Chapter 1: Professional API Documentation & Architecture

Overview

FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows.

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Sample Code Implementation

```
from fastapi import FastAPI, Depends, HTTPException
from pydantic import BaseModel
from sqlalchemy import create_engine, Column, Integer, String, Boolean, DateTime
from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
```

```
class TodoDB(Base):
    __tablename__ = "todos"
    id = Column(Integer, primary_key=True)
    title = Column(String(255), nullable=False)
    done = Column(Boolean, default=False)
    created_at = Column(DateTime, default=datetime.utcnow)

class TodoCreate(BaseModel):
    title: str

class TodoUpdate(BaseModel):
    title: str | None = None
    done: bool | None = None

app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
)

def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
```

Chapter 2: Professional API Documentation & Architecture

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Sample Code Implementation

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from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
```

```
class TodoDB(Base):
    __tablename__ = "todos"
    id = Column(Integer, primary_key=True)
    title = Column(String(255), nullable=False)
    done = Column(Boolean, default=False)
    created_at = Column(DateTime, default=datetime.utcnow)

class TodoCreate(BaseModel):
    title: str

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    title: str | None = None
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app = FastAPI(
    title="Todo API Documentation System",
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def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
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Chapter 3: Professional API Documentation & Architecture

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Chapter 4: Professional API Documentation & Architecture

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Sample Code Implementation

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from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
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```
class TodoDB(Base):
    __tablename__ = "todos"
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    title: str

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    title: str | None = None
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app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
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def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
```

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Base = declarative_base()
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```
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Chapter 6: Professional API Documentation & Architecture

Overview

FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows.

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Sample Code Implementation

```
from fastapi import FastAPI, Depends, HTTPException
from pydantic import BaseModel
from sqlalchemy import create_engine, Column, Integer, String, Boolean, DateTime
from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
```

```
class TodoDB(Base):
    __tablename__ = "todos"
    id = Column(Integer, primary_key=True)
    title = Column(String(255), nullable=False)
    done = Column(Boolean, default=False)
    created_at = Column(DateTime, default=datetime.utcnow)

class TodoCreate(BaseModel):
    title: str

class TodoUpdate(BaseModel):
    title: str | None = None
    done: bool | None = None

app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
)

def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
```

Chapter 7: Professional API Documentation & Architecture

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Sample Code Implementation

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from pydantic import BaseModel
from sqlalchemy import create_engine, Column, Integer, String, Boolean, DateTime
from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
```

```
class TodoDB(Base):
    __tablename__ = "todos"
    id = Column(Integer, primary_key=True)
    title = Column(String(255), nullable=False)
    done = Column(Boolean, default=False)
    created_at = Column(DateTime, default=datetime.utcnow)

class TodoCreate(BaseModel):
    title: str

class TodoUpdate(BaseModel):
    title: str | None = None
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app = FastAPI(
    title="Todo API Documentation System",
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def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
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Chapter 8: Professional API Documentation & Architecture

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Sample Code Implementation

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from pydantic import BaseModel
from sqlalchemy import create_engine, Column, Integer, String, Boolean, DateTime
from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
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```
class TodoDB(Base):
    __tablename__ = "todos"
    id = Column(Integer, primary_key=True)
    title = Column(String(255), nullable=False)
    done = Column(Boolean, default=False)
    created_at = Column(DateTime, default=datetime.utcnow)

class TodoCreate(BaseModel):
    title: str

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    title: str | None = None
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app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
)

def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
```

Chapter 10: Professional API Documentation & Architecture

Overview

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Sample Code Implementation

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Base = declarative_base()
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```
class TodoDB(Base):
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    title: str

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        yield db
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Chapter 11: Professional API Documentation & Architecture

Overview

FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows.

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Sample Code Implementation

```
from fastapi import FastAPI, Depends, HTTPException
from pydantic import BaseModel
from sqlalchemy import create_engine, Column, Integer, String, Boolean, DateTime
from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
```

```
class TodoDB(Base):
    __tablename__ = "todos"
    id = Column(Integer, primary_key=True)
    title = Column(String(255), nullable=False)
    done = Column(Boolean, default=False)
    created_at = Column(DateTime, default=datetime.utcnow)

class TodoCreate(BaseModel):
    title: str

class TodoUpdate(BaseModel):
    title: str | None = None
    done: bool | None = None

app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
)

def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
```

Chapter 12: Professional API Documentation & Architecture

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Sample Code Implementation

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from pydantic import BaseModel
from sqlalchemy import create_engine, Column, Integer, String, Boolean, DateTime
from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
```

```
class TodoDB(Base):
    __tablename__ = "todos"
    id = Column(Integer, primary_key=True)
    title = Column(String(255), nullable=False)
    done = Column(Boolean, default=False)
    created_at = Column(DateTime, default=datetime.utcnow)

class TodoCreate(BaseModel):
    title: str

class TodoUpdate(BaseModel):
    title: str | None = None
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app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
)

def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
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Chapter 13: Professional API Documentation & Architecture

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@app.get("/api/todos")
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Chapter 14: Professional API Documentation & Architecture

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Sample Code Implementation

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from pydantic import BaseModel
from sqlalchemy import create_engine, Column, Integer, String, Boolean, DateTime
from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
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```
class TodoDB(Base):
    __tablename__ = "todos"
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    title: str

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    title: str | None = None
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app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
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def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
```

Chapter 15: Professional API Documentation & Architecture

Overview

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Sample Code Implementation

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SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
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class TodoDB(Base):
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Chapter 16: Professional API Documentation & Architecture

Overview

FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows. FastAPI API documentation enables developers to work with highly structured, interactive, and self-updating API specifications powered by OpenAPI standards. Swagger UI automatically reflects endpoint definitions, request bodies, validation rules, and response models. The integration of SQLAlchemy ORM with FastAPI ensures seamless data handling across relational databases. Through dependency injection, modular routers, and asynchronous request handling, the application architecture remains scalable, secure, and production-ready. This report covers each aspect in detail, ensuring a complete understanding of professional API development workflows.

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Sample Code Implementation

```
from fastapi import FastAPI, Depends, HTTPException
from pydantic import BaseModel
from sqlalchemy import create_engine, Column, Integer, String, Boolean, DateTime
from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
```

```
class TodoDB(Base):
    __tablename__ = "todos"
    id = Column(Integer, primary_key=True)
    title = Column(String(255), nullable=False)
    done = Column(Boolean, default=False)
    created_at = Column(DateTime, default=datetime.utcnow)

class TodoCreate(BaseModel):
    title: str

class TodoUpdate(BaseModel):
    title: str | None = None
    done: bool | None = None

app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
)

def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
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from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
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```
class TodoDB(Base):
    __tablename__ = "todos"
    id = Column(Integer, primary_key=True)
    title = Column(String(255), nullable=False)
    done = Column(Boolean, default=False)
    created_at = Column(DateTime, default=datetime.utcnow)

class TodoCreate(BaseModel):
    title: str

class TodoUpdate(BaseModel):
    title: str | None = None
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app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
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def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
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Chapter 18: Professional API Documentation & Architecture

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Sample Code Implementation

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from fastapi import FastAPI, Depends, HTTPException
from pydantic import BaseModel
from sqlalchemy import create_engine, Column, Integer, String, Boolean, DateTime
from sqlalchemy.orm import sessionmaker, declarative_base, Session
from datetime import datetime

DATABASE_URL = "sqlite:///./todo.db"
engine = create_engine(DATABASE_URL, connect_args={"check_same_thread": False})
SessionLocal = sessionmaker(bind=engine, autoflush=False, autocommit=False)
Base = declarative_base()
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```
class TodoDB(Base):
    __tablename__ = "todos"
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    title: str

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    title: str | None = None
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app = FastAPI(
    title="Todo API Documentation System",
    description="Detailed FastAPI & Swagger UI based documentation",
    version="1.0.0"
)

def get_db():
    db = SessionLocal()
    try:
        yield db
    finally:
        db.close()

@app.get("/api/todos")
def get_todos(db: Session = Depends(get_db)):
    return db.query(TodoDB).all()
```

Chapter 20: Professional API Documentation & Architecture

Overview

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Base = declarative_base()
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