

Real-Time Auction Platform - Project Requirements

This document describes the functional and technical requirements for building a real-time auction platform with a microservices architecture.

Overview

An interactive auction system where users can create auctions, place bids in real-time, and receive live updates. The platform demonstrates real-world microservices integration using REST APIs, WebSockets, JWT authentication, and webhooks.

Microservices Overview

1. User Service

- Handles registration, login, and user profiles
- Issues JWT tokens upon login

Endpoints:

- POST /register
 - POST /login
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2. Auction Service

- Create and manage auction items
- Track auction status: upcoming, live, ended

Endpoints:

- POST /auctions
 - GET /auctions
 - GET /auctions/{id}
 - DELETE /auctions/{id}
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3. Bid Service

- Accepts and validates bids
- Maintains current highest bid per auction

Endpoints:

- POST /bids (auction_id, amount)
 - GET /bids/auction/{auction_id}
 - GET /bids/user/{user_id}
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4. Auth Gateway

- Validates JWT and routes requests to respective services
 - Centralized entry point for API requests
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Technologies

- REST APIs between services
 - JWT for authentication
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Data Models

User

- id
- name
- email
- password_hash

Auction

- id
- title
- description
- starting_price
- current_price
- status: pending / live / ended
- ends_at
- owner_id

Bid

- id
 - user_id
 - auction_id
 - amount
 - timestamp
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Features To Implement

- Register / Login with JWT
 - Create and list auctions
 - Place and list bids
 - Notify winners
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