**PRODUCTION**

**COST**

**CALCULATOR**

**Story Book**

**Project:** Production Cost Calculator (PCC)  
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**Internal Story Document**

**Project:** Production Cost Calculator  
**Narrative User Flow (All Features)**

**1. Starting Point: Authentication & Access (FR1–FR5, FR56–FR57)**

* A user lands on the login page. They enter email and password. The system authenticates using JWT.
* Depending on role (Admin, Production Manager, Accountant, Staff), the user is redirected to their **dashboard view**.
* JWT tokens expire after set time; refresh handled automatically. If expired, the user is logged out securely.
* Password reset is available through email.
* Audit logs store every login/logout (FR58).

**2. Admin Control: User & Role Management (FR2–FR4)**

* Admin can access **User Management**.
* They see a list of all users with pagination, search, and filters.
* Admin can create new users, assign roles, reset passwords, or deactivate accounts.
* All changes are logged in the audit trail (FR58).

**3. Product Setup (FR6–FR9)**

* A Production Manager creates a **Product** with details:
  + Name, SKU, batch sizes, description.
* Multiple batch sizes can be linked to one product.
* Product list supports pagination, sorting, and searching by SKU or name.

**4. Raw Materials & Vendor Management (FR10–FR16)**

* Manager/Admin navigates to **Raw Materials**.
* They add entries: Material Name, Vendor, Unit Type (kg/litre/pcs), Unit Price, Stock Quantity.
* The system auto-calculates **Total Material Cost = Quantity × Unit Price**.
* Frequently used materials can be saved and re-applied in future batches.
* Alerts trigger when stock drops below threshold (FR14, FR54).
* Vendors are separately managed (name, contact, email, address). Materials link to vendors for tracking cost history.

**5. Labor Management (FR17–FR20)**

* Manager adds **Labor types**: direct (machine operators) and indirect (supervisors).
* Inputs: hourly rate, overtime rate, type.
* For each batch, staff/manager logs hours worked.
* System calculates **total labor cost** automatically.
* Labor list can be filtered by type or name.

**6. Machine & Utility Costs (FR21–FR24)**

* Machines are added with name, hourly cost, and maintenance rate.
* During batch creation, the manager inputs machine hours used.
* Utility costs (electricity, water, etc.) are added for the batch.
* System auto-calculates **total machine + utility costs**.

**7. Overheads (FR25–FR27)**

* Admin/Manager defines overheads (e.g., factory rent, insurance).
* Overheads can be fixed amounts or percentages of batch cost.
* The system applies overheads automatically and tracks totals monthly/annually.

**8. Wastage & Scrap (FR28–FR30)**

* During batch setup, the manager enters wastage % for each raw material.
* System automatically adjusts material cost.
* If scrap has resale value, user inputs resale rate, reducing net batch cost.

**9. Packaging & Transportation (FR31–FR33)**

* For each product/batch, the user inputs packaging cost (per unit or per batch).
* Transportation or logistics cost is also entered.
* Both are added automatically to total batch cost.

**10. Profit Margin & Pricing (FR34–FR36)**

* Once total cost is ready, user applies a profit margin (fixed or percentage).
* The system calculates **suggested selling price per unit**.
* Dashboard shows profit per unit and profit per batch.

**11. Batch Management (FR37–FR40)**

* Production Manager creates a **Batch Record**.
* They assign product, raw materials, labor, machines, utilities, packaging, transportation, and overheads.
* System automatically computes:
  + **Total Batch Cost**
  + **Unit Cost**
  + **Break-even Quantity**
* Batches can be edited or deleted.
* Search/filter allows finding batches by date, product, or cost range.

**12. Reports & Dashboards (FR41–FR45)**

* Manager and Accountant access **Reports**:
  + Cost breakdown pie charts (Material %, Labor %, Overhead %).
  + Batch-wise, monthly, yearly comparisons with trend lines.
* Reports are exportable to **PDF/Excel** with formatting (FR43, FR60).
* Dashboards show KPIs: total cost, cost per unit, profit margins, break-even points.
* Drill-down charts allow clicking from yearly → monthly → batch level.

**13. Scenario Simulation (FR46–FR48)**

* Manager creates a **What-if Scenario** (e.g., raw material cost +10%).
* System recalculates total and unit costs dynamically.
* Multiple scenarios can be compared side by side in tables/charts.

**14. History & Database (FR49–FR51)**

* Every batch calculation is saved with timestamp.
* Users can load past records for review.
* System supports **versioning** — if a batch is recalculated, previous version is retained for audit.
* Users can compare multiple batches/products historically.

**15. Global Search & Filters (FR52–FR53)**

* Global search bar allows searching across:
  + Products, Batches, Raw Materials, Vendors.
* Advanced filters: by date, cost range, vendor, labor type, or batch size.

**16. Notifications & Alerts (FR54–FR55)**

* Real-time notifications appear in the dashboard:
  + Raw material stock low.
  + Batch cost exceeds budget/threshold.
* Alerts also sent via email (optional future add-on).

**17. Security & Compliance (FR56–FR59)**

* Every module enforces **role-based permissions**.
* Sensitive financial data is encrypted in storage.
* JWT ensures secure session management.
* An **audit trail** logs all CRUD actions (who changed what and when).

**18. Export & Integration (FR60–FR61)**

* Any batch report can be exported to **PDF or Excel** (with breakdown, charts, totals).
* Future-ready integration endpoints (REST APIs) are provided for ERP/inventory systems.

**End-to-End Flow (How It Feels in Practice)**

1. **Admin logs in** → creates users and sets roles.
2. **Manager sets up products, raw materials, vendors, machines, labor, and overheads**.
3. **Staff enters daily data**: hours worked, machine usage, materials consumed.
4. **Manager creates a batch** with all components.
5. System calculates **total and unit cost** instantly.
6. Manager applies **profit margin** → selling price suggested.
7. **Accountant reviews reports** → compares across batches/months.
8. **Scenarios are tested** (material cost fluctuations).
9. Alerts notify of low stock or budget issues.
10. All data is securely saved, versioned, and exportable.