⊛ ChatGPT

Designing a 100% India-Compliant Accounting, Billing, Inventory & GST App

To build a complete accounting/billing/inventory system like Vyapar for Indian SMEs, one must embed India-specific business logic, tax rules, and usability for diverse businesses. This includes **all SME types** – retailers (POS-centric), wholesalers (bulk/B2B), service providers and freelancers (service/SAC codes), manufacturers/distributors (BOM, branch transfers), pharmacies (batch/expiry), traders (possibly import/ export) – each with unique needs (see below). The development should proceed in **phases** (MVP to advanced), layering core features first and adding complex compliance later. At each step, enforce mandatory regulations: GST laws, e-invoice/e-waybill limits, HSN/SAC code mandates, ITC (input tax credit) rules, composition scheme constraints, etc. Crucially, handle subtle domain rules often missed (tax rounding, GSTR-mismatch, offline sync conflicts, ITC eligibility, reverse charge, advance receipts, credit notes, etc.).

Below is a structured breakdown:

1. SME Business Types & Requirements

- **Retailers/Traders (B2C)**: Primarily direct sales to consumers. Need **POS billing**, barcode scanning, printed/thermal receipts, quick payment (cash/card/UPI), customer loyalty/credits. Usually single-location (but chain stores need sync). B2C sales often exempt from e-invoice (only GST invoice for B2B or >₹2.5 L filters), but still need GST billing. Must manage stock (especially perishable goods, expiry in pharmacies). Internet connectivity may be intermittent, so offline-capable POS needed.
- **Wholesalers/Distributors**: B2B focus: quotations, orders, invoices with credit terms (e.g. 30/60 days), party-specific pricing, bulk packaging. Strong inventory management (multiple warehouses, lot/batch tracking). Frequent inter-state transfers (hence IGST). Need GST invoices with HSN codes, e-way bills for high-value shipments, regular GSTR-1/3B filing. Some maintain retail outlet stock too.
- **Service Providers & Freelancers**: No physical stock, often hourly/fixed projects. Must handle **SAC codes** for services. Maintain **quotation/estimate → invoice workflow**. If turnover exceeds ₹20 L (or ₹10 L in special states), register for GST. TDS under Income Tax (10% on IT services) or GST-TDS by some govts may apply. Returns (GSTR-3B) less complex (no inventory). If under turnover <₹20 L (services) or <₹40 L (goods), exempt or composition may be preferred.
- **Manufacturers**: Track raw materials → production → finished goods. Need Bill-of-Materials (BOM) and production vouchers. Manage **inventory valuation (FIFO, Avg Cost)**, by-product, scrap. Handle GST on raw material purchase and on output (often full ITC on inputs). Possibly exercise / excise legacy (though mostly GST now).
- **Pharmacies**: Track **batch numbers, expiry dates, drug licenses** (GST requires mention of drug license in invoices). Many commodities exempt (e.g. essential medicines at 5%) or have special HSN; maintain different tax rates. Seasonal demand (flu). May also run a counter POS for walk-ins, yet file GSTR because B2C sales <₹2.5 L are not reported but stock out flows must be tracked.
- **Traders/Importers**: May need to record **import duties and CVD** (pre-GST duty refund input). IEC number for exports. If engaged in e-commerce, TCS (1% under GST) and GSTR-8 become relevant.

Across all types: common needs include **ledgers (customers, vendors, tax ledgers, expense/income accounts)**, basic accounting, receipt/payment tracking, multi-user roles, and reporting (P&L, Balance Sheet, Trial Balance).

2. Phased Development Roadmap

Divide development into logical phases, each adding layers of functionality and compliance:

- **Phase 1 – Core Accounting & Billing (MVP)**:
- **Business logic**: Implement master data (customers, suppliers, items, chart of accounts). Allow **sales invoices**, **purchase bills**, **receipts**, **payments**, **journal entries**. Use single- or double-entry accounting (for completeness, double-entry with vouchers is ideal). Automatically post transactions to ledgers (e.g. sale: debit Debtors, credit Sales+GST). Enable invoice numbering and basic print/PDF. Include Credit Notes/Debit Notes. Handle multi-branch by separate GSTINs if needed (initially single GSTIN).
- **Technical**: Simple UI, local DB (SQLite or embedded). Enforce validations (no negative rates, required fields). Unique constraints (invoice numbers unique per series). Basic reporting (sales summary, ledger balances, trial balance). Payment matching with invoices.

- **Considerations**: Offline-first design (local storage), with optional cloud sync. Conflict resolution design: e.g. invoice IDs are client-generated, so to avoid duplicates use GUIDs or include branch code.

- **Phase 2 – Inventory Management & Pricing**:

- **Business**: Add inventory tracking: maintain stock for each item (quantity, unit). Support **units of measure** (e.g. pieces, kg) and conversion factors. Enable **stock transactions**: purchase (increase stock), sale (decrease stock), stock adjust, inter-warehouse transfer, delivery challans, goods received notes. For manufacturers: BOM and production orders (consume inputs → create outputs).
    - **Valuation**: Implement at least Weighted-Average and FIFO (optional LIFO/standard cost). For each incoming stock, recalc average cost; for FIFO, maintain lots/batches. Compute Cost of Goods Sold on each sale.
    - **Batch/Serial/Expiry**: Support optional batch tracking (important for pharma/food). Serial number tracking for high-value goods. Warn for low stock (reorder level) and show last purchase rates.
    - **Pricing**: Manage MRP and selling price. Allow party-specific price lists. Support promotions/discounts.
    - **Technical**: Maintain stock ledger as separate tables (stock movements). Trigger stock movement entries on each invoice/bill. Cost calculation functions. Possibly separate modules (Inventory Service) in HLD.

- **Considerations**: Negative stock prevention (unless allowed). Consistent on-hand count even offline.

- **Phase 3 – Basic GST Compliance & Taxation**:

- **Business**: Integrate Indian GST rules into sales/purchase. Every invoice must record **HSN (goods) or SAC (services) code** [1] . Tax classification: Auto-apply CGST+SGST for intra-state sales, IGST for

inter-state. Support tax exemptions and reverse charges. Handle **Composition scheme**: if enabled for the taxpayer, use lower tax rates (composition rates) and issue *bill of supply* instead of invoice [2] . Distinguish compositions: e.g. goods traders pay 1% (0.5% CGST+0.5% SGST) on turnover [3] , restaurants 5% (2.5+2.5) [4] , other services 6% total [5] . No ITC allowed in composition [6] .

- ○ **Returns**: Generate data for GSTR-1 (monthly/quarterly sales details) and GSTR-3B (summary). Allow Excel export/import for filing, or direct filing via API (Phase 4). Track **input tax credit (ITC)** from purchase bills. Enforce ITC rules: only allow claiming ITC for invoices with valid GSTIN vendors, within time limits (6 months) and not on blocked categories (personal use, ineligible goods) [7] . If vendor hasn't filed GSTR-1 (i.e. absent from GSTR-2A/2B), warn the user that ITC may be disallowed [7] .
- ○ **Compliance**: Collect customer's GSTIN (validate online) for B2B; mandate HSN digits as per turnover – currently 4-digit for turnover ≤₹5cr, 6-digit if above [1] [8] . Issue e-invoices with IRN/QR if turnover criteria met (Phase 4). Auto-calculate reverse-charge cases (apply tax on purchases from unregistered or notified categories). Compute tax rounding per invoice: *normal rounding* (≥0.50 up, else down) on each tax component [9] , to nearest rupee. Show tax breakup on invoice.
- ○ **Technical**: Add tax parameters in item master and invoice engine. On saving an invoice, calculate CGST/SGST/IGST based on party state and item tax rates. Add flags for "Composition scheme" (bypass normal tax). Maintain tax summary tables (for reports/returns). Offer an interface to compile GSTR-1 JSON (HSN summaries, credit notes) and GSTR-3B summary (tables 3A/B).

- **Considerations**: Report under composition separately; disable ITC fields for composition dealers. Keep separate return form flows (GSTR-1 vs CMP-08 vs GSTR-4 for composition).

- **Phase 4 – Advanced GST Automation (E-Invoice, E-Way, Multi-Branch)**:

- **Business**: Integrate with government portals. For entities with turnover >₹5cr, enable **e-invoicing**: once an invoice is finalized, automatically send it to the Invoice Registration Portal (IRP) via JSON/API, retrieve an IRN (Invoice Reference Number) and QR code, and append to the invoice [10] . Similarly, integrate **e-waybill**: when dispatching goods over ₹50,000, automatically generate e-waybill by invoking the EWB portal API, capturing vehicle details and distance (GPS or Google API). Support multiple GSTINs (branches); allow selecting GSTIN per invoice [11] .
- ○ **Returns (Consolidated)**: Build a centralized GST dashboard: auto-fetch/download filed GSTR-1, GSTR-3B and GSTR-2B data from the GST portal (via GSTN APIs or manually) and reconcile with books. For example, compare tax liability (GSTR-3B) vs actual sales/purchases. Flag mismatches (GSTR-3B vs sum of invoices) to catch filing errors. Match GSTR-2A/B vs purchase register to identify missing ITC [7] . Help prepare GSTR-9 (annual).
- **Technical**: Implement REST integrations (either direct as GSP or via ASP). Zoho Books style: "direct upload to IRP" [12] and pre-validation of invoice data (HSN, mandatory fields) before sending [12] . Design a "GST compliance module": handles credential storage (GST username/password, DSC for signing e-invoices), API calls, and retries. For multi-branch, isolate data per GSTIN and aggregate at head office.
- ○ **Reconciliation**: The app can periodically call CBIC APIs (if accessible) or allow import of JSON from GST portal. Automate filling of GSTR-1/3B through API (Vyapar TaxOne does this [13]). For GSTR-3B, auto-calc penalties and interest for late filing. Maintain electronic cash/credit ledgers for GST paid (recoverable credit) vs cash ledger (cash taxes paid) [14] .

- **Considerations**: Many SMEs may not require e-invoice yet; make feature toggleable by threshold. Handle legal tech details (PKI signing of payload). For e-way, handle scenarios: multiple bills consolidated into one e-waybill.

- **Phase 5 – Offline Sync, Multi-User & Scale**:

- **Business/Technical**: As usage grows across devices or branches, implement real-time or periodic sync. Core logic: each device (mobile/desktop) works on a local DB; sync to cloud (or head office server) to consolidate. To prevent conflicts, use unique IDs (UUIDs) for records and versioning. On conflict (e.g. two users edited same invoice), employ rules (timestamp/last-write or ask user to resolve) [15] . Log sync status and sync queue.
    - **Audit Trail**: Keep logs of changes (user, time) for compliance/audit.
    - **Security & Backup**: Encrypt data at rest/transit. Auto-backup (e.g. to Google Drive) [16] .

- **Additional Modules**:

    - **Bank Integration**: Auto-fetch bank statements (if available) and reconcile with recorded receipts/payments.
    - **Payments & Reminders**: Track overdue invoices; send payment reminders. Accept online payments (UPI/Wallet) via links.
    - **Regulatory Changes**: Be ready to update tax slabs (e.g. GST 2.0 from Sept 2025 reduced rates to 5%/18%) [17] , HSN lookup tables, new e-way rules, audit forms.

- **Phase 6+ – Advanced Features** (optional beyond core):

- **Analytics/Reports**: Trend reports, stock aging, MIS dashboards (following Zoho's "Complete Accounting" with 70+ reports [18]).
- **User Roles & Permissions**: Multi-user system (Busy supports unlimited users [19]) with role-based access (accountant, sales, etc).
- **Multi-Currency**: If needed (exporters/importers), maintain FX rates, record gains/losses.
- **Payroll & Expenses**: Staff attendance, payroll, expense modules.
- **E-commerce/Marketplace Sync**: Integrate with Amazon/Flipkart (order sync, stock sync). Busy offers e-com reconciler [20] as an example.

Each phase should have clear **user stories** and acceptance tests. For instance, Phase 1 user story: "As a store owner, I can create a GST-compliant invoice, record payment, and see updated sales and tax ledgers." Technical tasks: design DB schema, implement CRUD for invoices, calculations, and prints. Include rigorous unit tests for tax logic (particularly HSN/SAC enforcement, IGST vs CGST logic).

3. Mandatory India-Specific Compliance

- **GST Registration & Classification**: Track each party's GSTIN validity (online GSTIN check). Split by state for IGST. Recognize unregistered dealers (e.g. if B2C without GSTIN). Impose late fees/interest for monthly GSTR-3B beyond 20th. Handle composition vs regular – composition dealers issue *bill of supply* (no GST break-up on invoice) [2] , and declare quarterly CMP-08 instead of GSTR-1. The system should not allow composition dealers to charge tax on invoice and must warn if they try.
- **Tax Rates & Slabs**: Maintain tax rate tables. Update annually; e.g. with GST 2.0 (effective Sep 2025) slabs rationalized to 5%, 18%, and a 40% special rate for luxury/sin goods [17] . Ensure invoice engine

applies correct rates (and old rates if dealing with historical orders). Allow exceptions (e.g. some products remain exempt or special rates).

- **HSN/SAC Codes**: **HSN codes (goods)** must be on invoices per rules [1] . As of May 2025, for turnover ≤₹5 Cr use 4-digit codes; >₹5 Cr use 6-digit [1] [8] . (Export/import use 8-digit.) For **services (SAC)**, similar requirement (typically 6 digits). Provide lookup or dropdown to avoid manual errors (ClearTax advises mandatory dropdown selection from May 2025 [8]). Include HSN in GSTR-1 summary (8-digit in API payload).
- **E-Invoice**: Mandatory for any B2B invoice if GST turnover >₹5 Cr (since Aug 2023) [10] . Implement e-invoice JSON as per standard (IRN, sign with DSC). Keep logs of IRN and QR for each invoice.
- **E-Way Bill**: Required for movement of goods over ₹50,000 (or any inter-state movement) [21] . Integrate EWB API. Track transporter details, vehicle no., distance calculation.
- **Input Tax Credit (ITC)**: Only valid if vendor has uploaded in GSTR-1. In GSTR-2A/2B reconciliation, notify user of missing invoices [7] . Post-GST rules forbid claiming provisional 5% ITC (old rule 36(4) revoked) [22] ; thus, only ITC in GSTR-2B can be taken. The app should thus block ITC beyond the GSTR-2B total for the period. Compute CGST/SGST/IGST separately. Auto-calculate and post *ITC Eligibility* based on conditions: no credit on personal or capital goods used for exempt supplies, etc.
- **Composition Scheme**: Enforce *no ITC* for composition dealers [6] . Charge composition tax only on sales (no tax on purchases). For composition, populate tax as 1% (0.5+0.5) etc. Show "Composition Taxable Person" on invoice [2] . File CMP-08 quarterly and GSTR-4 (annual). If a user opts into composition, switch workflows (Vyapar TaxOne highlights this difference [13]).
- **Other Taxes**: Implement GST TDS (2% on certain government/PSU payments) via adjustment entries and GSTR-7 returns. If targeting e-commerce, include GST TCS (collect @1% on certain supplies) and reflect in suppliers' credit (via GSTR-8 filing [21]).
- **Rounding of Taxes**: Apply *normal rounding* (paise ≥50 up) on each tax component per invoice [9] . Do not round per consolidated monthly sum. Invoices should round off CGST, SGST, and IGST individually [9] [23] .

4. Core Business Logic (Developers' Focus)

- **Invoice Engine**: Central to billing. Features: multi-format templates, support for **quotes→orders→invoices**. Auto-calculate line-wise tax (based on item HSN/SAC and party's state). Validate mandatory fields: e.g. GSTIN for B2B, HSN if required by turnover, place of supply (for IGST). Prevent duplicate invoice numbers (especially when offline; use GUID or prefix with device ID). Generate **proforma invoices** and convert to final sales invoice. Support recurring invoices. When invoice is saved, **post transactions** to ledger (see Ledger Engine below) and reduce stock levels (Inventory Engine). Store PDF/printable version.
- *E-Invoice Integration*: If enabled, after saving invoice, call IRP API, handle errors (e.g. duplicate IRN), and save IRN/QRCODE [12] . Mark invoice status. Allow re-generation if needed.
- *Credit/Debit Notes*: Allow creation to adjust invoices (e.g. returns, discounts). These should reduce earlier tax/payable. Post reversal entries.

- *Offline Sync Consideration*: If same invoice edited on two devices, flag conflict. Could lock invoice on one device once synced.

- **Ledger Engine**: Implements double-entry accounting. Maintain **Chart of Accounts**: Assets (cash, inventory, receivables), Liabilities (payables, tax liability), Equity, Income (sales, other income), Expenses (purchases, cost of sales, etc). On each transaction, create balancing journal entries. For

example, sale invoice:

```
Dr Accounts Receivable (Customer A) – (Sale + Tax)
   Cr Sales Revenue – Sale amount (excl. tax)
   Cr CGST Liability – (GST as CGST)
   Cr SGST Liability – (GST as SGST)
   (or Cr IGST Liability if inter-state)
```

Conversely, purchase bill:

```
Dr Inventory/Expense – Cost excl. tax
Dr CGST ITC – CGST portion
Dr SGST ITC – SGST portion
   Cr Accounts Payable – (Bill total)
```

Maintain running **balances** for each ledger. Generate Trial Balance to confirm debits=credits. Provide ledger report drill-down. Handle period closing (carry forward balances). On edits, implement reversing entries (or adjust existing) to keep books consistent. Record journal vouchers for purely financial transactions (bank interest, depreciation). Busy, for example, auto-generates forex gain/loss vouchers [24], but in basic system, user may input manually.

- *Technical*: Likely relational tables for Accounts, JournalEntries, with fields (date, account_id, debit, credit, reference_id). A posting engine processes each invoice/bill and creates entries.

- **Inventory Valuation Engine**: Compute stock values and COGS. For **Weighted-Average**, update average cost each purchase:

```
new_avg = (old_qty*old_avg + purchase_qty*purchase_price) /
(old_qty+purchase_qty)
```

For **FIFO**, record each purchase lot (qty, unit cost). On sale, reduce the oldest lot(s) and take that cost as COGS. Maintain remaining lot balances. Provide reports: stock quantity on hand and its valuation (both methods). Inventory Valuation report (as per IGAAP for Balance Sheet, or IFRS) should match in financials. Vyapar vs Busy: Busy even allows separate valuation per item [25]; at minimum, support a global method.

- *Returns/Exchanges*: If a sale is cancelled, restock items (reverse cost). If partial returns, create Credit Note that adds stock back.
- *Technical*: Maintain StockTransactions table: on each invoice/bill, create a stock debit/credit. Link to inventory master to compute on-hand.

5. Key Domain Rules & Edge Cases

These are subtle but critical rules to implement:

- **HSN/SAC Accuracy**: As per GST law, HSN must be reported via dropdown (no free text) from May 2025 [8] . To avoid errors, incorporate an HSN database for lookup. Similarly, validating SAC for services.
- **GSTIN Validation**: During data entry, verify party's GSTIN pattern and optionally call GST portal API to confirm registration status and location. Incorrect GSTIN can invalidate ITC claims.
- **Reverse Charge & TDS**: If RCM applies (e.g. purchase of services from unregistered or certain goods), do not show tax on purchase bill but create *expenses and tax payables* accordingly. If government deducts GST TDS (2%), record TDS in accounting (debit vendor, credit GST liability), allow vendor to upload TDS certificate for ITC.
- **Advance Payments**: Handle advances (customer issues receipt before invoice) and final settlement. Tax is typically paid on final invoice (except in special cases). Keep track of advance in a liability account, and offset against invoice on billing.
- **Multi-Branch Consolidation**: If supporting multiple GSTINs (branches) under one company PAN, ensure separate books or a way to split transactions per GSTIN, then allow consolidated reports. HSN/summary reports by branch.
- **GSTR-Mismatch Handling**: Provide a way for the user to reconcile their records with GSTR-2B. Any purchase invoices **not appearing** in GSTR-2B (e.g. vendor didn't file) should be flagged as **"ITC Blocked"** until resolved. Ruled by Section 16(2)(aa), ensure no claim beyond 5% provisional is made [7] (though post-2021 rule 36(4) is removed, so no provisional).
- **Tax Rounding**: Round each invoice's tax to nearest rupee by standard rules [9] . If system computes taxes in decimal, apply `Math.round()` logic per component. Don't forget rounding differences in summary totals – correct them at invoice line level.
- **Credit/Debit Note Flows**: When a sales return or price reduction happens, issue a credit note. This must adjust both accounts receivable and tax liabilities. E.g. if a credit note is issued for ₹1,180 (₹1,000 + ₹180 tax), then: debit Sales Return (Contra Account) and CGST/SGST with ₹90+₹90, credit Debtors.
- **Barcode & POS**: If using POS mode, quickly add items via barcode. Support qty in decimal (Busy notes "Qty decimal places" [26]). Handle cash drawer printing templates.
- **Fraud Checks**: Prevent invoice duplication during sync: e.g. two devices offline issue "INV001", on sync conflict, prompt user.
- **Compliance Notices**: Provide alerts for upcoming return deadlines, E-way bill expiry (e-way validity runs out), outstanding tax payments (use 18% annual interest for late tax).
- **Penalties and Audits**: After major changes (e.g. GST amendments), allow for penalty management fields (though usually govt levies outside system).
- **Data Integrity**: Ensure immutable critical data (invoice date, customer on invoice) once synced; use soft delete or authorization for edits. Busy forbids backdating beyond lock date [19] .

6. High-Level & Low-Level Design Examples

- **Invoice Engine (HLD)**:
- **Data Model**: *Invoice* table (id, date, customer_id, branch_id, type[sale/purchase], total, tax_breakup, HSN_summary_id, irn, qr_code, eway_no, status), *InvoiceLine* (item_id, qty, rate, discount, tax_rate), *JournalEntry*, *StockTransaction*.

- **Flow**: When user saves an invoice:
    1. **Validate** fields (GSTIN format, required fields, branch GSTIN).
    2. **Calculate taxes**: Determine IGST vs CGST/SGST by comparing seller/buyer state. Multiply by unit rates. Round each component [9].
    3. **Post Accounting**: Create ledger entries (see Ledger Engine).
    4. **Update Inventory**: Deduct items via StockTransactions.
    5. **Generate Document**: Render invoice PDF/print with serial number, signatures, QR (for e-invoice cases). If under e-invoice mandate, trigger IRP call and store IRN/QRCode.
    6. **Sync** (if applicable): Queue for upload to server.
- **LLD**: Functions like `generateInvoiceJSON()`, `postTaxLedger()`, `deductStock(item,qty)`, `signInvoice()`. Use REST client for IRP/Eway APIs.
- **Ledger Engine (HLD)**:
- **Data Model**: *Account* (id, name, type [Asset/Liability/Income/Expense], balance), *Transaction/Voucher* (date, description), *Entry* (voucher_id, account_id, debit, credit).
- **Posting Flow**: On any voucher (invoice, payment, journal), create debit and credit lines. Implement atomic transactions (rollback if any failure).
- **Reporting**: Trial Balance (sum debits vs credits), Balance Sheet (Assets vs Liabilities), P&L (revenue vs expenses).
- **LLD**: Example code snippet:

```python
def post_sales_invoice(invoice):
    # Debit Debtor
    add_entry(invoice.id, debtor_account, 'D', invoice.total_amount)
    # Credit Sales
    add_entry(invoice.id, sales_account, 'C', invoice.amount_excl_tax)
    # Credit Tax Liabilities
    if invoice.cgst > 0:
        add_entry(invoice.id, cgst_liability, 'C', invoice.cgst)
        add_entry(invoice.id, sgst_liability, 'C', invoice.sgst)
    else:
        add_entry(invoice.id, igst_liability, 'C', invoice.igst)
```

- **GST Reporting Engine (HLD)**:
- **Data Model**: Maintain *GSTReturn* records per period (with fields matching form tables), link to invoices.
- **Flow**: At period-end, aggregate invoices by tax rate and HSN. Populate GSTR-1 JSON (see schema on GSTN). For GSTR-3B, sum total taxable value and tax collected (from ledger or invoices). Provide interface to review and export/submit returns.
- **Reconciliation**: Import GSTR-2B JSON from GST portal; compare line by line with purchase ledger. Mark entries as matched/unmatched. Display summary of ITC recognized vs claimed, mismatch %. [7]
- **Inventory Valuation Engine (HLD)**:
- **Flow**: On purchase, create *StockReceipt* with cost. Recompute weighted average:

```
new_avg_cost = ((old_qty * old_avg_cost) + (purchased_qty *
purchased_rate)) / (old_qty + purchased_qty)
```

On sale, if FIFO: pop from oldest lots. If average: use current avg cost. Post cost to COGS (ledger).
- **Reporting**: Stock on hand per item * current cost. Options for FIFO report and valuation summary.

Diagrams (if any) could show **Invoice Creation Flow** (User→Invoice Entry→Tax Calculation→Ledger Posting→Stock Update→E-Invoice API) and **Sync Flow** (Client DB ↔ Cloud Server).

7. Pitfalls and Often-Missed Rules

Many product owners overlook nuanced rules:

- **ITC Time Limits**: GST law requires invoices to be uploaded by supplier within due date. If beyond 6 months, no ITC [7] . The app should date-check invoicing vs filing date and disallow or flag stale invoices.
- **GSTR-3B vs GSTR-1 Timing**: Some ITC entries may slip if purchased at month-end. Allow provisional claims but reconcile carefully. (ClearTax: only GSTR-2B data is eligible post-2021 [22]).
- **Tax on Advances**: If customer pays advance, tax is due on advance receipt (CGST Act Sec 13), even before supply. So if implementing advance receipts, ensure tax posting at receipt.
- **Rounding Nuances**: Besides rule, ensure **invoice total rounding** matches tax rounding. Include a "round-off" line if needed.
- **Offline Sync Conflicts**: Without a strategy, two users offline could enter "INV001" twice. Use GUID or include device prefix in invoice number. On sync, detect duplicate invoice numbers and prompt resolution. Mark conflicts as "unsynced" and require user action [15] .
- **GST Return Editions**: Keep track if GSTR-1 (or CMP) is filed/locked for a period. If user edits past data, need to re-generate returns.
- **Reverse Charge on Credit Notes**: If issuing credit note to adjust RCM invoice, ensure RCM liability is adjusted back.
- **State/VAT Carryovers**: For pre-GST businesses migrating, allow entry of opening GST credit balances and old TDS/VAT/Excise credits properly.
- **Composition Limit Change**: If turnover crosses ₹1.5cr mid-year, system should remind to switch schemes. Under composition, disable interstate supply creation except via special flows.
- **Import / Import GST**: If tracking imports, compute IGST on import as cost element. If export, mark zero-rated (create PERMIT records).
- **Inventory Date & Stock Aging**: Show stock aging (e.g., batch expiry).

8. Competitor Comparison

Different popular Indian solutions illustrate various approaches:

- **Zoho Books (Cloud)**: Comprehensive SaaS accounting. As a certified GSP, Zoho supports *direct IRP integration* for e-invoices [12] . It **pre-validates** all invoice data (HSN, missing fields) to prevent GST errors [12] . It offers recurring e-invoices and multi-branch (multi-GSTIN) support [27] [11] . Zoho automatically posts to GSTN (ANX-1/ANX-2) and can generate e-waybills via portal link. It also provides 70+ financial reports [18] . In summary, Zoho emphasizes cloud automation, seamless IRP/GSTN APIs, and advanced features (bank feeds, workflows).

- **Busy Accounting (Desktop ERP)**: Rich on-premise feature set. Busy automates **GST reconciliation** (auto-downloads GSTR-1/3B and GSTR-2A/2B for cross-check) [14] , and offers auto e-invoice/e-way

bill generation. It includes strong inventory (batch management, alternate UOM, POS) [28] and manufacturing (BOM, production vouchers) [29] . Busy's head-office/branch sync and multi-user (even offline) are key advantages [30] . It even provides abstract budgeting, depreciation, audit logs and columnar reports [24] [19] . Busy's strength is depth (ERP-level features) at cost of complexity.

- **Marg (GST, ERP)**: Popular in pharma/retail, Marg also offers invoicing + inventory + accounting. Like Busy, it has pharmacy-specific controls (batch/expiry, RCM for scheduled drugs) and manufacturing. It supports GST returns and e-invoice (via ASP). (Public details are limited, but see Marg's site for pharma ERP features.) Marg focuses on manufacturing and retail (particularly pharma) verticals, with barcoding and VAT legacy.

- **myBillBook (Mobile)**: A mobile-first billing app for micro-SMEs. It boasts **instant invoice creation** ("in 8 seconds") and SMS/WhatsApp sharing. It covers core: GST-compliant invoicing, multiple templates, customer/vendor masters, barcode scanning, and inventory (batch, serialization, multi-warehouse) [31] . It explicitly advertises **automatic GST compliance** (e-invoice, e-way, GSTR filing) [32] , likely via built-in GSP. It allows multi-device login and multi-company usage [33] . Compared to others, myBillBook trades depth for simplicity/mobile UX.

- **Vyapar**: Focused on small businesses (esp. retail/trading). It provides offline mobile/desktop invoicing with GST print, inventory (stock, MRP, expiry), SMS invoices, and basic ledger. Vyapar's USP is ease-of-use (72,000+ 5-star reviews) and offline reliability. However, in comparisons it lacks Busy's advanced features (Budgets, BOM, multi-currency) [24] [29] , and its GST features (GSTR forms) are weaker than Zoho's or Busy's automation [14] . Vyapar recently added e-invoicing and e-way, but requires manual credential entry. Unlike Zoho, it is not a GST GSP, so likely uses third-party APIs.

Takeaways for design: Aim to combine strengths – the **depth** of Busy (robust modules, offline) with **automation** of Zoho and **simplicity** of mobile apps. For example, ensure automatic HSN/GSTIN checks (as Zoho does [12]), an intuitive POS mode (like myBillBook), plus GST reconciliation tools (like Busy).

9. Conclusion

Building a fully compliant Indian accounting app requires marrying **business logic** (sales, inventory, COGS) with **regulatory logic** (GST rules, ITC eligibility, e-doc mandates). The above breakdown shows how to structure features in phases and highlights critical technical requirements (rounding, conflict handling, e-invoice integration). By learning from existing players (Zoho, Busy, Vyapar, etc.) and adhering closely to CBIC guidelines [10] [9] [7] [34] , developers can avoid pitfalls. The result should be a robust, user-friendly product where SMEs "don't miss anything" in day-to-day operations or compliance.

Sources: Official GST guidance and expert blogs [10] [9] [7] [1] [34] [14] ; Zoho Books documentation [12] [27] ; Busy comparison charts [14] [24] [28] ; Vyapar and MyBillBook features [31] [32] . These cover tax rules, software capabilities, and best practices to inform the design.

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[1] [8] Mandatory HSN Code Reporting in GSTR-1 and GSTR-1A

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