

IS442: Object Oriented Programming

Project Demonstration

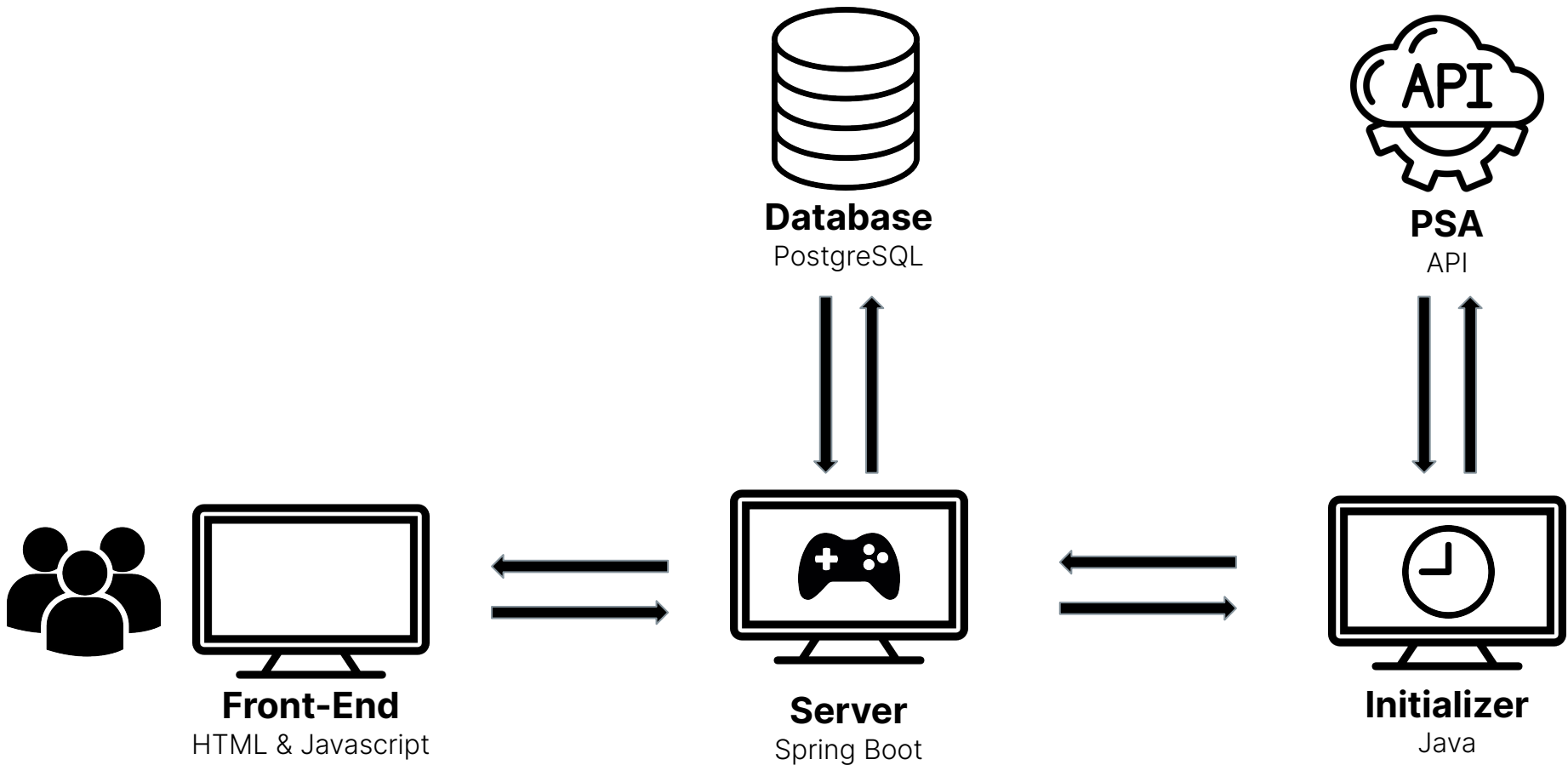
G1T6

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1. Project Explanation

The background of the slide is a solid blue color. Overlaid on this background are several wavy, horizontal lines composed of small, dark blue dots. These lines create a sense of motion and depth, with some lines appearing more prominent than others. The lines start from the left edge and extend towards the right, with some curving upwards and others downwards.

Client-Server Architecture Diagram



External Libraries Used

Name	Purpose
Spring Boot Frameworks	Avoid writing of boilerplate code, annotations and XML configurations. Utilisation of the benefits from the Spring ecosystem.
Postgresql & JDBC	To be able to make connections with our Postgresql backend
Google Guava	Guava's multi-mapping functionality allows for an easier implementation of the PUT function
Google Gson	To easily parse through the JSON string returned by the PSA API upon calling it

External Libraries Used

Name	Purpose
Hibernate	Entity mapping, auto-creation of tables in the DB. JPA syntax to interact with the DB
JSON-Java(org.json)	Create, manipulate and parse JSON received from initializer into JSONObject and JSONArray
Jackson	Convert JSON object to POJO
Javamail	Allow Spring Boot application to send email to users

Libraries Considered

Name	Purpose
MongoDB	Non-relational, no schema JSON DB.
JdbcTemplate	SQL statements to interact with the DB.
Flyway DB	DB migration.
Apache Commons Collections	Commons Collections augments Java Collections Framework.
Keycloak	Secures the API by enabling authorisation for API calls.

Design Principles

Name	Purpose
Model, View, Controller (MVC)	Decouples the program logic into 3 interconnected layers.
Singleton (@Bean, @AutoWired)	Ensures that only 1 instance of a class exists in JVM at any one time.
Data Transfer Object (DTO)	Serialisation and deserialisation mechanisms; A means for data transport.
Modularity	To allow for maintainability, extensibility and reusability of the code.

Backend Package Structure

API

API interface

Models

Controller

Controllers

DAOs

Services

Repositories

Entrypoint

App

2. Project Demonstration

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Thanks!

Any questions?

