EduSite – Full Stack SaaS Project (Checkpoint 1)

Project Vision:

EduSite is a SaaS learning platform for college students where users access curated academic resources

(notes, cheat sheets, videos) based on subscription, while admins manage content, access, and plans.

Core Goals:

- Practice real-world full stack architecture
- Implement authentication and role-based access
- Build subscription and payment flows (test mode)
- Use modern frontend and backend tools
- Run everything via Docker

User Roles:

1. Admin

- Manage users
- Manage content
- Control access and plans

2. User

- Browse free content
- Access paid content if subscribed

Frontend Stack:

- Vite
- React + TypeScript
- Tailwind CSS
- shadcn/ui
- lucide-react

Backend Stack:

- FastAPI (Python)
- PostgreSQL
- JWT-based Authentication

Why FastAPI:

- Teaches real backend fundamentals

- Clear routing, middleware, dependency injection
- Easier auth and DB handling than serverless

Why PostgreSQL:

- Relational data fits users, subscriptions, payments
- ACID compliance for payment logic
- Industry standard

Project Structure (Monorepo):

```
edusite/
■■■ frontend/
■ ■■■ Dockerfile
■ ■■■ src/
■ ■■■ app/
■ ■■■ features/
■ ■■■ components/
■ ■■■ routes/
■ ■■■ lib/
■
■■■ backend/
■ ■■■ Dockerfile
■ ■■■ app/
■ ■■■ main.py
■ ■■■ core/
■ ■■■ auth/
■ ■■■ users/
■ ■■■ content/
■ ■■■ subscriptions/
■ ■■■ db/
■
■■■ docker-compose.yml
■■■ .env
■■■ README.md
```

Docker Principles:

- One container per responsibility
- Frontend talks only to backend
- Backend talks to database
- Environment variables managed centrally

Phased Development Plan:

1. Backend foundation (models, auth, DB)
2. Frontend auth and routing
3. Role-based permissions
4. Subscriptions and plans
5. Payment gateway (test mode)
6. Polish and security

This checkpoint establishes the architectural and product foundation.