Report / Project Description
This monthly report explains the learning progress, skills gained, and projects completed during the period of 01 – 30 September 2025. The main focus areas were setting up and using PostgreSQL, connecting PostgreSQL with FastAPI, building a three-tier application with React as the frontend, and later learning about JSON Web Tokens (JWT) and setting up a Next.js app. All these activities were part of a step-by-step plan to understand databases, backend development, and modern web application design.

Introduction
The purpose of this report is to give a simple summary of what I did and what I learned during the month of September 2025. Each week had its own focus, which made it easier for me to understand the theory and also practice it in real projects. By the end of the month, I was able to use PostgreSQL, work with FastAPI, build a three-tier application, and also learn how to add security with JWT and improve frontend speed with Next.js.

Progress Report
Week 1: PostgreSQL Setup and Exploration
In the first week, I focused on PostgreSQL. I installed PostgreSQL on my Mac using Homebrew and tested it with pgAdmin4 by creating tables, inserting values, and reading data. I also tried the Postgres terminal, psql, to practice running commands from the command line. During this time, I created a user and linked it with different databases, which helped me understand how PostgreSQL manages roles, users, and databases in a practical way.

Week 2: PostgreSQL and FastAPI Integration
In the second week, I worked on connecting PostgreSQL with FastAPI. I learned about Object Relational Mappers and decided to use SQLAlchemy because it works well with PostgreSQL. I created Python classes using declarative base, which automatically mapped to tables in the database. Since FastAPI is asynchronous, I used asyncpg instead of normal connectors like Psycopg2, which made the backend faster and more scalable.

Week 3: Building a Three-Tier Application
The third week was about building a three-tier application. I used FastAPI for the backend, PostgreSQL for the database, and React for the frontend. I made sure the three layers could talk to each other, where the frontend sent requests to the backend, and the backend handled the business logic before passing data to the database. This gave me a good understanding of how a complete system works when all parts are connected.

Week 4: JSON Web Tokens and Next.js Setup
In the last week, I learned about JSON Web Tokens and Next.js. I used JWT in the FastAPI backend so that users could log in and securely access protected routes. I then started working with Next.js as another frontend option. Next.js allowed me to use server-side rendering, which

made apps faster and improved routing compared to React. This gave me an introduction to how Next.js can make modern applications more efficient and user friendly.