

RESTful Diner

A 5-stars Open Data repository to handle restaurants order data

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A brief overview of what we are about to see:

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The Problem

In a far away land, there is a restaurant that is serving every day thousands of hungry customers. The restaurant owner needs a system to keep track of all the orders that are coming in, and that can also help him to analyze the data in order to improve the service that he is offering to his customers.

The restaurant owner understands that the data that he is collecting is very valuable, and he wants to make it available to the public, so that other willing Data Scientists can help him to improve his business.

The Solution

The solution of the problem is to design a system that can handle the restaurant orders data, and that can also provide an API to access the data in a simple and efficient way.

In a few words, an **Open Data API system** is exactly what the restaurant owner needs.

Use Case Diagram

The first step of our development to identify the use cases of our system. We have identified four main use cases:

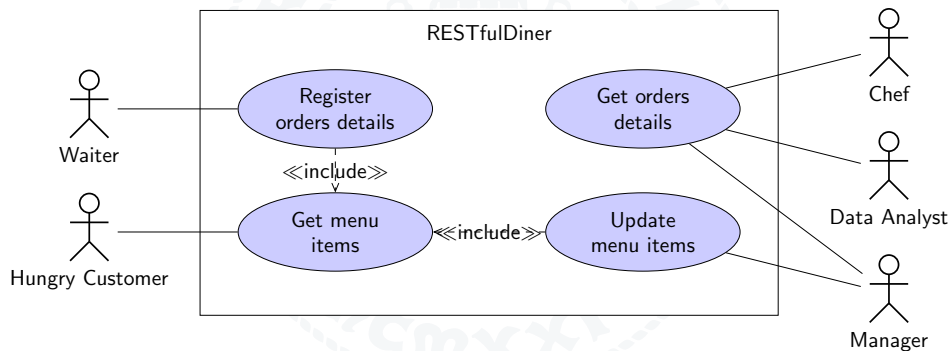


Figure: Use cases diagram

E/R Diagram

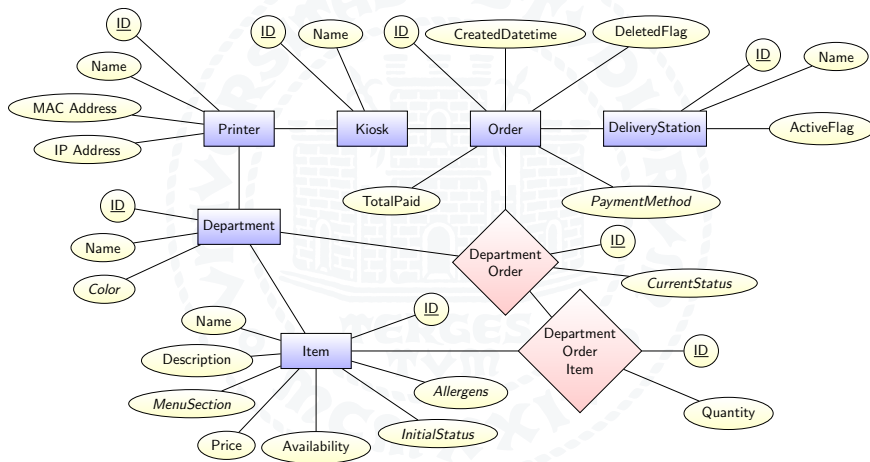


Figure: E/R diagram

Data model implementation I

```
1 class BaseModel(DeclarativeBase):  
2     __abstract__ = True  
3     metadata = metadata  
  
4     id: Mapped[UUIDType] = mapped_column(  
5         cd.ID,  
6         default=uuid,  
7         primary_key=True,  
8         comment="Unique row identifier.",  
9     )
```

Listing 1: ../app/models/_base.py

Data model implementation II

```
1 class Department(BaseModel):
2     name: Mapped[str] = mapped_column(
3         cd.SHORT_NAME,
4         unique=True,
5         comment="Unique name of the department",
6     )
7     color: Mapped[Optional[str]] = mapped_column(
8         cd.SHORT_NAME,
9         comment="Department color",
10    )
11    printer_id: Mapped[Optional[UUIDType]] = mapped_column(
12        cd.ID,
13        ForeignKey("printer.id"),
14        nullable=True,
15        default=None,
16        comment="Printer identifier associated with the department",
17    )
18    printer = relationship("Printer", back_populates="department")
19    items = relationship("Item", back_populates="department")
```

Listing 2: ../app/models/department.py

API resources

```
1 class DepartmentResource(ProtectedResource):
2
3     def get(
4         self, *, _id: str | None = None, name: str | None = None
5     ) -> tuple[dict, int]:
6         if _id or name:
7             department = (
8                 db.session.query(Department)
9                 .where(
10                     Department.id == _id if _id else Department.name == name
11                 )
12                 .one_or_none()
13             )
14             if department:
15                 return DepartmentDTO.from_model(department), 200
16             return {"message": "Department was not found"}, 404
17
18 departments = db.session.query(Department).all()
19 return DepartmentDTO.from_model_list(departments), 200
```

Listing 3: ../app/resources/department.py

```
1 {
2   "@context": {
3     "schema": "https://schema.org/",
4     "self": "@id",
5     "type": "@type",
6     "name": "schema:name",
7     "printer": {
8       "@id": "schema:isRelatedTo",
9       "@type": "@id"
10    },
11    "license": {
12      "@id": "schema:license",
13      "@type": "@id"
14    }
15  },
16  "license": "https://creativecommons.org/licenses/by/4.0/",
17  "data": [
18    {
19      "self": "http://127.0.0.1/api/v1/departments/851c8de8-fb55-11ef-9aea-0242ac120003",
20      "type": "schema:Organization",
21      "name": "Kitchen",
22      "printer": "http://127.0.0.1/api/v1/printers/67936882-fb55-11ef-b5b9-0242ac120003"
23    },
24  ]
25 }
```

Listing 4: GET /api/v1/departments response

Open Data principles I



Make your stuff available on the Web (whatever format) under an open license.



Make it available as structured data (e.g., Excel instead of image scan of a table).



Make it available in a non-proprietary open format (e.g., CSV instead of Excel).

These requirements are satisfied by our RESTful API that allows publicly access to data in JSON format and provide them under Creative Commons license.

Open Data principles II



Use URIs to denote things, so that people can point at your stuff.



Link your data to other data to provide context.

Every resource in the system is identified by a URI, and can be accessed by a simple HTTP GET request to that URI. A relation between resources is established by linking them in the JSON response.

Conclusions

Questions?

