Interior Design Management System

(DesynFlow)

Information Technology Project (IT2080)

Group ID:

ITP25_B2_46

Campus : Malabe

Group Number : ITP25_B2_46

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Function Developed in Project

Authentication and User Management – Inothma Y.M.A – IT 235485 96

Authentication and User Management ensure that the only authentic people can access the website features securely. Authentication verify the email and password before granting access. User management handle the account creating, updating, organizing user accounts with roles as client, customer service representative, project manager, warehouse manager, procurement officer, finance manager or inspector. This user management both cover the client-portal and staff-portal. It also include features like reset password, account verification and role-based permission.

High level user story/ function	Completed (Y/N, comment)	Responsible member (Name)
As a client, I want to register with email, phone number and password, so that I can access system services.	Yes	**Inothma Y. M. A** **IT 23 5485 96**
As a user, I want to log in securely with JWT authentication, so that I can access my dashboard.	Yes	
As a customer service representative, project manager and finance staff, I want to have role-based dashboards, so that I see and update only my relevant tasks.	Yes	
As a user, I want to reset my password, so that I can recover my account.	Yes	

Inspection Management- Inothma Y.M.A- IT23 5485 96

Inspection scheduling manage the process of assigning organizing property inspections between the client and inspector. It allow client to submit the inspection request by providing property details with preferred date. Customer service representative find and assigned the nearest and available inspectors based on the client's location and workload. Inspectors can view their scheduled task and update progress of inspection. This ensure smooth workflow for both client and staff.

High level user story/ function	Completed (Y/N, comment)	Responsible member (Name)
As a client, I want to submit an inspection request form and property details with preferred date, so that my property can be evaluated.	Yes	**Inothma Y. M. A** **IT 23 5485 96**
As a client, I want to upload a payment receipt, so that my inspection request is verified.	Yes	
As a customer service representative, I want to assign the nearest and available investigator, so that inspections are handled efficiently.	No	
As an investigator, I want to update live location, so that customer service representative can assign me accurately.	No	

As an investigator, I want to upload on-site inspection reports, so that project management can proceed.	Yes	**Inothma Y. M. A** **IT 23 5485 96**

Completion level of features

- Authentication and User Management
    - User registration, login and 2 factor authentication.
    - Implement the user roles (client, customer service representative, finance manager, manager)
    - Profile management.
    - Account activation and deactivation.
    - Password reset.
- Client inspection request flow
    - Client can create, read, update and delete the inspection request.
    - Client can upload payment receipt via one time email link.
- Payment receipt management
    - Customer service representative can generate the payment link and send to the client.
    - Finance manager can verify or reject receipt.
    - Payment status tracking.
- Status and workflow management

    - Status tracking or request and receipt.

- Notification and email
    - Payment link and status email to client.
    - Receipt verification or rejection email.
    - Assignment notification
- Generating report
    - Inspector can generate the report of inspection.
- Security
    - JWT authentication, role-based access.
    - One time token for payment links.

Project Management – Helitha Y.M.Y – IT 23 5883 32

Once the Inspection report is submitted to Project Manager this module will initiate the planning and design the interior according to client's requirement. This module will help to manage team, team members project status.

High level user story/ function	Completed (Y/N, comment)	Responsible member (Name)
As a project manager, I want to review submitted inspection reports, so that I can decide whether to assign or put on hold.	Yes	**Helitha Y. M. Y** **IT 23 5883 32**
As a project manager, I want to assign project team members with leader, so that projects start smoothly.	Yes	
As a team leader I want to take daily attendance of my team members, so that I can manage dividing task better.	Yes	
As a team leader, I want to divide work into tasks with percentage weights, so that team progress can be measured.	Yes	
As a project Manager, I want to track the progress of each teams' project, so that I can get an idea of how projects ongoing process and for future acceptance of projects.	Yes	

As a project manager, I want to schedule meetings with clients inside the system, so that requirements can be finalized.	Yes	**Helitha Y. M. Y** **IT 23 5883 32**
As a team leader, I want to send materials requests to warehouse manager, so that work can continue.	Yes	
Provide the feature to upload a summary of the client's project with a 3D design.	No	**Helitha Y. M. Y** **IT 23 5883 32**
Provide the feature for member to mark their attendance		
Provide the feature for team member to mark their task as done.		
Web site including company works for visitors.		

Completion level of Features

- Managing Projects
  - Create, read, update, delete projects.
  - Assign teams to project or on hold projects
  - Track project status and progress
- Team Management
  - Add new members

    - Assign role for members
- Task Management
    - Create, assign and track tasks
    - Update task status and progress
- Milestone tracking
    - Define project milestone
    - Track milestone completion
- Attendance Management
    - Record attendance of each team member
    - Attendance status (present, off-duty, training etc.)
- Material Request
    - Submit material request for projects
    - Track request tracks
- Meeting Scheduling - Schedule and track project meetings
- Report generation
    - Submit and review progress report
    - Weekly project report
- Dashboard Overview
    - Team Leader Dashboard: Attendance, resource, report status
    - Project Manager: project, team resource and progress view

Warehouse Management - Ranepura R D L S I - IT 23 7729 22

The warehouse manager can add manufactured products and raw materials into the system. The warehouse manager can also add new inventory location and also record stock movements between warehouses after getting the approval from the manager which is recorded in the stock transfer requests. When the current level of the products are less than the reordering level, the warehouse manager sends a stock reorder request to the supplier manager. When products of the warehouse are damaged, the warehouse manager can record the item. When the stock current level is lower than the reordering level, it is triggered, so that the warehouse manager receives a notification. Changes that happen in the system are recorded automatically in the audit log. The warehouse manager can filter and search entries within the system. Also the warehouse manager can download PDFs of the entries made in the system. The warehouse manager can obtain an overview of the entries in the system and the operations of the inventory through the charts in the home page.

ER diagram , normalization and high level system diagram-
https://drive.google.com/file/d/1KLxXUZuMUQhn7D07LMPVHUL3uA8RtdEh/view?usp=drive_link

High Level User Story / Function	Completed (Y/C, comment)	Responsible Member (Name)
As a warehouse manager, I want to add new manufactured products and raw materials in to the system	Yes	Ranepura R D L S I IT23772922
As a warehouse manager, I want to add existing products and aw materials into the system with different inventory location.	Yes	
As a warehouse manager, I want to edit, delete, search and filter manufactured products and raw materials.	Yes	
As a warehouse manager, I want to I want to add, edit, delete, search and filter inventory locations.	Yes	
As a warehouse manager, I want to add, edit, delete,	Yes	

search and filter disposal materials.		
As a warehouse manager, I want to add, edit, delete, search and filter stock movement.	Yes	
As a warehouse manager, I want to I want to add, edit, delete, search and filter stock reorder requests.	Yes	
As a warehouse manager, I want to I want to add, edit, delete, search and filter transfer requests.	Yes	
As a warehouse manager, I want to I want to add, delete, search and filter audit logs.	Yes	
As warehouse manager, I want to get an brief overview of the inventory operations by reviewing the charts of the home page.	Yes	
As a warehouse manager, I want to receive notifications about transfer requests and threshold alerts.	Yes	
As a warehouse manager, I want to be alerted about the stock levels.	Yes	
As a warehouse manager, I want know about the product/ material replacements during the warranty period	Yes	
Provide a client facing website for the clients to view before obtaining the service	No	
Integrate the system with other members to complete the action of certain tables of the warehouse management	No	

Completion level of features

- Product management
    - Add new or existing products
    - Update and delete products

- Disposal management
    - Add disposal materials with the reason of disposal
    - Update and delete material
- Inventory management
    - Add new inventory location
    - Update and delete inventory location
- Stock reorder requests
    - Add new stock order requests
    - Update and delete stock reorder requests
- Stock movement and transfer requests
    - Add stock movement and transfer requests
    - Update and delete stock movement and transfer requests
- Audit log
    - Automatically add changes in the dashboard to the audit log
    - Delete audit logs
- Home page
    - Charts to track the changes of the warehouse due to its operations
- Notifications page
    - Threshold alerts when the current level of the products are less than the reorder level can be seen
    - Approved transfer requests can be seen
- PDF generation
    - PDF can be generated from all the lists of the warehouse dashboard because all the changes in the dashboard are important
- Search and filter
    - Records in a list can be searched and filtered when required

Finance Management - MADHUMAL A.A - IT23 7353 92

Once the Finance Manager logs in, this module will allow them to monitor project budgets, track client payments, and manage cost estimates. It will help generate and send quotations, approve purchase requests, and maintain secure financial records. The module also provides dashboards, notifications, and reports to ensure accurate financial management and timely decision-making.

High level user story/ function	Completed (Y/N, comment)	Responsible member (Name)
As a Finance Manager, I want to view a financial dashboard with real-time project budgets, cost summaries, and pending actions, so that I can monitor financial performance instantly.		
As a Finance Manager, I want to generate site inspection estimates, review client payment receipts, and approve them, so that projects can proceed without financial delays.		
As a Finance Manager, I want to create detailed cost estimates covering labor, materials, services, and contingencies, so that I can ensure accurate project budgeting.		
As a Finance Manager, I want to save multiple versions of cost estimates and link them to the project, so that I can track changes and maintain financial transparency.		
As a Finance Manager, I want to generate quotations, revise them if needed, and lock final versions with version control, so that all stakeholders work with accurate financial documents.	YES	

As a Finance Manager, I want to track and filter client payments, audit transaction records, and export them when needed, so that I can ensure proper financial accountability.		
As a Finance Manager, I want to review submitted purchase requests, and approve or reject with comments, so that the procurement process is transparent and controlled.		
As a Finance Manager, I want to log every financial decision with a timestamp and justification, so that an auditable history of actions is always available.		
As a Finance Manager, I want to log all project-related expenses, categorize them, and link them to cost centers, so that I can analyze and control project spending.		
As a System, I want to automatically start and record warranty details when a project is completed, so that all warranties are tracked consistently without manual input.		MADHUMAL A.A IT23735392
As a Finance Manager, I want to search, view, and monitor active warranties by client, project, item, or status, so that I can quickly determine coverage.		
As a Finance Manager, I want to view and manage warranty claims, approve or reject replacements, and trigger notifications to clients and warehouse managers, so that claims are resolved and replacements shipped efficiently.		
As a Finance Manager, I want to maintain secure, auditable, and immutable records of all financial transactions, so that I comply with regulations and prevent tampering.		
As a Finance Manager, I want to generate and export monthly financial reports, so that I can present accurate financial insights to stakeholders.	NO	

As a Finance Manager, I want to receive notifications about requests, payments, breaches, and revisions, so that I can take timely financial actions.		
As a Finance Manager, I want to record and categorize financial losses due to damaged goods, so that I can maintain accurate financial statements and accountability.		

Completion Level of Features

1. Expenses Management

- Model: expenses.js
- Controller: expensesController.js
- Service: expensesService.js
- Routes: expensesRoutes.js
- Middleware: expenseupload.js
- Features:
  - Create, read, update, delete expenses (CRUD)
  - Expense file upload (receipts, documents)
  - Expense approval workflow

2. Payment Management

- Model: payment.js
- Controller: paymentController.js
- Service: paymentService.js
- Routes: paymentRoutes.js
- Features:
  - Create, read, update, delete payments (CRUD)
  - Payment processing and status tracking

3. Quotation Management

- Model: quotation_estimation.js
- Controller: quotationController.js
- Service: quotationService.js
- Routes: quotationRoutes.js
- Features:
  - Create, read, update, delete quotations (CRUD)
  - Quotation estimation and approval

4. Purchase Order Management

- Model: purchase_order.js, purchase_approval.js
- Controller: purchaseOrderController.js
- Service: purchaseOrderService.js
- Routes: purchaseOrderRoutes.js
- Features:
  - Create, read, update, delete purchase orders (CRUD)
  - Purchase approval workflow

5. Project Estimation

- Model: project_estimation.js
- Controller: projectEstimationController.js
- Service: projectEstimationService.js
- Routes: projectEstimationRoutes.js
- Features:
  - Create, read, update, delete project estimations (CRUD)
  - Estimation history and details

6. Inspection & Estimation

- Model: inspection_estimation.js, inspection_request.js
- Controller: inspectionEstimationController.js
- Service: inspectionEstimationService.js
- Routes: inspectionEstimationRoutes.js
- Features:
  - Create, read, update, delete inspection requests and estimations (CRUD)
  - Inspection scheduling and result tracking

7. Claim Management

- Model: warrenty_claim.js
- Controller: claimController.js
- Service: claimService.js
- Routes: claimRoutes.js
- Features:
  - Create, read, update, delete warranty claims (CRUD)
  - Claim status and history

8. Warranty Management

- Model: warrenty.js, warrenty_claim.js
- Controller: warrantyController.js
- Service: warrantyService.js
- Routes: warrantyRoutes.js
- Features:
  - Create, read, update, delete warranties (CRUD)
  - Warranty claim creation and tracking
  - Warranty status and history

Supplier Management

High level user story / function	Completed (Y/N, comment)	Responsible Member
Register new suppliers with company name, contact info, material types, and delivery regions.	Yes (Implemented via Add_suppliers.jsx & backend supplier routes)	Lakshan U A K
Procurement officer can raise material requests and assign to registered suppliers.	Yes (OrderForm.jsx & backend order creation)	Lakshan U A K
Finance manager can approve/reject material requests and update approval status.	Yes (Orders.jsx, Dashboard_sup.jsx, backend approval logic)	Lakshan U A K & Asitha Madumal
Suppliers receive material requests in their dashboard (items, quantities, deadlines).	Yes (Dashboard_sup.jsx, Order_details_sup.jsx)	Lakshan U A K
Suppliers can update request status (Accepted, Rejected, In Progress, Dispatched).	Yes (Dashboard_sup.jsx, Order_details_sup.jsx)	Lakshan U A K
Suppliers can upload sample submission files for quality verification.	Yes (Sample_order.jsx & backend sample routes)	Lakshan U A K
Supplier management team can approve/reject submitted samples.	Yes (Backend sample review logic)	Lakshan U A K
Supplier management team can rate suppliers after delivery (timeliness, quality, communication).	Yes (supplierRating routes & service)	Lakshan U A K
System automatically calculates supplier rating using weighted scoring and updates profile.	Yes (supplierRating.service.js)	Lakshan U A K

Procurement officer can view supplier records, request statuses, ratings, and logs through dashboard.	Yes (Frontend dashboard & backend routes)	Lakshan U A K

High level user story / function	Completed (Y/N, comment)	Responsible Member
Inventory module triggers material restock alerts when stock goes below threshold.	No	Lakshan U A K & Lakni
Notify inventory officer when material status is updated to Delivered.	Partial (delivery status updates exist, notification missing)	Lakshan U A K & Lakni
Procurement officer can update material delivery status upon receipt.	Partial (status update exists, explicit UI missing)	Lakshan U A K & Lakni
Procurement officer can forward material requests to finance manager for budget approval.	Partial (UI exists, forwarding workflow refinement needed)	Lakshan & Asitha madumal

Completion level of Features

1. Supplier Registration & Records

Test Case 1.1: Add New Supplier

- Input: Fill supplier form (name, company, contact, material types, delivery regions, rating) and submit.
- Expected: Supplier is saved in DB and appears in supplier list.

Test Case 1.2: Update Supplier Details

- Input: Edit supplier info and save changes.
- Expected: Updated details are reflected in DB and UI.

Test Case 1.3: View Supplier List

- Input: Navigate to supplier list page.
- Expected: All suppliers from DB are displayed.

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2. Material Requests

Test Case 2.1: Create Material Request

- Input: Procurement Officer fills request form and submits.
- Expected: Request is saved and visible to selected suppliers.

Test Case 2.2: Budget Approval Flow

- Input: Request is forwarded for budget approval.
- Expected: Finance Manager sees request, can approve/reject, status updates accordingly.

Test Case 2.3: Approval Status Display

- Input: View request status.
- Expected: Status shows Pending, Approved, or Rejected.

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3. Supplier Communication

Test Case 3.1: Supplier Views Request Details

- Input: Supplier logs in and views requests.
- Expected: Items, quantities, deadlines are shown.

Test Case 3.2: Supplier Updates Request Status

- Input: Supplier marks request as Accepted, Rejected, In Progress, or Dispatched.
- Expected: Status updates in DB and is visible to Procurement Officer.

Test Case 3.3: Supplier Uploads Sample

- Input: Supplier uploads sample file for a request.
- Expected: Sample is saved and visible for review.

Test Case 3.4: Management Reviews Sample

- Input: Management approves/rejects sample.
- Expected: Status updates and supplier is notified.

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4. Order & Delivery Tracking

Test Case 4.1: Track Order Status

- Input: View order details.
- Expected: Status shows In Progress, Dispatched, Delivered.

Test Case 4.2: Update Delivery Status

- Input: Procurement Officer marks order as Delivered.
- Expected: Status updates and Warehouse Manager is notified.

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5. Supplier Performance & Ratings

Test Case 5.1: Record Delivery Feedback

- Input: After delivery, enter feedback (timeliness, quality, communication).
- Expected: Feedback is saved and performance score is calculated.

Test Case 5.2: Top-Rated Suppliers Listed First

- Input: View supplier list.
- Expected: Suppliers are sorted by rating, top-rated are green-flagged.

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6. Notifications

Test Case 6.1: Notify Warehouse Manager

- Input: Request is approved/delivered.
- Expected: Warehouse Manager receives notification.

Test Case 6.2: Notify Finance Manager

- Input: Request sent for budget approval.
- Expected: Finance Manager receives notification.

Test Case 6.3: Notify Suppliers

- Input: Request/sample is approved/rejected.
- Expected: Supplier receives notification.

Test Case 6.4: Notify Procurement Officer

- Input: Supplier updates request status.
- Expected: Procurement Officer receives notification.

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7. Procurement Officer’s Dashboard

Test Case 7.1: View Suppliers and Ratings

- Input: Open dashboard.
- Expected: All suppliers and ratings are shown, top-rated green-flagged.

Test Case 7.2: View Requests, Approvals, Deliveries

- Input: Open dashboard.
- Expected: All requests, approvals, and deliveries are listed.

Test Case 7.3: Live Order Tracking

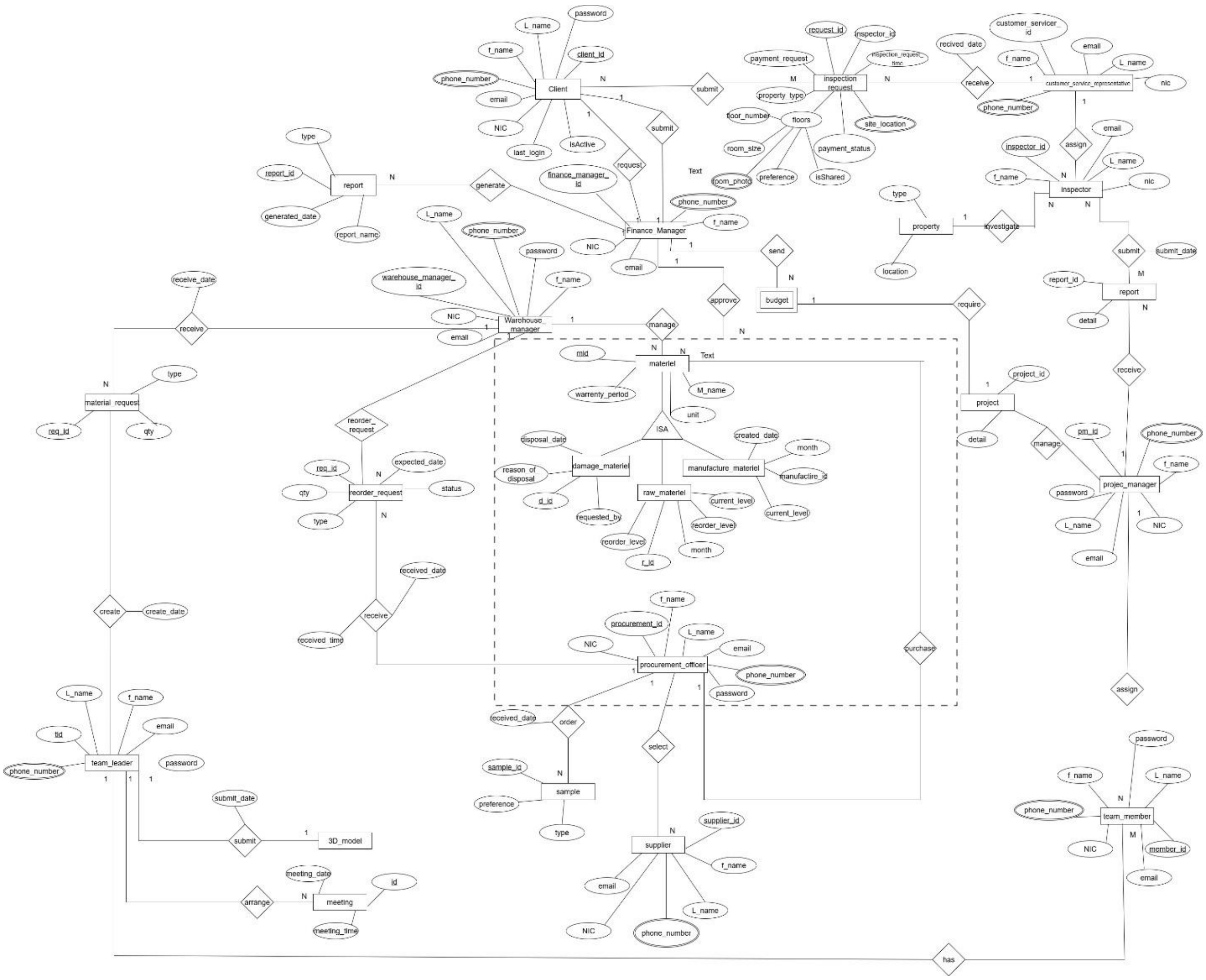
- Input: View current orders.
- Expected: Live tracking info is displayed.

Test Case 7.4: View System Logs

- Input: Open logs section.
- Expected: Approvals/rejections with timestamps and user info are shown.

Merged Branch link: https://github.com/Yohan-Helitha/DesynFlow

ER Diagram



ER diagram link - [Interior Design Management (Assignment 2 - files)]()

Normalized Schema

Since the normalized schema is too large to paste in here clearly, I'm pasting it as a drive link. Please refer them.

Link: NormalizedSchema.jpg

In any case the image is not clear I uploaded the draw.io file as well. Please refer it.

Link: NormalizedSchema2.drawio

Test Case Design

Authentication & Authorization

Test Case ID	Module	Test Scenario	Preconditions	Test Steps	Expected Result
AUTH-01	Authentication	User registration with valid data	User not registered	1. Go to signup page 2. Enter valid email, NIC, password, phone 3. Submit form	User account created successfully; confirmation/response message shown
AUTH-02	Authentication	User registration with duplicate email	Email already exists in DB	1. Try registering with existing email 2. Submit form	System shows “Email already exists” error
AUTH-03	Authentication	User login with valid credentials	User already registered	1. Enter correct email & password 2. Submit	Login successful, JWT token generated, redirect to dashboard
AUTH-04	Authentication	User login with wrong password	User exists	1. Enter valid email but wrong password 2. Submit	Error message “Invalid credentials” shown, login denied

AUTH-05	Authentication	Session expiration	User logged in	1. Login successfully 2. Wait until token expiry time 3. Try accessing dashboard	System auto-logs out, redirect to login
AUTH-06	Authorization	Role-based dashboard access	User with role = Team Leader	1. Login as Team Leader 2. Try accessing Finance Manager dashboard URL directly	Access denied (403 Forbidden)
AUTH-07	Authorization	Unauthorized API call	User not logged in	1. Directly call /api/projects without JWT token	API returns 401 Unauthorized
AUTH-08	Password Security	Change password with old password	User logged in	1. Enter old password + new password 2. Submit	Password updated, user notified
AUTH-09	Logout	User logs out	User logged in	1. Click logout button 2. Confirm action	JWT/session invalidated, redirect to login

Inspection Management

Test Case ID	Module	Test Scenario	Preconditions	Test Steps	Expected Result
INSP-01	Inspection	Submit inspection request	Client logged in	1. Fill inspection form (property details, site location, floors, etc.) 2. Upload payment proof 3. Submit	Inspection request created, finance notified
INSP-02	Inspection	Invalid property details	Client logged in	1. Leave mandatory fields empty (e.g., site location) 2. Submit	Validation error shown "Site location required"
INSP-03	Inspection	Floor/Room preference handling	Client selects 3 floors	1. Enter number of floors = 3 2. Fill form for floor 1 and add multiple rooms 3. Save & continue	System generates forms for each floor with room preferences
INSP-04	Inspection	Add duplicate room preferences	Client adds room2 same as room1	1. Add room1 details 2. Click "+" duplicate button for room2 3. Submit	Room2 inherits preferences of room1 (with option to override size/photos)

INSP-05	Inspection	Remove a room preference	Client added multiple rooms	1. Add 3 rooms 2. Remove room2 3. Submit	Room2 deleted, only room1 & room3 stored
INSP-06	Inspection	Save progress mid-way	Client filling form	1. Fill partial details for floor1 2. Click “Save” 3. Reopen form	Saved data is restored for editing
INSP-07	Inspection	Inspector receives assignment	CSR assigns inspector	1. CSR assigns inspector to new request 2. Inspector logs in	Inspector dashboard shows assigned request
INSP-08	Inspection	Inspector uploads report	Inspector logged in	1.Inspector uploads on-site photos & notes 2. Submit report	Report visible to Project Manager for review
INSP-09	Inspection	Invalid file upload	Inspector logged in	1.Upload non-image file in photo section 2. Submit	Validation error “Invalid file type”
INSP-10	Inspection	Finance approval workflow	Client submitted payment proof	1. Finance Manager reviews payment 2. Approve/Reject	Status updated, client notified

Project Manager

ID	Feature	Test Scenario	Test Steps	Expected Result
PM-01	Project Management	Create a new project	Login as PM → Navigate to "Projects" → Click "+ Create Project" → Enter name, client, assign team → Save	Project is created with correct details and appears in list
PM-02	Project Management	Edit an existing project	Select project → Edit details (name, timeline, milestones) → Save	Project details update successfully
PM-03	Project Management	Delete a project	Select project → Click delete → Confirm	Project is removed from database and not listed
PM-04	Team Assignment	Assign a team to a project	Open project → Assign team from dropdown → Save	Assigned team appears linked to project
PM-05	Report Management	Upload inspection report (PDF)	Open project → Upload PDF → Save	PDF is stored and visible for Team Leader
PM-06	Progress Tracking	Monitor project status	View dashboard → Check project progress % and deadlines	Progress is calculated correctly
PM-07	Team Management	Reassign a team leader	Open team → Change leader → Save	New leader is updated and visible
PM-08	Report Download	Download inspection report	Select project → Click "Download Report"	PDF is downloaded successfully

Team Leader

ID	Feature	Test Scenario	Test Steps	Expected Result
TL-01	Project Assignment	View assigned projects	Login as Team Leader → Navigate to dashboard	All projects assigned by PM are listed
TL-02	Project Overview	Open project details	Select a project → View timeline, milestones, team members	All project details are displayed correctly
TL-03	Report Review	Review attached inspection report	Open project → Download/View PDF	Inspection report is accessible
TL-04	Task Management	Assign tasks to members	Select project → Add task → Assign to team member → Save	Task is created and assigned correctly
TL-05	Task Update	Update task status	Open task → Change status to In-progress/Completed	Task status updates successfully
TL-06	Task Monitoring	Track task progress %	View project dashboard → Check progress	Task progress percentage is calculated and updated
TL-07	Resource Coordination	Send material request	Open project → Click “Request Material” → Enter details → Submit	Request is sent to Warehouse Manager
TL-08	Team Supervision	Manage member availability	Open team → Update schedule/availability	Changes are saved and reflected

TL-09	Reporting	Submit progress update	Open project → Upload report/update → Submit	Update is sent to Project Manager
TL-10	Document Upload	Attach supporting docs (images, PDFs)	Open project → Upload file → Save	File is uploaded and visible in project docs

Warehouse Manager

Test Case ID	Feature	Pre-condition	Steps	Expected Result
TC01	Add new manufactured product	Logged in as a warehouse manager	1. Go to manufactured product page 2. Click "Add Product" 3. Select "New Product" as product type 4. Enter the details of the manufactured product 5. Click "Add Product"	New manufactured product is added with a new material ID.
TC02	Add existing manufactured product	Logged in as a warehouse manager	1. Go to manufactured product page 2. Click "Add Product" 3. Select "Existing Product" as product type 4. Enter the details of the manufactured product 5. Click "Add Product"	Existing manufactured product is added with an existing material ID.

TC03	Update manufactured product details	Logged in as a warehouse manager	1. Go to manufactured products page 2. Click “Update Product” 3. Update details of the location 4. Click “Update Product”	Updated details are added and visible along with the material ID
TC04	Add new raw material	Logged in as a warehouse manager	1. Go to raw materials page 2. Click “Add Product” 3. Select “New Product” as product type 4. Enter the details of the raw material 5. Click “Add Product”	New raw material is added with a new material ID.
TC05	Add existing raw material	Logged in as a warehouse manager	1. Go to raw material page 2. Click “Add Product” 3. Select “Existing Product” as product type 4. Enter the details of the raw material 5. Click “Add Product”	Existing raw material is added with an existing material ID.
TC06	Update raw material details	Logged in as a warehouse manager	1. Go to raw materials page 2. Click “Update Product”	Updated details are added and visible along with the material ID

			3. Update details of the location 4. Click “Update Product”	
TC07	Add new inventory location	Logged in as a warehouse manager	1. Go to inventory location page 2. Click “Add Location” 3 Enter the details of the inventory location 3. Click “Add Location”	Inventory location is added and visible in inventory list
TC08	Update inventory location details	Logged in as a warehouse manager	1. Go to inventory location page 2. Click “Update Location” 3. Enter the details of the inventory location 4. Click “Update Location”	Inventory location is updated and visible in inventory list
TC09	Add new stock movement	Logged in as a warehouse manager	1. Go to stock movement page 2. Click “Add Movement” 3. Enter the details of the stock movement 4. Click “Add Movement”	Stock movement is added and visible in the list
TC10	Update stock movement	Logged in as a warehouse manager	1. Go to stock movement page	Updated stock movement details are added and

			2. Click “Update Movement” 3. Enter the details of the stock movement 4. Click “Update Movement”	visible in the list
TC11	Add new transfer request	Logged in as a warehouse manager	1. Go to transfer request page 5. Click “Add Request” 6. Enter the details of the transfer request 5. Click “Add Request”	Transfer request is added and visible in the list with “Pending” status
TC12	Update transfer request	Logged in as a warehouse manager	1. Go to transfer request page 2. Click “Update Request” 3. Enter the details of the transfer request 4. Click “Update Request”	Updated details of transfer request are visible in the list
TC13	Add new stock reorder request	Logged in as a warehouse manager	1. Go to stock reorder request page 2. Click “Add Request” 3. Enter the details of the stock reorder request 4. Click “Add Request”	New stock reorder request is added and visible in the stock reorder request list with “Pending” status
TC14	Update stock reorder request	Logged in as a warehouse manager	1. Go to stock reorder request page	Updated stock reorder request is visible in the

			2. Click "Update Request" 3. Enter the details of the stock reorder request 4. Click "Update Request"	stock reorder request list
TC15	Add new disposal material	Logged in as a warehouse manager	1. Go to disposal material page 2. Click "Add Material" 3. Enter the details of the disposal material 4. Click "Add Material"	Disposal material is added and visible in the list
TC16	Update disposal material	Logged in as a warehouse manager	1. Go to disposal material page 2. Click "Update Material" 3. Enter the details of the disposal material 4. Click "Update Material"	Updated details of disposal material are added
TC17	Update audit log	Logged in as a warehouse manager	1. Insert/update/delete details of a manufactured product/raw material/stock movement/transfer request/stock movement/disposal materials lists	Changes made to the specific lists are recorded

TC18	Receive threshold alerts	Logged in as a warehouse manager	1. Go to manufactured materials/raw materials page 2. Click “Update” icon 3. Update the current level equal or lower than the reordering level 4. Click “Update material”	Receive a notification in the notifications page
TC19	Receive notifications	Logged in as a manager	1. Approves transfer request	Receive notification in the notifications page when the manager approves the request
TC20	Download PDF	Logged in as a warehouse manager	1. Navigate to the required page 2. Click on “Download” icon	PDF is downloaded

Finance Management

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Status
FM-01	Calculate inspection estimate	1.Submit a project request from client. 2. Trigger inspection estimate calculation.	Client location, project details, standard rate	System calculates inspection cost based on distance and standard rate	Pass/Fail
FM-02	Create budget estimate	1. Receive inspection data. 2. Enter labor, material, service, contingency costs. 3. Save budget estimate.	Labor, material, service, contingency values	Budget estimate is saved and linked to the project	Pass/Fail
FM-03	Approve and lock budget	1. Send budget to Project Manager. 2. Project Manager approves the budget. 3. Try editing locked budget.	Approved budget	System locks the budget and prevents changes	Pass/Fail
FM-04	Record project expenses	1. Enter project-related expense. 2. Link expense to project.	Expense amount, project ID	Expense is recorded and tracked under the project	Pass/Fail
FM-05	Verify client payments	1. Enter client payment. 2. Match payment to outstanding balance.	Payment receipt	System verifies payment against balance and updates record	Pass/Fail

FM-06	Generate financial reports	1. Request monthly summary or profit-and-loss report.	Project data, payments, expenses	System generates report instantly with correct data	Pass/Fail
FM-07	Approve/reject material purchase	1. Submit purchase request. 2. Finance Manager approves/rejects.	Purchase request details	Request is approved or rejected, recorded in audit log	Pass/Fail
FM-08	Audit log tracking	1. Perform budget creation, expense entry, or approval. 2. Review audit log.	Action data	System logs actions with comments and timestamp; log is tamper-proof	Pass/Fail

Warranty Management

Test Case ID	Test Scenario	Test Steps	Test Data	Expected Result	Status
WM-01	Automatic warranty start	1. Complete a project. 2. Check warranty record creation.	Project ID, client info	System automatically starts warranty with start and end dates	Pass/Fail
WM-02	Record warranty details	1. Access warranty record. 2. Check client name, project ID, item ID, start/end dates.	Item, client, project data	All warranty details are accurately recorded	Pass/Fail
WM-03	Search warranties	1. Search warranties by client, project, item, or status.	Search criteria	System displays matching warranties	Pass/Fail

WM-04	Approve warranty replacements	1. Select warranty claim. 2. Approve replacement.	Active warranty	Client and warehouse notified; replacement process initiated	Pass/Fail
WM-05	Manage claims dashboard	1. Submit warranty claim. 2. Finance Manager views and processes claim.	Claim details	Claim is visible in dashboard and can be approved/rejected	Pass/Fail
WM-06	View active warranties	1. Open warranty dashboard.	Project/client data	System displays all active warranties	Pass/Fail
WM-07	Module integration	1. Check warranty data against Projects, Inventory, and Client Records.	Project and item data	System correctly pulls data from integrated modules	Pass/Fail
WM-08	Generate warranty/claim reports	1. Generate claim history report.	Warranty/claim data	System produces accurate report with all relevant claims	Pass/Fail

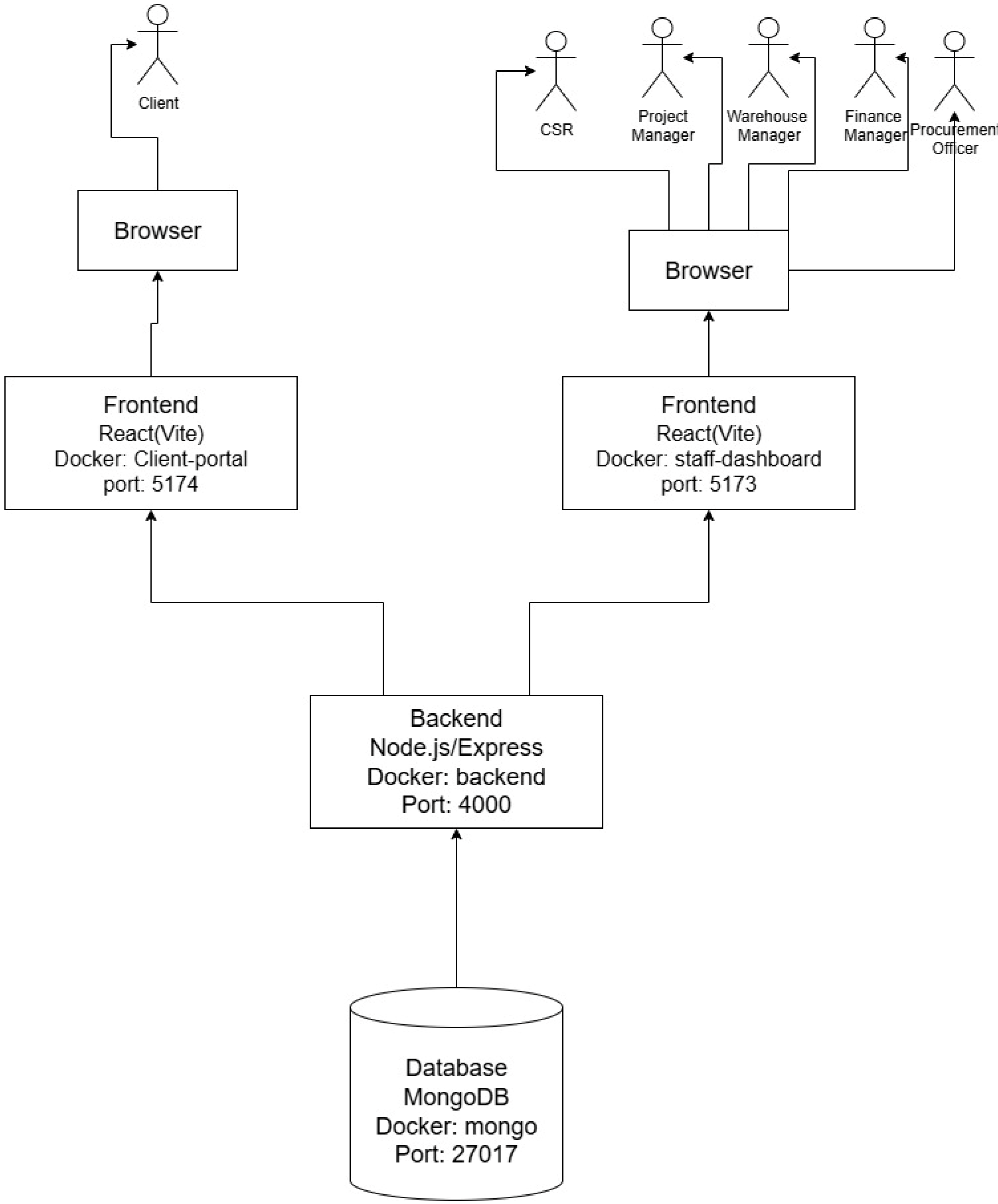
Supplier Management

Test Case ID	Feature	Test Scenario	Preconditions	Test Steps	Expected Result
SUP-001	Supplier Registration	Register a new supplier	Procurement officer logged in	1. Go to “Register Supplier” 2. Enter company details, material types, delivery regions 3. Submit	Supplier is saved in database and visible in supplier list
SUP-002	Supplier Registration	Attempt duplicate supplier registration	Supplier already exists	1. Enter same company name and contact info 2. Submit	System rejects with “Supplier already exists” error
SUP-003	Restock Alert	Receive restock alert	Inventory below threshold	1. System triggers low stock alert 2. Procurement officer views notification	Procurement officer receives restock alert on dashboard
SUP-004	Material Request	Create material request	Procurement officer logged in	1. Create material request with item, quantity, deadline 2. Submit	Material request is created with “Pending Finance Approval” status
SUP-005	Finance Approval	Approve purchase request	Finance manager logged in	1. View pending requests 2. Approve with comments	Request status updated to “Approved” and forwarded to supplier

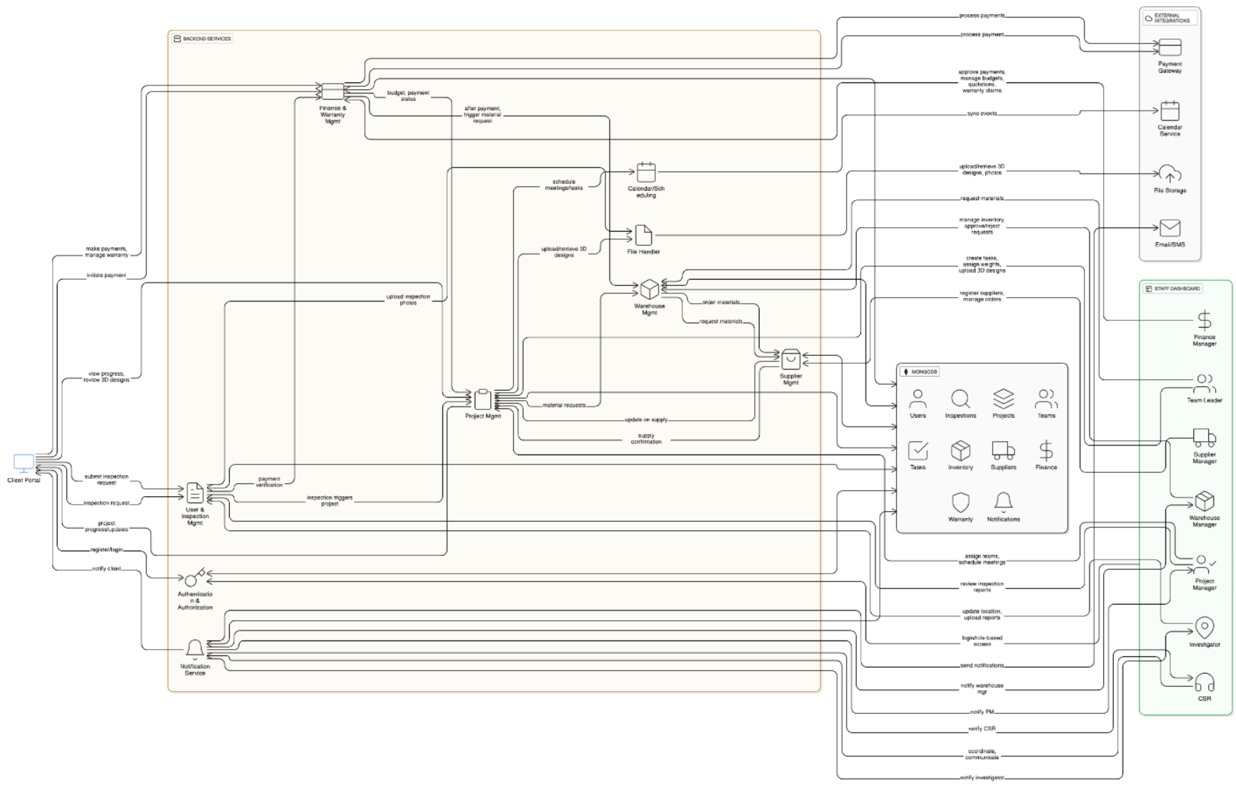
SUP-006	Finance Approval	Reject purchase request	Finance manager logged in	1. View pending requests 2. Reject with reason	Request marked as “Rejected” and procurement notified
SUP-007	Supplier Notification	Supplier receives request	Supplier account exists	1. Supplier logs in 2. Check dashboard	Supplier sees request details with item, qty, deadline
SUP-008	Request Status Update	Supplier updates request	Request assigned to supplier	1. Supplier updates status to “In Progress” / “Dispatched”	Status updated and procurement notified
SUP-009	Sample Submission	Supplier submits material sample	Request requires sample	1. Supplier uploads sample details 2. Submit	Sample is stored and visible to procurement for review
SUP-010	Sample Approval	Approve or reject sample	Procurement logged in	1. Open submitted sample 2. Approve / Reject	Status updated accordingly, supplier notified
SUP-011	Delivery Confirmation	Procurement confirms delivery	Supplier marked “Delivered”	1. Procurement officer reviews delivered items 2. Confirms delivery	Stock updated in warehouse, request closed
SUP-012	Supplier Rating	Rate supplier performance	Completed order exists	1. Procurement officer opens supplier profile 2. Enter rating for timeliness, quality, communication	Rating saved and performance report updated

SUP-013	Automated Rating	System calculates average rating	Supplier has multiple ratings	1. System runs scheduled job 2. Compute weighted score	Supplier profile updated with calculated rating
SUP-014	Flag Low-Rated Supplier	System flags poor suppliers	Supplier rating < 2.5	1. System checks ratings 2. Flags low-rated supplier	Supplier appears in flagged list for review

Network Design



High-Level System Diagram



Link - [Interior Design Management (Assignment 2 - files)]

Innovative Parts of the project

- Integrate end to end interior design workflow (inspection → project planning →inventory →supplier →finance →warranty)
- 3D visualization with restricted access to client(no screenshot/ no scree record allowed) for design approval
- Role – based access dashboard for ensuring each stakeholder see only their content
- Smart Assignment of inspectors based on live location tracking
- Automated warranty tracking linked with completed projects and inventory.Automated threshold alerts – The system automatically monitors the stock levels as restock level, reorder level and current level. If stock levels set below the threshold level, a real-time

notification is received by the warehouse manager. This is important to prevent shortages before they happen.

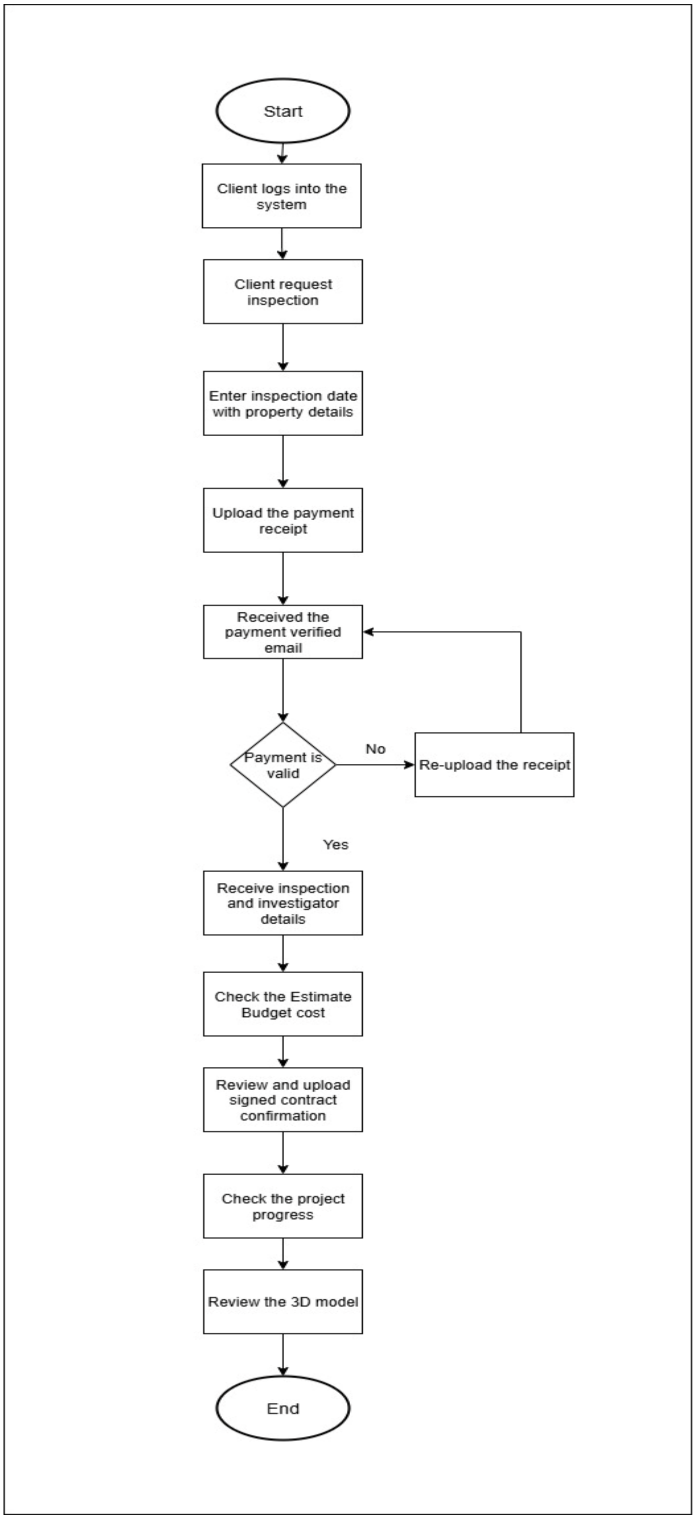
- Digital stock transfer requests – Warehouse manager can request transfer requests between locations after receiving the manager approval online with status tracking “Pending” to “Approved”. This eliminated manual paperwork.
- Real time inventory dashboard – A real time dashboard shows an overview of the warehouse operations with visuals like graphs and charts. This is important for the warehouse managers to make quick decisions.
- Digital reports and invoices – The system generates PDF reports automatically. This is innovative because it saves time and ensures standardized documentation.
- Stock Movement Tracking – Every stock movement is recorded : who requested, who approved, when and here it was transferred, responsible employee, vehicle info. This improves transparency and traceability.

Commercialization

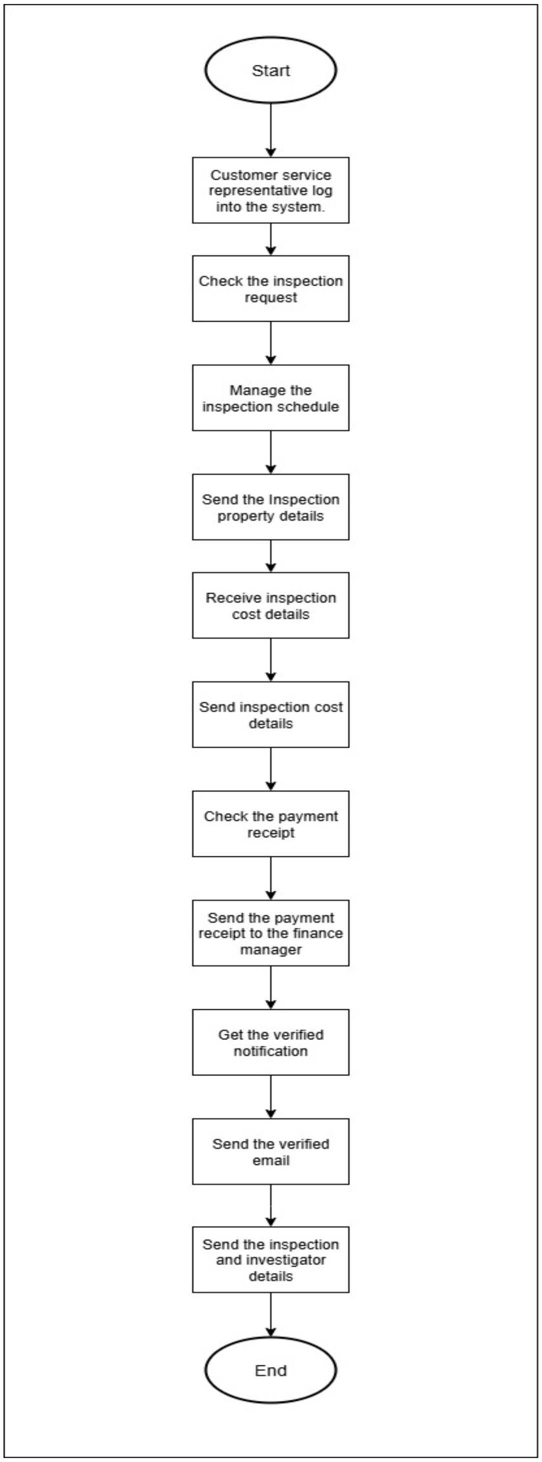
- Can be offered as a SaaS product to interior design firms, construction companies, or architectural companies
- Reduce manual coordination – saves time and costs, increasing adoption appeal.
- Has potential for regional scaling, since many small/mid-scale firms lack unified digital solutions.

Flowchart

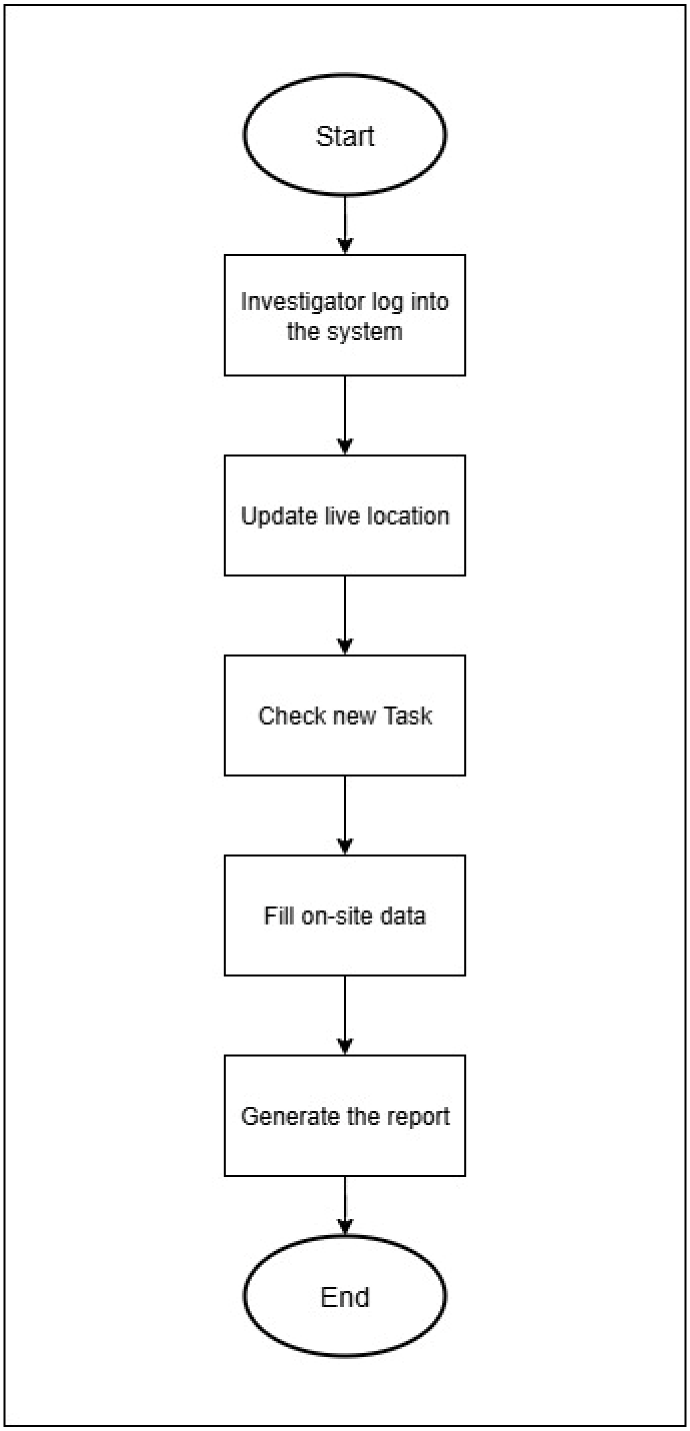
Client Flowchart



Customer Service Representative

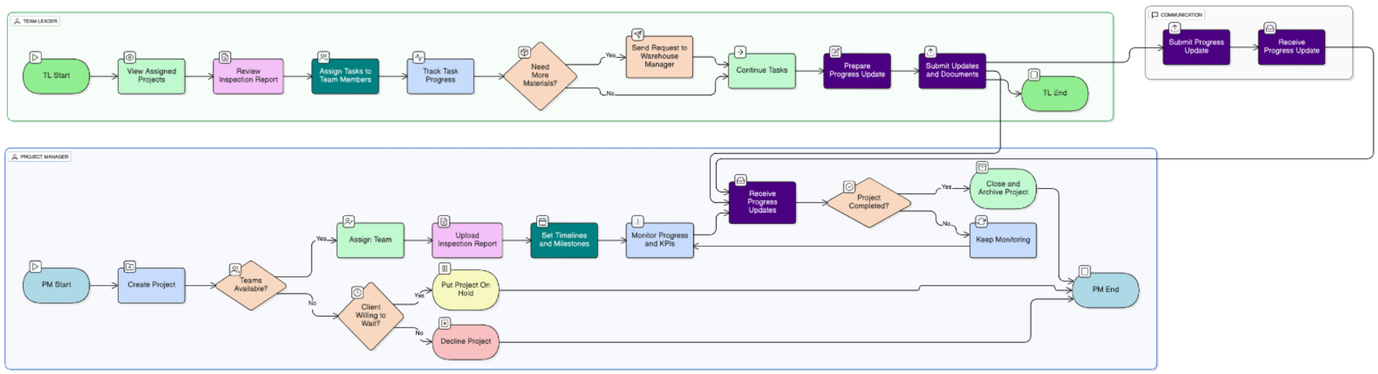


Inspector



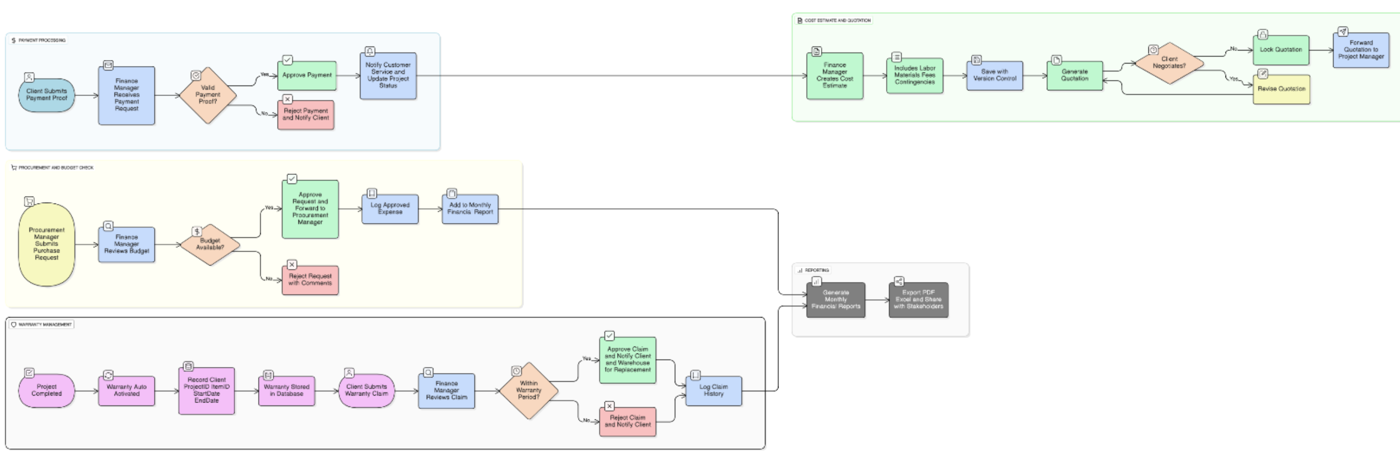
Start
Investigator log into the system
Update live location
Check new Task
Fill on-site data
Generate the report
End

Project Manager and Team Leader



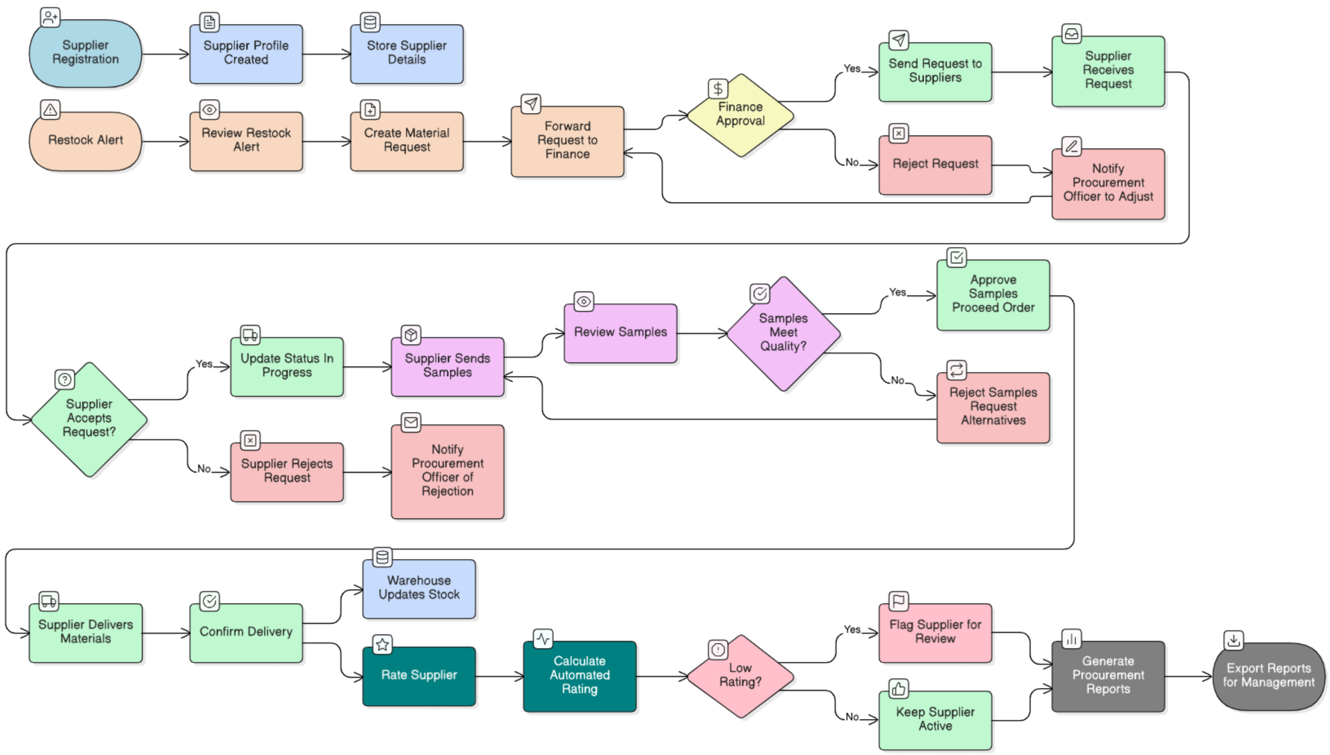
Link: [Interior Design Management (Assignment 2 - files)]()

Finance Manager



Link: [flowchart_finance.png]()

Supplier Management



Link: flowchart_Supplier.png

Algorithm – Warehouse Management

Algorithms –

Algorithm 1: Add Disposal Record

1. Start
2. Input: materialId, materialName, inventoryId, inventoryName, quantity, unit, reasonOfDisposal, requestedBy, approvedBy
3. If materialId is empty → Display "Material ID is required" and Exit
4. Fetch material by materialId
5. If material exists → Set materialName and unit from material, fetch availableInventories
   Else → Set materialName = "", unit = "", availableInventories = empty
6. If inventoryName is empty → Display "Please select a valid inventory" and Exit
7. Create disposal record with all inputs + createdAt
8. Save disposal record in database
9. Display "Disposal material added successfully"
10. End

Algorithm 2: Update Disposal Record

1. Start
2. Input: disposalID, updatedFields
3. Search disposal record by disposalID
4. If record exists → Update each field with updatedFields, save in database, display "Disposal record successfully updated"
   Else → Display "Disposal record not found"
5. End

Algorithm 3: Delete Disposal Record

1. Start
2. Input: disposalID
3. Search disposal record by disposalID
4. If record exists → Delete from database, display “Disposal record successfully deleted” Else → Display “Disposal record not found”
5. End

Algorithm 4: Add Inventory Location

1. Start
2. Input: inventoryName, inventoryAddress, country, capacity, inventoryContact, warehouseManagerName, createdBy
3. Validate inputs (non-empty, capacity numeric, valid contact)
4. Check if inventoryName, address, or contact already exist
5. If duplicate → Display “Duplicate record found” and Exit
6. Create inventory record with inputs + createdAt
7. Save in database
8. Display “Inventory location successfully added”
9. End

Algorithm 5: Update Inventory Location

1. Start
2. Input: inventoryID, updatedFields
3. Search inventory location by inventoryID

4. If record exists → Update fields, save in database, display “Inventory location successfully updated”
   Else → Display “Inventory location not found”

5. End

Algorithm 6: Delete Inventory Location

1. Start

2. Input: inventoryID

3. Search inventory location by inventoryID

4. If record exists → Delete from database, display “Inventory location successfully deleted”
   Else → Display “Inventory location not found”

5. End

Algorithm 7: Search and Filter Records

1. Start

2. Input: searchQuery, filterBy

3. For each record in records →
   If filterBy = "all" → check all fields for searchQuery
   Else → check only field specified by filterBy

4. Display filtered records

5. End

Algorithm 8: Load Notifications

1. Start

2. Fetch threshold alerts and transfer requests

3. For each alert → Create notification with alert details

4. For each request → If status = "Approved" → Create notification with request details

5. Merge alerts and request notifications

6. Sort notifications by date (latest first)
7. Display notifications
8. End

Algorithm 9: Delete Notification

1. Start
2. Input: notificationID
3. Check if notificationID exists
4. If exists → Remove notification, display “Notification deleted successfully”
   Else → Display “Notification not found”
5. End

Algorithm 10: Add Stock Reorder Request

1. Start
2. Input: inventoryId, materialId, quantity, expectedDate, unit, warehouseManagerName
3. If inventoryId, materialId, or quantity is empty → Display “Please fill all required fields” and Exit
4. Fetch inventory and material details → auto-fill names and unit
5. Create new reorder request record with status = "Pending"
6. Save in database
7. Display “Stock Reorder Request added successfully”
8. End

Algorithm 11: Update Stock Reorder Request

1. Start
2. Input: requestID, updatedData
3. Check if requestID exists
4. If exists → Update request, display “Stock Reorder Request updated successfully”
   Else → Display “Request not found”

5. End

Algorithm 12: Delete Stock Reorder Request

1. Start
2. Input: requestID
3. If requestID exists → Delete request, display “Stock Reorder Request deleted successfully”
   Else → Display “Request not found”
4. End

Algorithm 13: Add Stock Movement

1. Start
2. Input: materialId, fromLocation, toLocation, unit, quantity, reason, employeeId, vehicleInfo, dispatchedDate, createdBy
3. Validate all inputs are non-empty
4. Validate dispatchedDate is within last 3 days including today → if invalid → Exit
5. Check fromLocation contains materialId → if not → Exit
6. Create stock movement record with inputs
7. Save in database
8. Display “Stock movement added successfully”
9. End

Algorithm 14: Update Stock Movement

1. Start
2. Input: stockId, updatedFields
3. Check if stockId exists
4. If exists → Update fields + updatedAt, display “Stock movement updated successfully”
   Else → Display “Stock movement not found”
5. End

Algorithm 15: Delete Stock Movement

1. Start
2. Input: stockId
3. If stockId exists → Delete record, display “Stock movement deleted successfully”
   Else → Display “Stock movement not found”
4. End

Algorithm 16: Add Transfer Request

1. Start
2. Input: materialId, fromLocation, toLocation, quantity, reason, requiredBy, createdBy
3. Validate all inputs non-empty
4. Validate requiredBy date is today or future → if invalid → Exit
5. Check fromLocation contains materialId → if not → Exit
6. Create transfer request record with status = "Pending"
7. Save in database
8. Display “Transfer Request added successfully”
9. End

Algorithm 17: Update Transfer Request

1. Start
2. Input: transferRequestId, updatedFields
3. If transferRequestId exists → Update fields + updatedAt, display “Transfer request updated successfully”
   Else → Display “Transfer request not found”
4. End

Algorithm 18: Delete Transfer Request

1. Start
2. Input: transferRequestId
3. If exists → Delete record, display “Transfer request deleted successfully”
   Else → Display “Transfer request not found”

4. End

Algorithm 19: Add Threshold Alert

1. Start
2. Input: alertId, materialId, materialName, currentLevel, restockLevel, inventoryName, alertDate
3. Check if alertId exists → if exists → Display “Alert ID already exists”
4. Otherwise → Create alert record, save, display “Alert added successfully”
5. End

Algorithm 20: Delete Threshold Alert

1. Start
2. Input: alertId
3. If exists → Delete alert record, display “Alert deleted successfully” Else → Display “Alert not found”
4. End

Algorithm 21: Add Audit Log

1. Start
2. Input: logId, entity, action, keyInfo, createdBy
3. If logId exists → Display “Log ID already exists”
4. Else → Create audit log record + createdAt, save, display “Audit log added successfully”
5. End

Algorithm 22: Delete Audit Log

1. Start
2. Input: logId
3. If exists → Delete record, display “Audit log deleted successfully” Else → Display “Log not found”

4. End

Algorithm 23: Add Manufactured Products

1. Start
2. Input: productType, materialId, materialName, category, type, unit, restockLevel, reorderLevel, currentLevel, warrantyPeriod, inventoryName, createdBy, month, year
3. If productType = "existing" → Check materialId exists → if exists → Create stock record, save, display “Stock record added” → else → Display “Product ID not found”
4. Else if productType = "new" → Auto-generate materialId, create new record, save, display “New manufactured product added successfully”
5. End

Algorithm 24: Update Manufactured Product

1. Start
2. Input: productID, updatedFields
3. If productID exists → Update fields, save, display “Manufactured product updated successfully”
   Else → Display “Product not found”
4. End

Algorithm 25: Delete Manufactured Product

1. Start
2. Input: productID
3. If exists → Delete record, display “Manufactured product deleted successfully”
   Else → Display “Product not found”
4. End

Algorithm 26: Add Raw Materials

1. Start
2. Input: productType, materialId, materialName, category, type, unit, restockLevel, reorderLevel, currentLevel, inventoryName, createdBy, month, year
3. If productType = "existing" → Check materialId exists → if exists → Create stock record, save, display “Stock record added” → else → Display “Material ID not found”

4. Else if productType = "new" → Auto-generate materialId, create new record, save, display "New raw material added successfully"
5. End

Algorithm 27: Update Raw Material

1. Start
2. Input: materialID, updatedFields
3. If materialID exists → Update fields, save, display "Raw material updated successfully"
   Else → Display "Raw material not found"
4. End

Algorithm 28: Delete Raw Material

1. Start
2. Input: materialID
3. If exists → Delete record, display "Raw material deleted successfully"
   Else → Display "Raw material not found"