

CSC510 Fall 2025: Software Engineering

Proj1a1 Solutions

Group number: 25

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Github Repository Link:

https://github.com/shreyas457/SE_G25/tree/main

A1) List of stakeholders

Customers / Consumers	<ul style="list-style-type: none"> • Primary users who order food • They care about timely delivery, food quality, accuracy, convenience, affordable pricing, and loyalty incentives.
Restaurants / Food Vendors	<ul style="list-style-type: none"> • Restaurants, cafes, food trucks, and cloud kitchens that prepare meals. • They care about order accuracy, fair commission rates, timely payments, menu visibility, and customer feedback.
Delivery Agents / Partners	<ul style="list-style-type: none"> • Independent contractors or employees who pick up and deliver food. • They care about fair compensation, flexible schedules, safety, and clear navigation/delivery instructions.
Platform / Online Food Delivery Companies	<ul style="list-style-type: none"> • Technology-driven businesses that connect restaurants, customers, and delivery agents through apps and websites. • They care about growing revenue through commissions and subscriptions, ensuring smooth logistics, secure payments, and positive customer experiences.
Regulators / Government Agencies	<ul style="list-style-type: none"> • Food safety and public health authorities, Licensing and compliance regulators, and State or local agencies managing food voucher or benefit programs (like SNAP in the U.S.). • They care about following proper hygiene standards, monitoring storage, handling, and transportation conditions.
Internal Corporate / Program Staff	<ul style="list-style-type: none"> • Employees working in finance, HR, marketing, and program coordination who manage the company's internal operations. • They care about efficiency, compliance, strategic planning, and aligning daily activities with long-term business goals.
External / Advisory & Research Stakeholders	<ul style="list-style-type: none"> • Industry experts and Consultants, professional associations, investor and advisory boards. • They care about compliance, risk management, sustainability and social responsibility.
Technology & Service Partners	<ul style="list-style-type: none"> • Payment & financial partners, mapping/navigation providers (for efficient delivery routes), cloud hosting providers, app analytics tools, or customer data platforms. • They care about availability, data privacy, interoperability, scalability and monitoring of applications.
Food Distributors & Suppliers	<ul style="list-style-type: none"> • Grocery stores, wholesalers, or farms providing ingredients. Also includes mobile food units, temporary vendors, and local markets supplying specialty items. • They care about managing inventory, coordinating transport, fair pricing, minimizing food waste and accurate predictions of order volumes.
Payment & Financial Partners	<ul style="list-style-type: none"> • Banks, fintech companies, and payment gateway providers that facilitate digital transactions between customers, restaurants, and the platform. • They care about secure, fast, and reliable payments, smooth settlement processes, fraud prevention, and maintaining customer trust in financial transactions.

A2) Stakeholder biases:

1. Customers / Consumers

- Bias: Toward *low prices, discounts, and convenience* over fair pay for restaurants and delivery agents.
- May undervalue hidden costs (e.g., sustainability, fair wages).

2. Restaurants / Food Vendors

- Bias: Favor *lower commissions, faster payments, and higher visibility* on platforms.
- May resist food safety audits or overemphasize profit margins, potentially at odds with regulators or platforms.

3. Delivery Agents / Partners

- Bias: Push for *higher pay and flexibility*, possibly clashing with platforms that optimize for cost and efficiency.
- May prioritize speed over strict adherence to safety/quality standards.

4. Platform / Online Food Delivery Companies

- Bias: Incentivized by *profit growth, market share, and data control*.
- May downplay worker welfare or over-prioritize customer acquisition discounts, causing conflicts with restaurants and delivery partners.

5. Regulators / Government Agencies

- Bias: Focus on *public health, safety, and compliance*, sometimes at the expense of innovation or business agility.
- May impose rules that slow platform growth or raise costs.

A3) Zero shot prompting and Elaborate Prompting

Zero-shot prompting is a prompting technique where the LLM is given only a single task/question/prompt without any prior examples or demonstrations of the expected response. In this approach, the model relies solely on its pre-trained knowledge and general reasoning ability to generate an answer. While this can be effective for producing quick, broad, or generic outputs, it often poses risks such as **hallucinations, lack of domain-specific detail, and less structured answers**. Zero-shot prompting is therefore most useful in scenarios where speed is more important than precision, and when high-level or exploratory answers are acceptable.

An example of a more elaborate prompting technique is **few-shot prompting**. In this approach, the LLM is provided with the task or question along with a few carefully selected input–output examples that demonstrate the desired response style and structure. These examples act as **guidelines or reference points**, enabling the model to align its output with the intended format and depth. Few-shot prompting reduces ambiguity, improves accuracy, and encourages consistency across outputs.

When tested on the GPT-4 model, **zero-shot prompting** generated a raw, unstructured list that lacked depth, whereas **few-shot prompting** produced a structured, categorized, and well-explained response. By leveraging examples, few-shot prompting helps the model **better understand expectations, bridge gaps in knowledge, and deliver more relevant, insightful, and decision-ready answers**. This makes it especially valuable in professional, academic, or analytical contexts where clarity, detail, and reliability are essential.

(Referred to rag_generator.py and [dspe_demo.py](#) file on the Git repository for more information)

A4) Use Cases

1. Customers / Consumers – Place a Food Order

Preconditions:

1. Customer is registered and logged into the app.
2. Delivery address and payment method are available.

Main Flow:

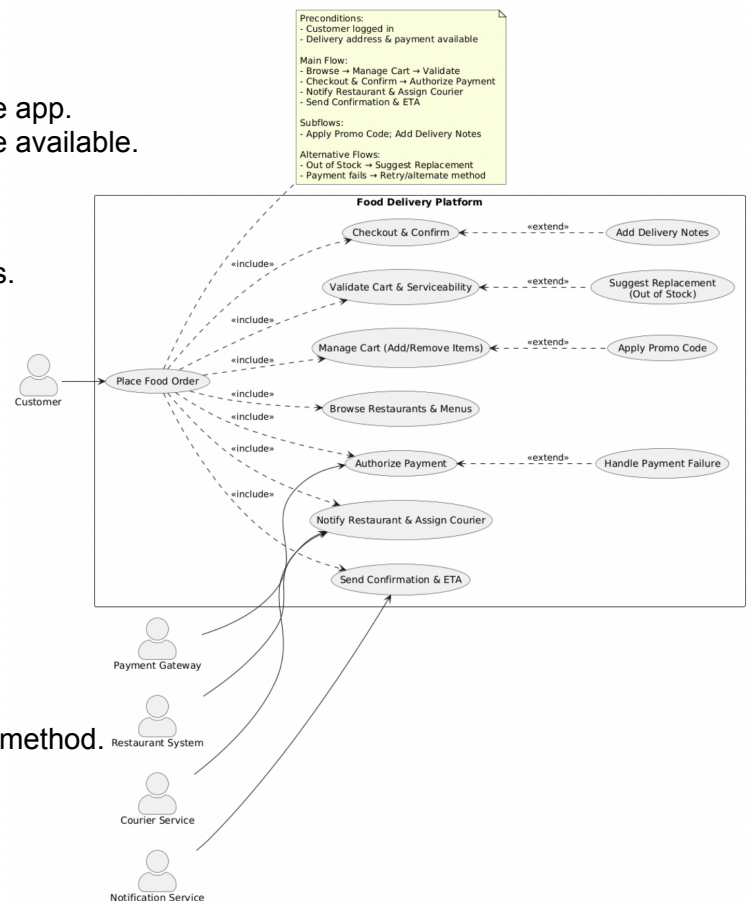
1. Customer browses restaurants and menus.
2. Selects items and adds them to cart.
3. Proceeds to checkout and reviews order.
4. Confirms payment and places order.
5. Receives confirmation and ETA.

Subflows:

1. Apply promo code.
2. Add delivery notes (e.g., "Leave at door").

Alternative Flows:

1. Item out of stock → Suggest replacement.
2. Payment fails → Retry or choose another method.



2. Restaurants / Food Vendors – Accept and Prepare Order

Preconditions:

1. Restaurant is onboarded and online.
2. Customer has placed an order.

Main Flow:

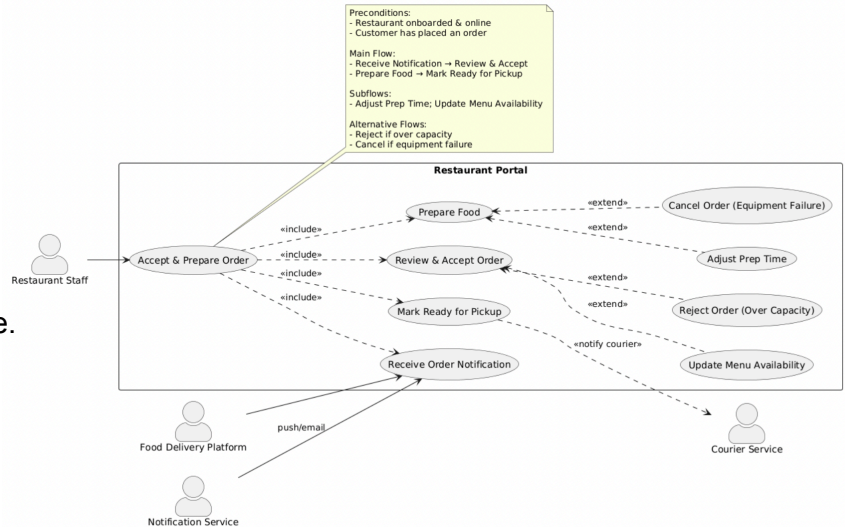
1. Restaurant receives order notification.
2. Staff reviews and accepts the order.
3. Kitchen prepares the food.
4. Staff marks "ready for pickup."

Subflows:

1. Adjust prep time due to workload.
2. Update menu availability.

Alternative Flows:

1. Reject order if over capacity.
2. Cancel if kitchen equipment failure.



3. Delivery Agents / Partners – Pick Up and Deliver Order

Preconditions:

1. Agent is logged into app and available.
2. Order is ready for pickup.

Main Flow:

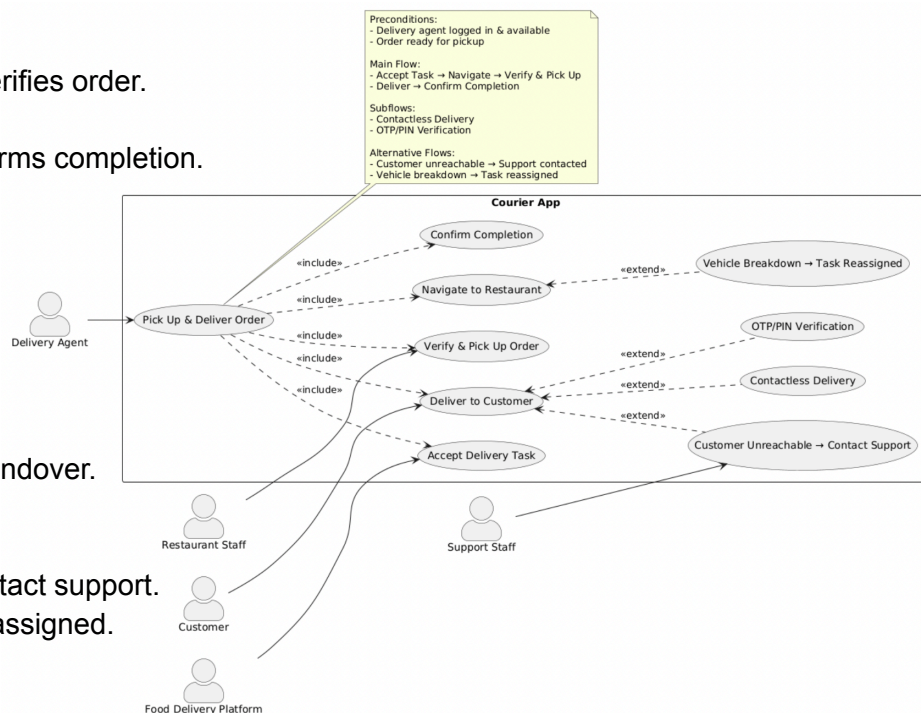
1. Agent accepts delivery task.
2. Navigates to restaurant and verifies order.
3. Picks up food package.
4. Delivers to customer and confirms completion.

Subflows:

1. Contactless delivery option.
2. OTP/PIN verification before handover.

Alternative Flows:

1. Customer unreachable → Contact support.
2. Vehicle breakdown → Task reassigned.



4. Platform / Online Food Delivery Companies – Manage Order Lifecycle

Preconditions:

1. Customer has placed an order.
2. Payment is authorized or set as COD.

Main Flow:

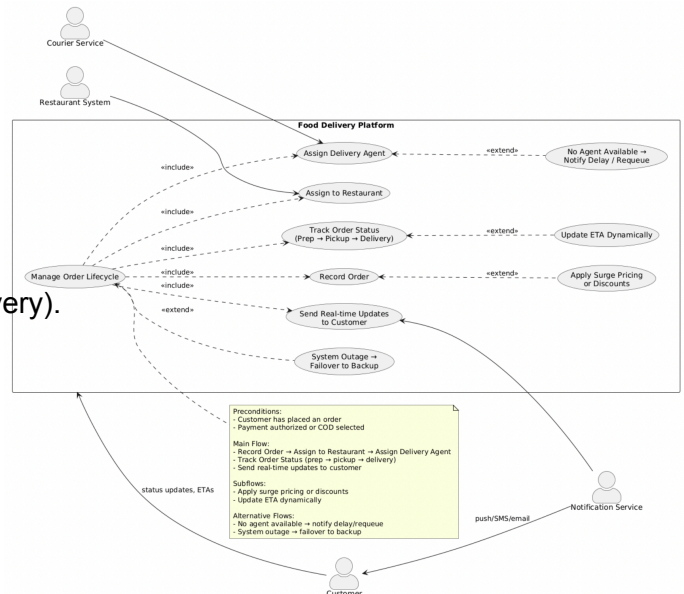
1. Platform records the order.
2. Assigns to restaurant and delivery agent.
3. Tracks order status (prep → pickup → delivery).
4. Sends updates to customer in real-time.

Subflows:

1. Apply surge pricing or discounts.
2. Update ETA dynamically.

Alternative Flows:

1. No agent available → Notify delay.
2. System outage → Failover to backup.



5. Regulators / Government Agencies – Conduct Food Safety Audit

Preconditions:

1. Restaurant is registered with the platform.
2. Regulator has audit rights.

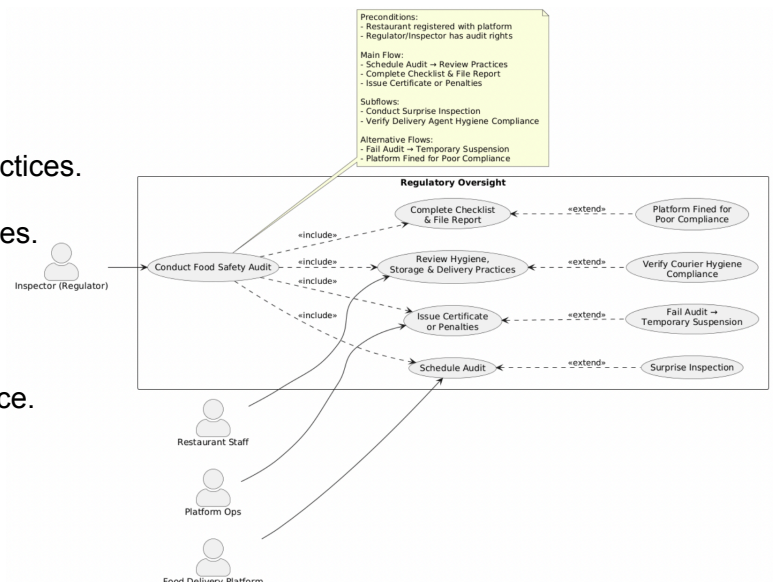
Main Flow:

1. Inspector schedules audit.
2. Reviews hygiene, storage, delivery practices.
3. Completes checklist and files report.
4. Issues compliance certificate or penalties.

Subflows:

1. Conduct surprise inspection.
2. Verify delivery agent hygiene compliance.

Alternative Flows:



1. Fail audit → Temporary suspension.
2. Platform fined for poor compliance.

6. Internal Corporate / Program Staff – Generate Sales Report

Preconditions:

1. Staff has admin access.
2. Database is up to date.

Main Flow:

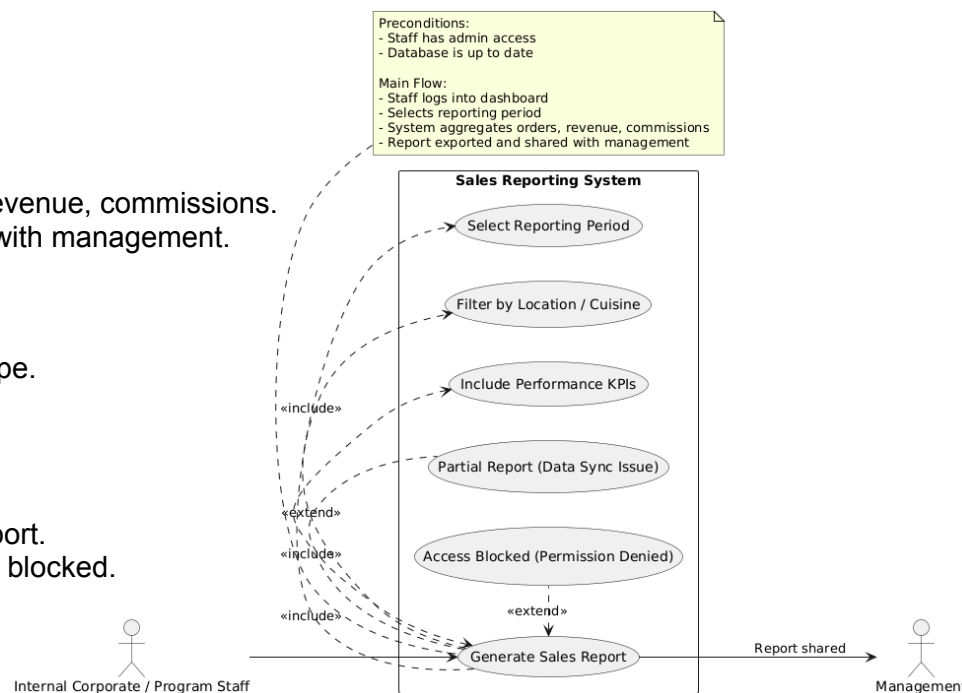
1. Staff logs into dashboard.
2. Selects reporting period.
3. System aggregates orders, revenue, commissions.
4. Report exported and shared with management.

Subflows:

1. Filter by location or cuisine type.
2. Include performance KPIs.

Alternative Flows:

1. Data sync issue → Partial report.
2. Permission denied → Access blocked.



7. External / Advisory & Research Stakeholders – Provide Business Insights

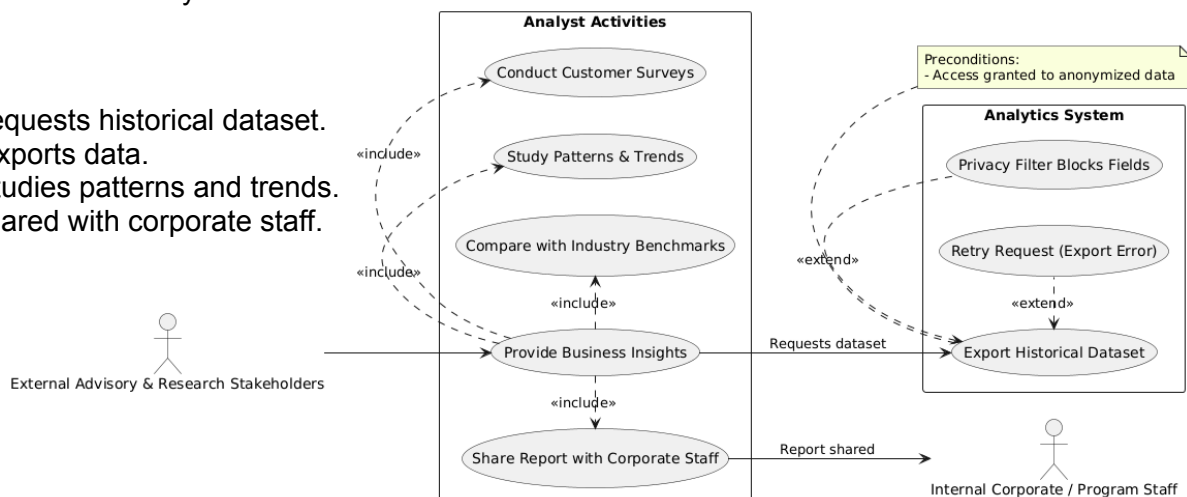
Preconditions:

1. Access granted to anonymized data.

Main Flow:

1. Analyst requests historical dataset.
2. System exports data.
3. Analyst studies patterns and trends.
4. Report shared with corporate staff.

Subflows:



1. Compare with industry benchmarks.
2. Conduct customer surveys.

Alternative Flows:

1. Export error → Retry request.
2. Privacy filter blocks sensitive fields.

8. Technology & Service Partners – Maintain Cloud Infrastructure

Preconditions:

1. Platform hosted on third-party cloud.
2. SLA established.

Main Flow:

1. Monitoring detects load spikes.
2. Cloud system auto-scales resources.
3. Logs stored for auditing.
4. Ensure uptime and performance.

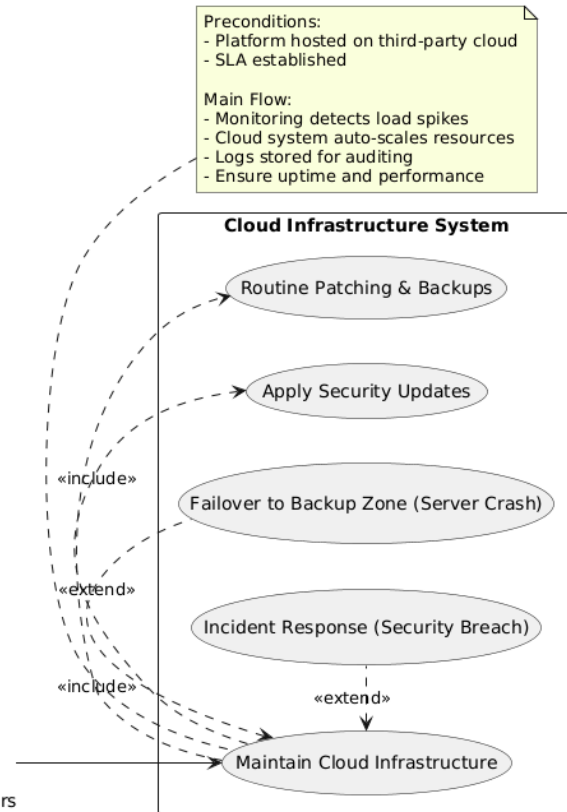
Subflows:

1. Routine patching and backups.
2. Apply security updates.

Alternative Flows:

1. Server crash → Failover to backup zone.
2. Security breach → Trigger incident response.

Technology & Service Partners



9. Food Distributors & Suppliers – Fulfill Ingredient Orders

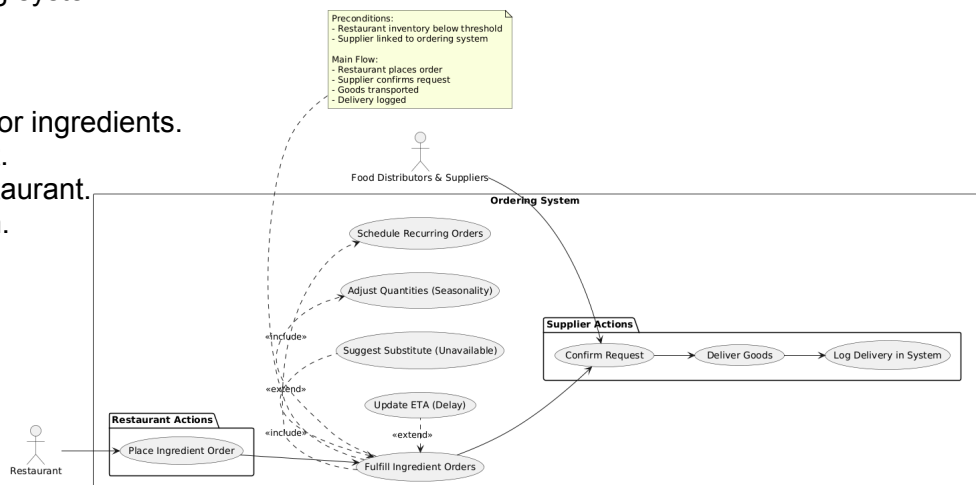
Preconditions:

1. Restaurant inventory below threshold.
2. Supplier linked to ordering system.

Main Flow:

1. Restaurant places order for ingredients.
2. Supplier confirms request.
3. Goods transported to restaurant.
4. Delivery logged in system.

Subflows:



1. Schedule recurring supply orders.
2. Adjust quantities for seasonality.

Alternative Flows:

1. Item unavailable → Suggest substitute.
2. Transport delay → Update ETA.

10. Payment & Financial Partners – Process Customer Payment

Preconditions:

1. Customer has initiated checkout.
2. Selected method supported.

Main Flow:

1. Platform sends payment request to gateway.
2. Customer provides card/UPI/wallet details.
3. Gateway authenticates and authorizes payment.
4. Funds routed to platform → restaurant → agent.

Subflows:

1. Generate digital invoice.
2. Process refunds for cancellations.

Alternative Flows:

1. Fraud detected → Payment declined.
2. Gateway timeout → Customer retries.

