

Status and description of program code completed to date

GB Manufacturing Automated Equipment Checkout System (ECS)

Version 1.0

CEIS 400 Software Engineering II
Professor Yu On Ng
DeVry University

Group G
Prepared by: Louie Venegas
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Team Members:
Team Member A, Team Member G, Team Member C,
Team Member B, Team Member F,
Team Member E, Team Member D

Status of Equipment Checkout System (ECS)

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The codebase represents a Java-based application built using NetBeans IDE with a three-tier layered architecture. The application appears to be in an advanced development stage with numerous functional components implemented.

Completed Components:

1. User Interface Layer

- o Login system with placeholder validation
- o Main hub window with navigation to all subsystems
- o Equipment checkout and check-in interfaces
- o User management interface with add/edit functionality
- o Equipment management interface
- o Employee termination processing
- o Comprehensive reporting system (several report types implemented)

2. Database Layer

- o MySQL database schema fully implemented with tables for:
 - Employees, equipment, transactions
 - Skills classification
 - Equipment status and availability tracking
 - Notification and auditing systems
- o Database connection class established

3. Business Logic Layer

- o Basic validation implemented in several UI forms
- o Data input validation (dates, required fields)
- o Form flow control between windows

Current State of Implementation:

1. Authentication and Navigation

- o Login window properly coded but not fully connected to database authentication
- o Hub navigation system is complete with all major sections accessible

2. Core Equipment Functionality

- o Check-in/check-out interfaces designed and implemented
- o UI components for equipment verification present
- o State tracking and status updates designed

3. User Management

- o Add user interface implemented
- o User search functionality in place
- o User list display ready

4. Equipment Management

- o Add equipment interface implemented
- o Equipment search functionality in place
- o Equipment list display ready

5. Reporting System

- o Multiple report types implemented:
 - Equipment usage reports
 - Overdue equipment reports
 - Inventory status reports
 - User activity reports
- o Report filtering capabilities present

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6. Employee Termination

- o Interface for processing terminations implemented
- o Equipment return verification designed

Areas That Need Further Development:

1. Database Integration

- o Many UI components have placeholder functionality rather than actual database connections
- o Database queries need to be implemented in most classes
- o The system appears to be structurally ready but needs the connection code

2. Authentication System

- o Currently uses placeholder messages without actual validation
- o Role-based permissions need implementation

3. Business Logic Implementation

- o Validation logic is partially implemented but needs to be extended
- o Transaction processing needs to be fully connected to database operations

4. Testing

- o A test plan document exists but actual unit tests not to be implemented yet

Architecture and Technical Details:

- **Frontend:** Java Swing with custom UI components
- **Backend:** Three-tier architecture with separate presentation, business logic, and data layers
- **Database:** MySQL schema is well-developed with comprehensive tables and relationships
- **Development Environment:** NetBeans IDE
- **Build System:** Ant

The system implements the requirements specified in the case study, addressing issues like:

- Reducing equipment checkout processing time
- Streamlining employee termination processes
- Tracking equipment availability and usage
- Enforcing skill classification requirements
- Automate notifications for overdue equipment

The application appears to be approximately 70-80% complete in terms of UI implementation, but it requires additional work to fully integrate the database operations and implement complete business logic functionality.