

AALOK BHANDARI

Software engineer, accounting, compliance and operations systems

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SUMMARY

Since 2022 I have been rebuilding my family's travel agency in software while completing a B.Sc. CSIT, replacing paper ledgers and spreadsheets with a multi-tenant double-entry accounting system the agency now keeps its books on, which reports every sales invoice to Nepal's Inland Revenue Department as it is issued. The work is mostly ledgers, tax compliance, and getting data to reconcile across machines that cannot always reach each other.

EXPERIENCE

Technology lead and operations support

2022 - present

Nepal South Asia International Travels & Tours Pvt. Ltd., Kathmandu, Nepal

- Replaced Excel and paper bookkeeping with a custom double-entry VAT accounting system that the agency now keeps its books on.
- Migrated 29,825 rows of real trading history, two years of the day book, with the trial balance tying exactly and zero rows skipped.
- Made the system compliant with Nepal's electronic billing rules: every sales invoice is reported to the Inland Revenue Department as it is issued, and an issued invoice can no longer be edited or deleted by anyone.
- Built cloud storage and backup for company documents, replacing a single fragile copy of every record the business had.
- Built the customer and B2B client database used to track corporate accounts and repeat travellers.
- Built and maintain the company website, and provided technical support during the move toward IATA accreditation.
- Worked across Sabre, Travelport and Galileo day to day, which is where the domain knowledge behind the accounting rules came from.

SELECTED PROJECTS

VAT Billing System

2023 - present

aalokbhandari.com.np/projects/vat-billing-system

- Multi-tenant double-entry VAT accounting for Nepali travel agencies. One deployment serves every client, isolated by PostgreSQL row-level security keyed to the tenant id in the caller's signed token rather than to anything the browser can edit.
- Registered e-billing software: each sales invoice is reported to the Inland Revenue Department's CBMS as it is issued, through an edge function that holds the taxpayer's credential so the browser never does. A failed filing is queued with the tax office's own reason and retried; it is never dropped.
- An issued tax invoice cannot be edited or deleted, only cancelled or credited, and that rule is enforced in the ledger and again by a PostgreSQL trigger, because a rule enforced only by the interface holds only until somebody opens a console.
- Two copies of the books: IndexedDB is the working copy every screen reads, PostgreSQL is the durable copy clients converge on. A cycle pushes before it pulls, so the server cannot discard an edit that had simply not uploaded yet.
- An unbalanced voucher cannot be saved. `post()` sums both sides and throws past half a paisa, and no code path into the ledger skips the check.
- 296 headless assertions across seven suites, written without a test framework so they keep running on a machine with nothing installed.

NiryatHub aalokbhandari.com.np/projects/niryat-hub		August 2026
- Export-market decision tool built for Hackfest 2026 at MBM Campus with team 4 NF: a producer describes a consignment in one spoken sentence and the app scores ten destination markets, matches importers, assembles the destination's compliance checklist, plans and costs the corridor, and raises the commercial invoice. - Scores from seven weighted components normalised against fixed anchors, so adding an eleventh market cannot move the first ten, and a missing figure ranks last as insufficient data rather than averaging to the middle as a zero. 48 costed logistics legs across 24 nodes, priced to the buyer rather than to the border, because an exit multiplier per crossing is what stops the optimiser sending everything through Kathmandu airport. - Two Claude routes return prose only: each composes deterministic text first, and no key, a refusal or a timeout all land on that same text, labelled on screen. 62 tests, and all trade figures are seeded and tagged as such.		
Travora aalokbhandari.com.np/projects/travora		2025 - 2026
- Travel expense tracker built as a seventh-semester project: five PostgreSQL tables, every one behind row-level security keyed to the signed-in user rather than filtered in the front end. - Receipts are read in the browser with Tesseract.js OCR, and each expense stores the amount paid, the NPR equivalent, and the rate between them.		
SipSetu aalokbhandari.com.np/projects/sipsetu		August 2026
- Employment identity and matching prototype for Nepal's returnee migrant workers, built for the MBMC Hackfest: spoken overseas work history becomes a structured Skill Passport, and every claim on it carries one of five evidence tiers rather than a single verified badge. - Matching is a transparent weighted sum of seven factors totalling 100, with skills and occupation carrying 45 between them, and every card opens into the breakdown. The language model normalises the input and has no part in the ranking. - Bilingual Nepali and English across the landing page, navigation, screen headers and primary actions, on a 44-entry taxonomy carrying English, Romanized Nepali and Devanagari aliases; the offline extractor is the default path, so no API key is required.		
EDUCATION		
B.Sc. CSIT (Computer Science and Information Technology) <i>Madan Bhandari Memorial College, affiliated with Tribhuvan University</i> In progress, aggregate 3.30-3.56 GPA across semesters		2022-2027
+2 in Computer Science and Physics <i>Uniglobe College</i> Class XI GPA 3.70, Class XII GPA 3.55. IT Club Secretary.		2020 - 2022
SEE (School Education Examination) <i>Siddhartha Banasthali School</i> GPA 3.95		2020
INDUSTRY TRAINING		
Basic Ticketing (TMA4) , Travelport, Dec 2023 Sabre Red360 Advanced Ticketing , Sabre, Apr-May 2024 Galileo GDS Training , Galileo, 2024		Basic GDS , Sabre, Feb-Mar 2024 Advanced Ticketing , Travelport, May-Jun 2024 VAT and Compliance Training , NATTA / Ministry of Finance, Government of Nepal, Kathmandu, 30 July 2024

TECHNICAL

Data and isolation	PostgreSQL, SQL, Supabase (RLS), IndexedDB (offline sync)
Runtime and interface	TypeScript, Node.js, React / Next.js, Git
Learning properly, not claiming yet	Go, AWS, OpenTelemetry, Docker
Correctness and proof	Headless testing, Hand-rolled assertion harnesses, Deterministic-first AI boundaries
Domain and data modelling	Double-entry accounting, Row-level security, Offline-first sync, Multi-tenant data modelling, Database design, REST APIs