Lab 04. Insert Data

Objectives:

- Learn how to post data to server
- Learn how to save data into MongoDB

A. Create a New Project

1. Create a folder `lab04` with a new python file `main.py` in it.
2. Implement a home route in `main.py`.
3. Execute `main.py` file to run the web server.

B. Send Data to API

To send data to server, we send it as a **request body**. The data can be a JSON object.

1. Implement a `POST /books` route which receives a dictionary from request body, and return it as response.

```
@app.post('/books')
def save_book(book: dict = Body(...)):
    return book
```

2. Go to http://localhost:8000/docs to test the route with following JSON data.

```
{"book": {"title": "My Book", "authors": [], "pages":123 } }
```

Data Model

We can declare our own data model as a class that inherits from `BaseModel`. It helps to validate data in the request body.

3. Add following class which matches structure of a `book` document.

```
class Book(BaseModel):
    title: str
    authors: List[str] = None
    tags: List[str] = None
    pages: Optional[int] = None
    publishes: Optional[int] = None
```

4. Modify the route `POST /books` as following to use the Model class.

```
@app.post('/books')
def save_book(book: Book):
    return book
```

5. Test the route with valid and invalid `book` schemas.

C. Connect to MongoDB

1. Create a file `database.py` with following code
    - Use your own connection string with correct username, password and database

```
from pymongo import MongoClient

# MongoDB attributes
mongodb_url =
'mongodb+srv://root:qwer1234@cluster0.hlixs.mongodb.net__/demo?
retryWrites=true&w=majority'

try:
  client = MongoClient(mongodb_url)
  db = client['demo']
  print('Connected to MongoDB')
except Exception as e:
  print(repr(e))
  raise Exception('Error in MongoDB connection.')
```

2. Import `database.py` file in `main.py`.

```
from database import *
```

Save a Book

1. Modify the route `POST /books` to save data into MongoDB
    - A model can be converted to a dictionary using its `dict()` method. More info at https://pydantic-docs.helpmanual.io/usage/exporting_models/
    - The API returns the ID of inserted document. Remember to convert it from ObjectId to string using `str()`.

```
@app.post('/books')
def save_book(book: Book):
    try:
        result = db.books.insert_one(book.dict())
        return {'_id': str(result.inserted_id)}
    except Exception as e:
        print(repr(e))
        return JSONResponse({'message': 'Error in saving book'}, 500)
```