

ASDs

Requirements and analysis model

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.

Team: Gorelyi Mikhail, Lukashin Daniil, Derezhovskiy Ilya, Sigal Lev

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

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

Personas

Pasha, 30 y.o.



Marketplace developer. Uses k8s to deploy thousands of pods for serving users requests for finding items sold on the marketplace. Often creates bugs, which break production.

Generated by
<https://this-person-does-not-exist.com>

Alyona, 22 y.o.



DevOps. Configures k8s for other developers. Often updates k8s versions for deployed services which break their applications.

Generated by
<https://this-person-does-not-exist.com>

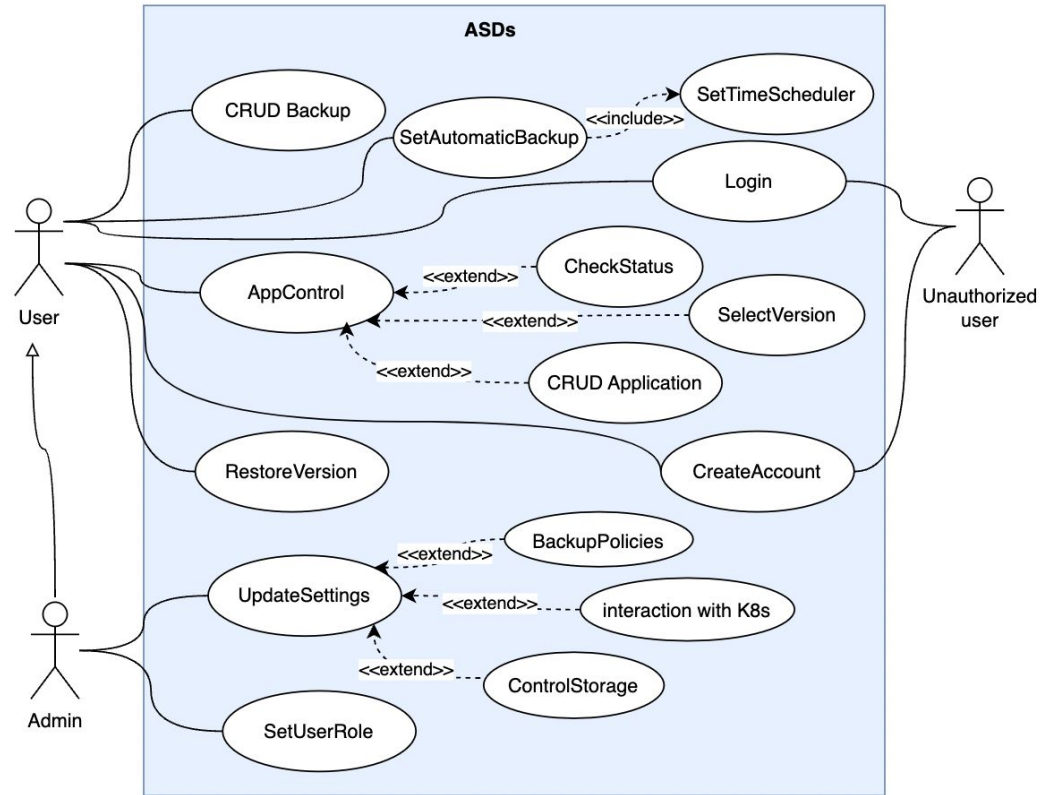
Story map



Textual description in github:

https://github.com/gorely-i-code/advanced_software_designers/blob/main/Product%20definition/story_map.md

Use case diagram

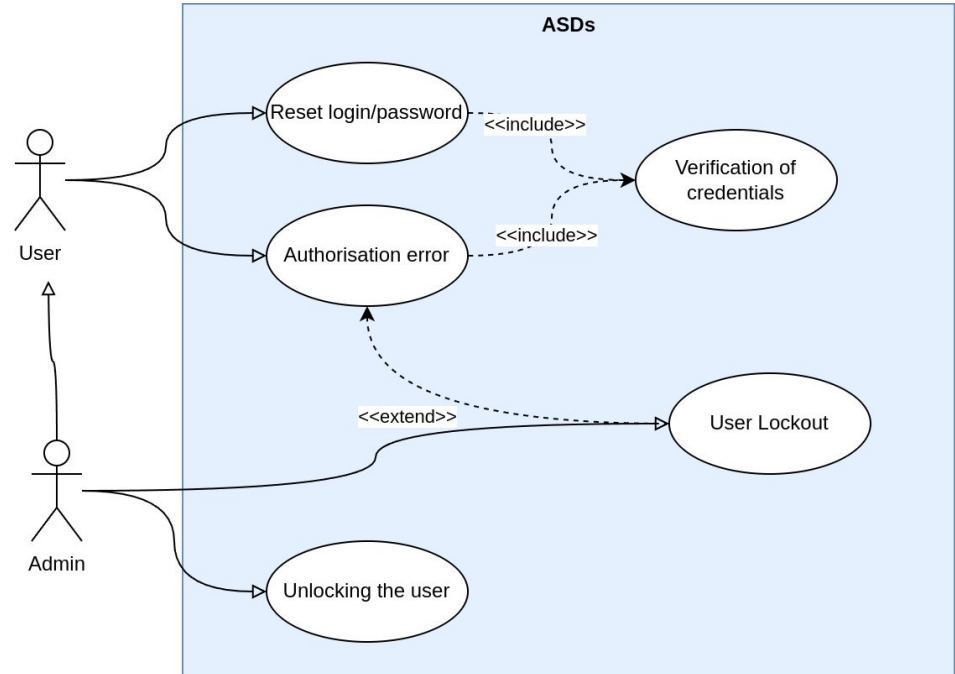
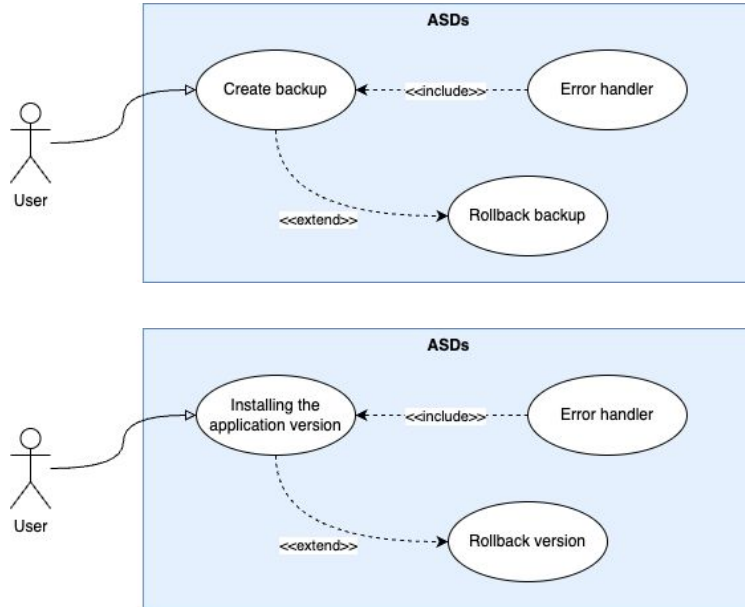


CRUD: create, read, update, and delete

Textual description in github:

https://github.com/gorely-code/advanced_software_designers/blob/main/Use%20case%20diagram/main_scenarios.md

Use case diagram (alternative scenarios)



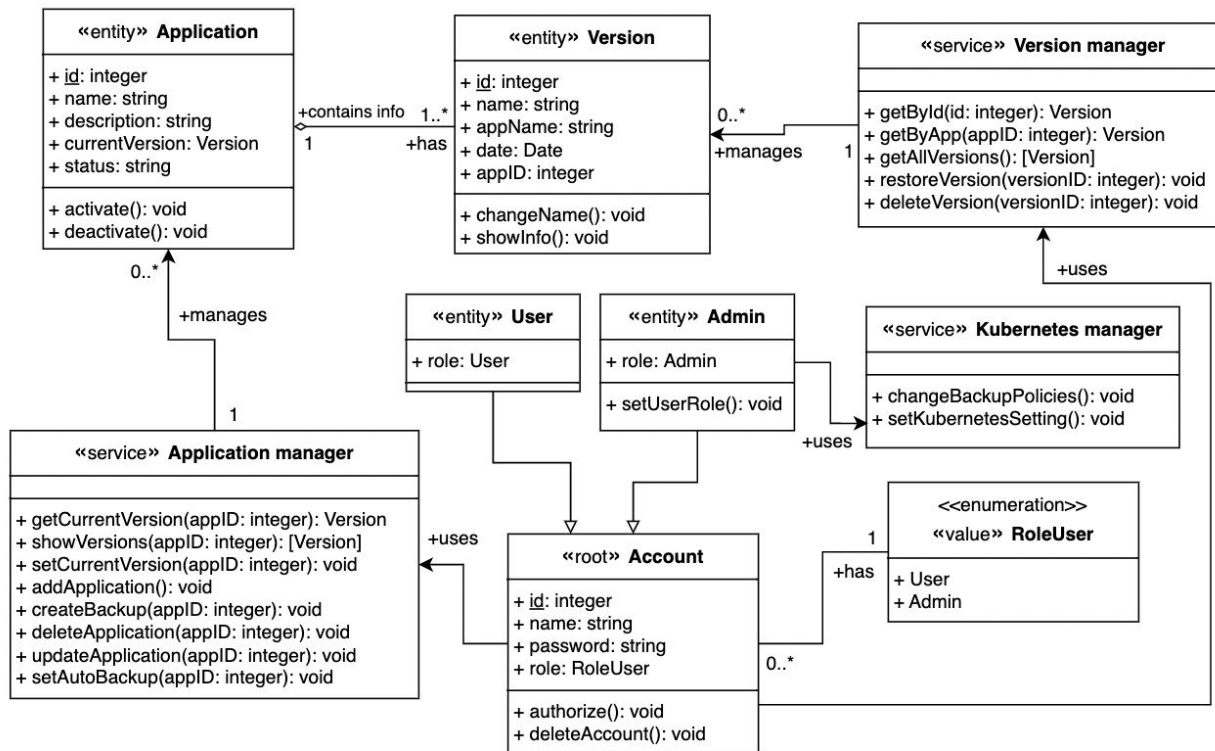
Textual description in github:

https://github.com/gorelyi-code/advanced_software_designers/blob/main/Use%20case%20diagram/alternative_scenarios.md

Interaction analysis

use case	cooperation name	used roles	candidate classes
Login	Access to the system	User, System	Account, User, Admin
CreateAccount	Registration in the system	User, System	Account, User, Admin
CRUD Backup	Creating and controlling application backups	User, System, Application, Version	Account, User, Admin, Application manager, Application, Version
SetAutomaticBackup	Automatic backup creation	User, System, Application, Version	Account, User, Admin, Application manager, Application, Version
AppControl	Control of added applications	User, System, Application	Account, User, Admin, Application manager, Application
RestoreVersion	Restoring a specific version of the application	User, System, Application, Version	Account, User, Admin, Version manager, Application, Version
UpdateSettings	Setting up the system operation	Admin, System	Admin, Kubernetes manager
SetUserRole	Changing the user's role to access various functionality	Admin, System	Admin, RoleUser

Final class diagram



Responsibilities table

Application		
Do	Know	Interact
<ul style="list-style-type: none">• Stores data about application (name, id, ...)• Controls the work state of app	<ul style="list-style-type: none">• Application info (name, id, ...)• Current version of application• State of app (activated, deactivated)	<ul style="list-style-type: none">• Application manager• Version

Application manager		
Do	Know	Interact
<ul style="list-style-type: none">• Control applications (CRUD)• Make backup	<ul style="list-style-type: none">• All user's applications info (name, id, current version...)• All versions of application	<ul style="list-style-type: none">• Application• Account

Kubernetes manager		
Do	Know	Interact
<ul style="list-style-type: none">• Provides an api for working with k8s	<ul style="list-style-type: none">• Access to k8s system• Backup settings• Backup policies	<ul style="list-style-type: none">• Account

Account		
Do	Know	Interact
<ul style="list-style-type: none">• Provides the user with access to the interaction with the application• Stores user information	<ul style="list-style-type: none">• User info (name, hash password...)• Role of user (Access to various functions)	<ul style="list-style-type: none">• Application manager• Version manager• Kubernetes manager• Role user

Version		
Do	Know	Interact
<ul style="list-style-type: none">• Stores data about version of application (name, id, date, ...)	<ul style="list-style-type: none">• Version info (name, id, ...)• State of version (activated, deactivated)	<ul style="list-style-type: none">• Version manager• Application

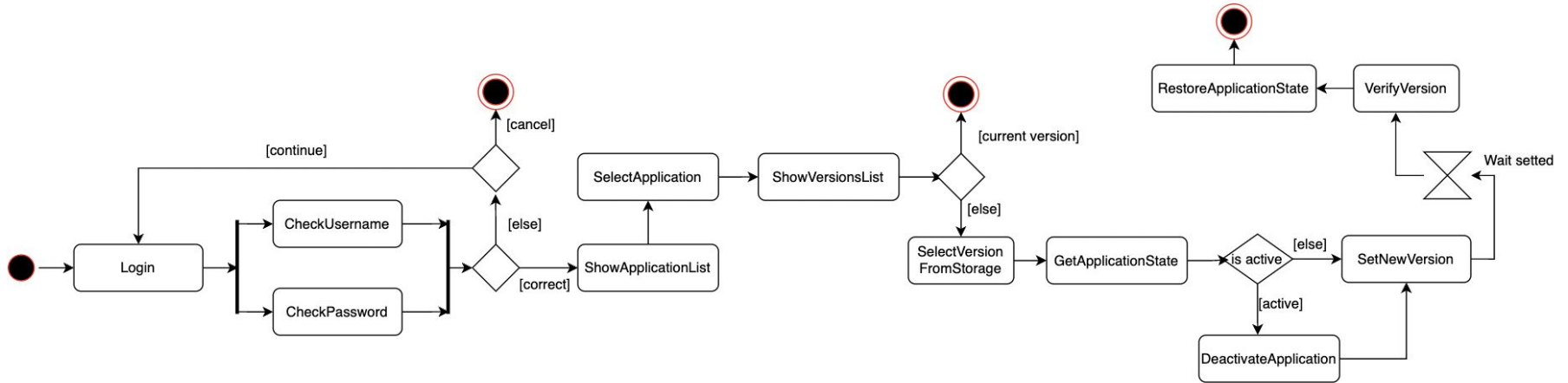
Version manager		
Do	Know	Interact
<ul style="list-style-type: none">• Control app versions• Issues the required version• Restore app version	<ul style="list-style-type: none">• All user's versions info (name, id, date, state...)• Access to the repository of all user versions	<ul style="list-style-type: none">• Version• Account

Role user		
Do	Know	Interact
<ul style="list-style-type: none">• Defines the functionality available to the user	<ul style="list-style-type: none">• Types of roles that determine the level of access to the application• Administrator account settings	<ul style="list-style-type: none">• Account

User		
Do	Know	Interact
<ul style="list-style-type: none">• Provides the user with access to the interaction with the application• Stores user information	<ul style="list-style-type: none">• User info (name, hash password...)• Role of user (Access to various functions)	<ul style="list-style-type: none">• Application manager• Version manager• Role user

Admin		
Do	Know	Interact
<ul style="list-style-type: none">• Provides the user with access to the interaction with the application• Stores user information	<ul style="list-style-type: none">• User info (name, hash password...)• Role of user (Access to various functions)	<ul style="list-style-type: none">• Application manager• Version manager• Kubernetes manager• Role user

Detailed behavior



Activity diagram of application's version recovery

Repository structure

ASDs

Summary

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

Stakeholders


- Developers
- DevOps
- Engineers
- Information Security
- Product managers
- Investors

Project Specification

Features

- Dynamic creation of backups and restoration of state
 - Service shall be able to backup the state of applications running within the framework on K8s

Main page

 advanced_software_designers

Public


main

3 Branches

Tags

Go to file

t

 Bquaith

Move md file

327951a

Class diagram

Add files via upload

Product definition

Add files via upload

Use case diagram

Move md file

hometasks

Presentation added

README.md

Update README.md

Repository structure

Repository structure

[advanced_software_designers](#) / [hometasks](#) / [task_7](#) / 



Bquaith Update folder name

Name



..



Task 7 - UML2.pdf



Task 7.drawio



Video presentation



main_scenarios.md

Presentation (slides)

Code (diagrams)

Video presentation

Textual description

Work products and documents

Repository structure

Used tools:

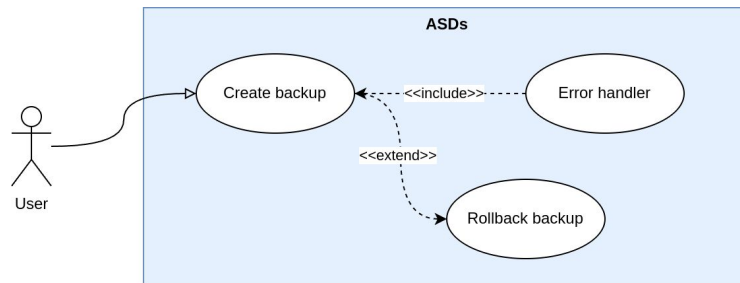
1. Repository and Docs storage: [GitHub](#)
2. Modeling tool:
 - a. draw.io - creating diagrams (class diagram, use case diagram, sequence diagram and others)
 - b. miro - Interaction analysis (CRC cards), story map
3. Team chat: Telegram

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Do	Know	Interact
<ul style="list-style-type: none">• Stores data about application (name, id, ...)• Controls the work state of app	<ul style="list-style-type: none">• Application info (name, id, ...)• Current version of application• State of app (activated, deactivated)	<ul style="list-style-type: none">• Application manager• Version

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Version manager		
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draw.io usage for creating use case diagram

miro usage for creating CRC cards

Team and roles



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Project Manager



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Backend
Developer



Derezovskiy Ilya
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System Architect



Sigal Lev
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Frontend
Developer