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1. Introduction

For my project, I chose Joomla, due to its flexibility and the ease of access compared to other CMS like my first attempt; Ghost. I couldn't get Ghost to function the way I needed it to via the cloud environment.

2. Local Development Environment Setup

Instead of using traditional methods like XAMPP for local development, I opted to containerize the Joomla application using Docker. This approach enabled a quick setup and tear-down of the local development environment, providing a close simulation of the production environment without the need for traditional local server stacks like XAMPP.

3. Deployment/Containerization (choose one)

Deployment

My initial deployment attempts on Azure involved directly using container instances alongside Azure SQL databases. We encountered challenges in ensuring seamless connectivity and configuration between the two, largely due to environment variable misconfigurations.

Containerization

Realizing the need for a more integrated solution, we pivoted to leveraging Azure's Web App and Container App services. This shift was pivotal in simplifying the deployment process.

- Docker Compose: The main part of our containerization process was a Docker Compose file that defined the Joomla web application and its service dependencies. This setup allowed for easy local development and testing, ensuring that our application was ready for deployment.
- Challenges and Solutions: The main challenge was configuring the Docker environment to connect reliably to the Azure SQL database. We resolved this by refining our Docker Compose configurations and making use of Azure's documentation to properly set up the necessary environment variables.

5. Learning Outcomes

This was a great exercise/assignment for gaining a deeper understanding on cloud computing, especially with the process of troubleshooting deployment issues and the importance of ultra specifics and ensuring no spelling mistakes or typos. It was also a great way to experiment with Azure, and the many apps available.

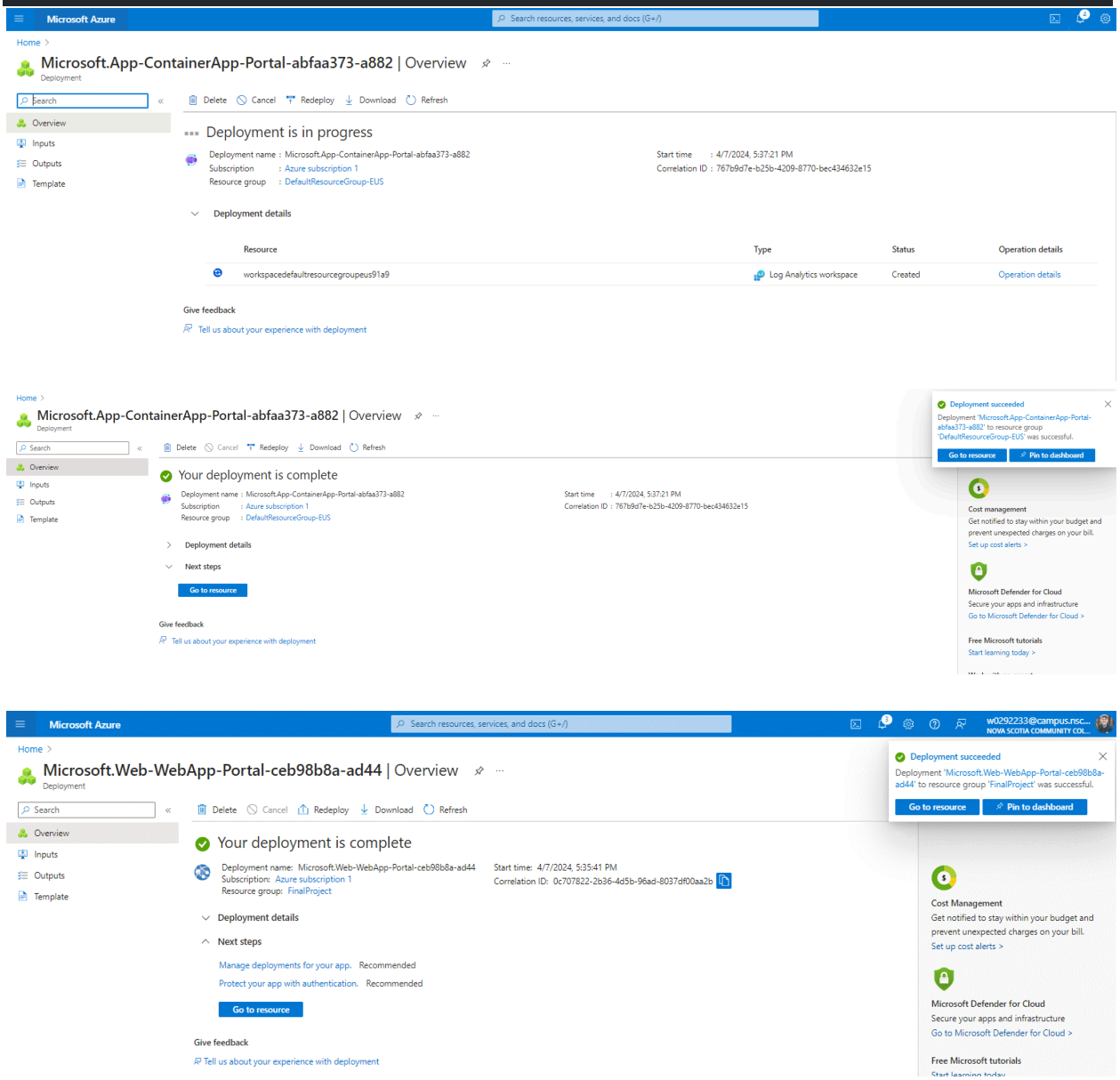
6. Conclusion

In conclusion, the knowledge and skills gained from this project are a testament to the power of modern development tools and cloud services. They enable not just the deployment of web applications but also foster an environment where innovation and testing are greatly accelerated. As we look to the future, it's clear that these practices will be at the heart of developing cutting-edge web applications, making now an exciting time to be a web developer.

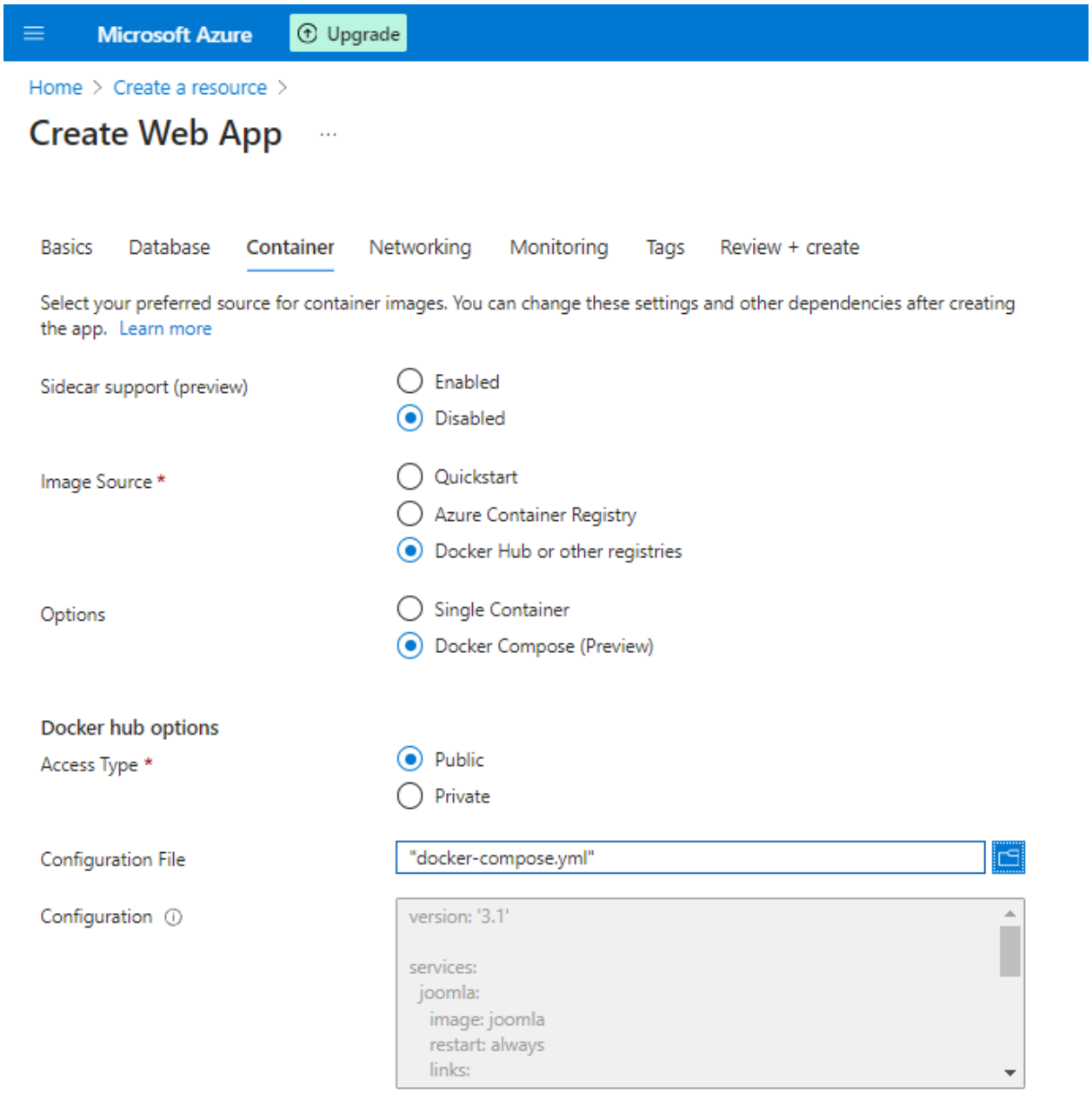
7. Appendices

```
version: '3.1'

services:

 joomla:

   image: joomla

   restart: always

   links:

     - joomladb:mysql

   ports:

     - 8080:80

   environment:

     JOOMLA_DB_HOST: joomladb
```

```
    JOOMLA_DB_PASSWORD:
joomladb:
  image: mysql:8.0
  restart: always
  environment:
    MYSQL_ROOT_PASSWORD:
```



- **These 3 images are screenshots from the process of deploying the web app and container apps through Microsoft azure; post configuration.**



- **This is where we uploaded our docker-compose.yml file during the Web App configuration setup. We selected 'Docker Hub or other registries' section of the 'Image Source' selection.**