Cloud Notes

In my experience, I have used Azure dev-ops portal and some of the Azure services like Azure PostgreSQL, Azure Cosmos DB, Azure Data Lake Storage, AKS (Azure Kubernetes cluster), and Azure Key Vault. In the Azure dev-ops portal, I used Azure Boards to add the work items and update the status of work items accordingly, Azure repositories for source code management using branching strategy and for pull requests, and Azure release pipelines for the deployment of services into AKS cluster of respective environments and connect to cluster using Azure CLI from the local machine to monitor the pods and pvcs. In azure services used cosmos DB to fetch data from it and store it into PostgreSQL a relational database and used this data to generate a data file and upload it to Azure data lake storage. As part of file storage in Azure Data lake, we have used Microsoft Storage Explorer to visualize and manage the data files present in the storage containers from our local machines. We also used Azure key vault which is a common integration in all microservices to secure the secret keys by storing them in the azure key vault and retrieve them and use in the applications. One example of sensitive data can be the username and password of the databases. I am working as a core developer in my project and my key responsibilities are to develop the microservices as per the requirements and integrate them with azure services and other microservices. Post completion of the development of the task I must ensure that a pull request is raised to the required branch, link the appropriate work item, and add reviewers to get it reviewed and merge it into the target branch. Along with development I have also taken care of the deployment of services into the AKS cluster using Azure release pipelines and test it in the development environment and monitor and analyze Kubernetes pod logs by connecting to the AKS cluster using Azure CLI. We have faced intermittent connectivity issues with Azure cosmos DB (Cassandra) and we were able to reduce the effect of it by doing some configuration changes like adding socket and pooling options config according to the need of our application and increasing the Request Units. One of the major key activity which I completed is developing a microservice which is integrated with Azure PostgreSQL service and Azure Data Lake Storage Microservice from scratch and actively involved by working on enhancements and bug fixes of a microservice which is designed to continuously detect the changes done in Cassandra tables by leveraging the slowly change dimension feature provided by Azure Cosmos DB and insert the updated data into PostgreSQL tables and another Microservice which consumes data from PostgreSQL tables and generates data file and upload the same to Azure Data Lake Storage Container and effectively used Azure dev-ops portal to manage code and deploy the microservices with azure pipelines by configuring the same code base with different tables and able to run multiple instances of services working

on different tables. Some of the main concepts which I covered while doing learning for this badge are getting started with azure by creating an Azure account with a free subscription and provisioning different Azure services, understanding of pillars (Cost Optimization, Operation Excellence, Reliability, Performance efficiency & security) of cloud-computing technology, cloud deployment models (Public, Private and Hybrid), and computing models(Infrastructure as Service, Platform as Service and Service as Service), cloud computing service like Virtual Machines and Network Security Groups to manage the traffic, fundamentals of Azure containers, AKS, Azure Functions, and Azure App service, storage services like Cosmos DB, several relational databases (Azure SQL, Azure My SQL, Azure PostgreSQL, Azure MariaDB), and azure storage containers for blob storage, Azure dev-ops, and Azure pricing and cost management. Some of the concepts which I applied in my experience are Azure PostgreSQL database for storing structured data and Azure Cosmos DB to store semi-structured data, Azure data lake storage to store the unstructured data like files, Azure key vault to store sensitive data, some of the Azure dev-ops portal services to manage the projects by creating and tracking the work items, using branching strategy for source code management in azure Repos and deployments in AKS using release pipelines. All the azure services except azure dev-ops are integrated using the java spring-boot framework and some of the services like Azure Key Vault and Azure Data Lake Storage are integrated with spring boot services by using Azure provided java SDKs as dependencies. Database services like cosmos DB and relational databases are integrated directly by using java spring boot provided starter (spring-boot-starter-data-Cassandra & spring-boot-starter-data-JPA) dependencies. The content which I learned while doing the badge had greatly impacted my work experience and I can relate the concepts learned with their real-time implementations in the project and provided me with a much better understanding of the concepts. My understanding of the cloud concepts well impacted both myself and the team by delivering the task on time and before. The cloud fundamental concepts learned had laid a foundation for me to understand the fundamentals of cloud technologies and made me quickly cope up with any third-party other cloud service provider say AWS / Azure / GCP. Various cloud services which I have used and the services on which I gained knowledge by learning and experimenting with them educated me to understand when to use what service in each scenario and made me enthusiastic to learn the advanced cloud concepts like Virtual Private Cloud, Azure Synapse, Cloud Security, Networking, Monitoring, and Cloud Migration.