Hackathon 3 Document Day 2

General E-commerce Marketplace Technical Foundation

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Technical Plan Aligned with Business Goals

Business Objectives

- Create a scalable e-commerce platform
- Provide seamless shopping experience
- Enable efficient product management
- Ensure secure payment processing
- Implement order tracking and management

Technical Requirements

Frontend Requirements

- Next.js-based responsive web application
- Server-side rendering for improved SEO
- Client-side state management using React Context/Redux
- Progressive Web App (PWA) capabilities
- Responsive design breakpoints: Mobile ($<$ 768px), Tablet (768px - 1024px), Desktop ($>$ 1024px)

Backend Requirements (Sanity CMS)

- Content management for products, categories, and orders
- Real-time inventory tracking
- Order management system
- Customer data management
- Role-based access control

Third-party Integrations

- Payment Gateway (Stripe)
- Email Service (SendGrid)
- Image CDN (Cloudinary)
- Analytics (Google Analytics)
- Search Implementation (Algolia)

Implementation Roadmap

Phase 1: Setup & Basic Structure

- Initialize Next.js project
- Set up Sanity CMS
- Implement basic routing
- Create core components

Phase 2: Core Features

- Product listing and details
- Shopping cart functionality
- User authentication
- Basic checkout process

Phase 3: Integration & Testing

- Payment gateway integration
- Order management
- Email notifications
- Testing and bug fixes

Best Practices Implementation

Performance Optimization

- Image optimization using next/image
- Lazy loading for product listings
- API response caching
- Code splitting for route-based chunking

Security Measures

- Input validation
- XSS protection
- CSRF tokens
- Secure payment handling

SEO Considerations

- Meta tags management
- Structured data implementation
- Sitemap generation
- robots.txt configuration

Quality Assurance Checklist

- ☐ Mobile responsiveness

- ☐ Cross-browser compatibility
- ☐ Performance metrics
- ☐ Security compliance
- ☐ API error handling
- ☐ Loading states
- ☐ Form validation
- ☐ Payment flow testing

Monitoring & Analytics

- Implement error tracking (Sentry)
- Set up performance monitoring
- Track user behavior
- Monitor API performance
- Track conversion rates

This documentation serves as a comprehensive guide for implementing the e-commerce marketplace, focusing on maintainability, scalability, and user experience.