

CSC510 Fall 2025: Software Engineering

Proj1b1 Solutions

Group number: 25

Team Members:

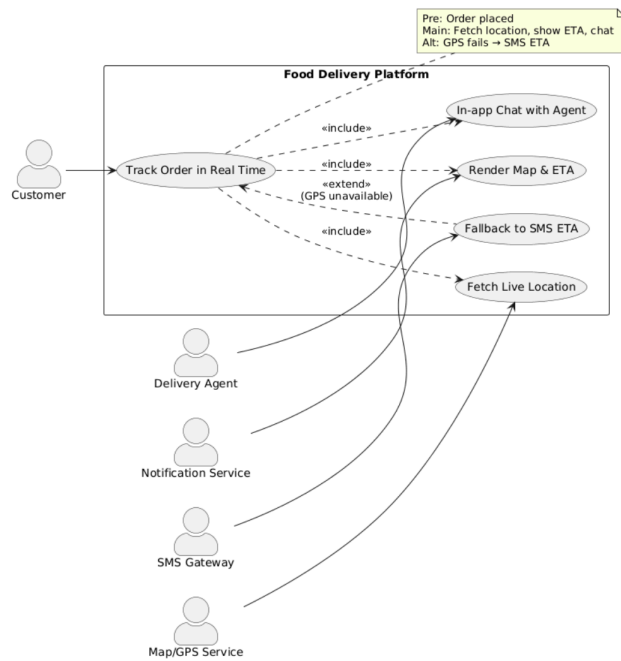
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Github Repository Link:

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

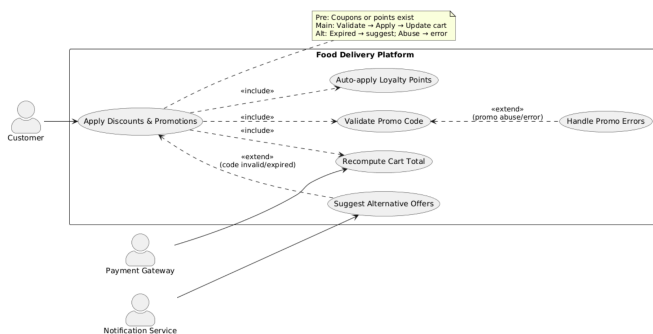
Use Case 1 – Track Order in Real Time

- **Precondition:** Customer places an order.
- **Main Flow:** Customer opens app → Views live map of delivery → ETA updates.
- **Subflow:** Customer sends chat message to delivery agent.
- **Alternative Flow:** GPS/location service unavailable → fallback to SMS ETA.



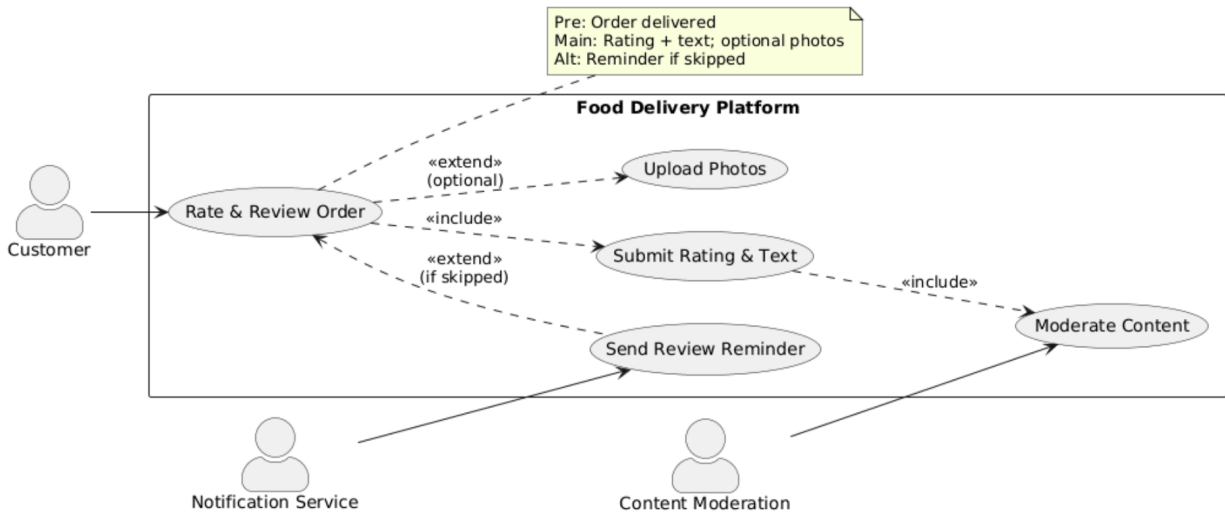
Use Case 2 – Apply Discounts & Promotions

- **Precondition:** Customer has coupons/loyalty points.
- **Main Flow:** Customer selects restaurant → Applies discount code → Price recalculates.
- **Subflow:** Loyalty points auto-applied at checkout.
- **Alternative Flow:** Discount expired → System notifies customer, suggests alternatives.



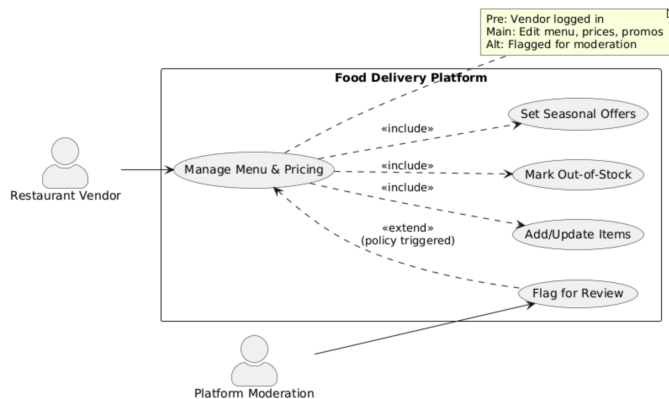
Use Case 3 – Rate & Review Order

- **Precondition:** Order delivered.
- **Main Flow:** Customer leaves rating (1–5 stars) and text feedback.
- **Subflow:** Uploads photo of food for community review.
- **Alternative Flow:** Customer skips review → platform sends reminder later.



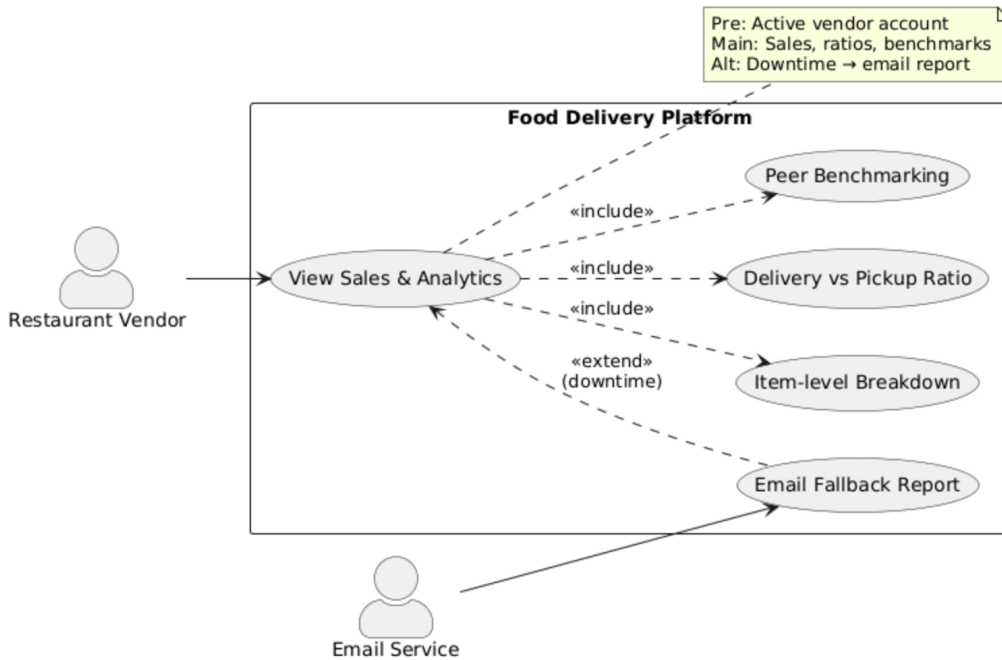
Use Case 4 – Manage Menu & Pricing

- **Precondition:** Restaurant logged into vendor portal.
- **Main Flow:** Vendor updates menu items → Adds seasonal offers → Adjusts prices.
- **Subflow:** Enables “out of stock” toggle for unavailable items.
- **Alternative Flow:** Menu changes pending approval → flagged by platform moderation.



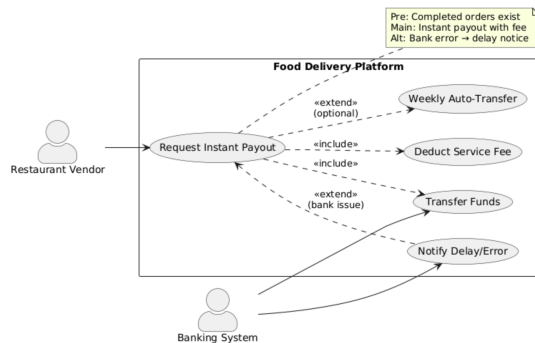
Use Case 5 – Access Sales & Analytics Dashboard

- **Precondition:** Restaurant account active.
- **Main Flow:** Vendor views daily/weekly sales → Breakdown by items → Delivery vs. pickup ratio.
- **Subflow:** Compares performance with nearby restaurants.
- **Alternative Flow:** Analytics unavailable due to system downtime → fallback to email reports.



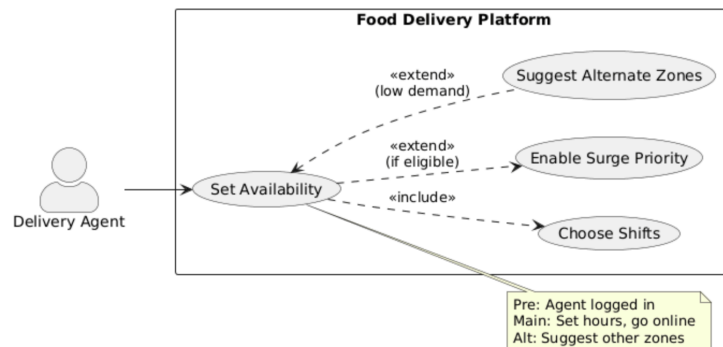
Use Case 6 – Request Instant Payout

- **Precondition:** Restaurant has completed orders pending settlement.
- **Main Flow:** Vendor requests “Instant Payout” → System deducts service fee → Money credited.
- **Subflow:** Auto-transfer scheduled weekly.
- **Alternative Flow:** Bank error → payout delayed → vendor notified.



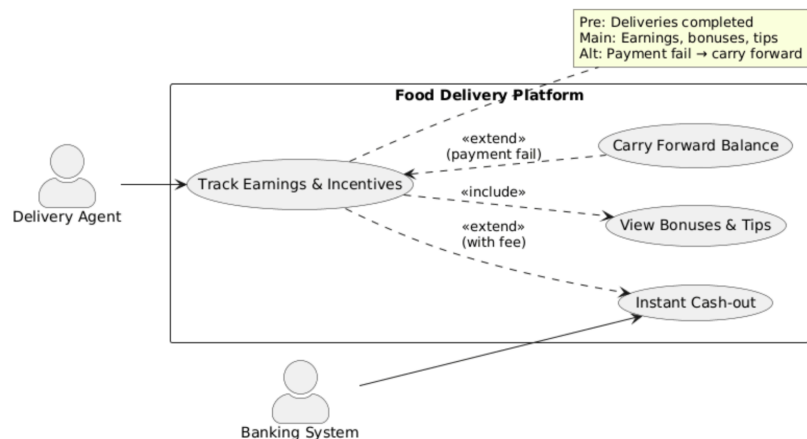
Use Case 7 – Set Availability & Shift Preferences

- **Precondition:** Agent logged into app.
- **Main Flow:** Agent sets preferred working hours → Marks availability as online.
- **Subflow:** Requests priority shifts for surge pricing.
- **Alternative Flow:** Low demand → System suggests alternate areas/routes.



Use Case 8 – Track Earnings & Incentives

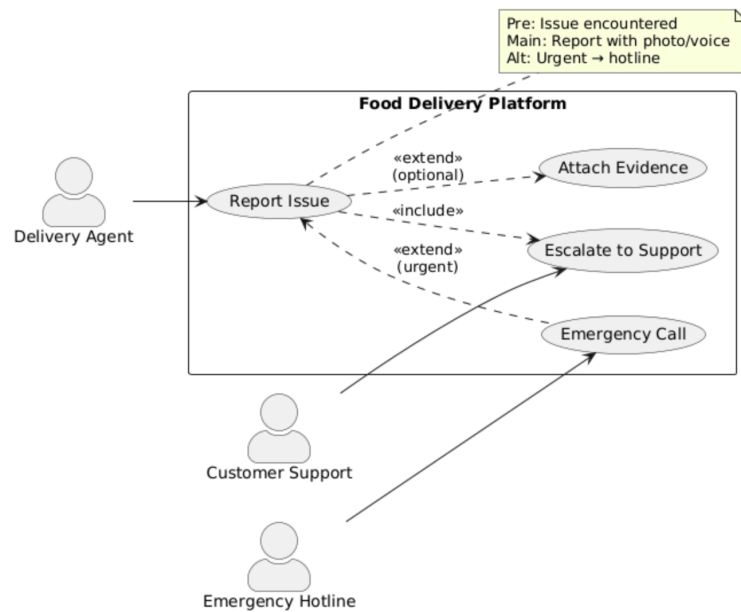
- **Precondition:** Agent completed deliveries.
- **Main Flow:** Agent views dashboard → Sees total earnings, bonuses, tips.
- **Subflow:** Cash-out to bank instantly with small fee.
- **Alternative Flow:** Payment system failure → balance carried forward.



Use Case 9 – Report Safety or Quality Issues

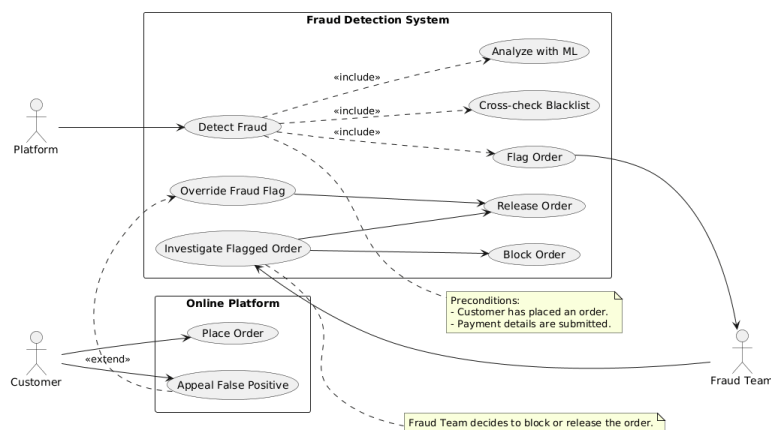
- **Precondition:** Agent encounters problem (e.g., damaged food, unsafe location).
- **Main Flow:** Agent reports via in-app form → Option to upload photo/voice.
- **Subflow:** Escalates to customer service.

- **Alternative Flow:** Urgent threat (e.g., harassment) → Emergency hotline enabled.



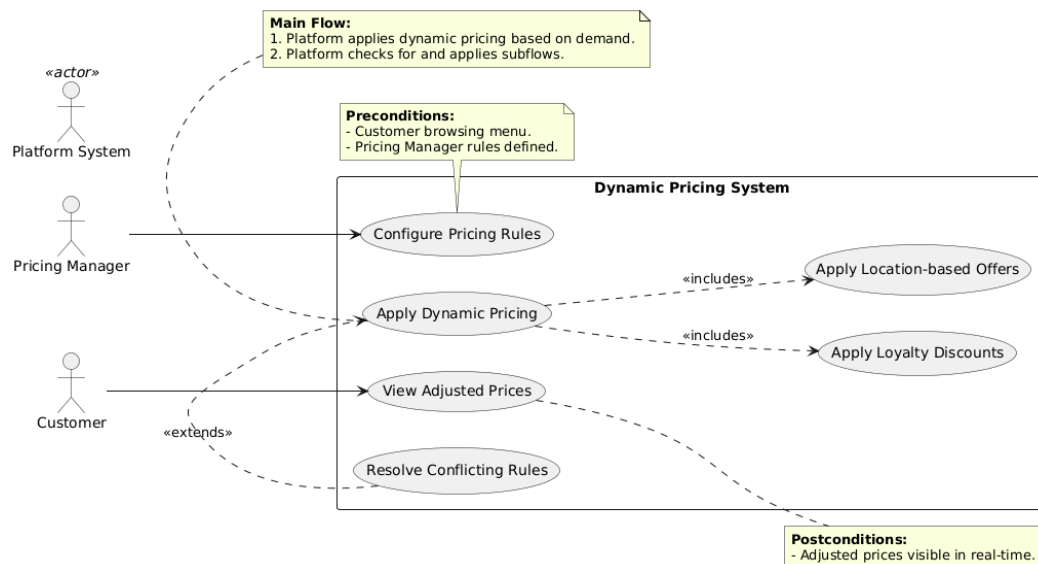
Use Case 10: Fraud Detection and Prevention

- **Preconditions:** Customer has placed an order and the payment details are submitted.
- **Main Flow:** Platform sends payment/order info to Fraud Detection System → Fraud Detection System analyzes for anomalies. → If high risk, order flagged. → Fraud Team investigates. → Order either blocked or released.
- **Subflows:** Cross-check with blacklisted accounts. → ML-based anomaly detection.
- **Alternative Flows:** False positive → Customer appeals → Fraud Team overrides.



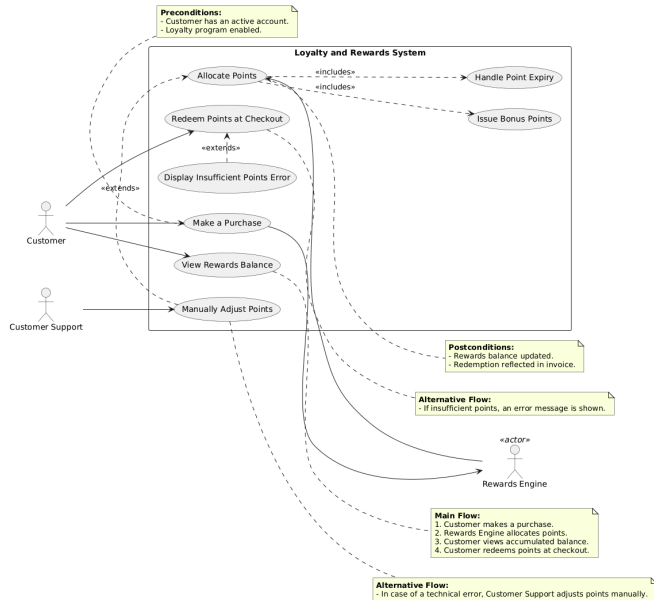
Use Case 11: Dynamic Pricing & Promotions

- **Preconditions:** Customer browsing menu. → Pricing Manager rules defined.
- **Main Flow:** Pricing Manager configures surge & discount rules. → Platform applies dynamic pricing based on demand. → Customer sees adjusted prices.
- **Subflows:** Apply loyalty discounts. → Location-based offers.
- **Alternative Flows:** If conflicting rules, system resolves based on hierarchy.



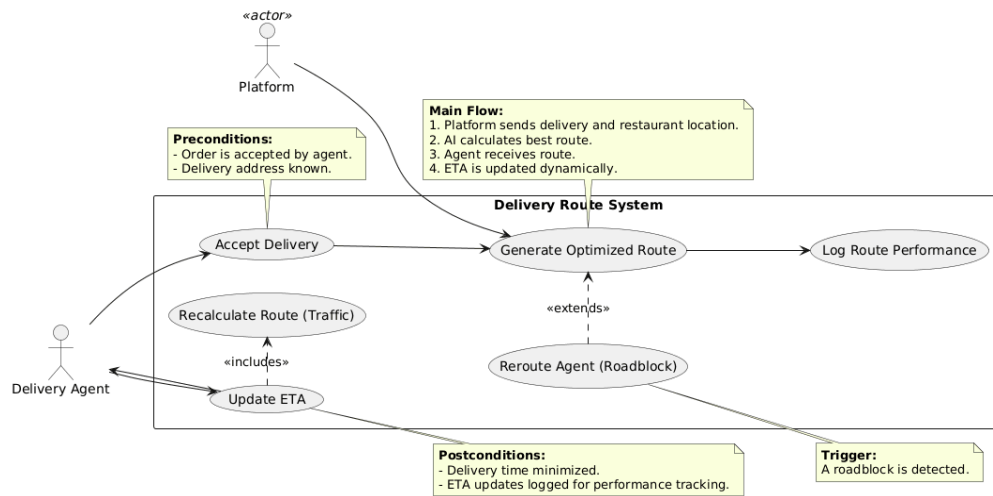
Use Case 12: Customer Loyalty & Rewards Management

- **Preconditions:** Customer has an active account. → Loyalty program enabled.
- **Main Flow:** Customer makes a purchase → Rewards Engine allocates points → Customer views accumulated balance → At checkout, Customer redeems points.
- **Subflows:** Bonus points for specific campaigns → Expiry mechanism for unused points.
- **Alternative Flows:** If Insufficient points → Error message. If Technical error → Customer Support adjusts manually.



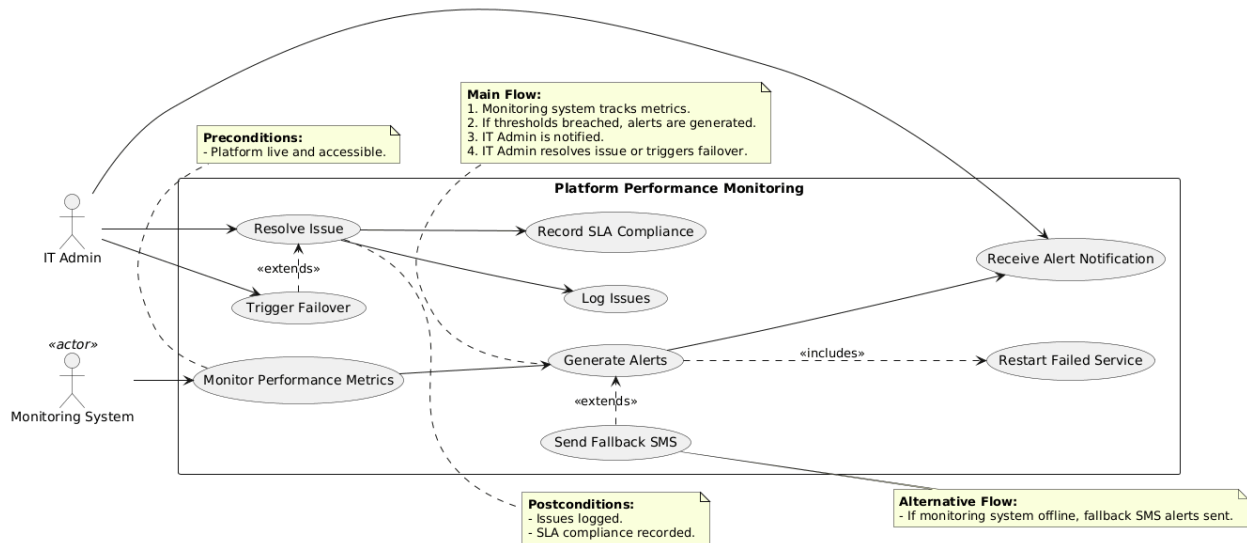
Use Case 13: AI-based Delivery Route Optimization

- **Preconditions:** Order is accepted by agent → Delivery address known
- **Main Flow:** Platform sends delivery address and restaurant location → Route Optimization Engine calculates best route using traffic data → Delivery Agent receives optimized route → ETA is updated dynamically.
- **Subflows:** ETA recalculated when traffic changes.
- **Alternative Flows:** Roadblock detected → System reroutes agent.



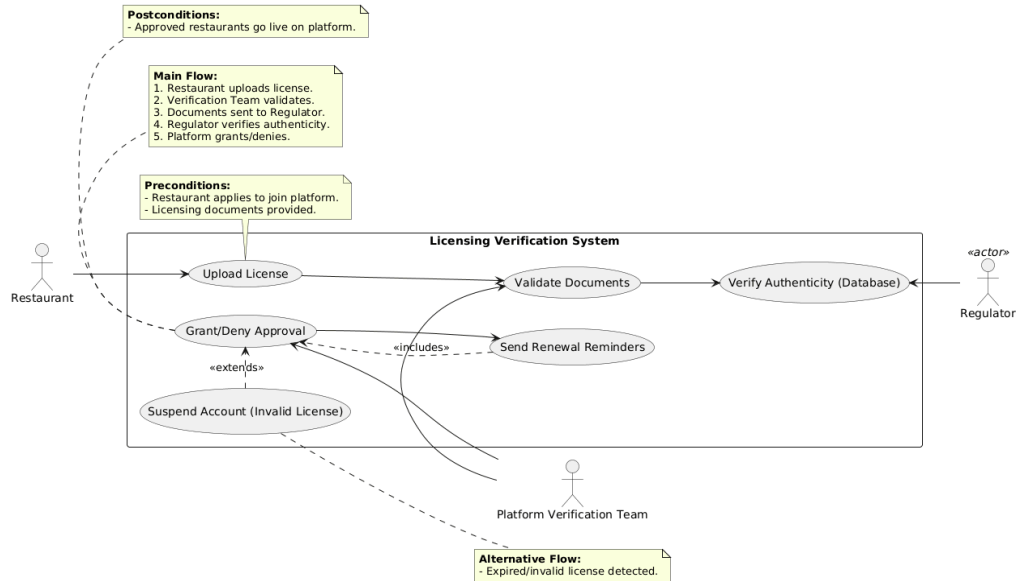
Use Case 14: Platform Performance Monitoring

- **Preconditions:** Platform live and accessible.
- **Main Flow:** Monitoring system tracks uptime, latency, and errors → If thresholds breached, alerts generated → IT Admin receives notification → IT Admin resolves issue or triggers failover.
- **Subflows:** Auto-recovery system restarts failed service.
- **Alternative Flows:** If monitoring system offline, fallback SMS alerts sent.



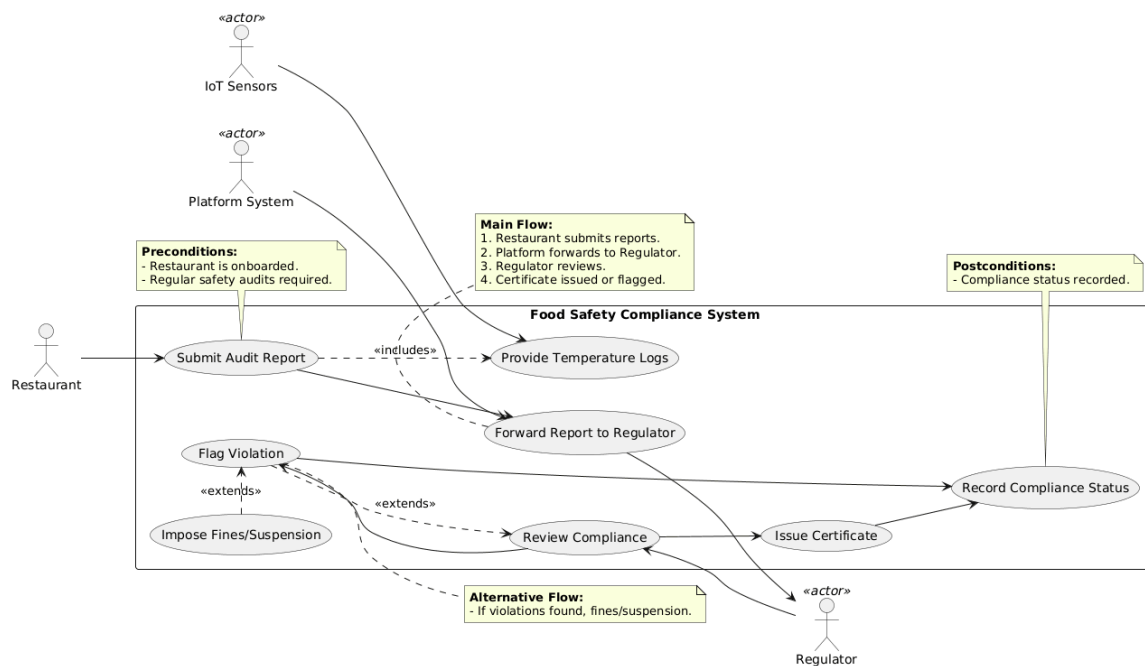
Use Case 15: Restaurant Licensing Verification

- **Preconditions:** Restaurant applies to join platform → Licensing documents provided.
- **Main Flow:** Restaurant uploads license → Platform Verification Team validates completeness → Documents sent to Regulator's licensing database → Regulator verifies authenticity → Platform grants/denies approval.
- **Subflows:** Renewal reminders sent automatically before expiry.
- **Alternative Flows:** Expired/invalid license → Restaurant suspended until renewal.



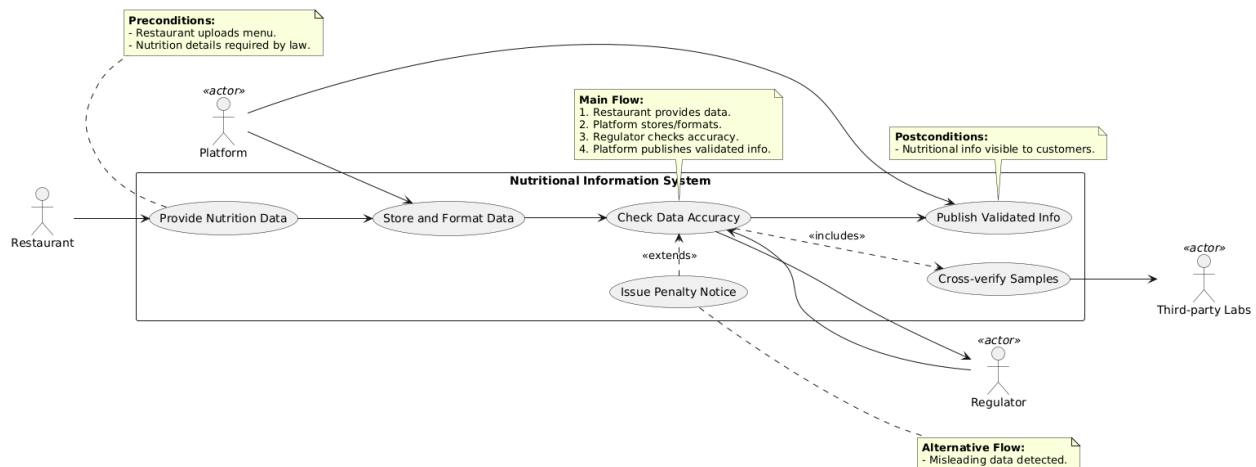
Use Case 16: Food Safety Compliance Reporting

- **Preconditions:** The restaurant is onboarded → Regular safety audits required.
- **Main Flow:** The restaurant submits hygiene and audit reports → Platform forwards to Regulator → Regulator reviews compliance → Compliance certificate issued or flagged.
- **Subflows:** Automated IoT sensors provide temperature logs.
- **Alternative Flows:** Violations found → Fines imposed / suspension.



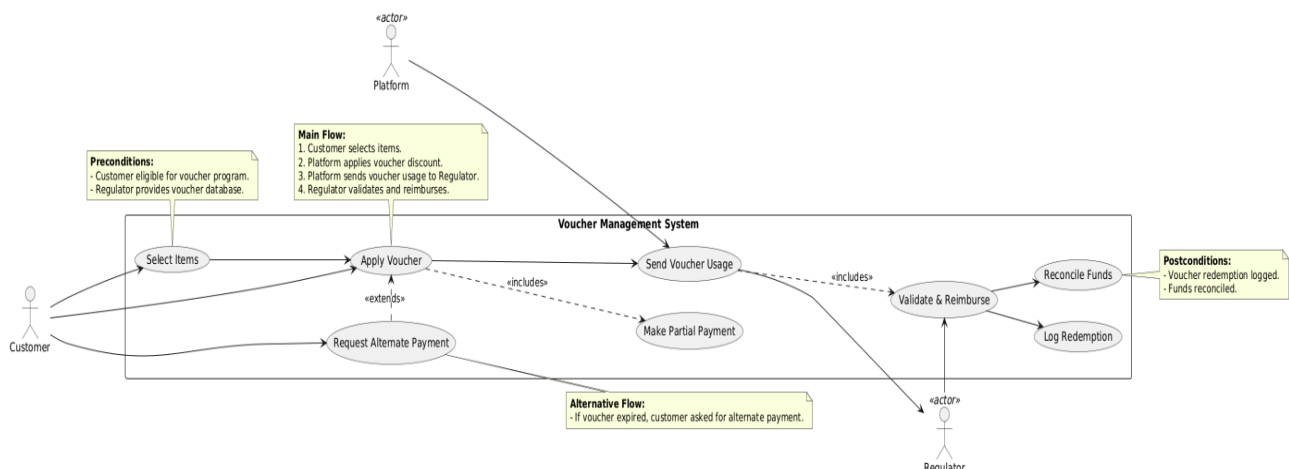
Use Case 17: Nutritional Information Oversight

- **Preconditions:** Restaurant uploads menu → Nutrition details required by law.
- **Main Flow:** Restaurant provides nutrition data (calories, allergens) → Platform stores and formats info → Regulator checks accuracy → Platform publishes validated info.
- **Subflows:** Third-party labs cross-verify samples.
- **Alternative Flows:** Misleading data → Regulator issues penalty notice.



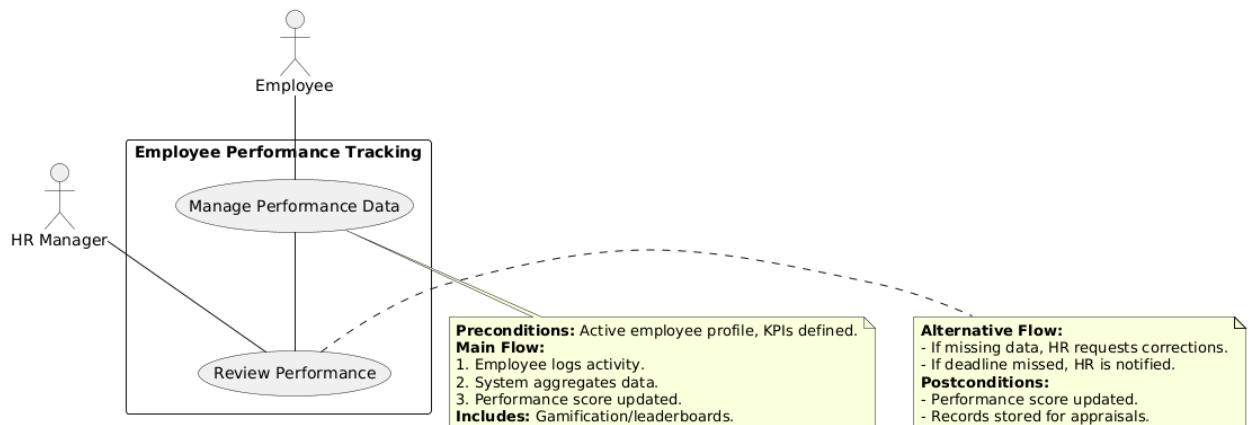
Use Case 18: Voucher / Benefit Program Integration

- **Preconditions:** Customer eligible for voucher program → Regulator provides voucher database.
- **Main Flow:** Customer selects items → Platform applies voucher discount → Platform sends voucher usage to Regulator → Regulator validates and reimburses platform.
- **Subflows:** Partial payments with voucher + cash/credit.
- **Alternative Flows:** Voucher expired → Customer asked for alternate payment.



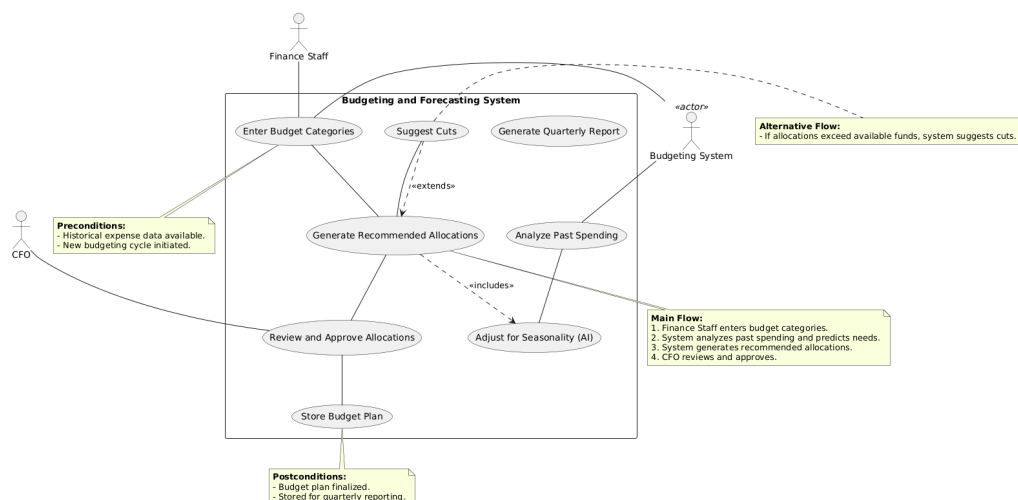
Use Case 19: Employee Performance Tracking

- **Preconditions:** Employee has an active profile → KPIs and performance metrics are defined.
- **Main Flow:** Employee logs work activity (deliveries, support tickets, etc.) → Performance System aggregates data → HR Manager reviews dashboards and reports → HR Manager provides performance feedback.
- **Subflows:** Gamification → Leaderboards for delivery agents.
- **Alternative Flows:** Missing/incomplete data → HR Manager requests corrections.



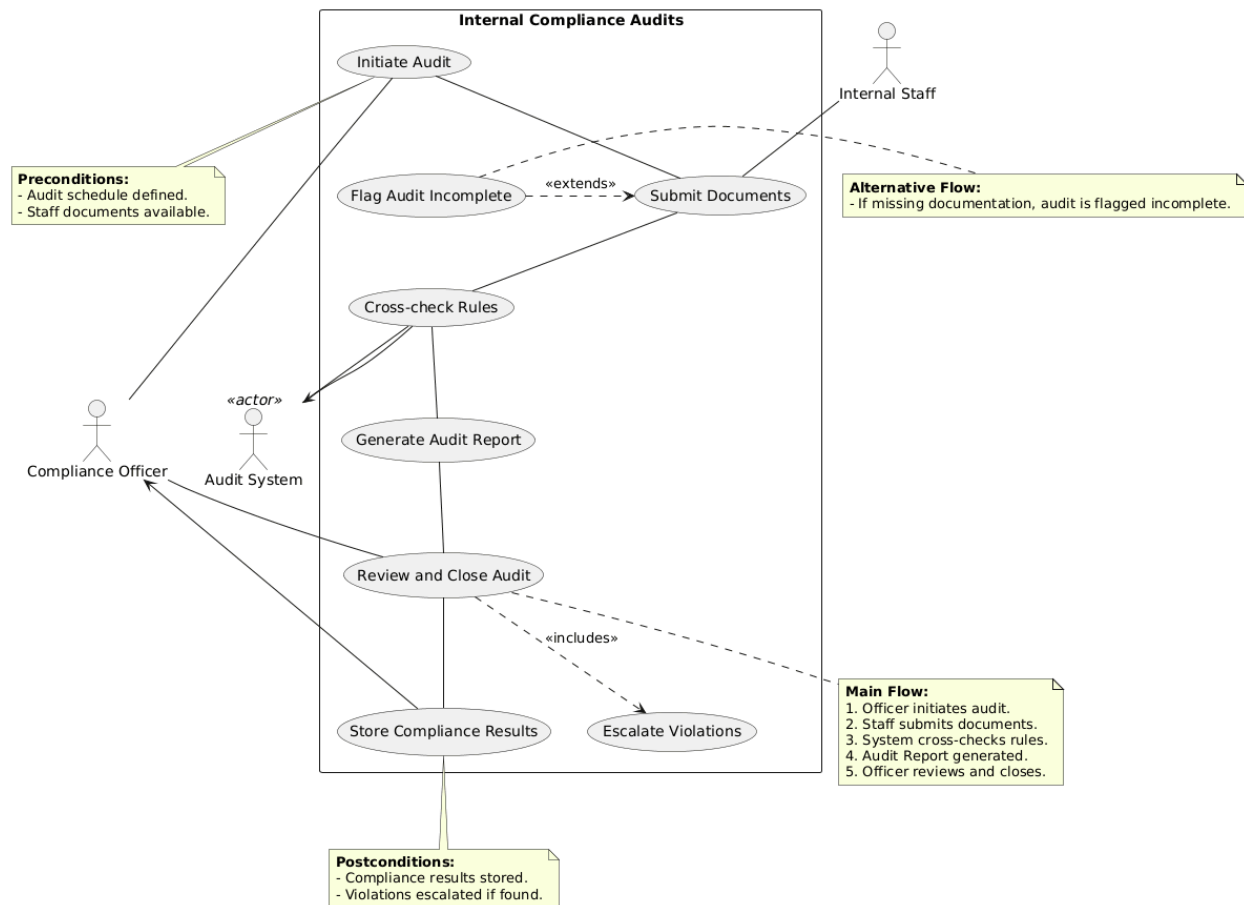
Use Case 20: Budget Allocation & Forecasting

- **Preconditions:** Historical expense data available → New budgeting cycle initiated.
- **Main Flow:** Finance Staff enters budget categories (marketing, logistics, ops) → Budgeting System analyzes past spending and predicts needs → System generates recommended allocations → CFO reviews and approves allocations.
- **Subflows:** AI-based forecasting adjusts based on seasonality.
- **Alternative Flows:** If allocations exceed available funds → System suggests cuts.



Use Case 21: Internal Compliance Audits

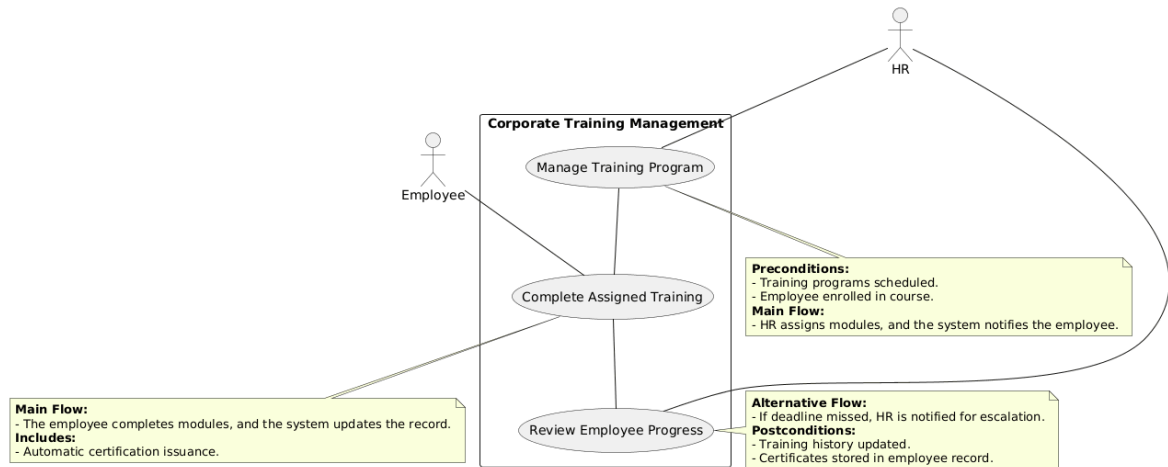
- **Preconditions:** Audit schedule defined → Staff documents available.
- **Main Flow:** Compliance Officer initiates audit → Internal Staff submit necessary documents → Audit System cross-checks compliance rules → Audit Report generated → Compliance Officer reviews and closes audit.
- **Subflows:** Escalation flow for violations → legal/HR notified.
- **Alternative Flows:** Missing documentation → audit flagged incomplete.



Use Case 22: Corporate Training & Development Management

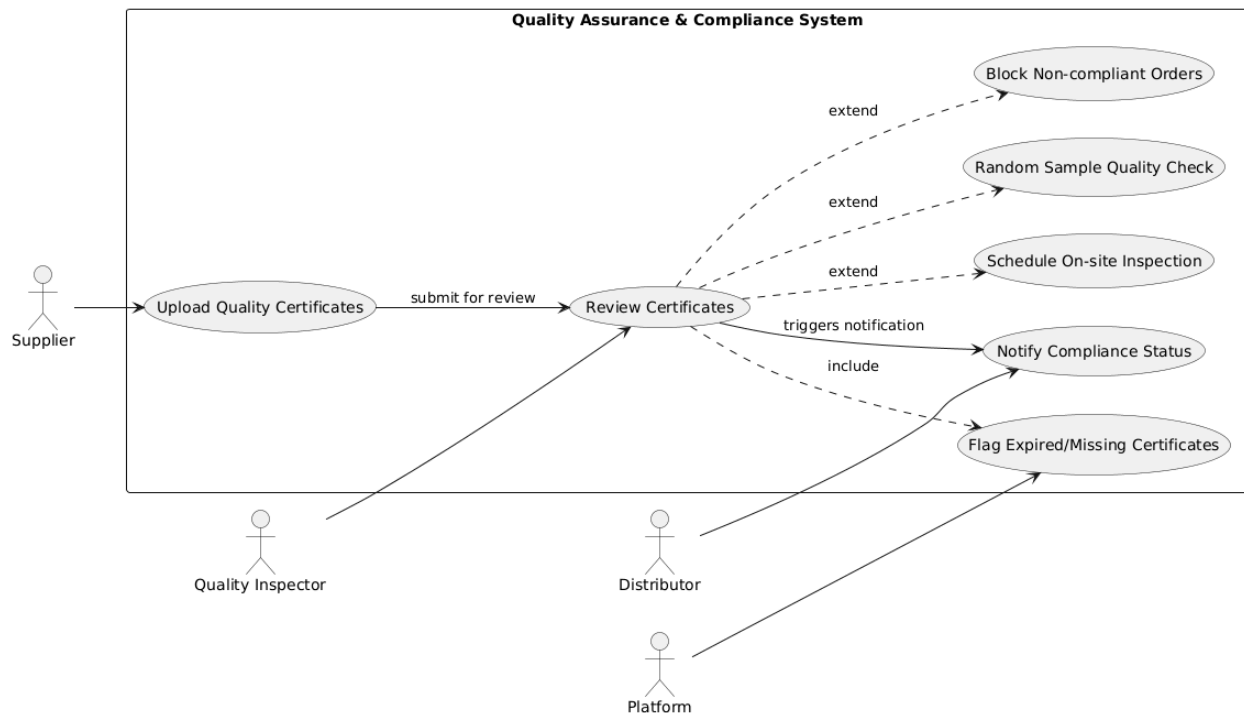
- **Preconditions:** Training programs scheduled → Employee enrolled in course.
- **Main Flow:** HR assigns training modules → Training System notifies Employee → Employee completes assigned modules → Training System updates completion record → HR reviews progress.
- **Subflows:** Certification issued automatically on completion.

- **Alternative Flows:** Missed deadline → HR notified for escalation.



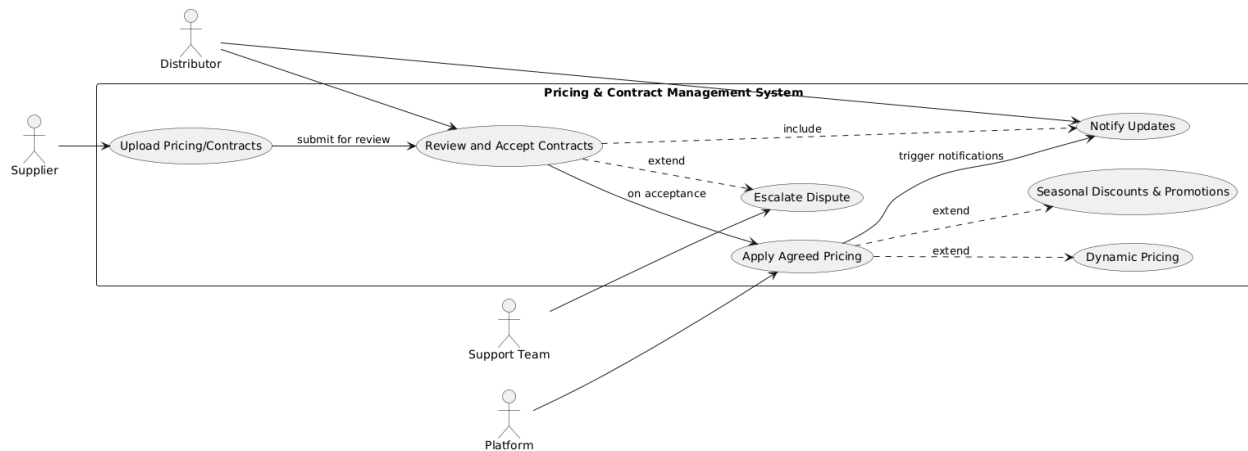
Use Case 23 Quality Assurance & Compliance

- **Preconditions:** Supplier must follow quality certifications → Distributor requests compliance verification.
- **Main Flow:** Supplier uploads quality certificates → The quality inspector reviews documents → Platform flags expired or missing certificates → Distributor notified of product compliance status.
- **Subflows:** On-site inspection scheduled → Random sample quality checks.
- **Alternative Flows:** Non-compliance → Order blocked.



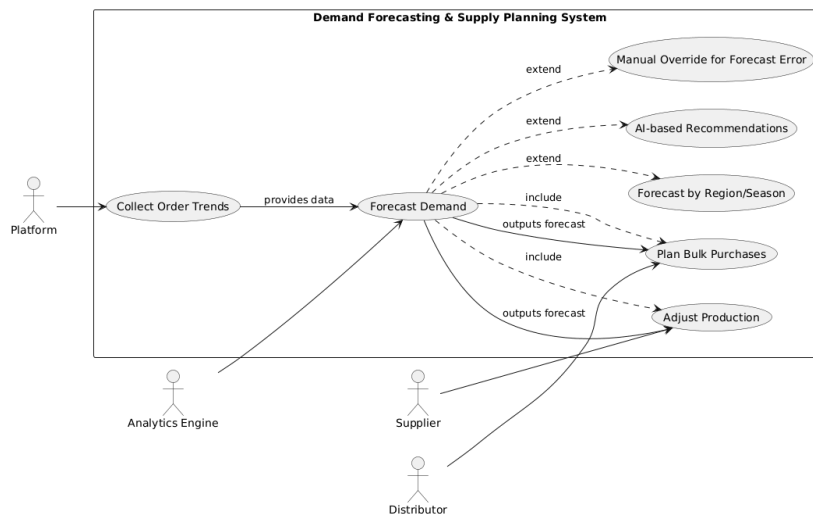
Use Case 24 Pricing & Contract Management

- **Preconditions:** The supplier has product pricing defined → Distributor registered on platform.
- **Main Flow:** Supplier uploads pricing/contracts → Distributor reviews and accepts → The platform applies agreed pricing to orders → Any updates trigger distributor notifications.
- **Subflows:** Dynamic pricing based on demand → Seasonal discounts and promotions.
- **Alternative Flows:** Dispute over pricing → Escalated to support team.



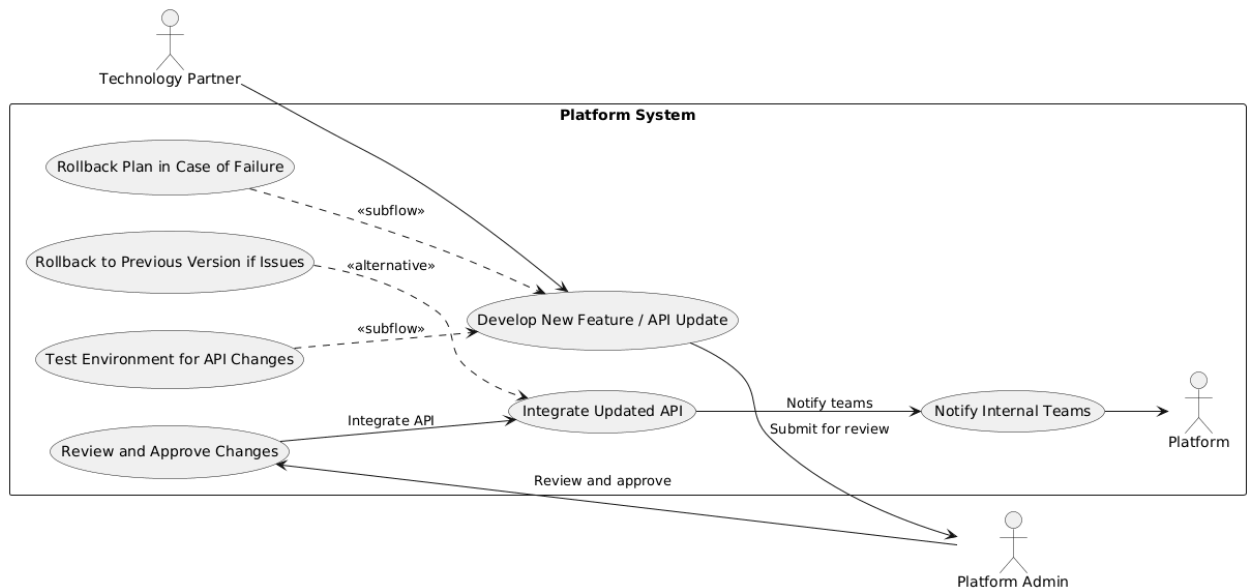
Use Case 25 Demand Forecasting & Supply Planning

- **Preconditions:** Historical order data available → Analytics engine integrated.
- **Main Flow:** Platform collects order trends → Analytics engine forecasts demand → Supplier adjusts production accordingly → Distributor plans bulk purchases.
- **Subflows:** Forecast by region/season → AI-based recommendations.
- **Alternative Flows:** Forecast error → Manual override by distributor.



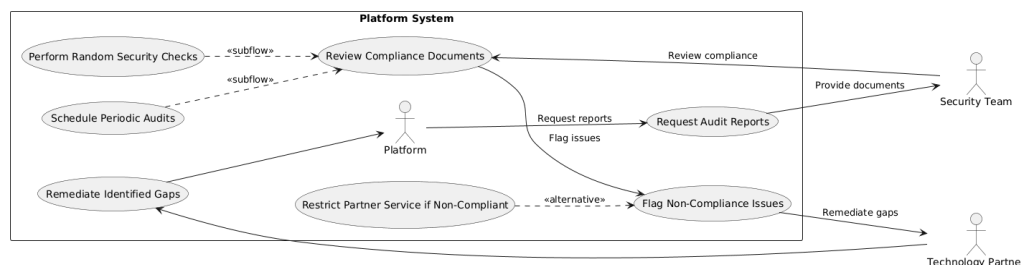
UseCase 26 Feature Enhancement & API Updates

- **Preconditions:** Partner has versioned API documentation → Platform integration points are configured to handle updates.
- **Main Flow:** Partner develops new feature or API update → Platform Admin reviews and approves changes → Platform integrates updated API → Platform notifies relevant internal teams of changes.
- **Subflows:** Test environment for API changes → Rollback plan in case of failure.
- **Alternative Flows:** Update causes integration issues → Rollback to previous version.



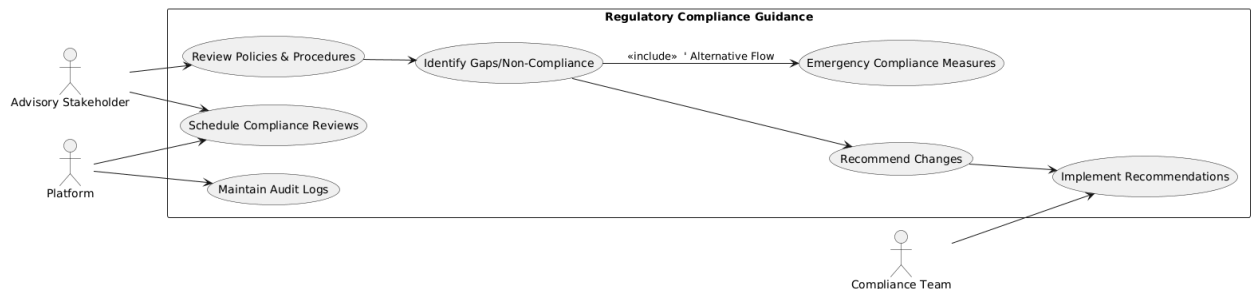
Use Case 27 : Security & Compliance Audits

- **Preconditions:** Partner must adhere to required security standards (e.g., encryption, authentication) → Security team has access to audit tools.
- **Main Flow:** Platform requests audit reports from partner → Security Team reviews partner compliance documents → Platform flags any non-compliance issues → Partner remediates identified gaps.
- **Subflows:** Schedule periodic audits → Perform random security checks.
- **Alternative Flows:** Non-compliance → Partner service temporarily restricted.



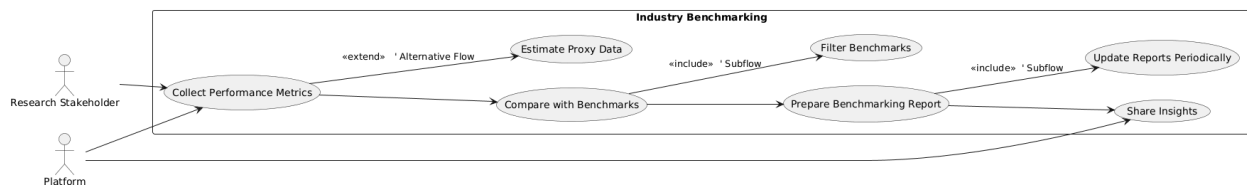
Use Case 28 Regulatory Compliance Guidance

- **Preconditions:** Platform is aware of applicable regulations → Advisory Stakeholder has regulatory expertise.
- **Main Flow:** Advisory Stakeholder reviews platform policies and procedures → Identifies gaps or non-compliance risks → Recommends necessary changes → Compliance Team implements recommendations.
- **Subflows:** Schedule periodic compliance reviews → Maintain audit logs for regulatory purposes.
- **Alternative Flows:** Immediate risk identified → Emergency compliance measures applied.



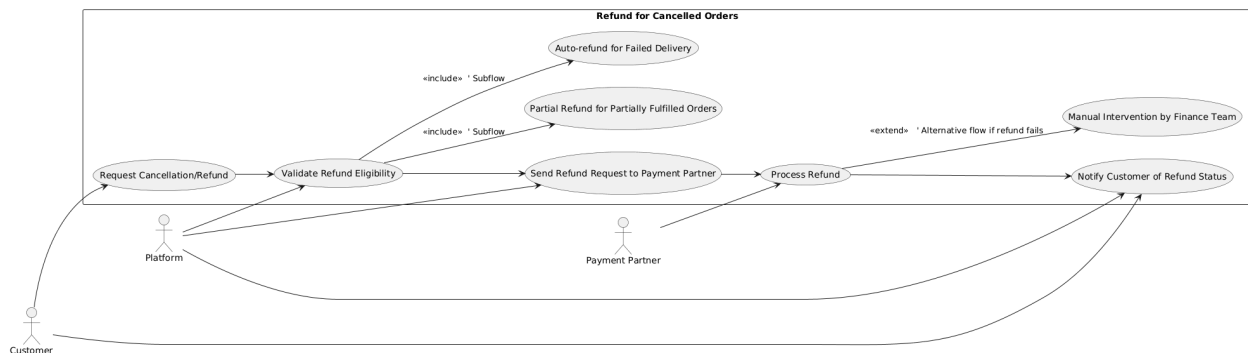
Use Case 29 Industry Benchmarking

- **Preconditions:** Access to industry reports and competitor data → Platform metrics available for comparison.
- **Main Flow:** Stakeholder collects platform performance metrics → Compares against industry benchmarks → Prepares a benchmarking report → Shares insights with platform management.
- **Subflows:** Filter benchmarks by region, product, or service type → Update benchmarking reports periodically.
- **Alternative Flows:** Data gaps → Use estimated or proxy data.



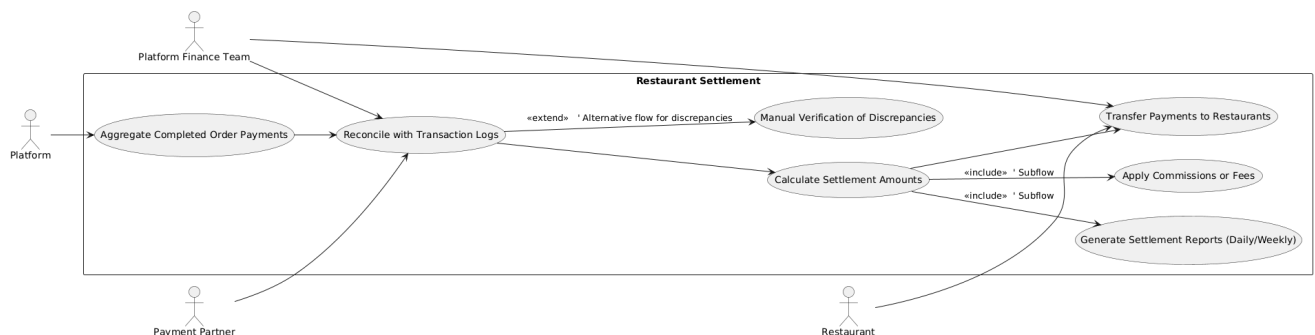
Use Case 30 Refund for Cancelled Orders

- **Preconditions:** Order eligible for refund → Original payment recorded.
- **Main Flow:** Customer requests cancellation/refund → Platform validates refund eligibility → Refund request sent to Payment Partner → Payment Partner processes refund → Platform notifies customer of refund status.
- **Subflows:** Partial refunds for partially fulfilled orders → Auto-refund for failed delivery.
- **Alternative Flows:** Refund fails → Manual intervention by platform finance team.



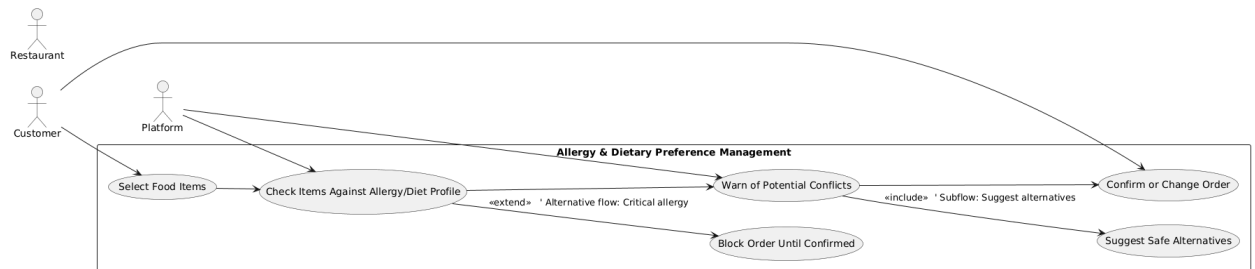
Use Case 31 Restaurant Settlement

- **Preconditions:** Completed orders available → Payment Partner provides transaction reports.
- **Main Flow:** Platform aggregates completed order payments → Platform Finance Team reconciles with Payment Partner transaction logs → Settlement amounts calculated → Payments transferred to restaurants.
- **Subflows:** Generate weekly or daily settlement reports → Apply commissions or fees.
- **Alternative Flows:** Discrepancies → Manual verification with restaurant or Payment Partner.



Use Case 32 Allergy & Dietary Preference Management

- **Preconditions:** Customer profile created with dietary preferences/allergies.
- **Main Flow:** Customer selects food items → Platform checks items against allergy/diet profile → Platform warns customer of potential conflicts → Customer confirms or changes order.
- **Subflows:** Suggest safe alternatives automatically.
- **Alternative Flows:** If critical allergy detected → Order blocked until confirmed.



Comparing LLM Responses: (ChatGPT vs Claude)

When giving the previous weeks' deliverables(proj 1a1) as context and asking the LLMs to find what was missing in them, we could see a few differences between the responses of ChatGPT and Claude Opus 4.1. The language of Claude was more friendly and framed corrections as enhancements to seem more like a mentor. ChatGPT was more neutral and analytical, providing logical gaps and improvements.

Claude's advice centered more around giving more examples or demonstrating how the brainstorming was done, or providing examples between zero-shot and careful prompting. ChatGPT's response talked about expanding on the different prompting strategies like chain-of-thought, reasoning models, and structured output formats. It also mentioned that the 10 use cases did not add up to 5 pages and asked if it could suggest how to expand them to reach the expected length.

The conclusions however are similar in the sense that they both feel that the deliverables are met with some room for improvement.

Total cost of LLM usage: \$0

LLM used: ChatGPT and Gemini