**Individual Weekly Report – Week 7**

**Project: E-commerce Web Application TechPlaza**

**Role: DevOps Engineer**

**Completed Tasks:**

1. **Database Configuration and Optimization**: Successfully implemented PostgreSQL as our primary database solution, hosted on Azure PostgreSQL Flexible Server. The solution boasts enhanced scalability, high performance, security compliance, cost-effectiveness, and less administrative overhead due to its managed service nature.
2. **Environment Variable Configuration for Database**: Ensured the secure handling of database connections through environment variables across all environments, enhancing the security and portability of our application.
3. **CI/CD Implementation**: Adhered to a Trunk-based development workflow and managed CI/CD pipelines using GitHub Actions. Created separate pipelines for testing and production. The testing pipeline builds, pushes the Docker image to Azure Container Registry, and triggers an update of the image tag used by Azure App Service for testing upon a merge into the main branch. The production pipeline triggers when a commit is tagged on GitHub and manually updates the image tag in the Azure App Service for production.
4. **GitHub Actions Workflows**: Set up three distinct workflows named "Prod", "Test", and "Other" for better development and deployment control. "Prod" and "Test" workflows handle building and pushing Docker images for the respective environments, while the "Other" workflow serves as a preliminary check pipeline for non-main branches.

**Ongoing/In-Progress Tasks:**

1. **Further Optimization:** We are continuously improving and optimizing our Azure services and database configurations to ensure optimized performance, cost-effectiveness, and scalability.

**Issues/Challenges:**

1. **Issue 1:** The complexities involved in orchestrating and fine-tuning the interactions between Docker, Express.js, React, Azure Services, and PostgreSQL for efficient and seamless operations. Mitigating this through rigorous testing, performance monitoring, and incremental optimizations.
2. **Issue 2**: Ensuring effective and efficient management of different GitHub Action workflows for various environments and deployment scenarios can be challenging. Managing this by monitoring workflows closely, studying the logs, and tweaking the workflows as needed for better efficiency.
3. **Issue 3**: Making sure that our CI/CD pipelines and version control practices meet the dynamic needs of the development team and align well with our Trunk-based development workflow. Addressing this by soliciting regular feedback from the team and adapting our practices accordingly.