

Procurement System - Development Modules Roadmap

Module-Based Development Strategy

Module 1: Foundation & Multi-Tenant Core 🏠

Duration: 3-4 weeks

Priority: Critical (Start Here)

What You'll Build:

- Multi-tenant database architecture (8 hotel units)
- User authentication and role management
- Basic product catalog with unit allocation
- Admin dashboard foundation

Core Features:

Database Setup:

- └─ Units table (8 hotel properties)
- └─ Users with role-based access
- └─ Products with unit-specific data
- └─ Basic supplier information
- └─ Audit logs and timestamps

User Management:

- └─ Authentication system (login/logout)
- └─ Role definitions (Admin, Store Manager, Staff)
- └─ Unit-based access control
- └─ User profile management
- └─ Password reset functionality



Basic Product Management:




- └─ Product CRUD operations
- └─ Unit-specific product allocation
- └─ Basic search and filtering
- └─ Product categories
- └─ Simple product listing per unit

Admin Interface:

- └─ User management dashboard
- └─ Unit configuration
- └─ System settings
- └─ Basic navigation structure
- └─ Responsive layout foundation

Deliverables:

-  Multi-tenant database schema
-  User authentication system

-  Basic admin dashboard
-  Product management interface
-  Unit selection and switching

Business Value:

- Foundation for all future modules
 - User access control established
 - Basic product management per unit
 - Client can see the multi-tenant structure
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Module 2: Contract & Supplier Management

Duration: 3-4 weeks

Priority: High

What You'll Build:

- Comprehensive supplier database
- Contract management system
- CSV import functionality for bulk data
- Supplier-unit-product relationships

Core Features:

Supplier Management:

- └─ Supplier registration and profiles
- └─ Contact information management
- └─ Supplier performance tracking setup
- └─ Unit allocation per supplier
- └─ Supplier status management

Contract Management:

- └─ Contract creation and editing
- └─ Product line assignments
- └─ Unit-specific pricing
- └─ Contract terms and dates
- └─ File attachment support
- └─ Contract status tracking






CSV Import System:

- └─ Template download functionality
- └─ File upload with validation
- └─ Data mapping interface
- └─ Error handling and reporting
- └─ Bulk product creation
- └─ Contract assignment automation
- └─ Import history tracking

Relationship Management:

- └─ Supplier-Unit assignments
- └─ Product-Supplier-Unit mapping
- └─ Primary/secondary supplier designation
- └─ Pricing matrix per unit
- └─ Contract-product linking

Deliverables:

-  Supplier database and management interface
-  Contract management system
-  CSV import tool with validation
-  Bulk data upload capability
-  Relationship mapping interface

Business Value:

- Bulk contract data entry capability
 - Centralized supplier information
 - Foundation for automated ordering
 - Clear supplier-unit relationships
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Module 3: Core Operations & Stock Management

Duration: 4-5 weeks

Priority: High

What You'll Build:

- Stock receiving and issuing system
- Automated reorder functionality
- Batch/lot tracking
- Unit-level stock management

Core Features:

Stock Receiving:

- |— Delivery confirmation interface
- |— Batch/lot number recording
- |— Expiry date tracking
- |— Quality check recording
- |— Variance reporting
- |— Automatic stock level updates
- └— Receiving documentation

Stock Issuing:

- |— Department-wise stock requests
- |— FIFO batch allocation
- |— Issue authorization
- |— Stock level updates
- |— Usage tracking
- └— Issue documentation

Automated Reordering:

- |— Reorder level monitoring
- |— Automatic PR generation
- |— Unit-specific supplier selection
- |— Quantity calculation logic
- |— Approval workflow routing
- └— PO generation






Batch Tracking:

- |— Batch/lot registration
- |— Expiry management
- |— Batch movement tracking
- |— FIFO rotation alerts
- |— Recall capability
- └— Traceability reports

Inventory Management:

- └— Real-time stock levels
- └— Stock adjustments
- └— Cycle counting
- └— Dead stock identification
- └— Valuation reporting
- └— Movement history

Deliverables:

-  Stock receiving workflow
-  Automated reorder system
-  Batch tracking functionality
-  Stock issuing process
-  Real-time inventory updates

Business Value:

- Core operational functionality
- Automated procurement workflows
- Full traceability system
- Reduced manual processes

Module 4: Requisitions & Approval Workflows

Duration: 3-4 weeks

Priority: Medium-High

What You'll Build:

- Manual requisition system
- Emergency requisition handling
- Multi-level approval workflows
- Purchase order management

Core Features:

Manual Requisitions:

- └─ Requisition creation interface
- └─ Product selection from catalog
- └─ Quantity and justification entry
- └─ Unit-specific requisitions
- └─ Draft saving capability
- └─ Submission workflow

Emergency Requisitions:

- └─ Urgent request flagging
- └─ Override normal reorder levels
- └─ Fast-track approval process
- └─ Emergency supplier selection
- └─ Expedited PO generation
- └─ Impact tracking

Approval Workflows:

- └─ Multi-level approval routing
- └─ Approval threshold configuration
- └─ Email notifications
- └─ Mobile-friendly approval interface
- └─ Delegation management
- └─ Approval history tracking
- └─ Escalation procedures

Purchase Order Management:

- └─ PO generation (auto and manual)
- └─ PO approval workflow
- └─ Supplier communication
- └─ PO modification handling
- └─ Delivery tracking

Deliverables:

- ☒ Manual requisition system
- ☒ Emergency requisition capability
- ☒ Approval workflow engine
- ☒ Purchase order management
- ☒ Email notification system

Business Value:

- Complete procurement workflow
- Emergency handling capability
- Proper authorization controls
- Streamlined PO process

Module 5: Supplier Portal

Duration: 3-4 weeks

Priority: Medium

What You'll Build:

- External supplier access portal
- Real-time stock monitoring for suppliers
- Supplier communication system
- Proactive restock notifications

Core Features:

Supplier Authentication:

- └─ Separate login system for suppliers
- └─ Supplier-specific access controls
- └─ Password management
- └─ Session management
- └─ Security logging

Stock Monitoring Dashboard:

- └─ Real-time stock levels (supplier's products)
- └─ Unit-specific views
- └─ Low stock alerts
- └─ Consumption trend display
- └─ Reorder predictions
- └─ Historical data access






Supplier Communication:

- └─ Message system with procurement team
- └─ Order status updates
- └─ Delivery scheduling
- └─ Issue reporting
- └─ Document sharing
- └─ Notification preferences

Proactive Features:

- └─ Automatic low stock alerts
- └─ Reorder suggestions
- └─ Demand forecasting display
- └─ Performance metrics
- └─ Delivery planning tools
- └─ Business opportunity identification

Deliverables:

-  Supplier portal login system
-  Stock monitoring dashboard
-  Communication system
-  Alert and notification system
-  Mobile-responsive supplier interface

Business Value:

- Proactive supplier management
 - Reduced stockout incidents
 - Improved supplier relationships
 - Better demand planning
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Module 6: Analytics & Business Intelligence

Duration: 4-5 weeks

Priority: Medium

What You'll Build:

- Multi-level dashboards (Group, Unit, Department)
- Advanced reporting system
- Performance analytics
- PowerBI integration or custom visualization

Core Features:

Executive Dashboard (Group Level):

- |— Group-wide KPI overview
- |— Financial metrics and trends
- |— Unit performance comparison
- |— Supplier performance scorecards
- |— Cost savings tracking
- |— Operational efficiency metrics
- └— Executive summary reports

Unit Dashboards:

- |— Unit-specific performance metrics
- |— Stock level monitoring
- |— Cost analysis and budgets
- |— Supplier performance (unit view)
- |— Consumption patterns
- |— Operational alerts
- └— Manager summary reports

Advanced Analytics:

- |— Consumption trend analysis
- |— Seasonality identification
- |— Demand forecasting
- |— Cost optimization suggestions
- |— Inventory turnover analysis
- |— Waste reduction tracking
- └— ROI calculations

Reporting System:

- |— Automated report generation
- |— Scheduled report delivery
- |— Custom report builder
- |— Data export capabilities
- |— Report sharing and distribution

- └─ Historical data analysis
- └─ Compliance reporting

Visualization Options:

- └─ Option A: PowerBI integration
 - | └─ Data connector development
 - | └─ Pre-built dashboard templates
 - | └─ Automated data refresh
 - | └─ Mobile PowerBI access
- └─ Option B: Custom charts
 - | └─ Interactive dashboard widgets
 - | └─ Real-time data updates
 - | └─ Responsive chart design
 - | └─ Export capabilities

Deliverables:

- ☒ Multi-level dashboard system
- ☒ Advanced analytics engine
- ☒ Automated reporting system
- ☒ PowerBI integration OR custom visualization
- ☒ Performance monitoring tools

Business Value:

- Data-driven decision making
 - Performance optimization insights
 - Cost saving identification
 - Strategic planning support
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Development Strategy & Timeline

Recommended Development Order:

Phase 1: Foundation (Module 1)

- └─ Weeks 1-4: Multi-tenant core
- └─ Milestone: Basic system with user management
- └─ Client Demo: User roles and unit switching

Phase 2: Data Foundation (Module 2)

- └─ Weeks 5-8: Contract & supplier management
- └─ Milestone: CSV import and supplier database
- └─ Client Demo: Bulk data upload capability

Phase 3: Core Operations (Module 3)

- └─ Weeks 9-13: Stock management and automation
- └─ Milestone: Automated reordering system
- └─ Client Demo: End-to-end procurement workflow

Phase 4: Workflow Enhancement (Module 4)

- └─ Weeks 14-17: Requisitions and approvals
- └─ Milestone: Complete internal workflow
- └─ Client Demo: Full procurement process

Phase 5: External Integration (Module 5)

- └─ Weeks 18-21: Supplier portal
- └─ Milestone: Supplier access and monitoring
- └─ Client Demo: Supplier proactive engagement

Phase 6: Intelligence Layer (Module 6)

- └─ Weeks 22-26: Analytics and BI
- └─ Milestone: Complete business intelligence
- └─ Client Demo: Strategic insights and reporting

Technology Stack Per Module:

Backend (FastAPI):






Module 1: Basic FastAPI + Supabase + Authentication
Module 2: File upload + CSV processing + Data validation
Module 3: Background tasks + Complex business logic + Batch processing
Module 4: Workflow engine + Email integration + Approval logic
Module 5: External API + Separate authentication + Real-time updates
Module 6: Data aggregation + PowerBI connectors + Advanced queries

Frontend (Recommendation: Vue.js):

Module 1: Basic Vue app + Routing + Authentication
Module 2: File upload components + Data tables + Form validation
Module 3: Real-time updates + Complex forms + Status tracking
Module 4: Workflow interfaces + Approval components + Notifications
Module 5: External portal + Responsive design + Real-time charts
Module 6: Advanced dashboards + Chart libraries + Data visualization

Getting Started Recommendation

Start with Module 1 because:

-  Establishes foundation for everything else
-  Client sees immediate progress
-  Tests multi-tenant architecture early
-  Validates user role concepts
-  Provides working system for early feedback

Success Criteria for Module 1:

- Multiple users can log in with different roles
- Users can switch between hotel units
- Basic product management works per unit
- Admin can manage users and units
- System is responsive and secure

Ready to start with Module 1? I can help you set up:

1. Multi-tenant database schema
2. FastAPI authentication system
3. Vue.js frontend structure
4. Basic admin dashboard
5. User role management

Let me know when you want to dive into Module 1 implementation!