



Pengembangan Web Praktik

Database Migration

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Materi perkuliahan

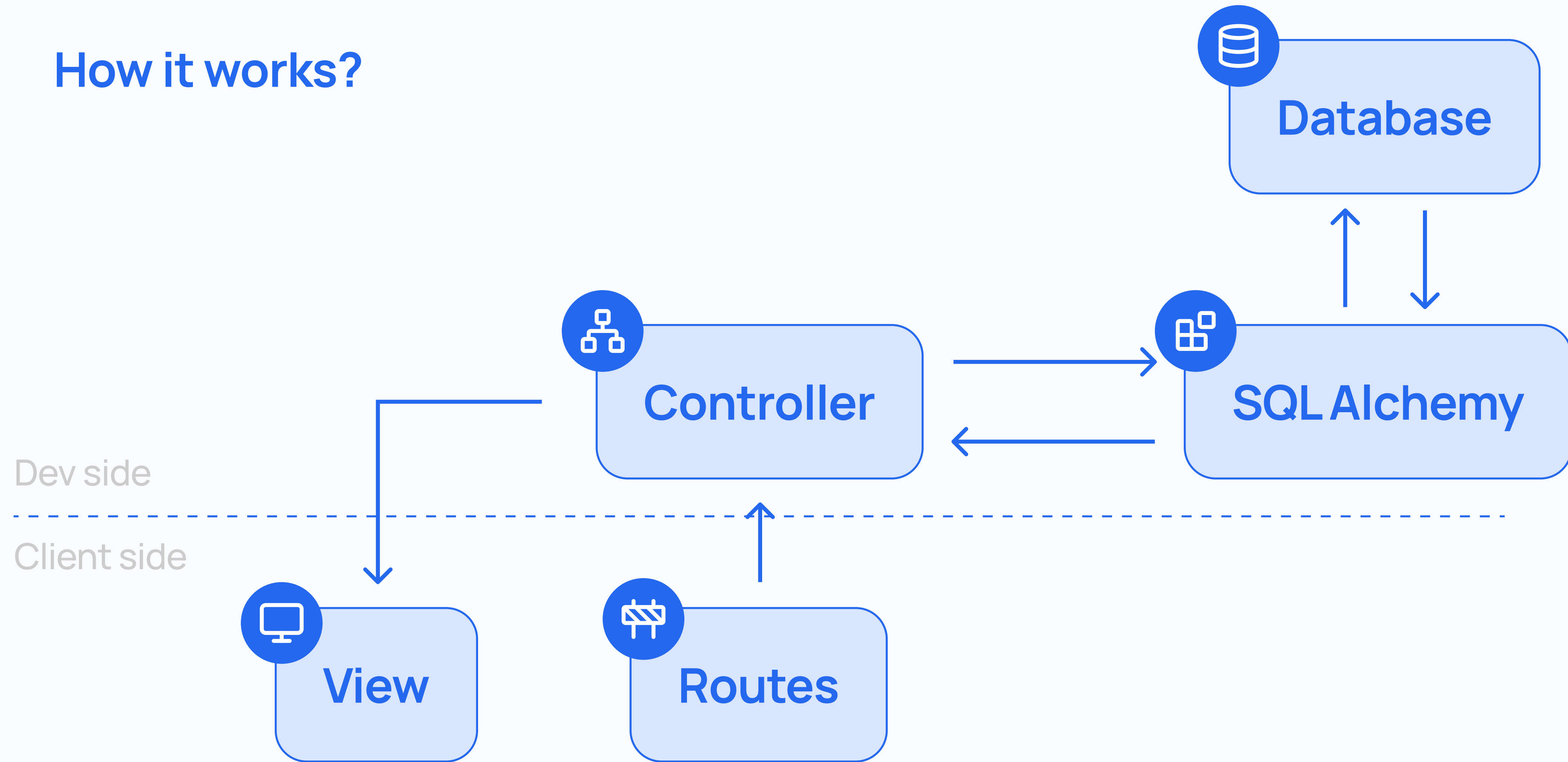
- 1 Perkenalan, Silabus, Pengenalan Konsep web dan server
- 2 Dasar UI/UX Design, Instalasi Flask
- 3 Integrasi, HTML & CSS Dasar
- 4 Integrasi Flask View Template
- 5 Integrasi Flask Bootstrap dan Mysql CRUD
- 6 Penerapan Session pada Flask
- 7 Responsi
- 8 Arsitektur MVC pada Flask
- 9 Konsep microservices dan Rest API pada Flask
- 10 Migration Model CRUD Rest API pada Flask
- 11 Penerapan API JWT pada Flask
- 12 Integrasi Flask dan Javascript
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- 14 Presentasi Proyek Besar

SQL Alchemy



SQLAlchemy provides an **Object Relational Mapper (ORM)** to interact with relational databases using Python classes, simplifying database operations. It also offers for writing SQL queries in Python and **supports various databases, schema management, and connection pooling.**

How it works?



SQLAlchemy analogy in building home

Documentation of renovation

Migration versioning

Moving things around

Data Migration

Layout changes

Changing table structure

Additional room space

Add new column



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How to implement?

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Installation

Flask sql mapping module



```
→ pip install flask-migrate flask-sqlalchemy
```



Flask migration module

Configuration



```
1 app = Flask(__name__)
2 app.config["MYSQL_HOST"] = "localhost"
3 app.config['MYSQL_PORT'] = 3306
4 app.config["MYSQL_USER"] = "root"
5 app.config["MYSQL_PASSWORD"] = ""
6 app.config["MYSQL_DB"] = "db_books"
7 app.config['SQLALCHEMY_DATABASE_URI'] = f'mysql+pymysql://root:@localhost:3306/db_books'
8 app.config['SQLALCHEMY_TRACK_MODIFICATIONS'] = False
9 app.config['SQLALCHEMY_RECORD_QUERIES'] = True
```


Create Model

```
1 from myproject.app import db
2
3
4 class Books(db.Model):
5     __tablename__ = 'books'
6     id = db.Column(db.Integer, primary_key=True)
7     title = db.Column(db.String(50), nullable=False)
8     author = db.Column(db.String(30), nullable=False)
9     created_at = db.Column(db.DateTime, server_default=db.func.now())
10
11     def __init__(self, title, author):
12         self.title = title
13         self.author = author
14
15     def __repr__(self):
16         return f'<Book {self.title}>'
```

Database Initialization

```
→ flask db init
```

Database Schema Changes

```
→ flask db migrate -m "some changes"
```

Upgrade Schema

→ flask db upgrade

Downgrade Schema

→ flask db downgrade



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Let's dive into Flask!

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