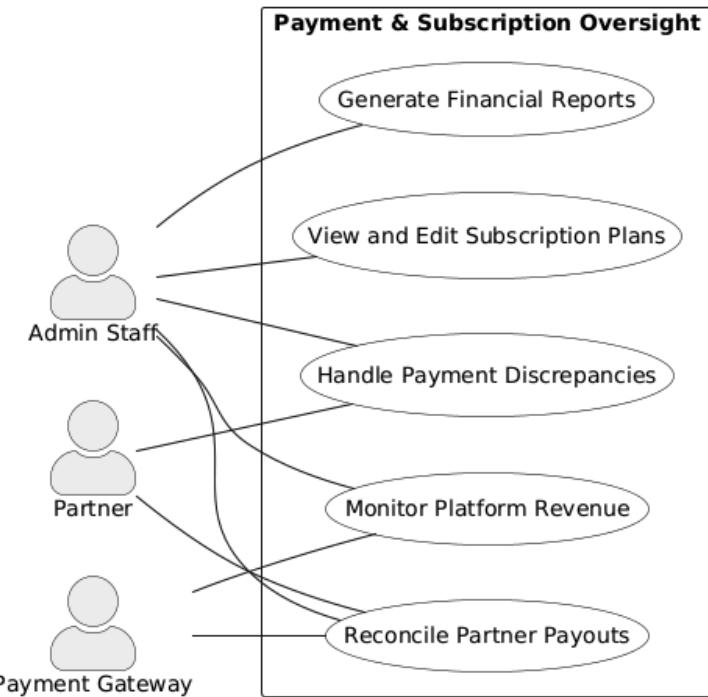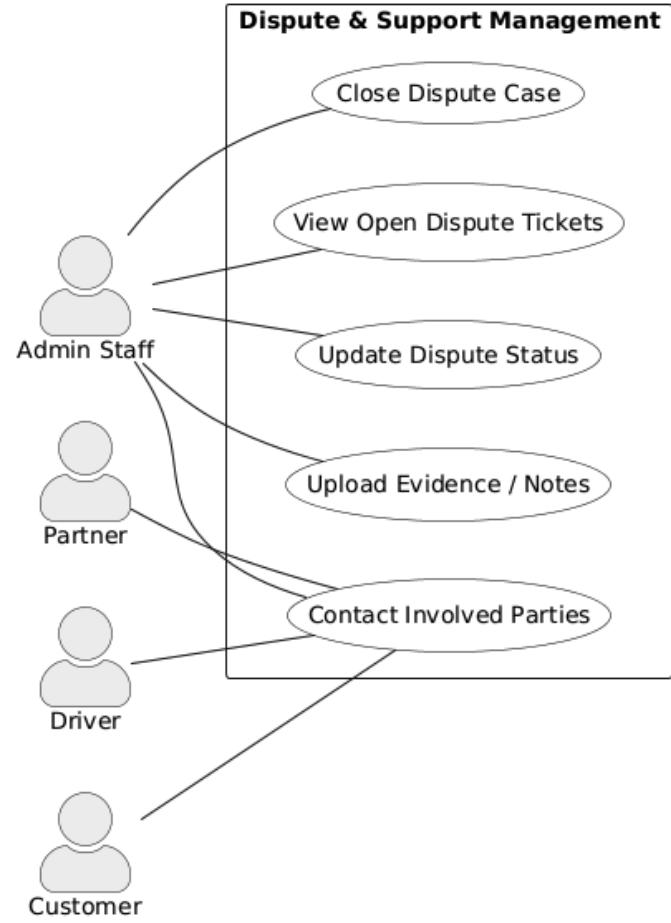
The **LaundryDash Admin Web Portal** serves as the central management interface for the internal operations team of LaundryDash. Its main purpose is to provide administrators with full visibility and control over platform activities — including user and partner management, order flow monitoring, payment reconciliation, and dispute resolution. Through this portal, admins can configure subscription plans, oversee partner onboarding, and intervene in exceptional cases such as delayed deliveries or damaged items. The interface consolidates key metrics on active users, revenue, and operational performance to support data-driven decision-making and ensure service reliability across the ecosystem.
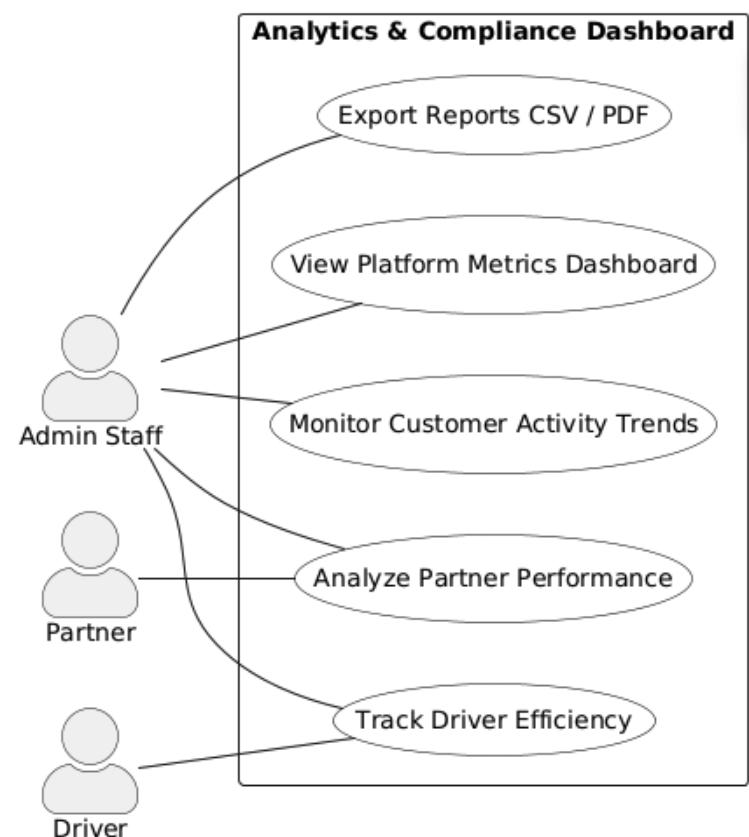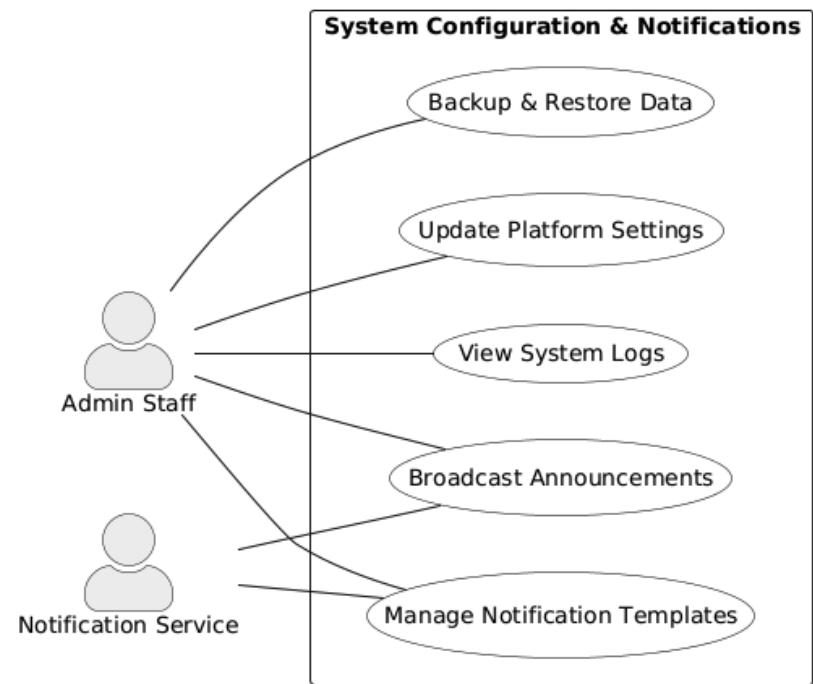
Primary User: LaundryDash internal staff and operations managers responsible for maintaining platform integrity, resolving issues, and supporting smooth day-to-day coordination between customers, drivers, and partners.

b.   Use Case Diagrams

User & Partner Management

Manage Customer Accounts

View Partner Profiles

Suspend or Reactivate Partner Account

Approve / Reject Partner Onboarding

Reset Partner / Customer Passwords

Admin Staff

Partner

Customer

Order & Operations Monitoring

Assign or Reassign Driver

Monitor Live Orders

Manually Update Order Status

Resolve Delivery or Payment Issues

Cancel Orders on Behalf of Users

Driver

Admin Staff

Partner

Customer

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Dispute & Support Management

- Close Dispute Case
- View Open Dispute Tickets
- Update Dispute Status
- Upload Evidence / Notes
- Contact Involved Parties

Admin Staff

Partner

Driver

Customer

Payment & Subscription Oversight

- Generate Financial Reports
- View and Edit Subscription Plans
- Handle Payment Discrepancies
- Monitor Platform Revenue
- Reconcile Partner Payouts

Admin Staff

Partner

Payment Gateway

System Configuration & Notifications

Backup & Restore Data

Update Platform Settings

View System Logs

Broadcast Announcements

Manage Notification Templates

Admin Staff

Notification Service

Analytics & Compliance Dashboard

Export Reports CSV / PDF

View Platform Metrics Dashboard

Monitor Customer Activity Trends

Analyze Partner Performance

Track Driver Efficiency

Admin Staff

Partner

Driver

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c. Key User Stories

User Story 1 — Platform Oversight As an admin staff
I want to monitor all live orders and partner activities in real time, so that I can ensure smooth operations and quickly resolve any service disruptions.

User Story 2 — Partner & User Management As an admin staff
I want to approve, suspend, or reactivate partner and customer accounts, so that the platform maintains quality control and only verified users can access services.

User Story 3 — Dispute Resolution As an admin staff
I want to review dispute tickets and communicate directly with involved parties, so that issues between customers, drivers, and partners can be resolved fairly and efficiently.

User Story 4 — Financial & Subscription Management As an admin staff
I want to oversee all partner payouts and subscription plan configurations, so that financial transactions remain transparent and accurately reflect platform earnings.

User Story 5 — Data-Driven Decision Support As an admin staff
I want to access analytics dashboards showing key performance and compliance metrics, so that I can make informed strategic decisions to improve operational performance and customer satisfaction.