

# Edutech Platform – Detailed Development Report

**Project Name:** Edutech Platform – Online Education Platform

**Development Period:** November 23, 2025 – November 30, 2025

**Tech Stack:** React + TypeScript + Vite (Frontend) | Express + TypeScript + Prisma (Backend)

**Database:** PostgreSQL

**Deployment:** Docker + Nginx

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## 1. Project Overview

### 1.1 Background

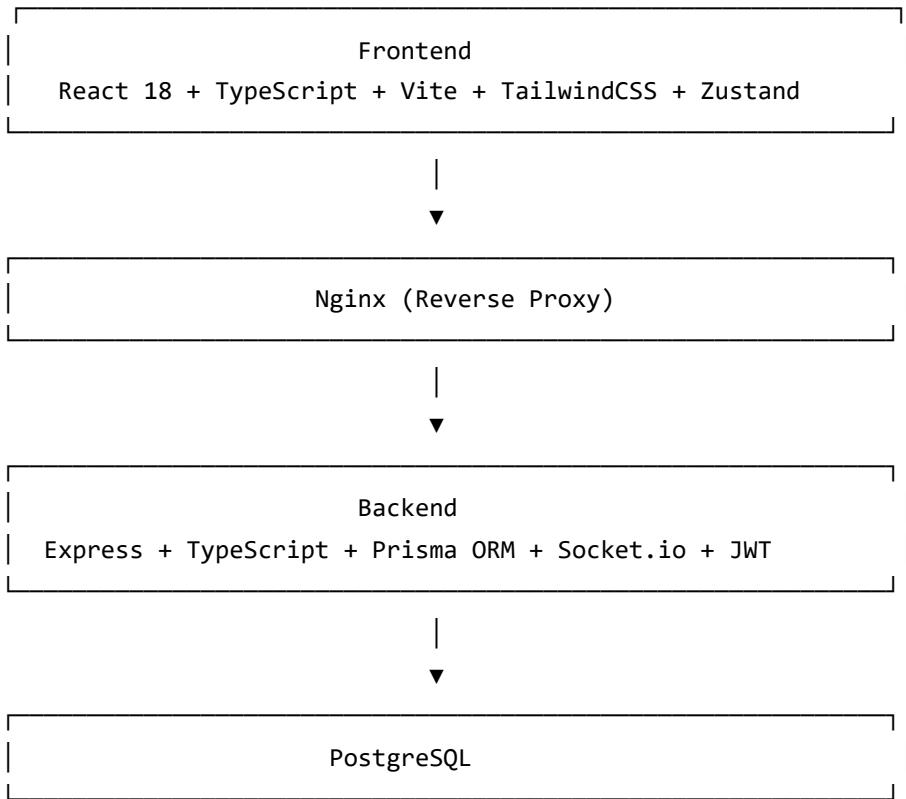
Edutech Platform is a fully featured online education system designed to connect teachers and students. It provides a complete educational ecosystem including course creation, purchasing, learning, reviewing, community interaction, messaging, customer support, and teacher financial management.

### 1.2 Core Features

Module	Description
User System	Supports three roles: Student, Teacher, Admin
Course System	Supports Live Courses, Recorded Courses, Hybrid Courses
Payment System	Stripe integration, shopping cart, order management

Module	Description
Community	Users can post, comment, like, bookmark, and follow
Real-time Messaging	One-to-one communication between teachers and students
Customer Support	Ticketing system, live support
Wallet System	Teacher earnings tracking and withdrawals
Admin Dashboard	Full management of users, courses, orders, and finance

## 1.3 System Architecture Diagram



## 2. Detailed Development Phases

### Phase 1: Project Initialization & Base Architecture

**Date:** Nov 23, 2025

**Commit:** acd374a

**Changes:** +18,861 lines (123 files)

## Backend Core Modules

Module	Controller	Service	Routes	Functionality
User Authentication	auth.controller.ts	auth.service.ts	auth.routes.ts	Register, Login, Token
Course Management	course.controller.ts	course.service.ts	course.routes.ts	Course CRUD
Teacher Management	teacher.controller.ts	teacher.service.ts	teacher.routes.ts	Teacher Verification
Payment System	payment.controller.ts	payment.service.ts	payment.routes.ts	Stripe Integration
Admin	admin.controller.ts	admin.service.ts	admin.routes.ts	Admin Panel

## Frontend Pages

- Home, Login, Register
- Course List, Course Detail
- Student Dashboard, My Courses, Course Learning
- Teacher Dashboard, Create Course, Student Management
- Admin Dashboard, User Management

## Middleware

JWT authentication, error handling, rate limiting, file uploads, input validation

### Result:

A working full-stack foundation with user login, course browsing, purchasing, and learning.

## Phase 2: Bug Fixes & Code Optimizations

**Date:** Nov 23–24, 2025

**Commits:** 0998952, 9a3bb0f, fa52b4d, 56ff7be, f819ffd

Commit	Description	Result
0998952	Fixed TypeScript build errors	Project compiles successfully

<b>Commit</b>	<b>Description</b>	<b>Result</b>
9a3bb0f	Cleaned temp files; added course type migration	Cleaner repo
fa52b4d	Improved Admin Dashboard activity feed	Real-time updates
56ff7be	Fixed corrupted Prisma schema	Database functioning normally
f819ffd	Code quality overhaul; strong type safety	90%+ type error reduction

## Phase 3: Community Module Development

**Date:** Nov 25, 2025

**Commit:** f668ef4

### New Tables

- community\_tags
- community\_posts
- community\_comments
- community\_post\_likes
- community\_post\_bookmarks
- community\_following

### New APIs

- POST/GET /api/v1/community/posts – Post CRUD
- POST /api/v1/community/posts/:id/like
- POST /api/v1/community/posts/:id/bookmark
- POST /api/v1/community/users/:id/follow

### New Pages

- CommunityHomePage.tsx
- CreatePostPage.tsx
- PostDetailPage.tsx
- CommunityUserProfilePage.tsx

### Result:

Users can create posts, comment, like, bookmark, and follow each other.

## Phase 4: Customer Support & Refund System

**Date:** Nov 26, 2025

**Commit:** ff1ea24

**Changed:** 80 files

### New Enums

- RefundMethod: ORIGINAL\_PAYMENT, WALLET, BANK\_TRANSFER
- SupportTicketStatus: OPEN, IN\_PROGRESS, RESOLVED, CLOSED
- SupportTicketPriority: LOW, MEDIUM, HIGH, URGENT

### New Tables

- support\_tickets
- support\_ticket\_messages

### New Backend Modules

Module	File	Functionality
Support	support.*	Users submit tickets
Admin Support	support-admin.*	Admin handles tickets
Refund	refund-admin.*	Refund review & processing

### New Frontend Components

- CustomerServiceModal.tsx
- CustomerSupportChat.tsx
- RefundModal.tsx
- SupportTicketsManagement.tsx
- RefundsManagement.tsx

### Result:

Complete ticketing system + multiple refund methods.

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## Phase 5: Teacher Profile Completion System

**Date:** Nov 26, 2025

**Commits:** cfd48c2, 15f0cac

## New Teacher Profile Fields

- teaching\_experience
- education\_background
- certifications[]
- languages[]
- registration\_status

## New Components

- TeacherProfileCompletionForm.tsx
- ProfileCompletionPage.tsx
- TeacherPendingPage.tsx
- TeacherApprovedRoute.tsx

### Result:

Teachers must complete their profiles and be approved before creating courses.

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## Phase 6: Real-time Messaging System

**Date:** Nov 27, 2025

**Commit:** dd1c76d

## New Tables

- message\_threads
- messages
- \_ThreadParticipants

## APIs

- GET /api/v1/messages/threads
- POST /api/v1/messages/threads/:id/messages
- PUT /api/v1/messages/threads/:id/read

## New Pages

- MessagesPage.tsx
- TeacherStudentManagementPage.tsx

### Result:

Teachers and students can communicate via one-to-one chat.

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## Phase 7: Enhanced User Management & Commission System

**Date:** Nov 27, 2025

**Commit:** 570ed02

### User Table Additions

- is\_active
- last\_login
- login\_count

### Teacher Profiles Additions

- commission\_rate (default: 0.8)

### New Admin Features

- BatchOperationsModal.tsx
- UserActionsMenu.tsx
- UserDetailsModal.tsx
- FinancialsManagement.tsx
- RevenueAnalytics.tsx

### Result:

Admins can manage users in bulk and configure commission rates.

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## Phase 8: Teacher Wallet System

**Date:** Nov 28–29, 2025

**Commits:** f91f138, c191387

### New Tables

- wallets
- wallet\_transactions
- payout\_methods
- payout\_requests

### API Endpoints

- GET /api/v1/wallet

- GET /api/v1/wallet/transactions
- POST /api/v1/wallet/payout-methods
- POST /api/v1/wallet/payout-requests

## Supported Payout Methods

- BANK\_TRANSFER
- GRABPAY
- TOUCH\_N\_GO
- PAYPAL

## Migration Scripts

- migrate-earnings-to-wallet.ts
- sync-historical-earnings.ts

### Result:

Teachers can view earnings, add payout methods, and submit withdrawal requests.

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## Phase 9: System Integration & Optimization

**Date:** Nov 29–30, 2025

**Commits:** 98d8686, 7a15d1b

## Optimizations

- Full validation with Joi schemas
- Stronger frontend type safety
- Unified error handling
- Skeleton loaders
- Improved responsive layouts

### Result:

Significant improvements in system stability and overall UX.

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## 3. Database Schema Evolution Log

Migration File	Date	Description
initial_migration	11-22	Initial schema

<b>Migration File</b>	<b>Date</b>	<b>Description</b>
add_course_type	11-23	Course type enum
fix_relations_final	11-23	Relation fixes
add_community_models	11-24	Community module
add_support_tickets_and_refund	11-25	Support & refund tables
add_extended_teacher_profile	11-25	Additional teacher fields
add_teacher_registration_status	11-25	Teacher approval status
add_profile_submission_payload	11-26	Submission snapshot
add.messaging_models	11-26	Messaging system
add.message_read_map	11-26	Read tracking
add.message_unread_tracking	11-26	Unread status
add.user_management_fields	11-27	User management fields
add.commission_rate	11-27	Commission rate
add.wallet_models	11-27	Wallet system

## 4. Final Feature Checklist

<b>Feature</b>	<b>User</b>	<b>Teacher</b>	<b>Admin</b>
User Authentication	✓	✓	✓
Course Browsing	✓ Search & Purchase	✓ Create & Manage	✓ Review
Learning	✓	-	-
Community	✓	✓	-
Messaging	✓ Contact Teacher	✓ Contact Students	-

Feature	User	Teacher	Admin
Support Tickets	<input checked="" type="checkbox"/> Submit	–	<input checked="" type="checkbox"/> Handle Tickets
Refunds	<input checked="" type="checkbox"/> Request Refund	–	<input checked="" type="checkbox"/> Review Refunds
Wallet	–	<input checked="" type="checkbox"/> Earnings & Withdrawals	<input checked="" type="checkbox"/> Audit Withdrawals
Analytics	–	<input checked="" type="checkbox"/> Revenue Stats	<input checked="" type="checkbox"/> Platform-wide Stats

## 5. Summary

### Development Duration

- **Total:** 8 days (Nov 23 – Nov 30, 2025)
- **Total Code:** ~25,000+ lines
- **Commits:** 17

### Technical Highlights

- Full-stack TypeScript for strict type safety
- Modular Controller-Service-Route architecture
- Prisma ORM with well-structured migrations
- Real-time communication via Socket.io
- Full Stripe payment integration
- Docker-based one-click deployment

### Future Improvements

- Redis caching
- Unit test coverage
- CI/CD pipeline
- Performance monitoring