

Accounting Software Development: Technical Execution Documentation

 **Project Title: GlobalBooks (placeholder name)**

Stack:

- **Frontend:** React.js + TailwindCSS
 - **Backend:** Node.js (Express/Nest.js) + MongoDB
 - **Authentication:** JWT + Role-Based Access Control
 - **Cloud Infra:** AWS/GCP (S3 for storage, EC2/Lambda for compute, SES/SNS)
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Core Features & Use Cases (With Edge Cases)

1. User & Organization Management

Frontend: Sign Up, Login, Role Assignment, Company Setup

Backend: JWT Auth, Role-Based API Access, Multi-tenant DB Design

Use Cases:

- A user signs up and creates a company.
- An admin invites accountants to their organization.
- Permissions are enforced per module.

Edge Cases:

- User tries to access a company they are not assigned to.
 - Invalid JWT or expired tokens.
 - Multiple roles (e.g., Accountant & Auditor) in same session.
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2. Chart of Accounts Management

Frontend: Dynamic tree view, add/edit/delete accounts

Backend: Account types (Assets, Liabilities, Equity, Income, Expense)

Use Cases:

- User creates a custom sub-ledger under Assets.

- System prevents duplicate account codes.

Edge Cases:

- Trying to delete an account with transactions.
 - Cross-referencing two accounts in the same journal.
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3. Sales & Purchase Invoice Management

Frontend: Forms for sales and purchase invoice entry, PDF preview, send via Email/WhatsApp

Backend: Invoice models with line items, tax handling, validation, unique numbering, status tracking (draft, sent, paid)

Sales Invoice Features:

- Customer selection from master
- Itemized billing with quantity, rate, discount, tax per line
- Auto calculation of subtotal, tax, total, due amount
- Payment tracking: partial/full/adjustments
- Attachment of PO or delivery challans
- Auto number generation with prefix/series
- GST/VAT validation
- Statuses: Draft, Finalized, Sent, Paid, Cancelled
- Custom invoice terms and footer
- Share via email/WhatsApp
- Convert Quote to Invoice

Purchase Invoice Features:

- Vendor selection from purchase party master
- Itemized product/service billing with quantity, rate, tax
- Association with GRN (Goods Received Note) or Purchase Orders
- Attach bills, invoice copy
- Input Tax Credit tagging for GST
- Due date and payment tracking
- Expense category assignment
- Track vendor performance via average bill processing time

Use Cases:

- Create a GST-compliant sales invoice with customer and line items
- Enter vendor bill with GST breakdown
- Generate PDFs, preview, and share
- Record partial payments for both invoices

Edge Cases:

- Duplicate invoice number in a series
 - Missing mandatory fields (e.g., GSTIN, invoice date)
 - Rounding errors in tax totals
 - Date mismatch (e.g., invoice date before PO date)
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4. Sales & Purchase Party Masters

Frontend: Master forms for adding/editing customers and vendors

Backend: CRUD APIs, search, validation, duplicate prevention

Fields:

- Name, GSTIN, PAN, Contact Person, Email, Phone
- Address (billing/shipping), State, Country, Pincode
- GST Registration Type (Regular, Composition, Unregistered)
- Notes, Default Payment Terms

Use Cases:

- Create new vendor/customer profiles before billing
- Edit existing party info and auto-update linked invoices

Edge Cases:

- Duplicate PAN or GSTIN
 - Invalid contact/email format
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5. Delivery Challan & Purchase Challan Management

Frontend: Create delivery/purchase challans with goods info, date, customer/vendor details

Backend: PDF generation, linkage with invoice or GRN, inventory update triggers

Types:

- Job Work
- Delivery Before Invoicing
- Return Delivery
- Goods Transfer Between Branches

Use Cases:

- Create delivery challan for goods sent to a customer
- Issue purchase challan for materials received

Edge Cases:

- Challan date after invoice date
 - Goods sent without matching purchase order
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6. Custom Invoice Template Builder

Frontend: UI builder for invoice format: drag-drop, font/colors, add logo, columns control

Backend: Template saving, loading by company/branch, version control

Use Cases:

- Different templates per department/branch
- Custom footer terms, QR code on invoice

Edge Cases:

- Omitting required fields (amount, customer, date)
 - Corrupted or incomplete saved template
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7. GST, VAT, and Global Tax Compliance

Frontend: Tax reports, configuration, dashboards, filing logs

Backend: API integrations (GSTN), validation engine

Use Cases:

- Auto-apply CGST/SGST/IGST rules based on location
- File GSTR-1 and 3B automatically

Edge Cases:

- Invalid HSN/SAC codes
 - Reverse charge entries
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8. Banking & Reconciliation

Frontend: Upload/import statements, reconcile UI with suggestions

Backend: AI-based match engine, manual override

Use Cases:

- Reconcile inward payment with sales invoice
- Suggest match based on amount/date/reference

Edge Cases:

- Multi-line match
 - Manual override rollback
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9. Inventory & Product Master

Frontend: Product forms, pricing tiers, barcode support

Backend: Stock ledger, inward/outward tracking, valuation methods

Use Cases:

- Auto stock deduction on invoicing
- Multiple price levels per customer

Edge Cases:

- Overbooking stock
 - Non-inventory item in inventory bill
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10. Reports & Financial Dashboards

Frontend: Interactive UI with filters, charts

Backend: Mongo aggregation pipelines

Standard Reports:

- Profit & Loss
- Balance Sheet
- Sales Register, Purchase Register
- GSTR-1, 3B
- TDS Summary
- Aging Report

Edge Cases:

- Date range without data
 - Incorrect filter combinations
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11. Audit Trail & Logs

Frontend: User action logs, export to CSV/PDF

Backend: Log each CRUD with metadata

Use Cases:

- CA verifies who edited invoice values

Edge Cases:

- Unauthorized access attempts
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12. Client & Vendor Portal

Frontend: Login-based portal with limited access

Backend: Scoped permissions and file links

Use Cases:

- Client downloads monthly invoices
- Vendor uploads bills

Edge Cases:

- Expired file access link
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13. Multi-Currency & Forex

Frontend: Currency dropdown, live rates

Backend: Forex gain/loss computation

Use Cases:

- Invoice in USD, report in INR

Edge Cases:

- Missing currency conversion rate
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14. Subscription Billing Module

Frontend: Pricing page, usage analytics

Backend: Stripe/Razorpay subscriptions, invoice logs

Use Cases:

- Upgrade plan, track billing

Edge Cases:

- Downgrade with feature loss
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15. Mobile & Offline Support (Future)

Frontend: React Native + SQLite

Backend: Sync engine

Use Cases:

- Record entry offline, sync later

Edge Cases:

- Conflict resolution between versions
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