

MyShop 2025 - Lộ Trình Phát Triển Hoàn Chỉnh

Tổng Quan Dự Án

Thời gian ước tính: 12-16 tuần (3-4 tháng) **Điểm tối đa:** 10 điểm (5 điểm chức năng cơ sở + 5 điểm tự chọn) **Công nghệ chính:** C# WPF/WinForms, PostgreSQL, Entity Framework Core

Phase 1: Thiết Lập Nền Tảng (Tuần 1-2)

Week 1: Project Setup & Architecture

Công việc cần làm:

☐ Setup Solution Structure

- Tạo solution với các project: Client, Server, Shared, Database
- Thiết lập Git repository và branching strategy
- Cấu hình build pipeline cơ bản

☐ Database Design & Setup

- Thiết kế chi tiết database schema
- Setup PostgreSQL container/instance
- Tạo migration scripts với Entity Framework Core
- Seed data mẫu (3+ categories, 66+ products, sample orders)

☐ Core Architecture

- Implement Repository Pattern
- Setup Dependency Injection container
- Tạo base classes: BaseViewModel, BaseService, BaseRepository
- Implement logging framework (Serilog/NLog)

Deliverables:

- Complete database schema
- Working database connection
- Basic project structure
- Initial seed data

Week 2: Authentication & Configuration

Công việc cần làm:

■ Authentication System

- Implement JWT-based authentication
- Password hashing (BCrypt)
- Token management and refresh logic
- Auto-login functionality

■ Configuration Management

- Server configuration screen
- Application settings persistence
- Encrypted credential storage
- Version information display

■ Base UI Framework

- Main window layout với navigation
- Theme và styling setup
- Responsive layout foundation
- Loading states và error handling UI

Deliverables:

- Working login system
- Configuration screen
- Main application shell
- Basic navigation



Phase 2: Core Features Development (Tuần 3-8)

Week 3-4: Products Management (1.25 điểm)

Công việc cần làm:

■ Product Categories

- Category CRUD operations
- Category selection UI
- Hierarchical category support

■ Products CRUD

- Product list với pagination (configurable page size)
- Product detail view với multiple images
- Add/Edit/Delete product functionality
- Bulk operations support

■ Advanced Product Features

- Search by product name
- Filter by price range
- Sort by multiple criteria
- Import from Excel/Access files

■ UI Components

- Product grid/list view
- Product detail modal/page
- Search and filter controls
- Pagination component

Deliverables:

- Complete product management system
- Excel/Access import functionality
- Search, filter, sort capabilities
- Responsive product UI

Week 5-6: Orders Management (1.5 điểm)

Công việc cần làm:

■ Order Creation

- Product selection interface
- Cart functionality
- Order calculation (subtotal, tax, total)
- Order state management

■ Order Management

- Order list với pagination
- Order detail view
- Order status transitions (Created → Paid/Cancelled)

- Order search by date range

■ Order Operations

- Edit existing orders
- Delete orders (với validation)
- Order history tracking
- Print order functionality

Deliverables:

- Complete order management system
- Order status workflow
- Order search and filtering
- Print/PDF export capability

Week 7: Dashboard Development (0.5 điểm)

Công việc cần làm:

■ Dashboard Components

- Total products count
- Top 5 low stock products (< 5 items)
- Top 5 best-selling products
- Daily orders count và revenue

■ Recent Activity

- 3 most recent orders display
- Real-time updates
- Quick action buttons

■ Charts và Analytics

- Daily revenue chart (current month)
- Interactive charts với filtering
- Export chart data

Deliverables:

- Interactive dashboard
- Real-time statistics
- Revenue charts

- Quick insights

Week 8: Reports System (1 điểm)

Công việc cần làm:

■ Product Reports

- Product sales by date range
- Line charts for trend analysis
- Export to Excel/PDF

■ Revenue Reports

- Revenue by day/week/month/year
- Profit analysis
- Bar charts and pie charts
- Comparative analysis

■ Advanced Reporting

- Custom date ranges
- Multiple chart types
- Report scheduling (future enhancement)
- Report templates

Deliverables:

- Comprehensive reporting system
- Multiple chart types
- Export capabilities
- Flexible date filtering



Phase 3: Advanced Features Implementation (Tuần 9-12)

Week 9-10: Selected Advanced Features (3 điểm)

Priority Features Selection:

1. Plugin Architecture (1 điểm)

■ Plugin Framework

- Define plugin interface contracts

- Plugin discovery và loading system
- Plugin management UI
- Sample plugins (export formats, reports)

2. Promotions & Discounts (1 điểm)

☐ Discount System

- Percentage và fixed amount discounts
- Product-specific discounts
- Category-level promotions
- Discount validation và application

3. MVVM Architecture (0.5 điểm) + Dependency Injection (0.5 điểm)

☐ Architecture Refactoring

- Refactor existing code to MVVM
- Implement ViewModelBase with INotifyPropertyChanged
- Command pattern implementation
- DI container integration throughout

Week 11: Additional Features (1.5 điểm)

Selected Features:

Auto-save Functionality (0.25 điểm)

- ☐ Implement auto-save for order creation
- ☐ Auto-save for product editing
- ☐ Background save operations

Responsive Layout (0.5 điểm)

- ☐ Adaptive UI layouts
- ☐ Window resizing handling
- ☐ Mobile-friendly views

Customer Management (0.5 điểm)

- ☐ Customer database
- ☐ Customer order history
- ☐ Customer search và filtering

Backup/Restore (0.25 điểm)

- ☐ Database backup functionality
- ☐ Automated backup scheduling
- ☐ Restore operations với validation

Week 12: Polish & Final Features (0.5 điểm)

Obfuscation (0.25 điểm)

- ☐ Code obfuscation setup
- ☐ Production build configuration
- ☐ Security hardening

Trial Mode (0.25 điểm)

- ☐ 15-day trial implementation
- ☐ License key validation
- ☐ Trial expiration handling

Phase 4: Deployment & Packaging (Tuần 13-14)

Week 13: Installation Package

Công việc cần làm:

☐ Installer Creation

- WiX Toolset hoặc Advanced Installer
- Database installation scripts
- Application configuration
- Uninstall functionality

☐ Testing & Quality Assurance

- Unit test implementation
- Integration testing
- UI testing scenarios
- Performance testing

Week 14: Final Polish

Công việc cần làm:

■ Documentation

- User manual
- Technical documentation
- Installation guide
- Troubleshooting guide

■ Final Testing

- End-to-end testing
 - Cross-platform testing
 - Performance optimization
 - Bug fixes và polish
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Technical Stack & Tools

Core Technologies

- **Frontend:** WPF với Material Design
- **Backend:** ASP.NET Core Web API
- **Database:** PostgreSQL với Entity Framework Core
- **Authentication:** JWT tokens
- **Charts:** LiveCharts hoặc OxyPlot
- **PDF Generation:** iTextSharp
- **Excel Operations:** EPPlus
- **Dependency Injection:** Microsoft.Extensions.DependencyInjection

Development Tools

- **IDE:** Visual Studio 2022
- **Version Control:** Git với GitHub/GitLab
- **Database Tools:** pgAdmin, Entity Framework Core Tools
- **Testing:** xUnit, Moq
- **Installation:** WiX Toolset
- **Obfuscation:** ConfuserEx hoặc .NET Reactor

Project Structure

```
MyShop2025/
├── src/
│   ├── MyShop.Client/      # WPF Application
│   ├── MyShop.Server/     # Web API
│   ├── MyShop.Shared/     # Shared models/contracts
│   ├── MyShop.Data/       # Entity Framework context
│   └── MyShop.Plugins/    # Plugin interfaces
├── tests/
│   ├── MyShop.Client.Tests/
│   ├── MyShop.Server.Tests/
│   └── MyShop.Integration.Tests/
├── docs/
└── database/
    └── migrations/
```

Milestone Tracking

Phase 1 Milestones

- ☐ Database schema completed
- ☐ Authentication system working
- ☐ Basic UI navigation implemented

Phase 2 Milestones

- ☐ Products management fully functional
- ☐ Orders system implemented
- ☐ Dashboard displaying real data
- ☐ Reports generating correctly

Phase 3 Milestones

- ☐ Plugin system functional
- ☐ Advanced features implemented
- ☐ MVVM architecture complete

Phase 4 Milestones

- ☐ Installation package created
- ☐ All tests passing

☐ Documentation complete

Risk Management

Technical Risks

1. **Database Performance:** Monitor query performance, implement indexing
2. **Plugin Architecture Complexity:** Start simple, iterate
3. **UI Responsiveness:** Use async/await patterns consistently

Timeline Risks

1. **Feature Creep:** Stick to planned scope
 2. **Integration Issues:** Regular integration testing
 3. **Learning Curve:** Allocate buffer time for new technologies
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Success Criteria

Functional Requirements

- ☐ All 5 core features implemented (5 điểm)
- ☐ Minimum 5 điểm additional features (5 điểm)
- ☐ Professional UI/UX design
- ☐ Stable performance và error handling

Technical Requirements

- ☐ Clean, maintainable code
- ☐ Proper error handling
- ☐ Adequate test coverage (>70%)
- ☐ Professional installation package

Documentation Requirements

- ☐ Complete user documentation
- ☐ Technical documentation
- ☐ Code comments và README files