Java DevCamp 2023

Girls edition

Agenda Workshop #4
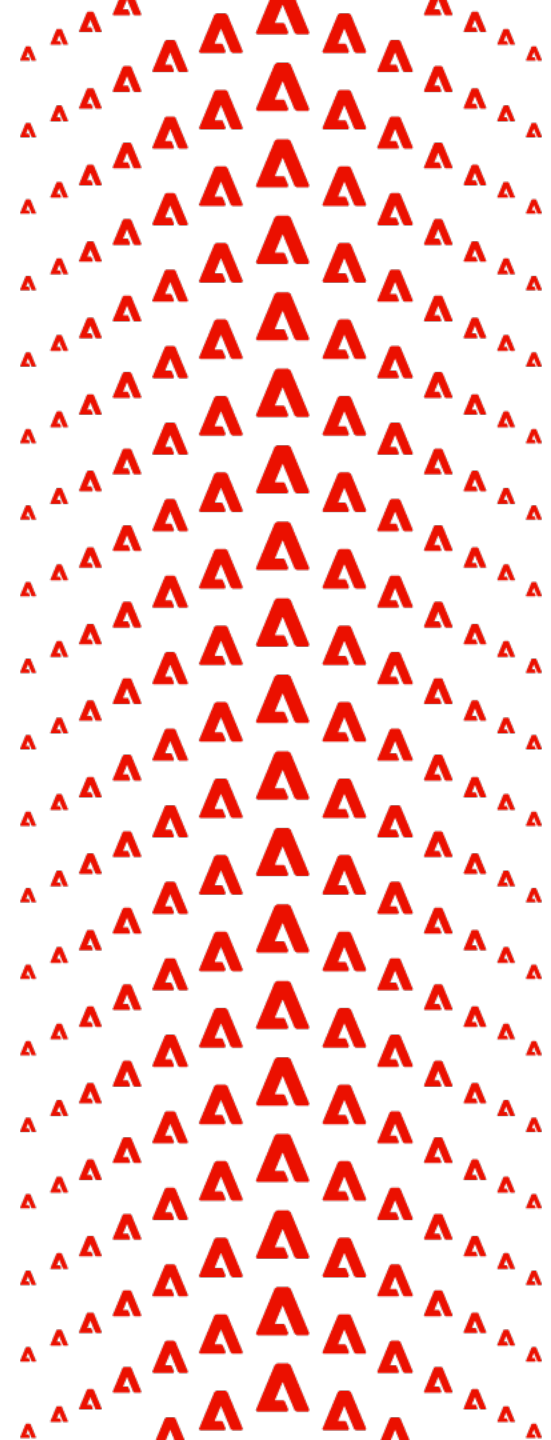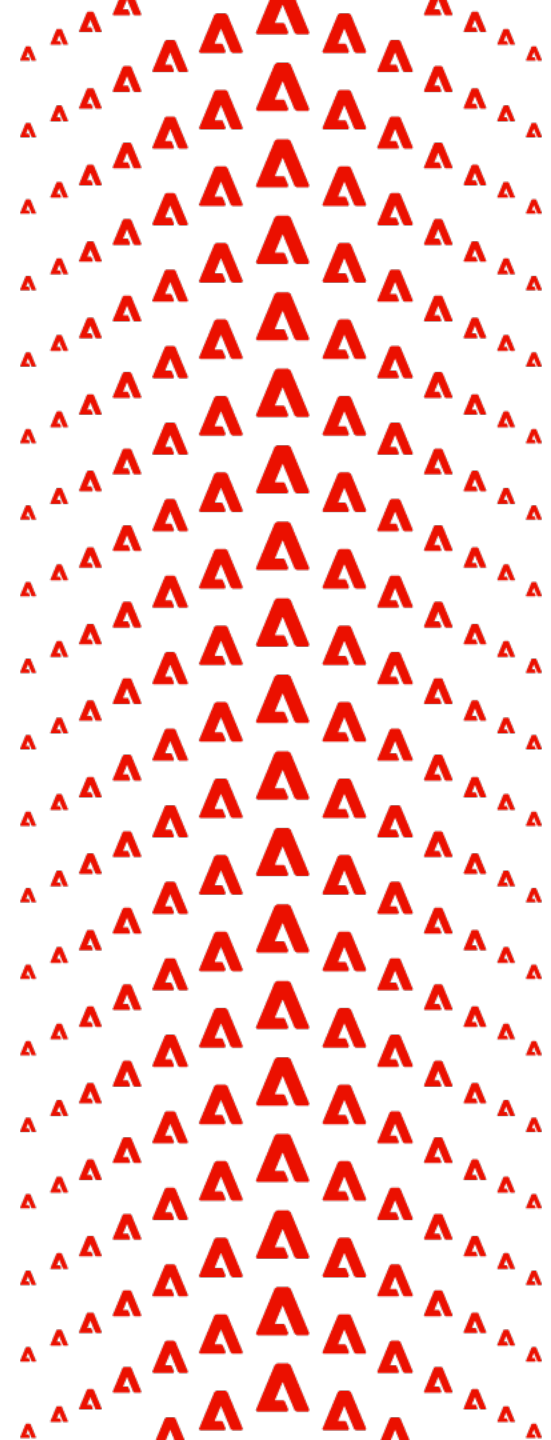
Databases

Types of Data

Unstructured Data

Text, images, videos, social media content etc.

VS

Structured Data

Organized in rows and columns
(relational databases and spreadsheets)

Relational database

- Relational database

  - **is like a digital filing system where we**

    - organize information into tables

    - create relationships between them

    - use keys to uniquely identify each piece of information

  - **is a structured way to**

    - store and manage data

    - easily retrieve and analyze data

Relational databases - Data integrity

- **Primary key**

  o is a unique identifier for each record in a table

  o must have unique and non-null values by default

- **Foreign key**

  o is a column/set of columns in a table that refers to the primary key of another table

  o establishes a link between the two tables

  o used to represent relationships

- **Unique constraint**

  o the insertion of duplicate data in the specified column is not allowed

  o each value in the column must be unique within the entire table

Database diagram
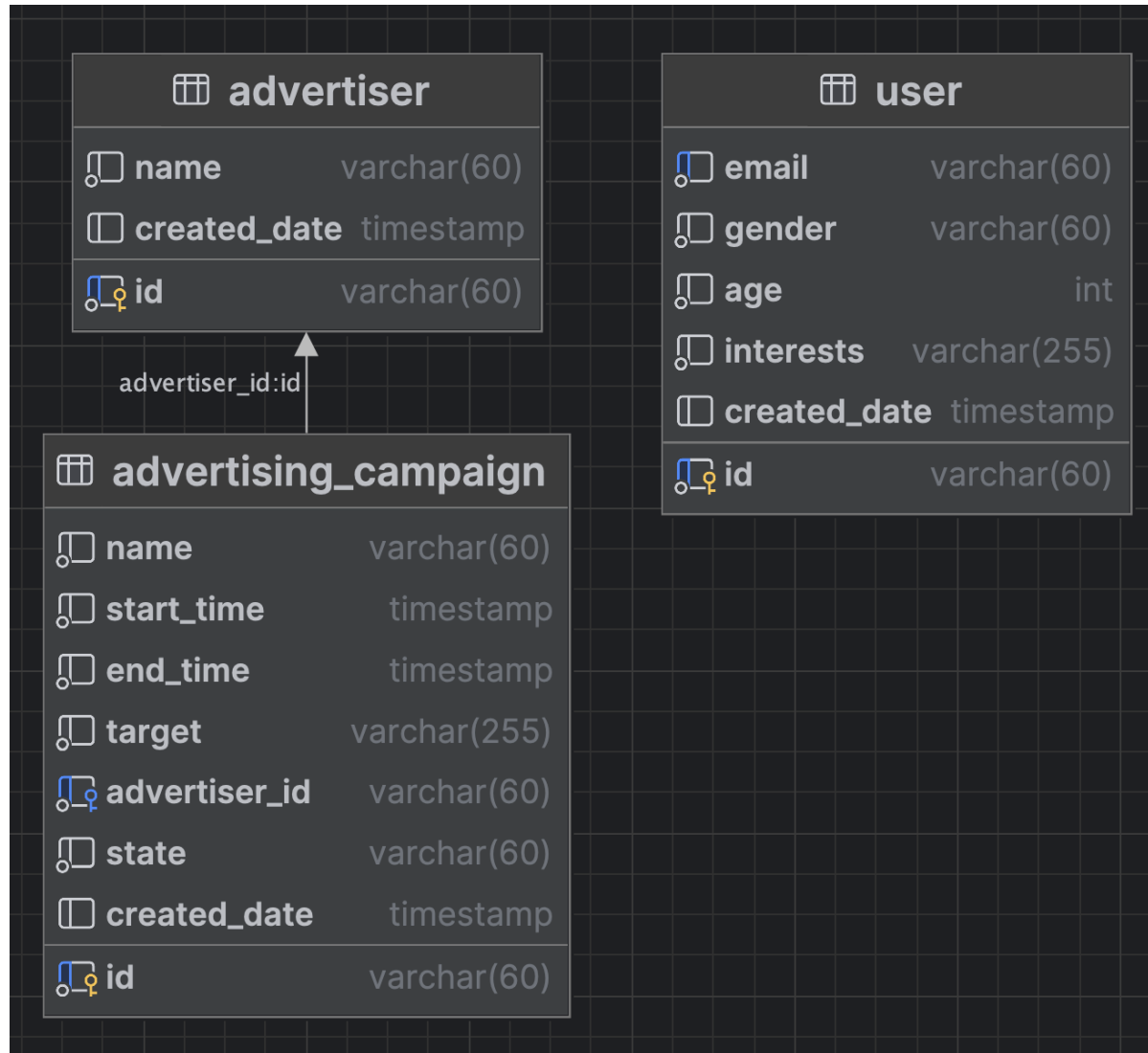
Relational Database with MySQL

id	email	gender	age	interests

INSERT INTO user VALUES
('1', 'example@adobe.com', 'MALE', 30, 'Programming')

id	email	gender	age	interests
1	example@adobe.com	MALE	30	Programming

Let's play with MySQL

- Connect to the bash into the running MySQL container

    o **docker exec -it <CONTAINER_NAME> /bin/bash**

- Run MySQL client form bash container

    o **mysql -uroot -pP@ssw0rd**

- Explore MySQL commands

    o e.g show databases;

    o Back to code:

        - *src/resources/mysql-playground/playground.sql*
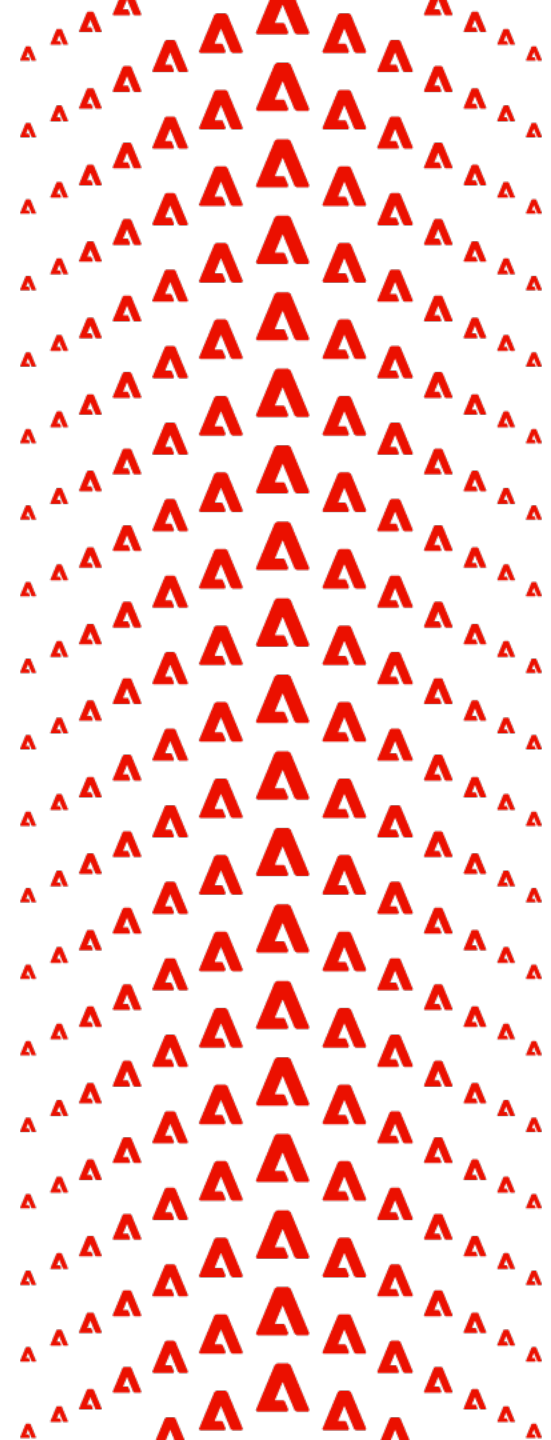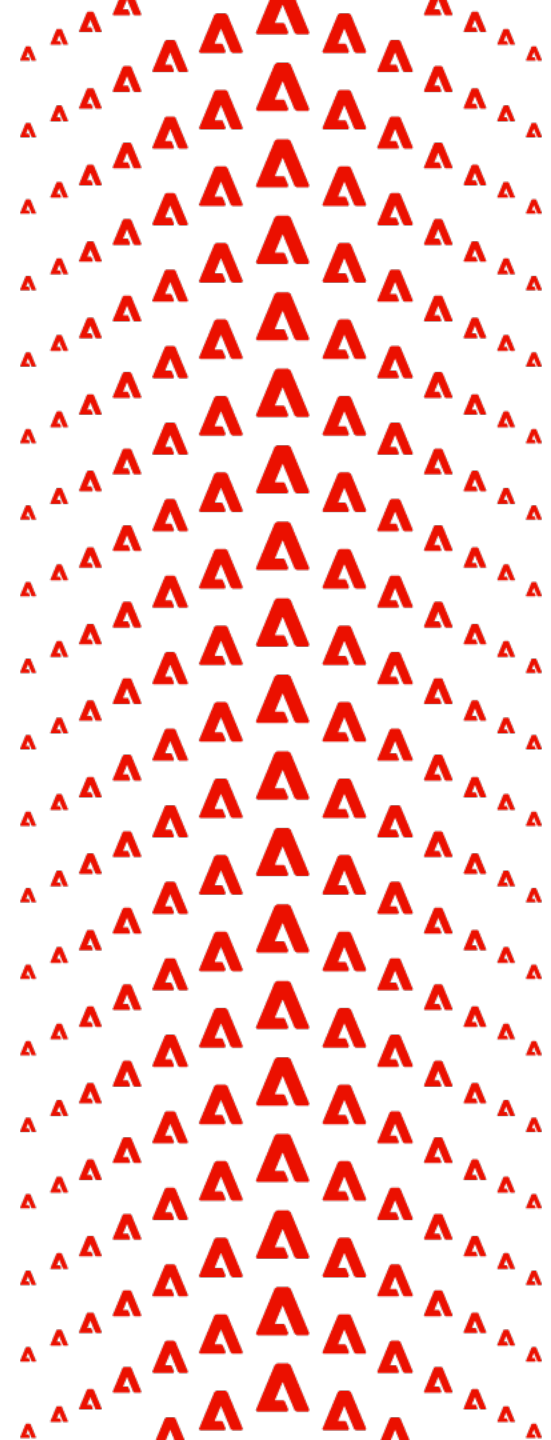
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MVC Model Reveal 🎭
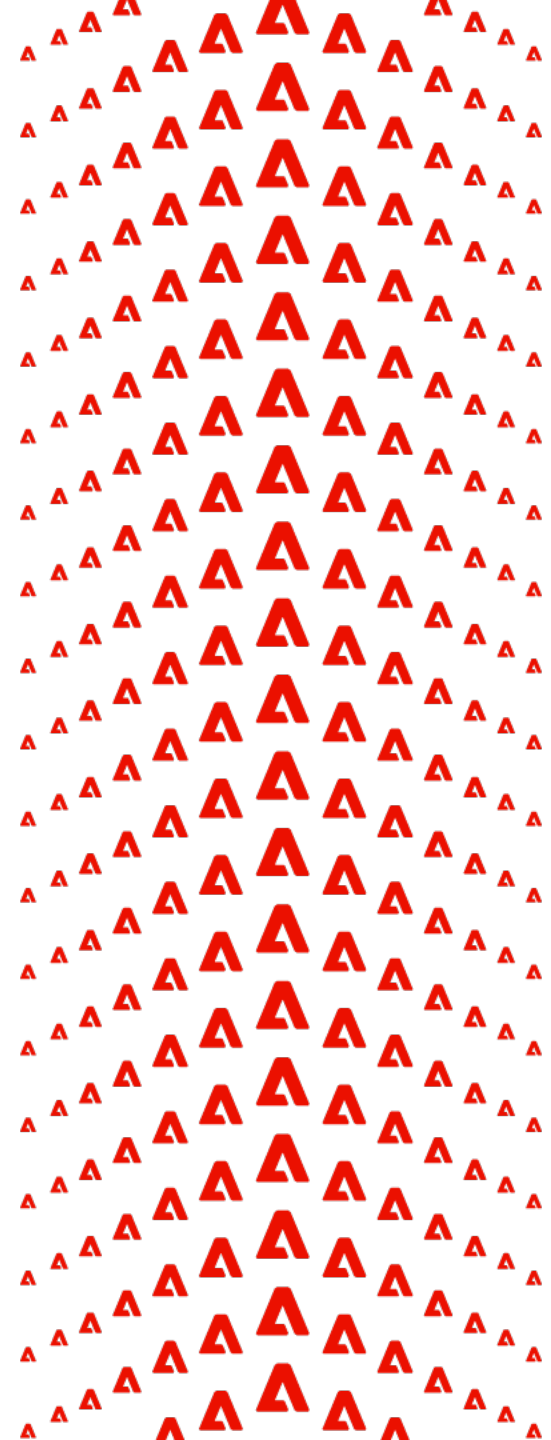
Mandatory Annotations

- **@Entity** – for marking the class as a representation of a **table**

- **@Id** – for marking a field as a **primary key** in the table

Let's inspect the user API flow ⏳

Java Persistence API🌝

JPA

- Tool that simplifies database interactions by providing an **abstraction** layer that allows developers to work with Java objects instead of directly dealing with SQL queries
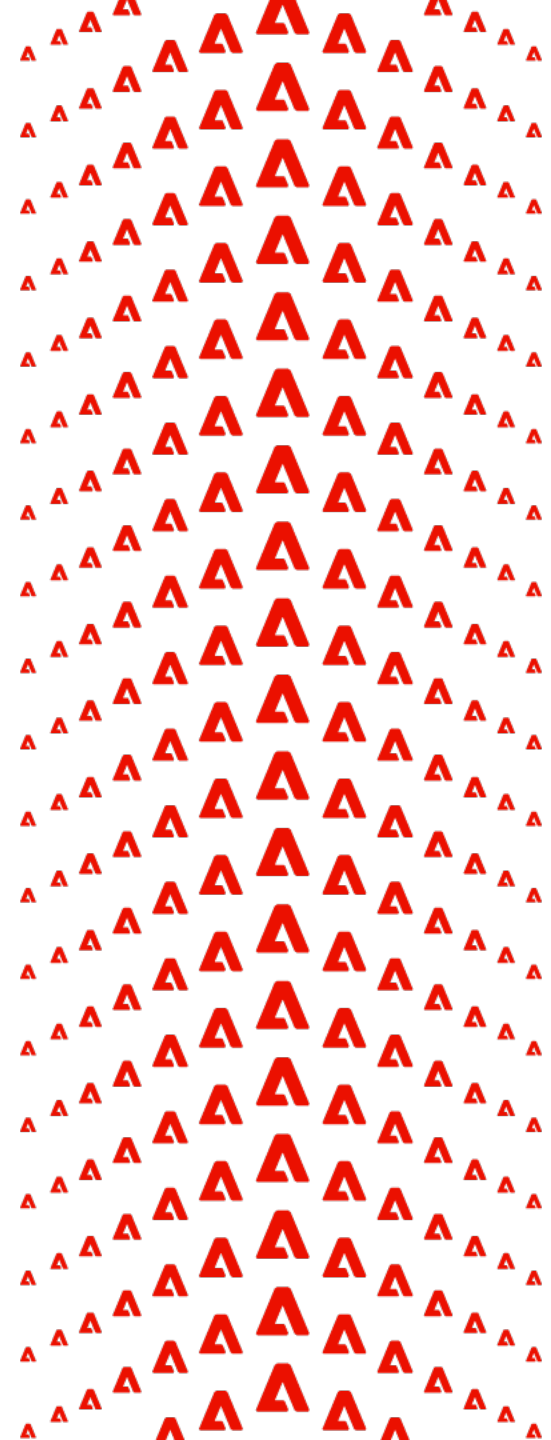
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JPA

- Tool that simplifies database interactions by providing an **abstraction** layer that allows developers to work with Java objects instead of directly dealing with SQL queries

- **How do we tell Spring to connect to our database?🤔**

Let's unmock the User repository👩🏼‍💻

That's all.

Closing notes

- Thank you for participating to this DevCamp!

- You can find all the information in the **Java DevCamp 2023** GitHub repository

- Use the feedback form if you have any feedback for this session

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Be
Artwork by **Frank Moth**