Q1. We have an online store with items organized in categories, sub-categories, and sub-sub-categories up to N levels. Draw the database structure for the online store with the category tree to store things. Each category has a name. The number and level of categories can go up to infinite. Write a query to fetch all the first-level children (categories+items) for a category. Write a query to fetch all the children (categories+items) at all category levels for a category.

Answer:

Q2. Write the REST API endpoints for products consisting of (id, name, price) where the price is in dollars. The products now consist of (id, name, price, currency).

Define how will you apply this change, considering that

-API is in production.

-Other clients are using the existing API. If you choose to version the API, write at a high level how the change will affect controllers, services, entities, etc.

Answer:

1. As demonstrated in the code example, if the user is only sending (id, name, price) as payload, then we can update the function for the API e.g.: http://127.0.0.1:5000/v1/createProduct to return a http 206 response code, followed with an error prompt with the updated payload schema that needs to be sent.
2. Else, if the data is as expected, then the required data can be extracted and used as required, as demonstrated in the code.

Q3. Create the REST API crud (create, read, update, delete) operations for Q2. (flask/FastAPI preferred

Answer: I have implemented the Crud APIs using Flask as the Web framework and SQLALCHEMY as the ORM. The code has 5 API endpoints with sample data take from the Stationery Table. I have attached the postman collection link for the 5 CRUD operations.

Code Implementation Steps:

1. Setup mysql server and create a DB by the name “products”. then run the db\_dump SQL script. This shall create a stationery table with some sample values.
2. Update the mysql user credentials in the file located at “src/constants”
3. Run the main.py file and install the packages prompted.
4. Once the Webserver is running use the postman API endpoints collection from the link given below, for evaluating the functionality of the APIs.

Postman Shareable Link:

https://www.getpostman.com/collections/a19eff4496352796fe51