ASDs

API Design

Product description

An application continuity service dynamically backs up and restores the state of applications running within the framework on K8s. The service uses the DSL of the framework to determine the relevant application state and its backup policies. Developers of an application are able to backup and restore a specific version from images and relevant state from the service. The application state is stored externally on the given S3-compatible object storage.

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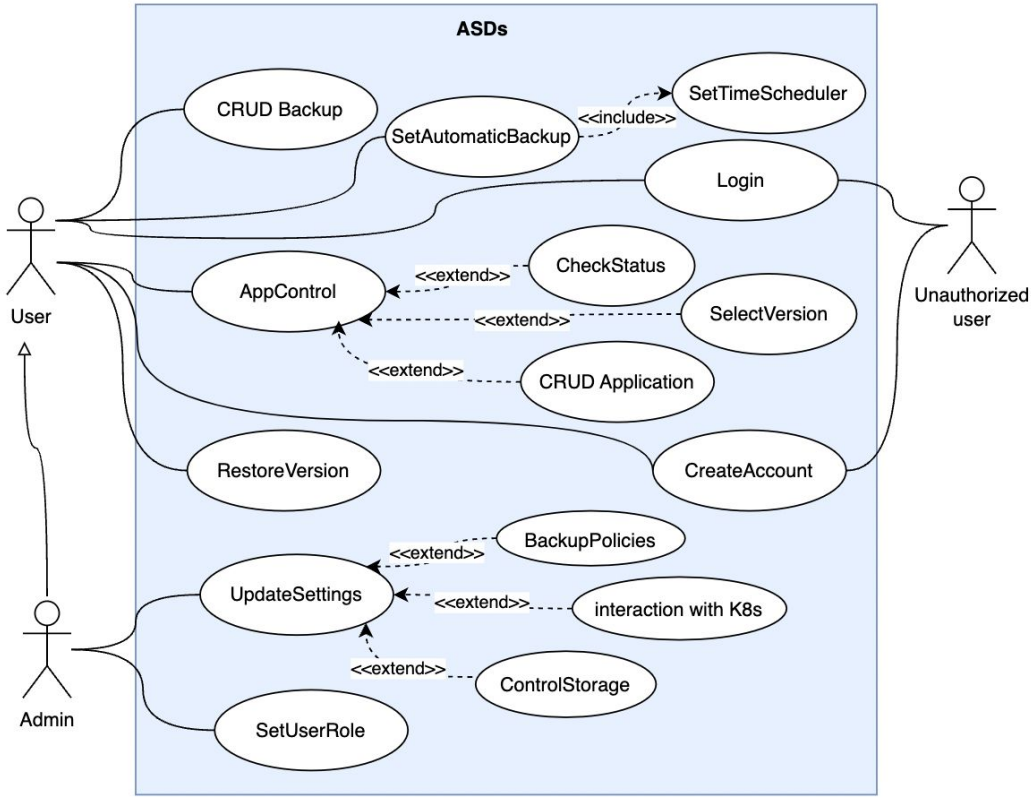
Repo: https://github.com/gorelyi-code/advanced_software_designers

Report: a link to this slides within project repo/doc storage

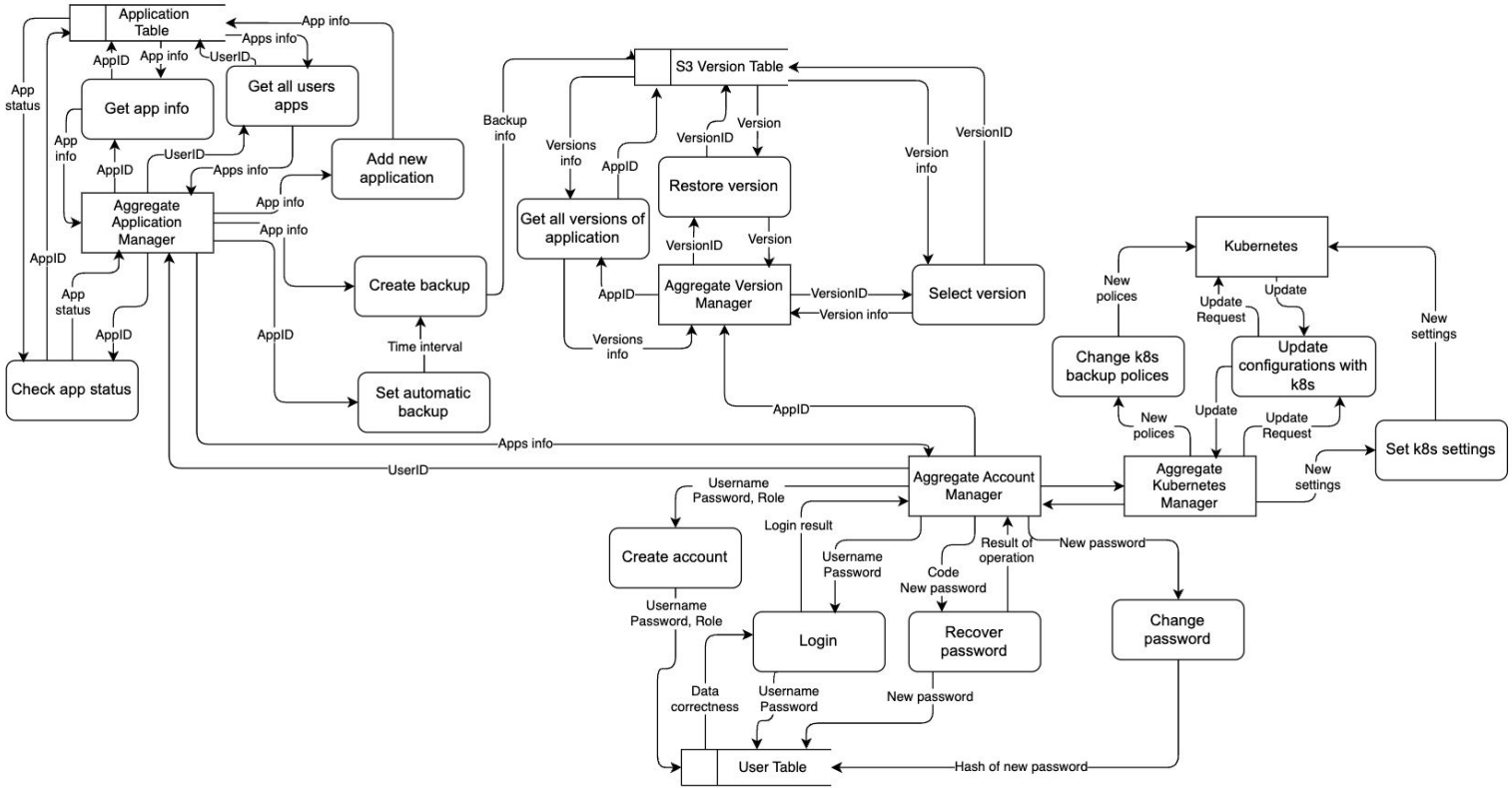
Use case diagram



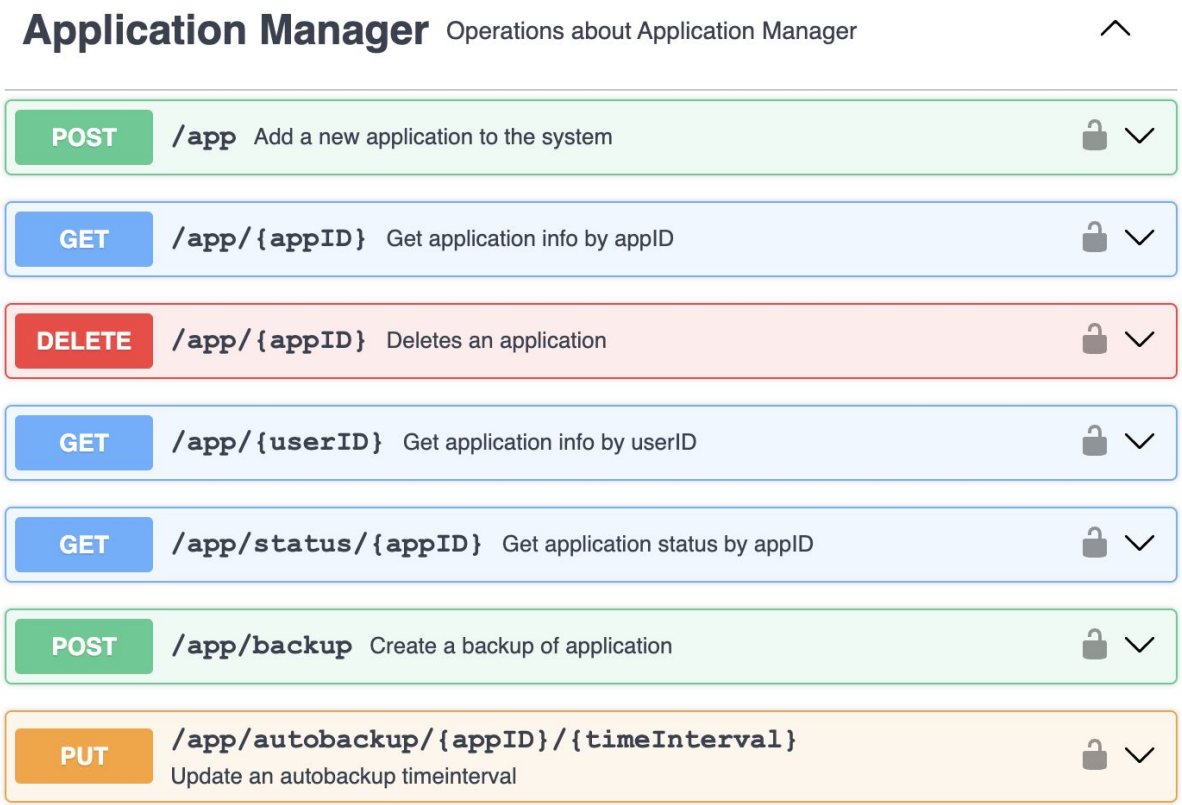
CRUD: create, read, update, and delete

Textual description in github:
https://github.com/gorelyi-code/advanced_software_designers/blob/main/Use%20case%20diagram/main_scenarios.md

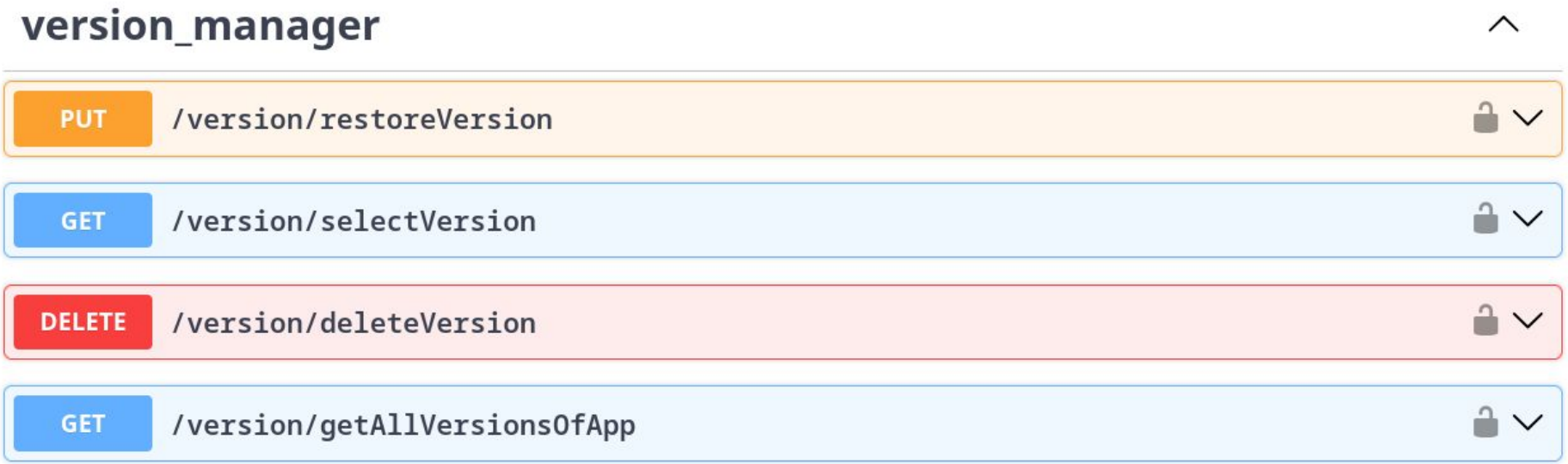
Service diagram (DFD)



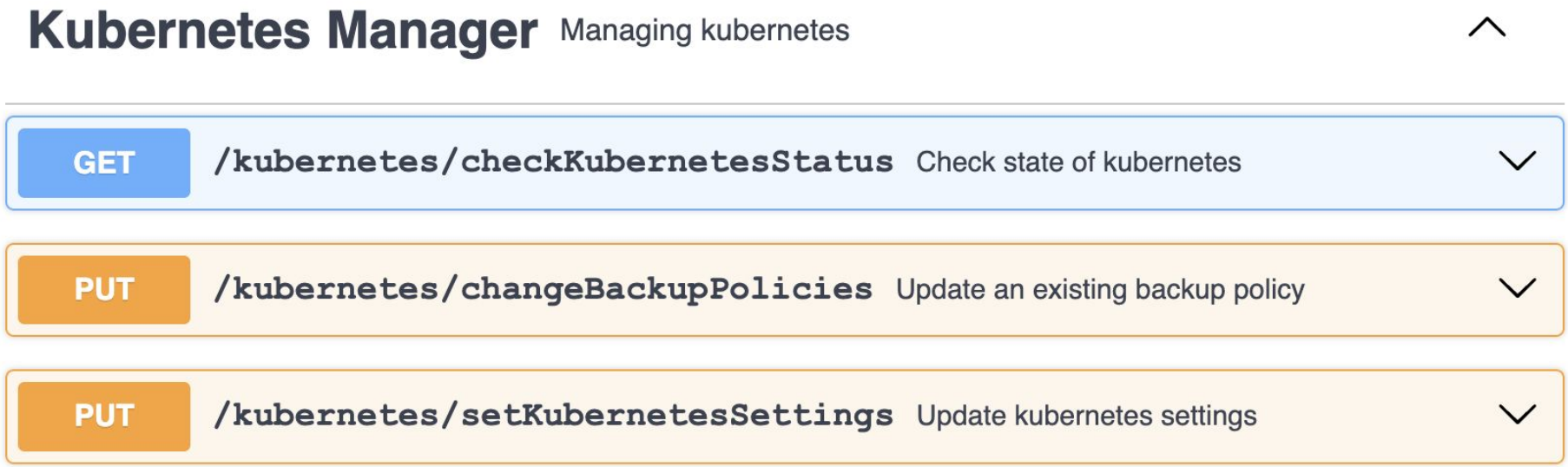
API usage Application Manager



API usage Version Manager

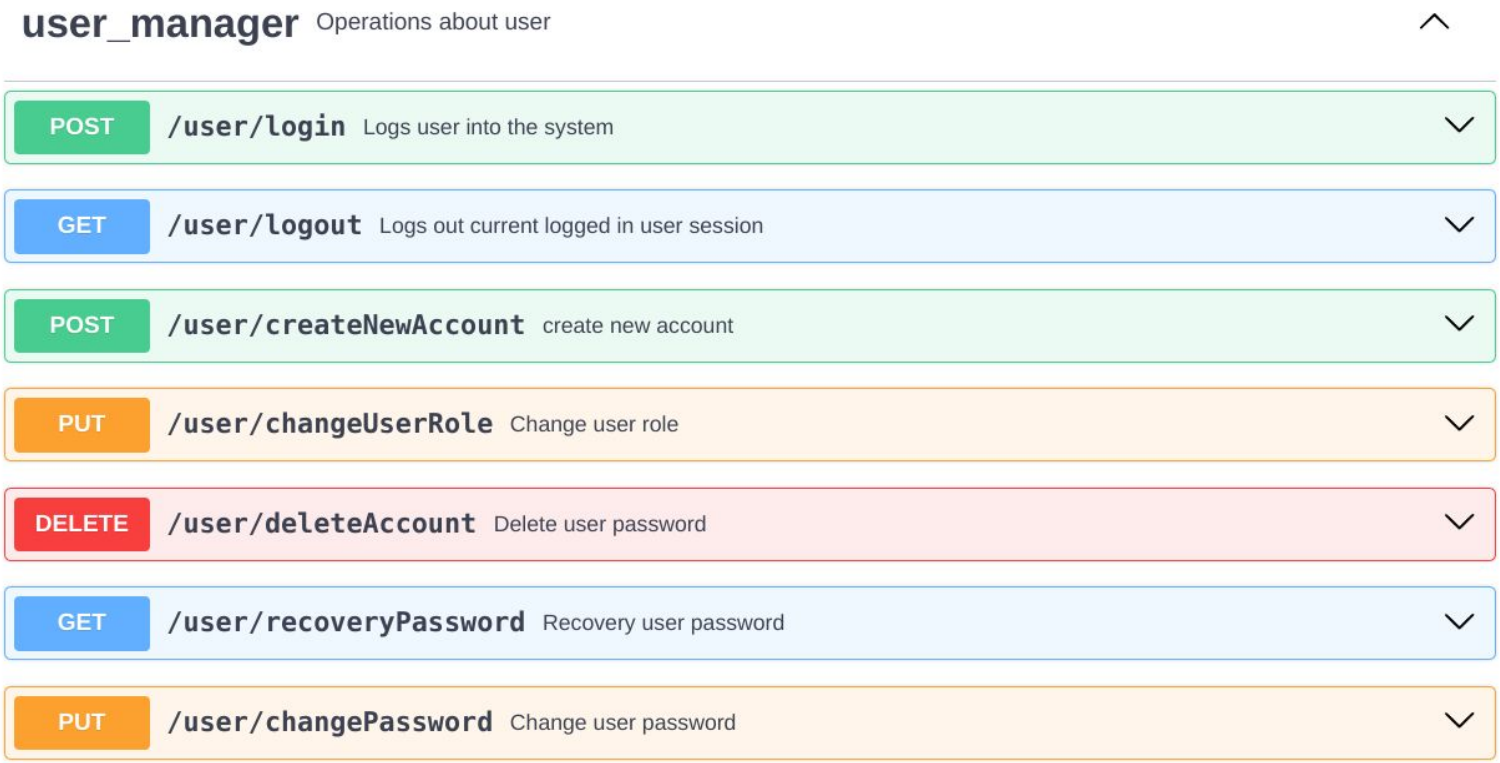


API usage Kubernetes Manager



https://github.com/gorelyi-code/advanced_software_designers/blob/main/hometasks/task_10/kubernetes_manager.yaml

API usage Account Manager



Solution stack (prepare)

Find an example implementation of a microservices application in the programming language chosen. Specify one value for each option below

Implementation

- API definition OpenAPI
- Connection server for API python gunicorn
- App framework python FastAPI
- Serialization/state format json

Asynchronous interactions (optional)

- Message queue rabbitmq
- Messaging client library celery

Testing tools pytest

Operations

- App initializer systemd
- Code build makefile
- CI/CD pipeline gitlab
- Delivery method docker
- Logging & monitoring prometheus, loki, grafana

Some references

https://github.com/mfornos/awesome-microservices

https://awesomeopensource.com/projects/microservices-architecture

https://www.redhat.com/en/blog/comparing-openapi-grpc

https://cloud.google.com/apis/design/resources