Sprint Planning Document

Project: Market Connect

Duration: Mid-Semester to End-November

Methodology: Agile (Scrum)

Sprint 0: Project Initiation

Focus: Feasibility, Requirements Elicitation, and Architectural Setup.

- **Key Activities:**
    - Stakeholder identification (Buyers, Sellers, Admins).
    - Definition of Functional (FR) and Non-Functional Requirements (NFR).
    - Technology stack selection (MERN + Python Microservice).
    - Initial database schema modeling (ER Diagrams).
- **Deliverables:**
    - Requirement Specification Document (SRS).
    - System Architecture Diagrams.

Sprint 1: Requirements & Analysis Setup

Focus: Foundation Layer – Authentication & Database.

- **Implemented Features (Backend & Frontend):**
    - **Database:** MongoDB Atlas setup with Mongoose connection.
    - **Models:** Created User schema (supporting both Buyer/Seller roles).
    - **Auth API:** Implemented signup, login controllers with JWT token generation.
    - **Middleware:** Created validateSchema (Joi) and auth (JWT verification) middlewares.
    - **UI:** Basic Login and Sign-up forms.
- **User Stories Catered:**
    - **B1.1:** Account Registration & Login (Buyer can register/login with validation).
    - **S1:** Account Creation (Seller simple signup process).
    - **B5:** Usability & UX (Simple interface foundation).

Sprint 2: Core Marketplace Features

Focus: User Profile Management & Seller Onboarding.

- **Implemented Features:**

  - **Profile API:** Endpoints to view/edit user details (updateProfile).

  - **Address Book:** CRUD operations for shipping addresses (addAddress, deleteAddress).

  - **Seller Upgrade:** Logic to upgrade a "Buyer" account to "Seller" (upgradeToSeller controller).

  - **Frontend Integration:** Profile dashboard connected to backend.

- **User Stories Catered:**

  - **B1.2:** Profile & Order History (Edit profile, manage addresses).

  - **S2:** Profile Management (Update business details).

  - **S10:** Security (Secure data handling for user profiles).

Sprint 3: Shopping Workflow Foundations

Focus: Cart Management & Order Skeleton.

- **Implemented Features:**

  - **Cart API:** addToCart, updateCartItem, removeCartItem endpoints in cartController.js.

  - **Coupon System:** Created Coupon model and validation logic (applyCoupon).

  - **Order Skeleton:** Basic createOrder logic handling stock checks and total calculation.

  - **Dashboards:** Initial layouts for Buyer and Seller homepages.

- **User Stories Catered:**

  - **B3.1:** Cart, Coupons & Checkout (Manage cart, apply coupons).

  - **S5:** Inventory & Price Management (Stock checks during order creation).

  - **S6:** Order & Returns Management (Initial order ingestion for sellers).

Sprint 4: Marketplace Core Experience

Focus: Catalog Management & Community Features.

- **Implemented Features:**

- o **Product API:** CRUD operations for products (createProduct, updateProduct) with Cloudinary image upload.

- o **Categorization:** Implemented hierarchical Category model.

- o **Reviews:** Added Review model and controller to allow buyers to rate products.

- o **Public Views:** Product listing pages with basic grid layout.

- **User Stories Catered:**

  - o **S3:** Product Management (Add/Edit/Remove products).

  - o **S4:** Product Categorization (List products under correct categories).

  - o **B2.2:** Compare & View Reviews (Read reviews/ratings).

  - o **S8:** Engagement (Seller ability to view reviews).

Sprint 5: Dashboards & Frontend Integration

Focus: Data Visualization & Experience Glue.

- **Implemented Features:**

  - o **Seller Analytics:** Aggregation pipelines (getSellerStats, getSalesReport) to calculate revenue and sales.

  - o **Buyer Dashboard:** UI to view Order History (getMyOrders).

  - o **Product Page:** Detailed view integrated with backend APIs.

- **User Stories Catered:**

  - o **S9:** Analytics (Dashboard with sales, revenue, and stats).

  - o **B1.2:** Profile & Order History (View past orders).

  - o **CS6:** Fast Dashboard Load (Efficient aggregation queries for performance).

Sprint 6: Full Buyer & Seller Journeys

Focus: Search, Advanced Auth & Checkout Flow.

- **Implemented Features:**

  - o **Advanced Search:** Keyword search, filtering by price/category (getAllProducts with query params).

  - o **Google Auth:** Integrated Passport.js Google Strategy (auth/googleAuth.js).

  - o **Password Reset:** forgotPassword and resetPassword flows using Nodemailer.

- o **Checkout:** Complete flow from Cart → Address Selection → Order Summary.
- **User Stories Catered:**
  - o **B2.1:** Search & Filter Products (Keywords, filters).
  - o **B1.1:** Account Registration (Google Login enhancement).
  - o **S7:** Performance & Scalability (Optimized search queries).

Sprint 7: Payments & Advanced Modules

Focus: Financial Integrity, Admin Tools & AI Support.

- **Implemented Features:**
  - o **Payment Gateway:** Razorpay integration (createRazorpayOrder, verifyPayment) with signature verification.
  - o **AI Chatbot:** Python microservice setup + AssistantController for product/support queries.
  - o **Admin Tools:** APIs for admins to manage users and coupons.
- **User Stories Catered:**
  - o **PG1 - PG4:** Payment Initiation, Gateway Order, UI, Confirmation.
  - o **PG5:** Order Status Update (Payment status tracking).
  - o **CS1 - CS5:** Customer Service (Chatbot handling FAQs and help queries).
  - o **A3:** User Account Management (Admin controls).

Sprint 8: Auctions, Returns & Final Polish

Focus: Real-Time Features & Post-Purchase Flows.

- **Implemented Features:**
  - o **Auction Engine:** Socket.io setup for real-time bidUpdate and auction timer management.
  - o **Returns:** ReturnController implementing multi-seller split logic and refund calculations.
  - o **Suggestions:** getSimilarProducts API for recommendations.
  - o **Bug Fixes:** Final stabilization.
- **User Stories Catered:**
  - o **A1:** Bidding Management (Create/Monitor auctions).

- **A2:** Fake Bid Detection (Logic to validate bid > current bid).

- **B4.1:** Order Tracking & Support (Return/Refund options).

- **S6:** Order & Returns Management (Seller approval/rejection of returns).

- **PG9:** Post-Payment Functionality (Refund initiation).

Sprint 9: Testing & Quality Assurance

Focus: Validation against NFRs.

- **Activities:**

  - **Unit Testing:** Testing individual controllers (Order, Auth).

  - **GUI Testing:** Verifying responsiveness of Dashboards.

  - **Security Audit:** checking JWT expiry, API rate limiting, and Input Validation (Joi).

- **User Stories Catered:**

  - **B6:** Performance (Page load speed checks).

  - **B7:** Security (Data encryption checks).

  - **B8:** Reliability (Uptime and error handling checks).

  - **PG8:** Logging and Auditing (Payment log verification).