KEA

Data design

Product description

The product is a platform for deploying, managing, and scaling machine learning models in production. It offers a secure, flexible environment for automating ML tasks like model versioning, routing, and monitoring. With Kubernetes integration and containerization support, it's designed for developers, ML engineers, and enterprises needing scalable, reliable ML infrastructure.

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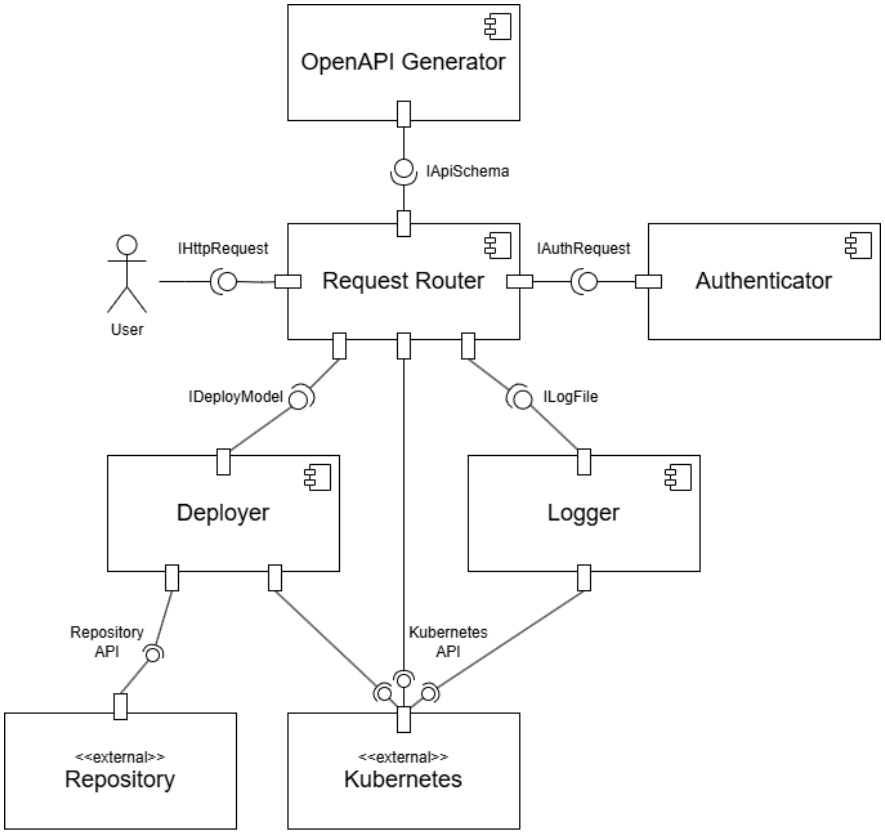
Project repo: https://github.com/fanglores/Advanced-Software-Design

This report: https://github.com/fanglores/Advanced-Software-Design/blob/master/Practice%20Tasks/Module2/Task_12/Task_12.pdf

System architecture

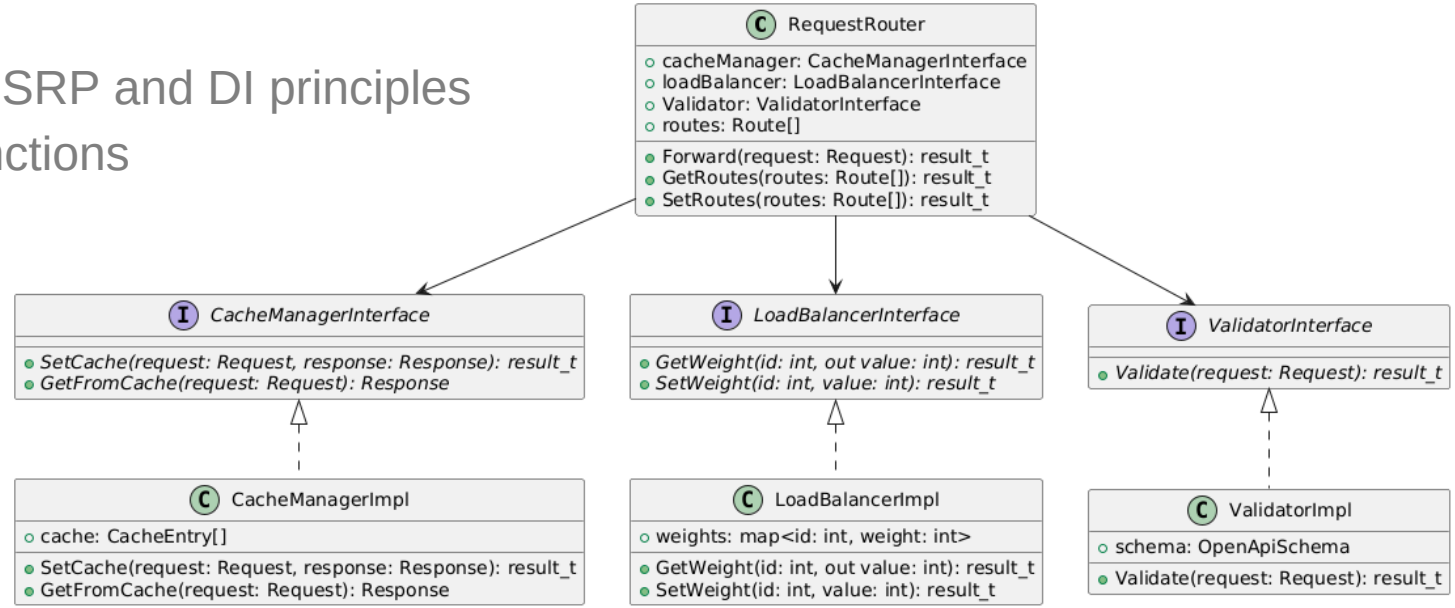
BASE
Microservices
RESTful API



Design case for RequestRouter

Problems: many functions for one class

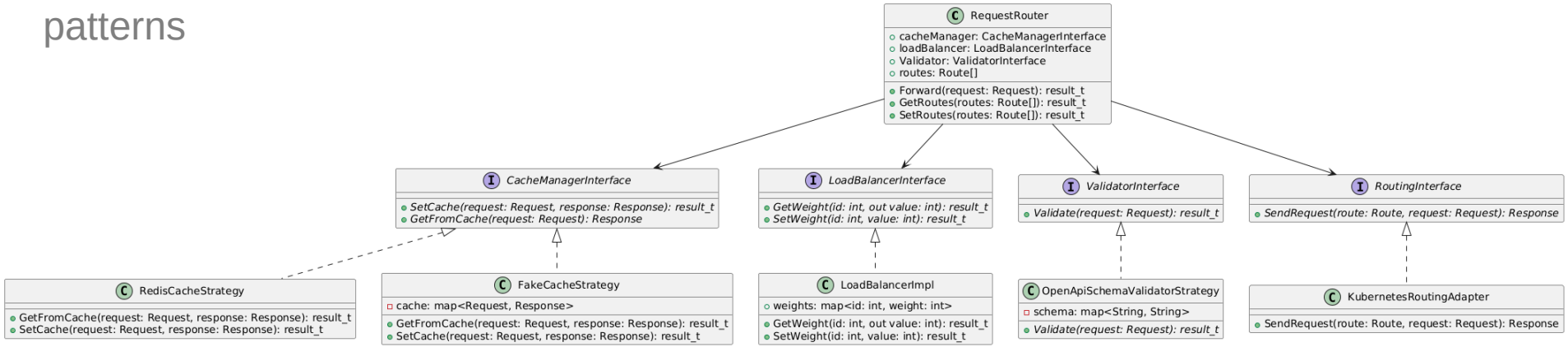
Solutions: use SRP and DI principles to delegate functions



Design case for RequestRouter

Problems: strong dependency on Kubernetes, OpenAPI schemas, cache storage

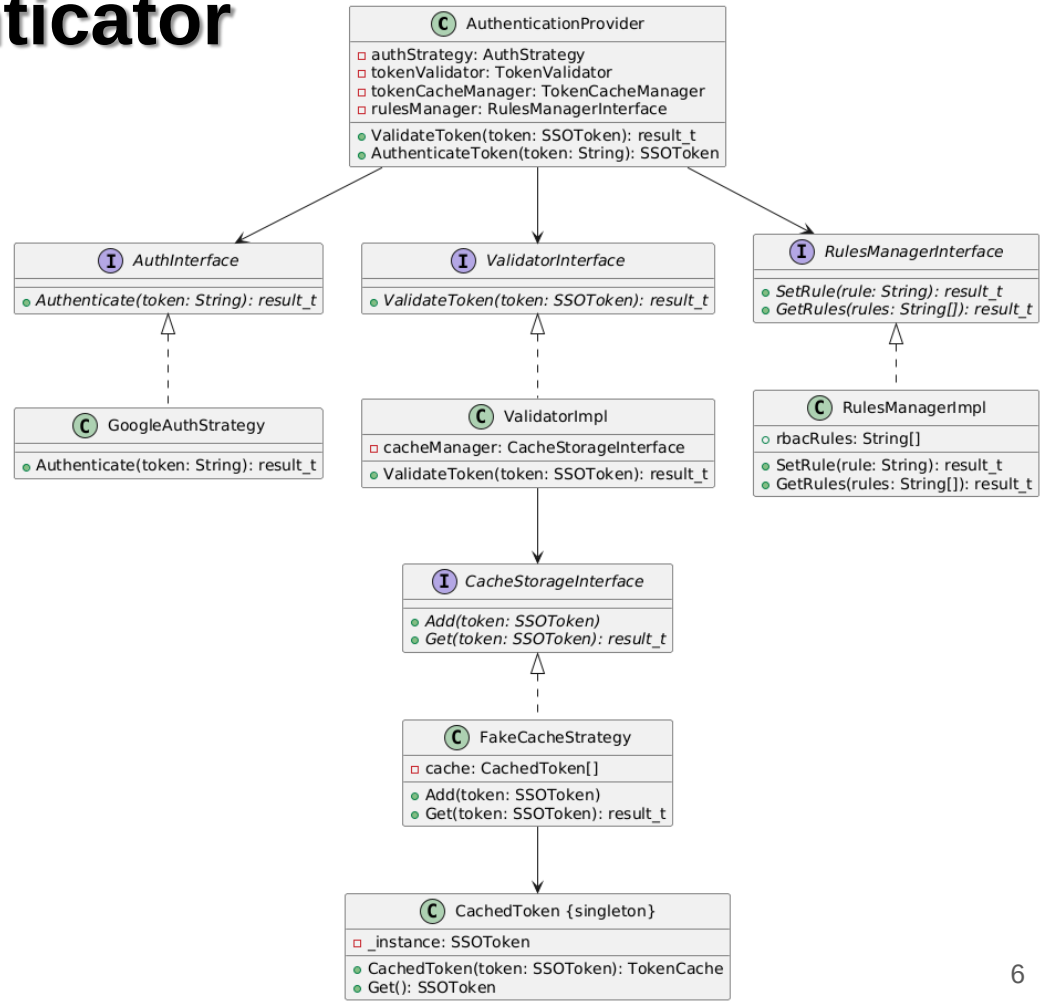
Solutions: use Strategy and Adapter patterns



Design case for Authenticator

Problems: all auth processes are implemented in AuthenticationProvider, new auth methods require changes in a base class

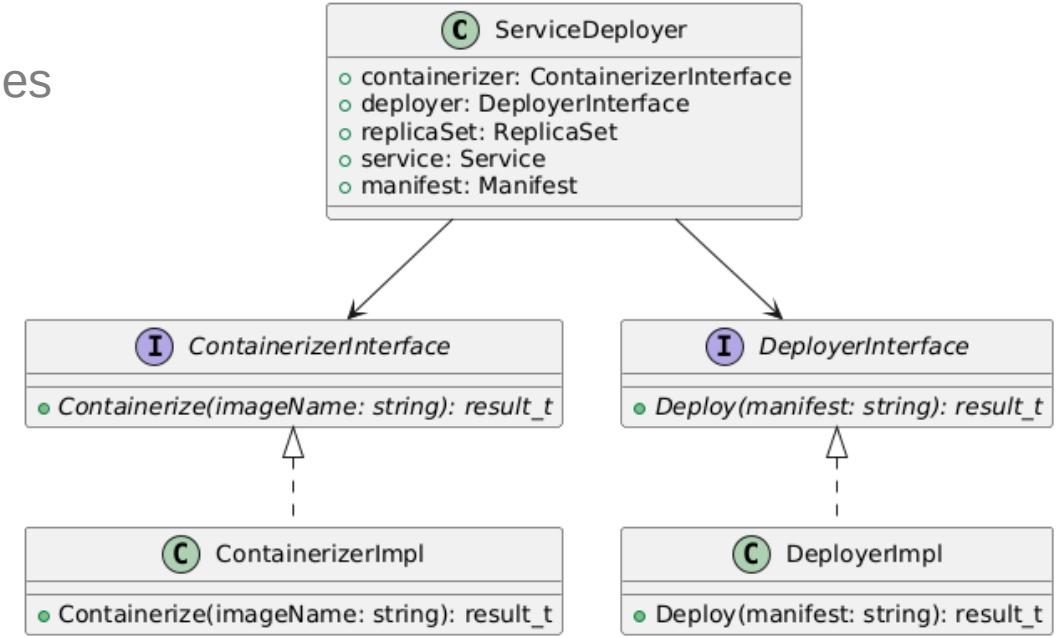
Solution: use SRP and DI principles, Strategy, Singleton patterns for separating different auth-protocols



Design case of Service Deployer

Problems: implements many functions

Solutions: use SRP and DI principles to delegate functions



Design case of Service Deployer

Problems: new deploy strategies require changes in ServiceDeployer; ServiceDeployer can work with different data, repository or orchestrator

Solutions: use DI principle, Adapter and Strategy patterns