**Database Amount**

**Context and Problem Statement**

How many databases our Microservice system will use. We need to decide which microservice will require a database and if we will use a database for each microservice that requires one or if we will use only 1 database for each microservice

**Decision Drivers**

* Needs to be compatible with a Microservice architecture.
* Multiple different types of data needs to be stored.
* Services should work independently and shouldn’t need to rely on each other.

**Considered Options**

* Shared Database
* Database by service

**Decision Outcome**

chosen option: “Shared Database” because of time restraint reasons as working on separate databases could be potentially too complex for the limited amount of time and experience.

**Consequences**

* Good: Provides scalability and resilience.
* Bad: Less resilient, more point of failure.

**Confirmation**

The ERD’s created for the use cases will take into account using a shared database for the system.

**Pros and Cons of the Options**

**Shared Databases**

* Good: Easier to develop for a smaller system.
* Good: Can take less time to develop.
* Good: The process of combining disjoint set data structures much more straightforward.
* Neutral:
* Bad: All services use the same database which makes it difficult to manage each individual component, and also acts as a single point of failure.
* Bad: Less resilient, if the database goes down, everything is affected
* Bad:

**Database by service**

* Good:
* Good: Each service is contained separately, providing strong resistance to faults so if one database goes down, only that service is affected.
* Neutral: Is the typical way to design a Microservice architecture.
* Bad: Potentially more difficult to develop when less experienced.
* Bad: Could take longer to develop which could be a problem when time constrained.

Appendices

[1] Project overview

References

[1] Gupta, P. (2022, June 8). Can you really use a shared database for microservices? Search App Architecture. <https://www.techtarget.com/searchapparchitecture/tip/Can-you-really-use-a-shared-database-for-microservices>

[2] Stec, A., & Aibin, M. (2024, March 18). Database Design in a Microservices Architecture. Baeldung. https://www.baeldung.com/cs/microservices-db-design