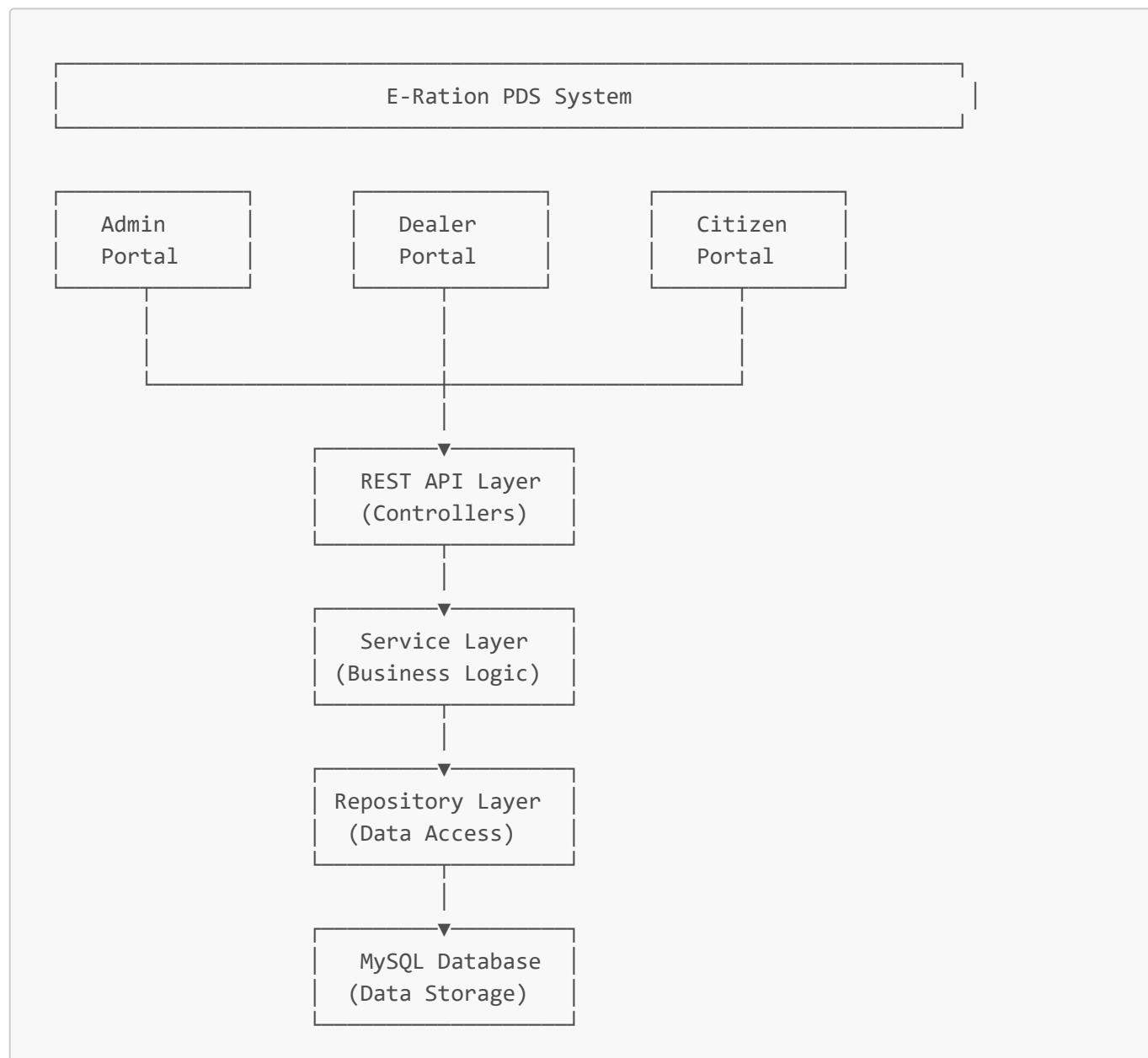


# E-Ration PDS System - Complete System Flow Diagrams

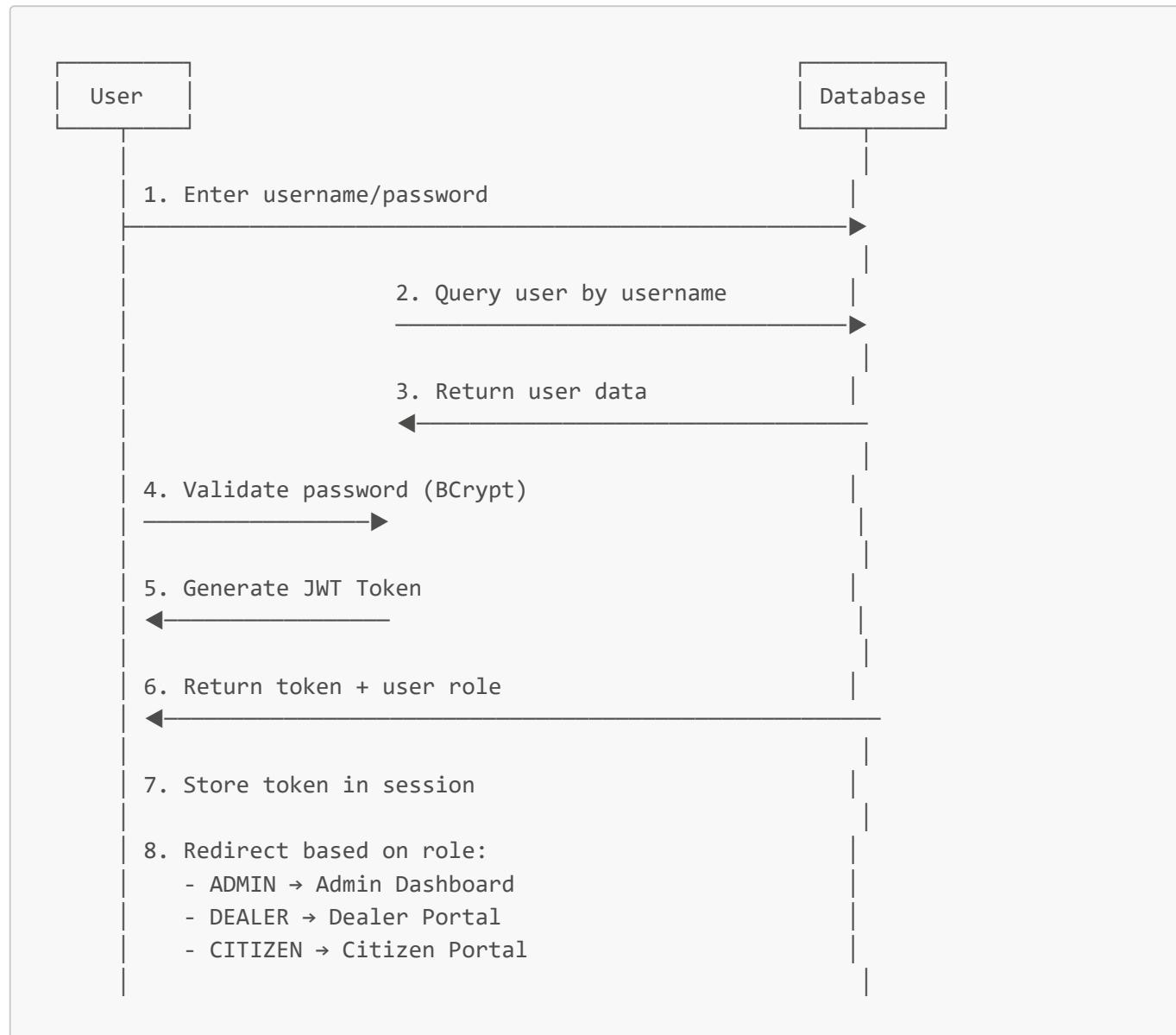
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## System Architecture Overview

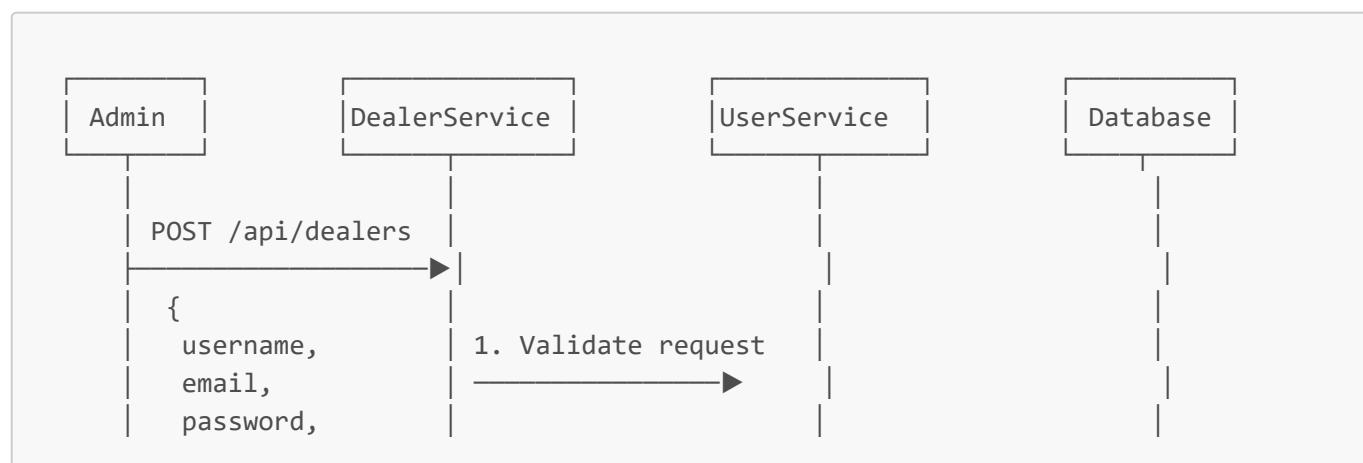


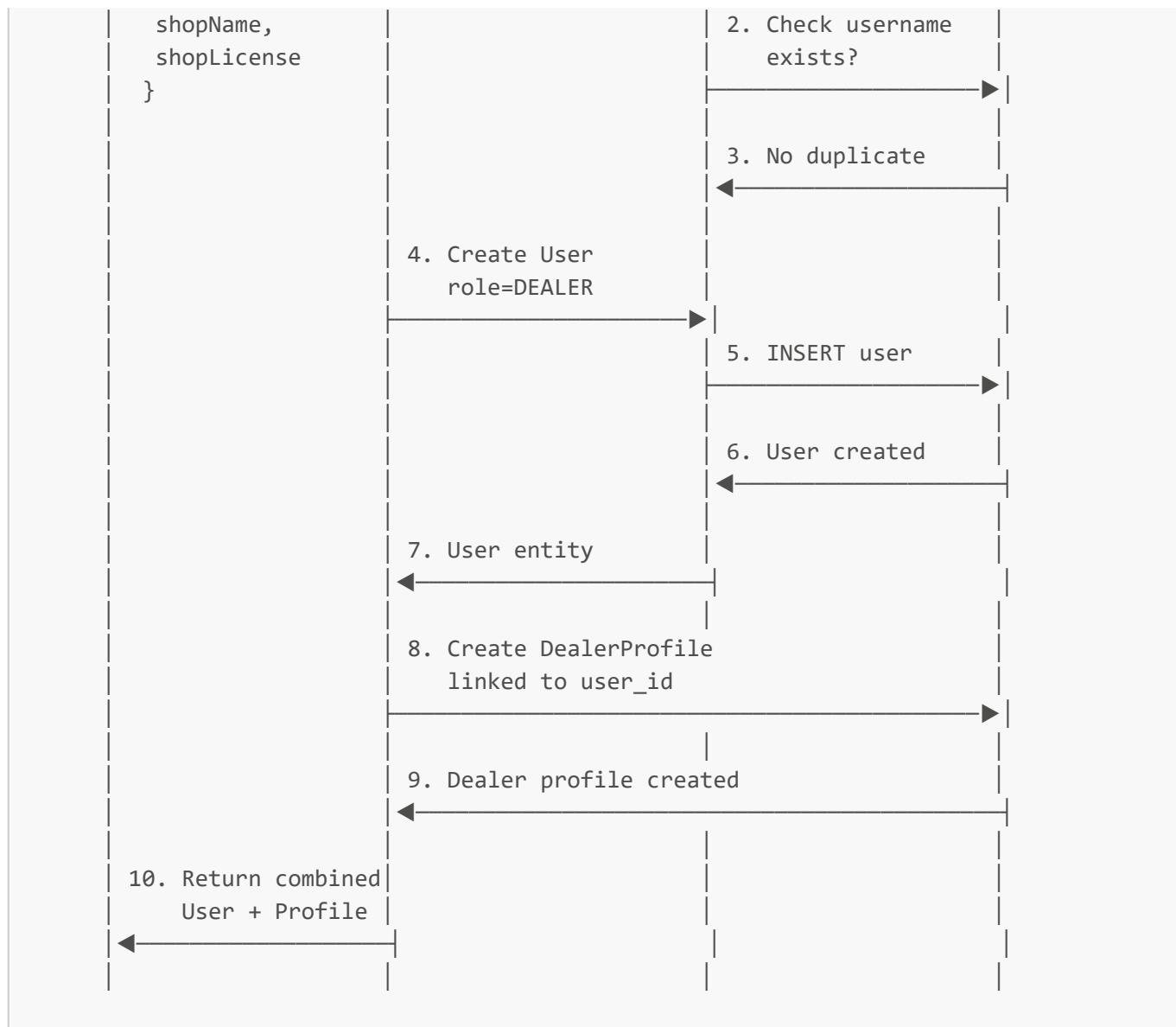
## User Authentication Flow



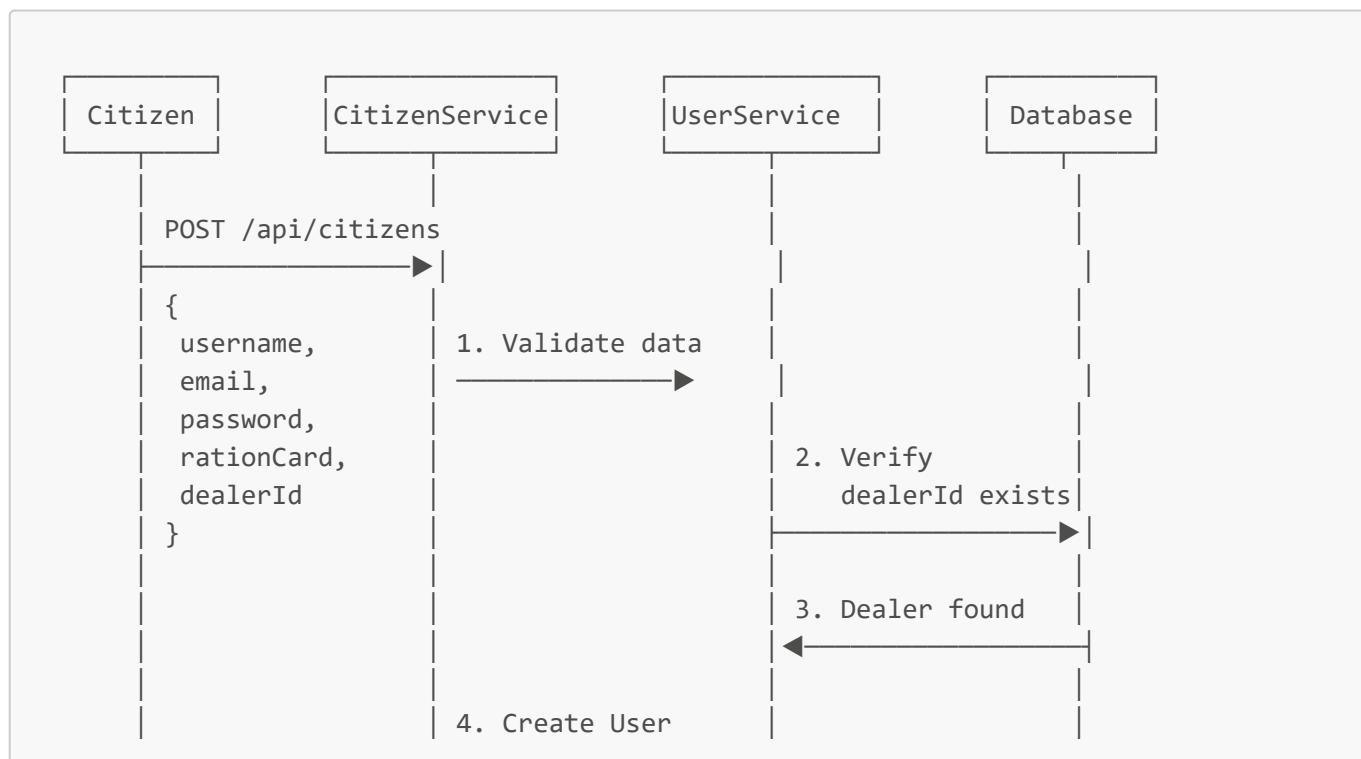
## Registration Flows

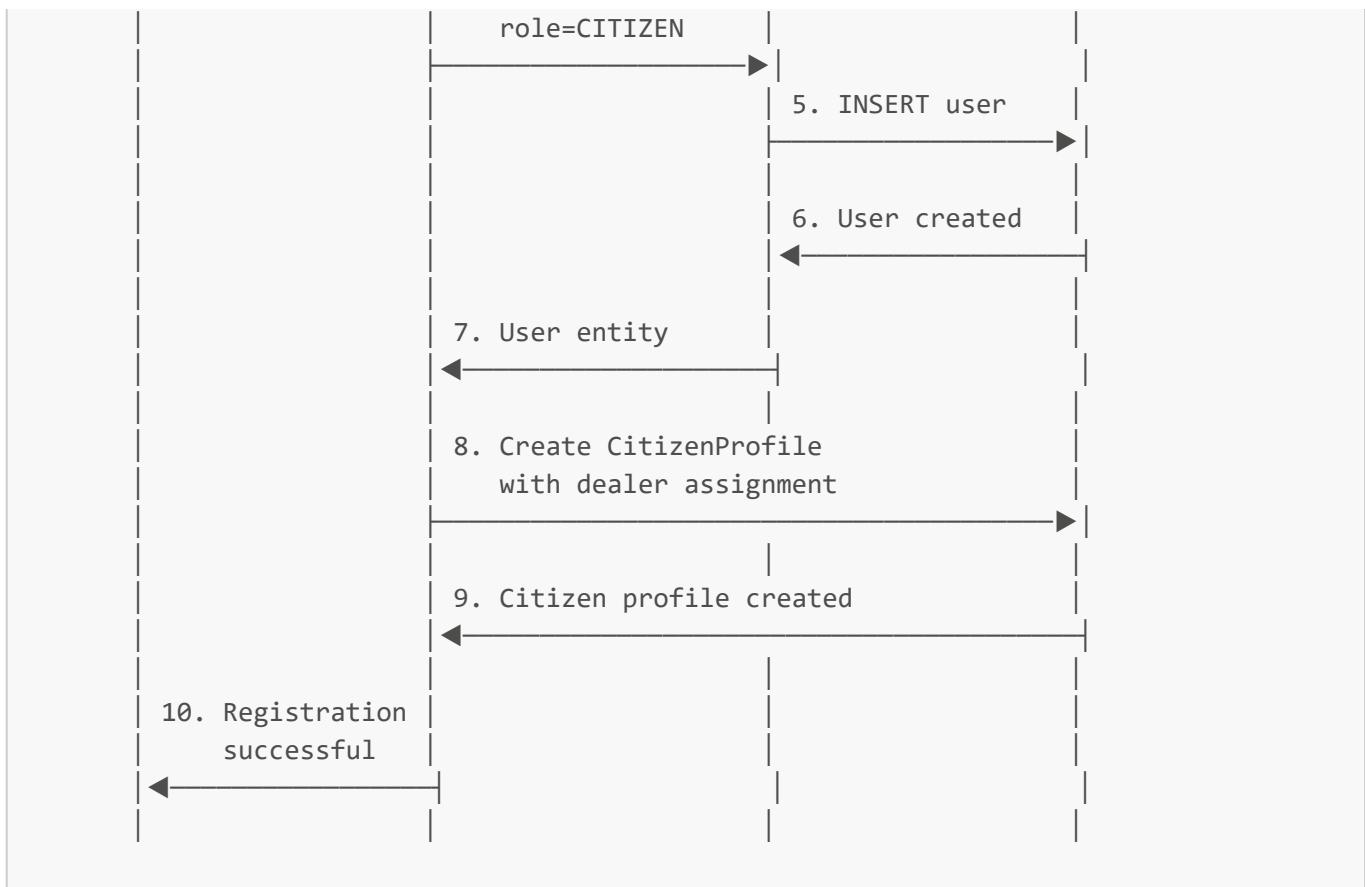
### Admin Creates Dealer



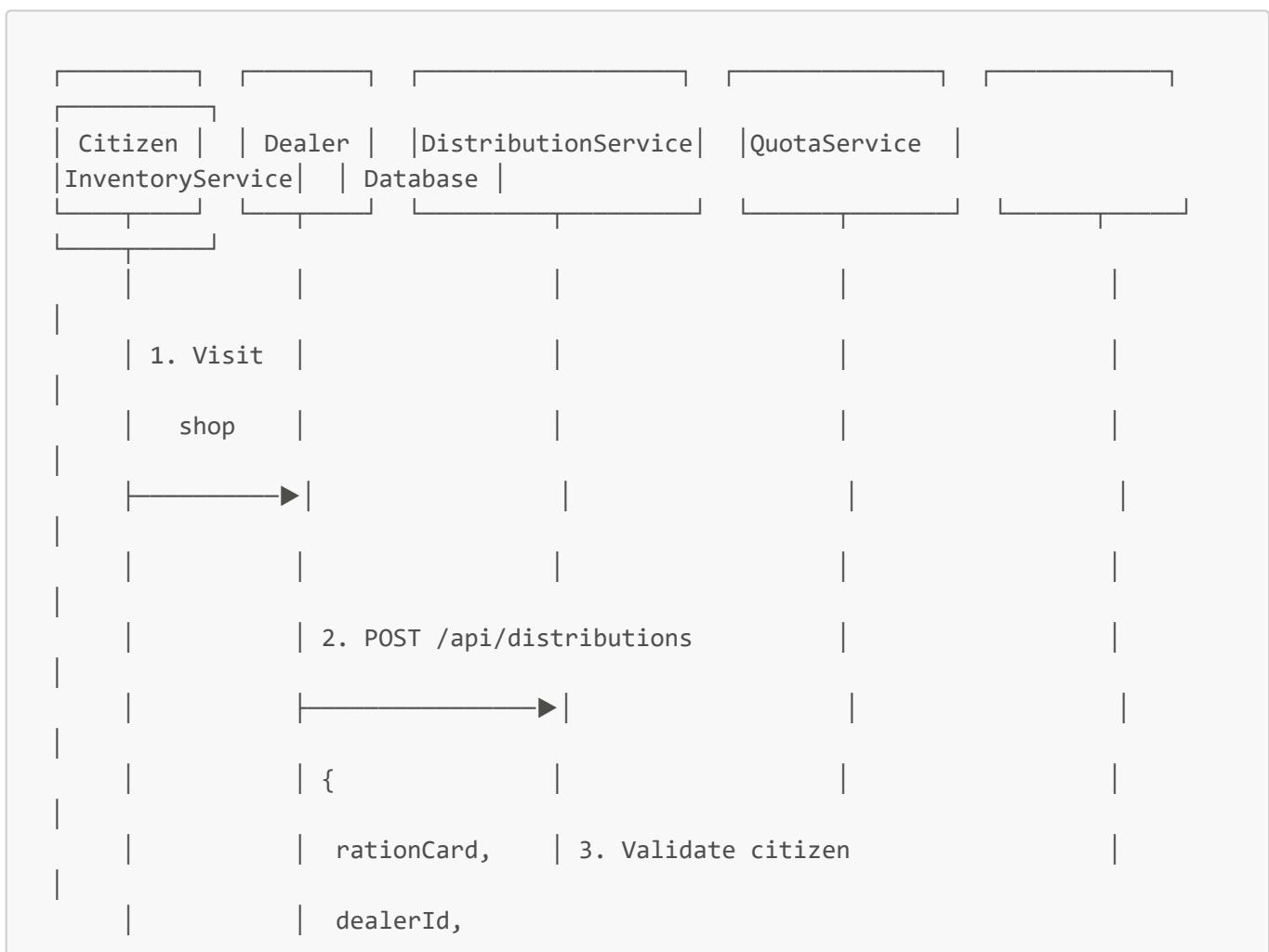


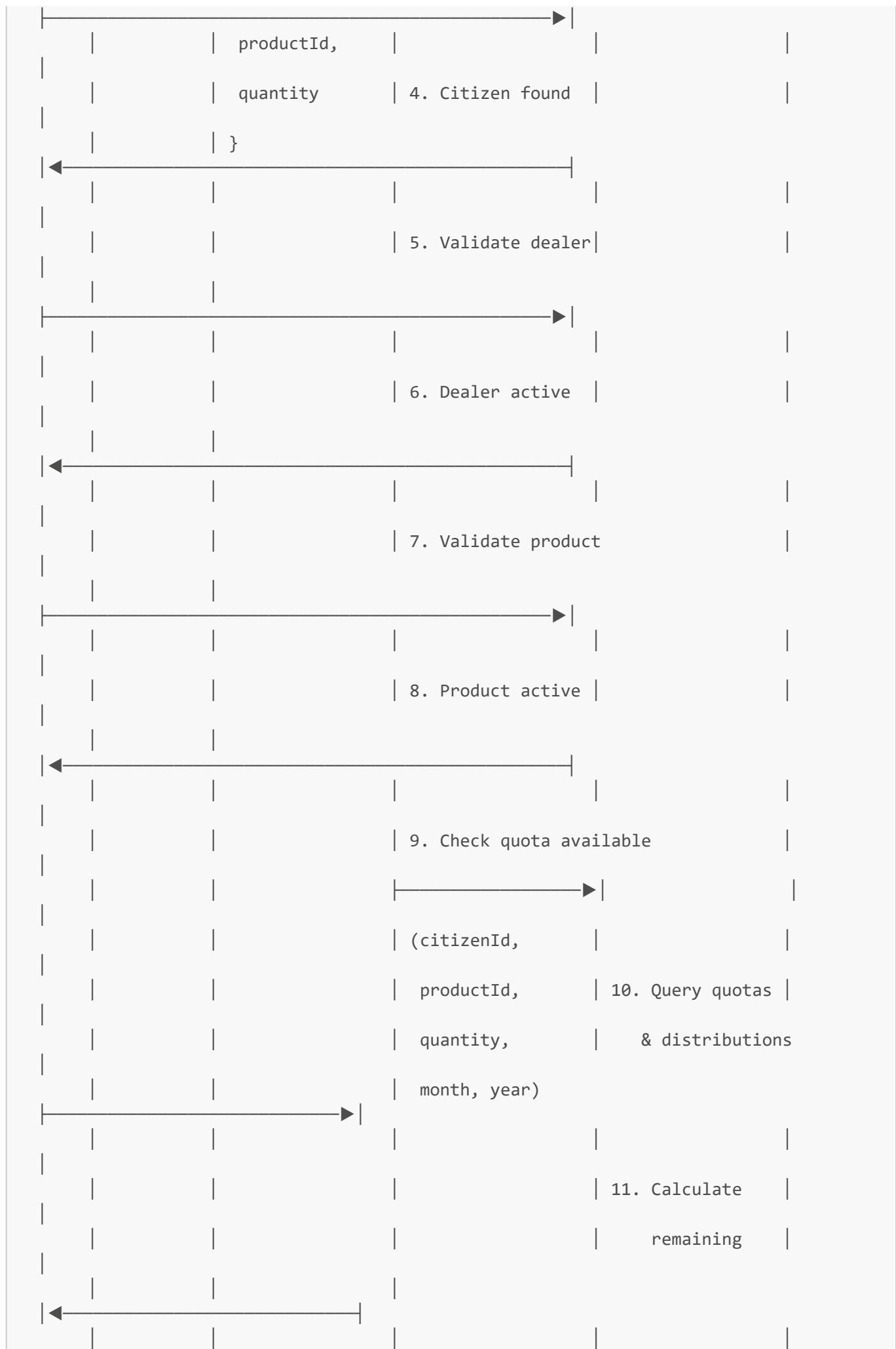
## Citizen Self-Registration

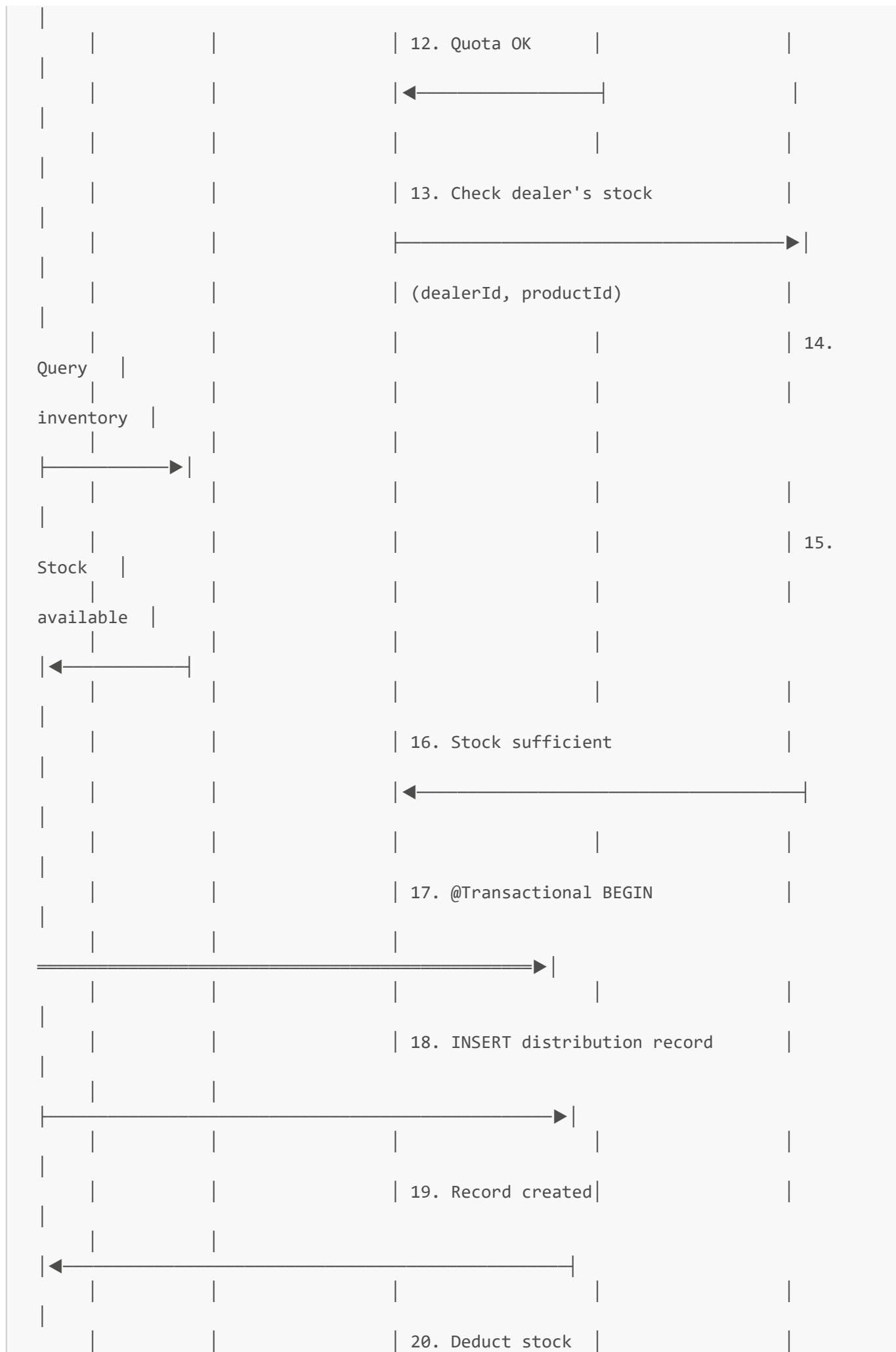


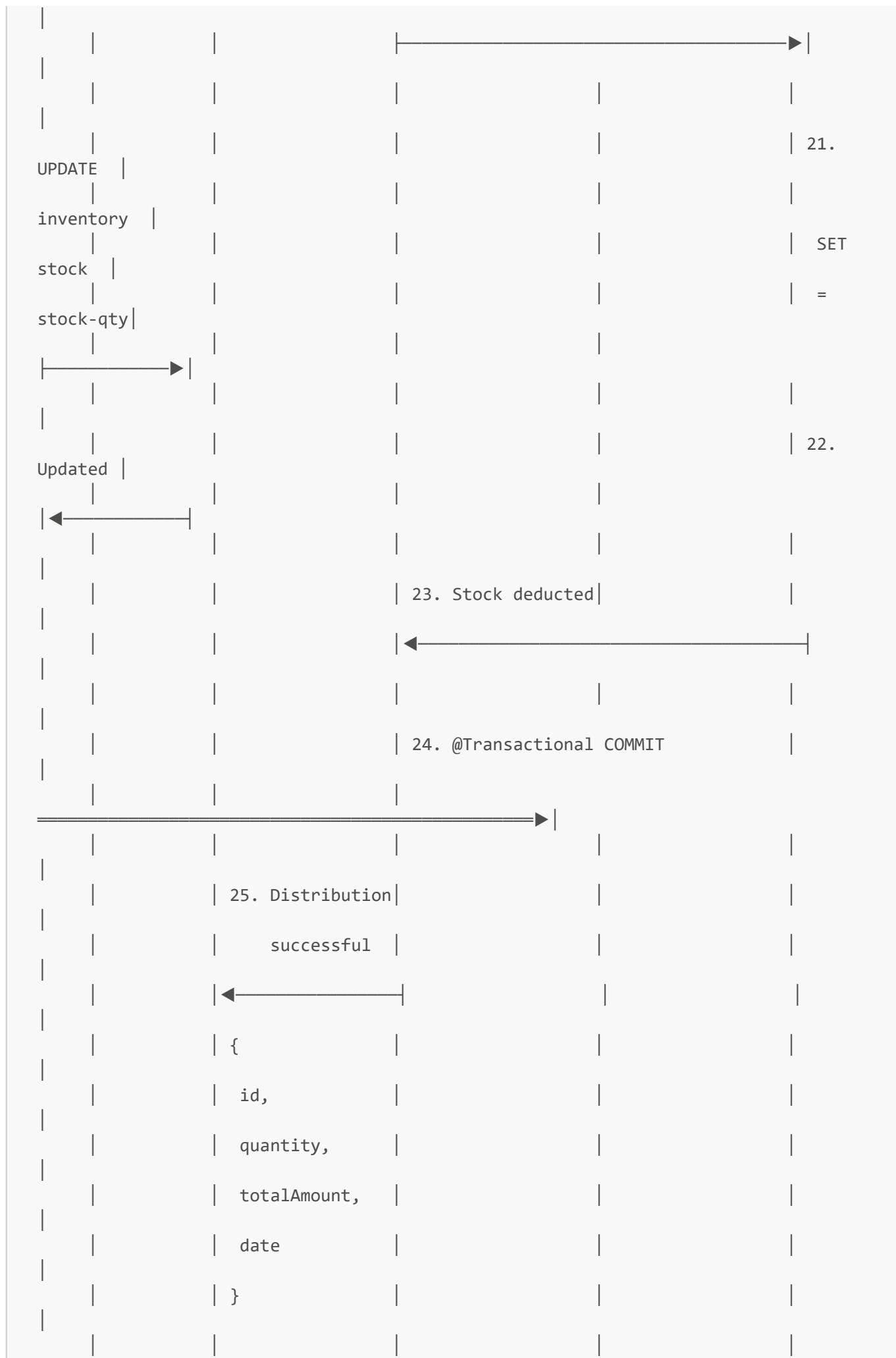


## Distribution Flow (Complete Transaction)









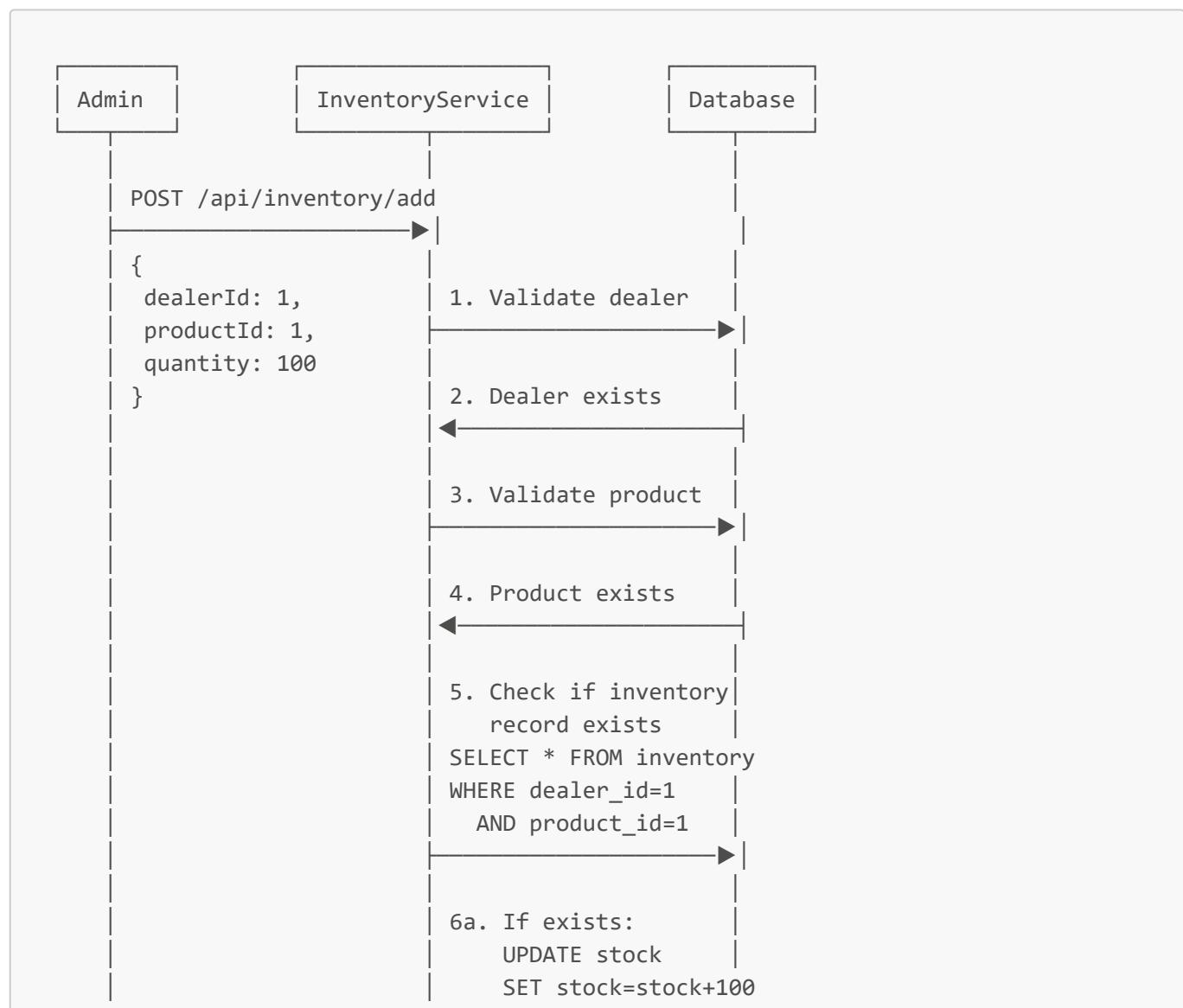


## **Key Points:**

- All validations happen before transaction
  - Quota check prevents over-distribution
  - Stock deduction atomic with distribution record
  - If any step fails, entire transaction rolls back

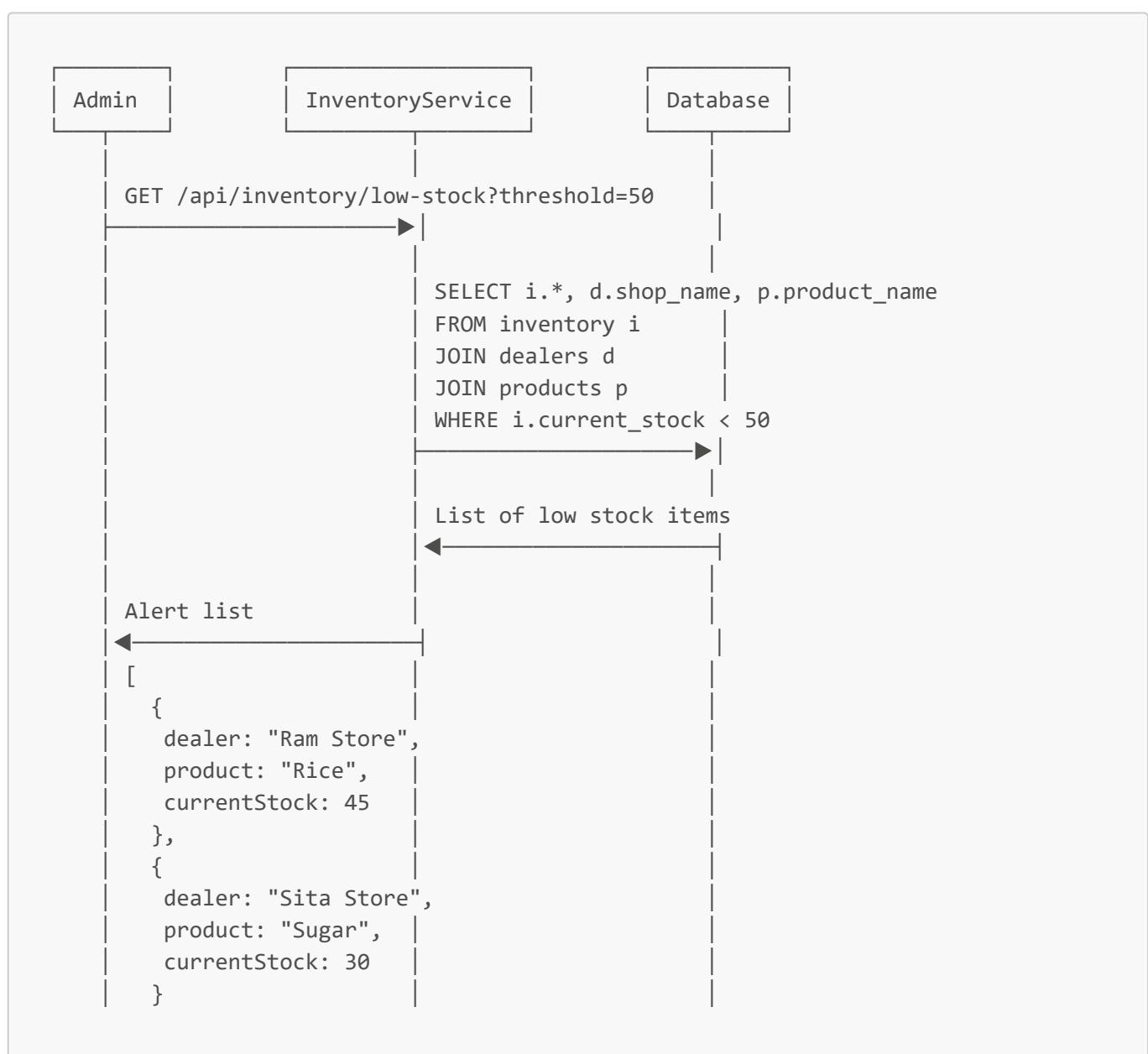
## Inventory Management Flow

## Admin Allocates Stock to Dealer



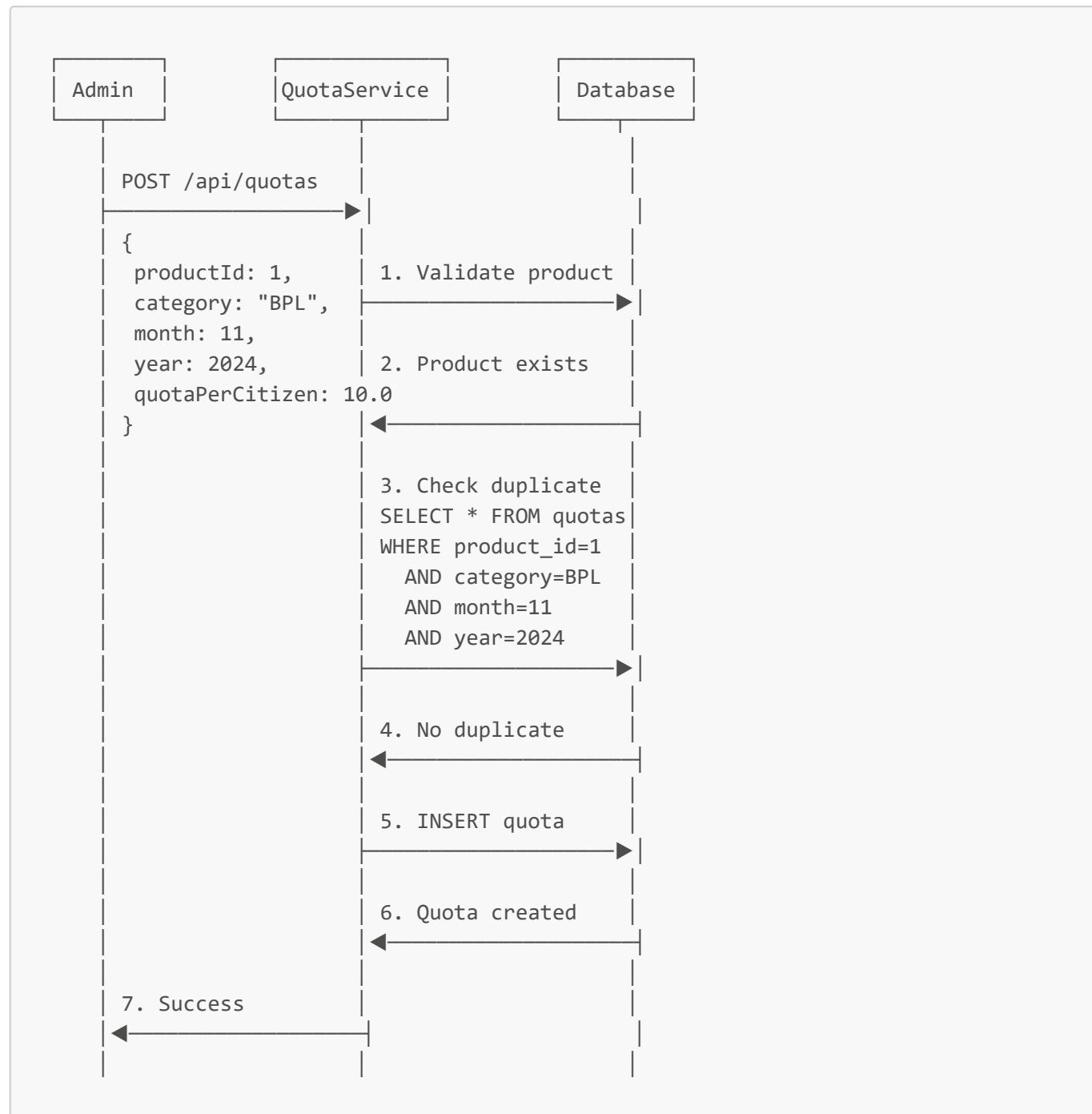


## Low Stock Alert Flow

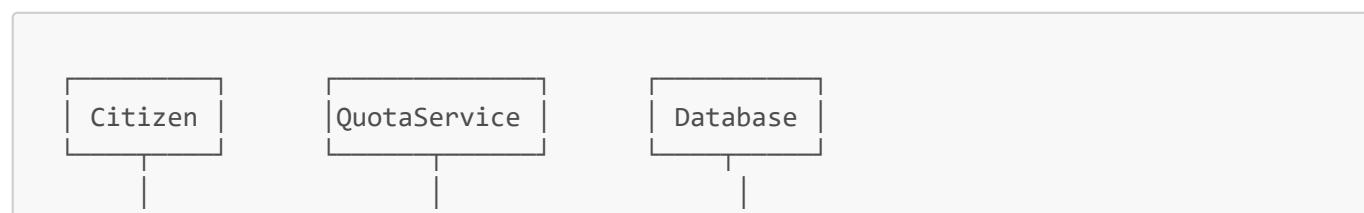


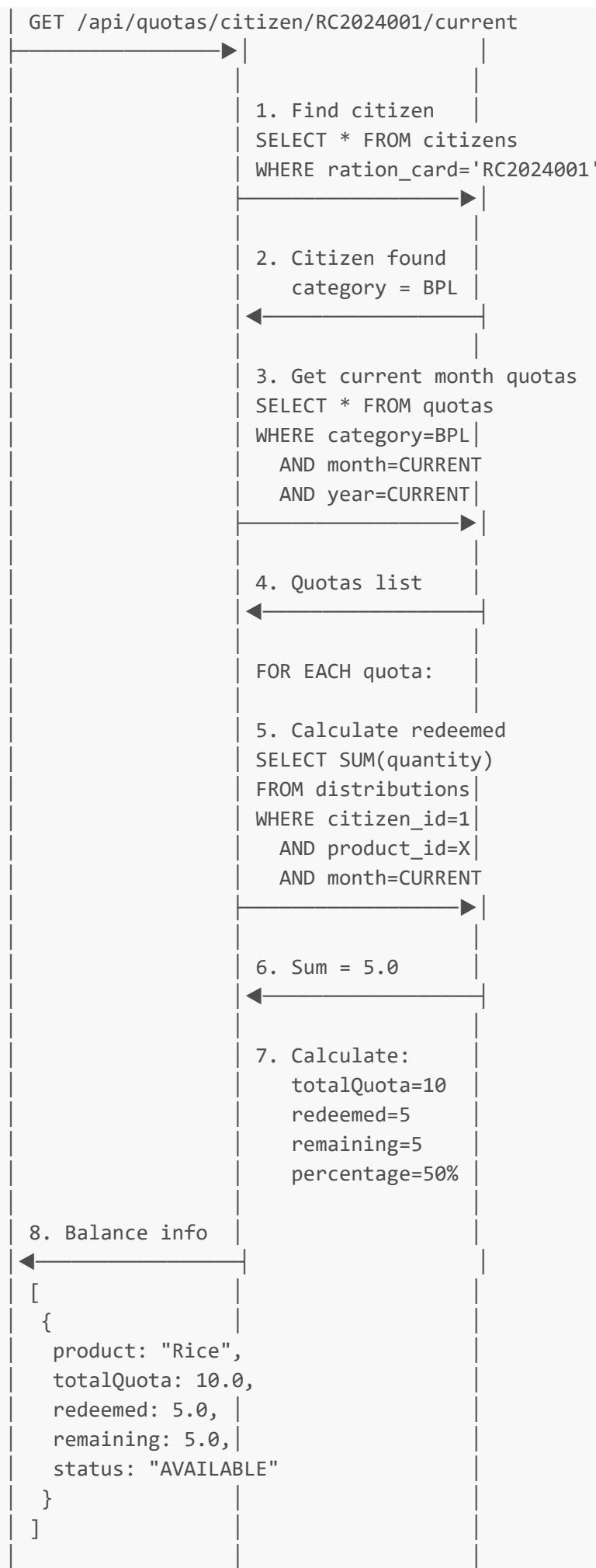
## Quota Management Flow

### Admin Sets Monthly Quota

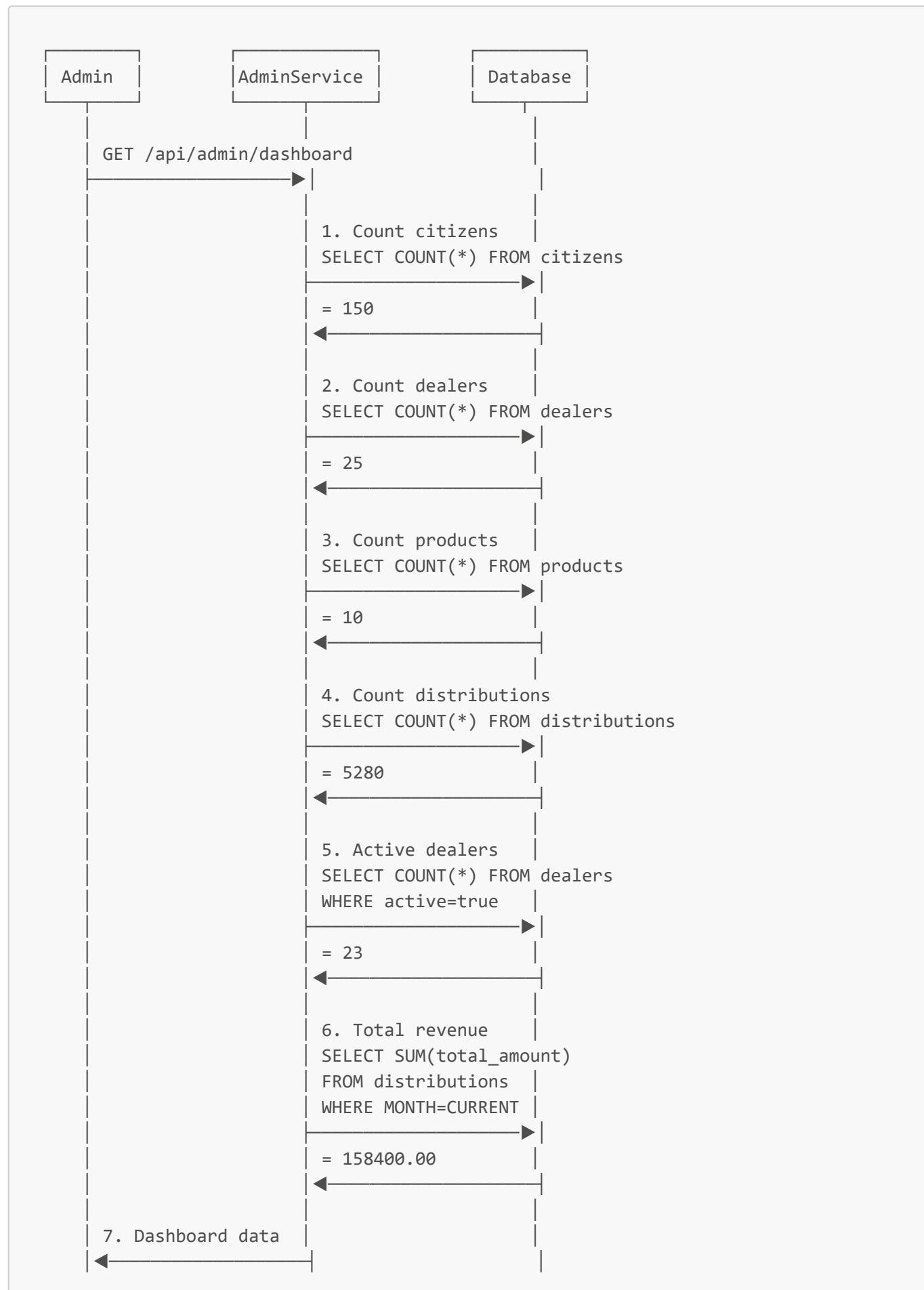


### Citizen Checks Quota Balance



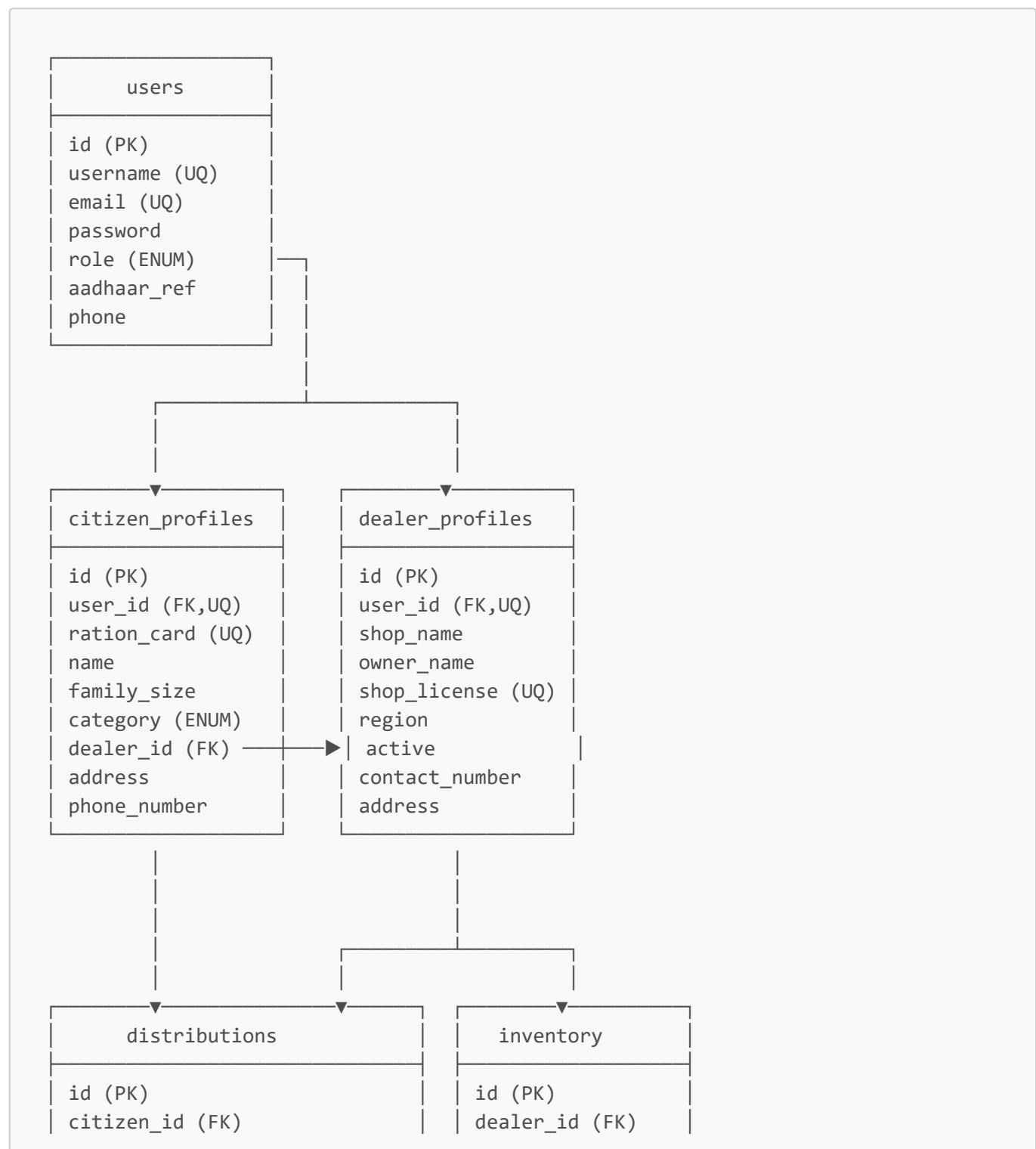


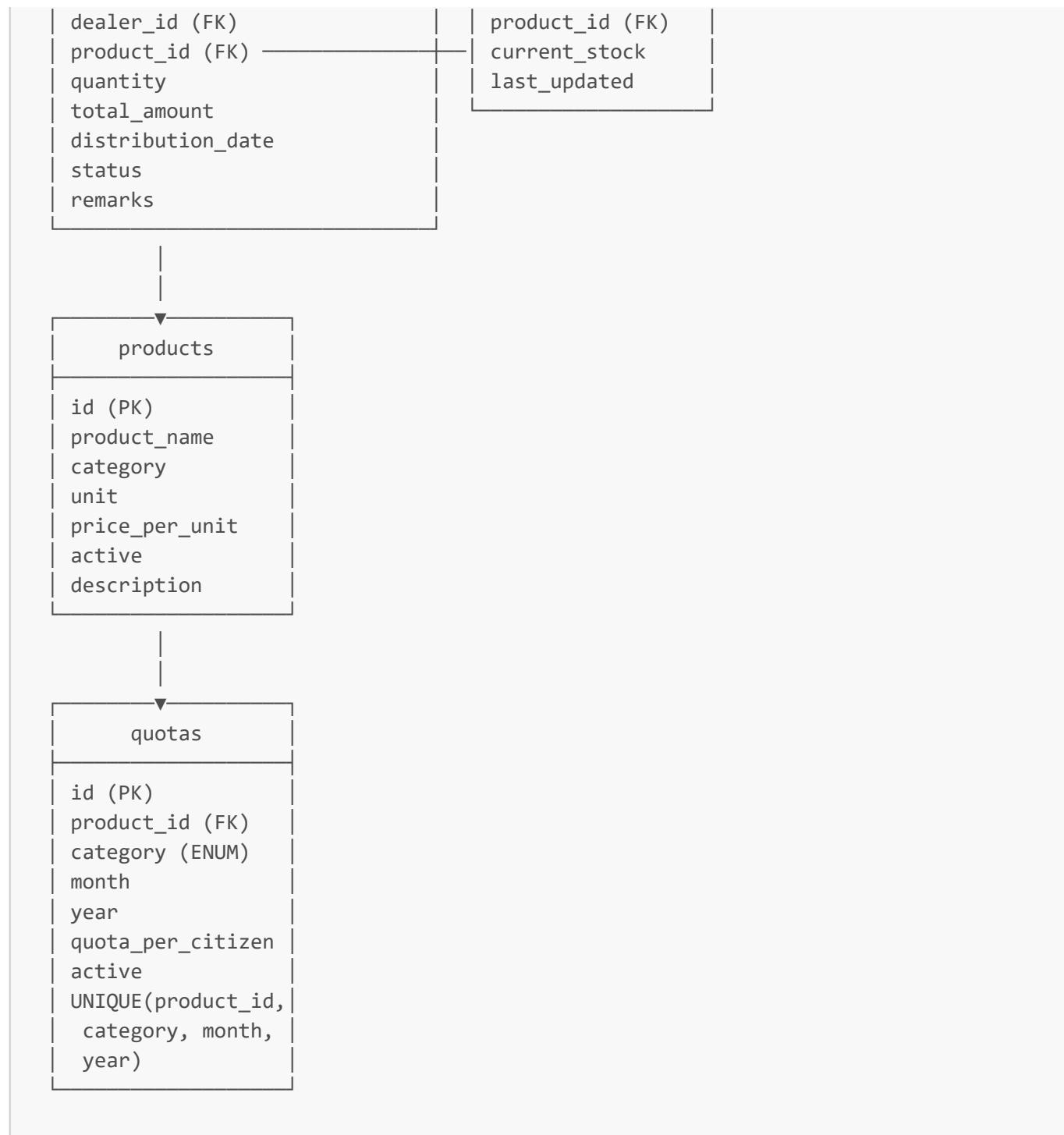
## Admin Dashboard Flow



```
{  
    totalCitizens: 150,  
    totalDealers: 25,  
    totalProducts: 10,  
    totalDistributions: 5280,  
    activeDealers: 23,  
    monthlyRevenue: 158400.00  
}
```

## Database Schema Relationships



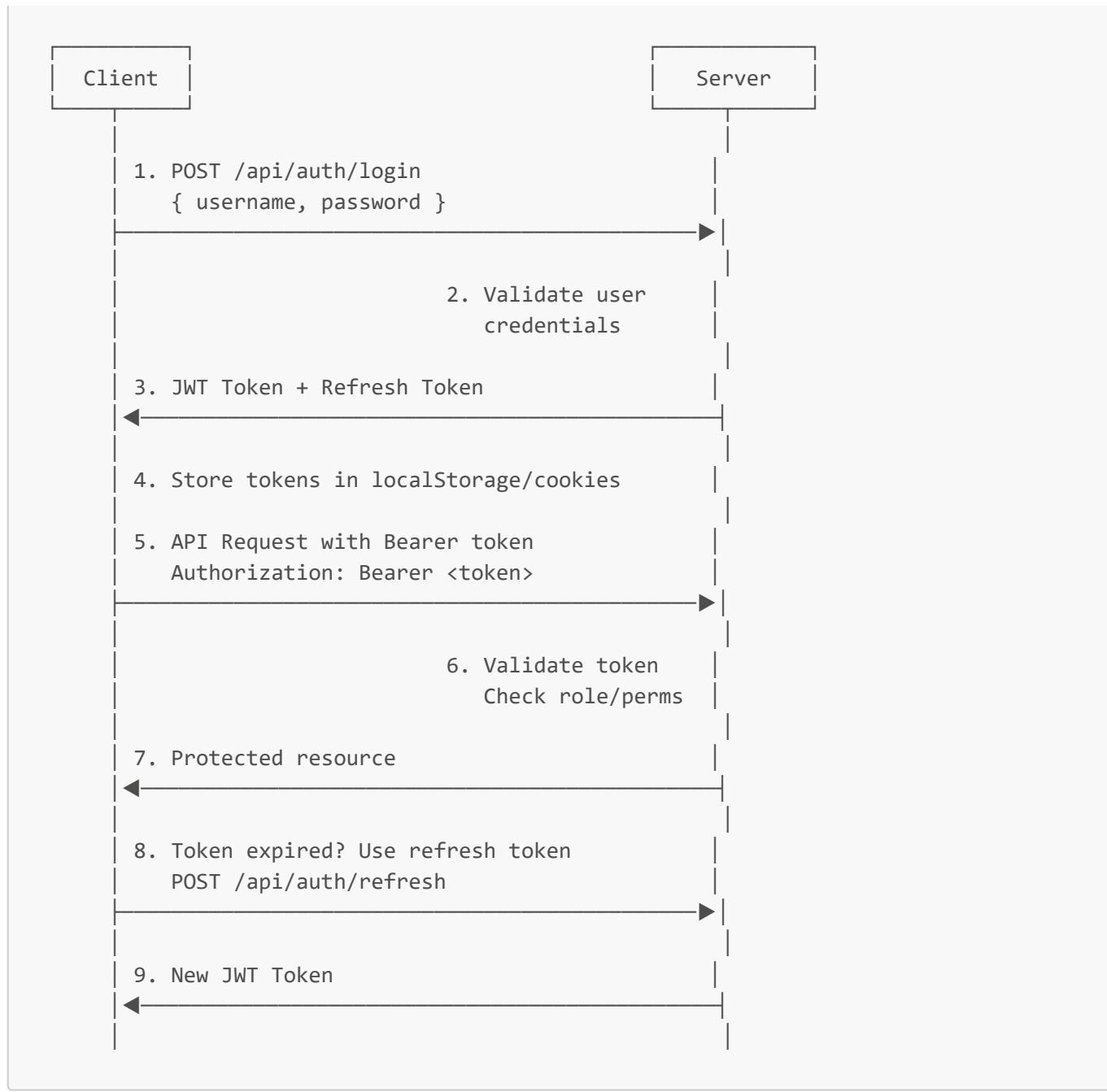


### Relationships:

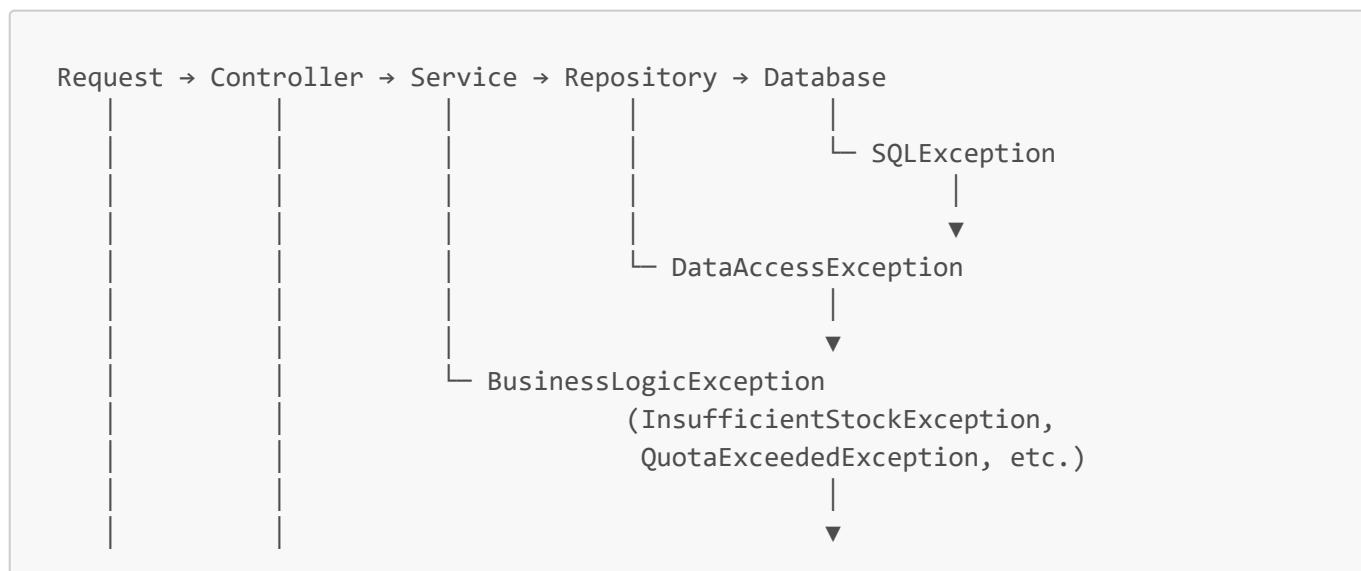
- **1:1** - User ↔ CitizenProfile, User ↔ DealerProfile
- **1:N** - Dealer → Citizens (one dealer serves many citizens)
- **1:N** - Dealer → Inventory (dealer has multiple products)
- **1:N** - Citizen → Distributions (citizen gets multiple distributions)
- **1:N** - Product → Inventory (product stocked by multiple dealers)
- **1:N** - Product → Quotas (product has quotas for BPL/APL)

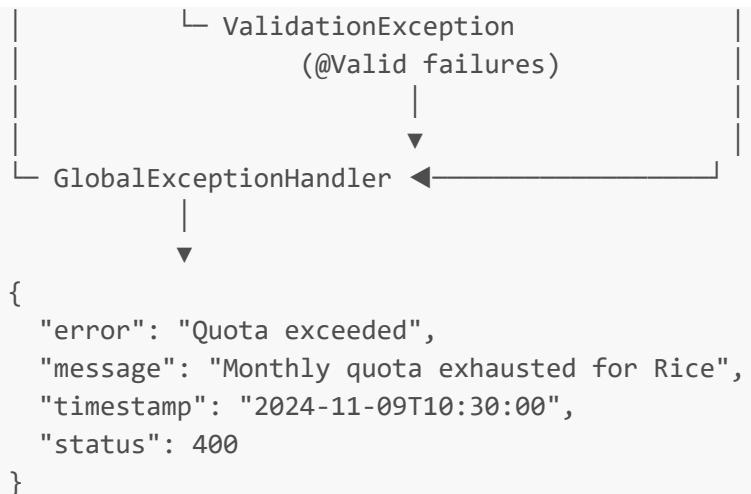
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### Security Flow (Future Implementation)



## Error Handling Flow





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**Document Version:** 1.0

**Last Updated:** November 2024

**Diagrams:** 10 comprehensive flow diagrams

**Status:**  Complete System Documentation