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2:00PM Downloaded and installed Postman API through <https://www.postman.com/downloads/>.

2:03PM Created a Postman account.

2:05PM Changed to the corresponding directory where the app is located.

2:06PM Ran the jar file. A screenshot of a computer screen

Description automatically generated

2:06PM Opened the API documentation <http://localhost:4567/docs> and downloaded the swagger file <http://localhost:4567/docs/swagger>.

2:09PM On Postman, tested the GET call in category. Seems like there are 2 existing categories.

A screenshot of a computer

Description automatically generated

2:10PM The HEAD call gets all headers.

A white line on a white surface

Description automatically generated

2:12PM Added a new category “School” using POST call. ID assigned is 3.

2:12PM Added a new category “Urgent” using POST call. ID assigned is 4.

2:13PM Added a new category “Vacation” using POST call. ID assigned is 5. Seems like ID assignment is in order.

2:14PM Was able to get the category by using ID 3 with GET call.

2:15PM Was able to get all the categories, but the order is random.

A screenshot of a computer

Description automatically generated

2:17PM Changed the title of category ID 4 to “Urgent change” and added a description “testing post” with POST call.

2:19PM Changed the title of category ID 3 to “School Change” and added a description “testing put” with PUT call.

2:20PM Deleted category ID 2 by using DELETE call.

2:21PM Tried to get the category instance of ID 2. The error message is “Could not find an instance with categories/2.” Possible error message bug.

2:22PM Tried PATCH call in category. “405 Method not Allowed”.

2:22PM Tried OPTION call in category. “200 OK”.

2:24PM Added a new category “ECSE 429” using POST call. ID assigned is 6.

2:25PM Tried to get the todos in category 1 “Office” with GET call, but there is only an empty list of todos. Possible bug.

2:25PM Verified that in todos ID 1, there is a relationship to category 1 “Office”.

2:28PM Tried to establish a relationship between category ID 1 and todos ID 1 with POST call. The error message is “Could not find thing matching value with id”. Possible bug.

2:29Pm Tried the same thing but with projects. Same result. Possible bug.

2:29PM Added a new category “New” using post call. ID assigned is 7.

2:29PM Tried to create a new category with no title field in the body with POST call. Error message is “title: field mandatory”.

2:31PM Added a new category “Old” with POST call. ID assigned is 9. Skipped a number due to error. Possible bug.

2:32PM Tried to delete the relationship between todos ID 1 and category ID 1 with DELETE call. The error message is “Could not find any instances with categories/1/todos/1”. Possible bug and message bug.

2:34PM Tried to create a new category with an inexistent ID 15 with POST call. The error message is “No such category entity instance with GUID or ID 15 found”.

2:35PM Tried to amend category ID 2 with PUT call. Error message is “Invalid GUID for 2 entity category”. Code 404 Not Found.

2:37PM Changed the title of category ID 1 to {“title”: 2} with POST call, but json output is {“title”: “2.0”}. Possible bug.

2:39PM Changed the title of category ID 1 to {“title”: ?} with POST call. API says value error, but output json is normal.

2:42PM Tried to add a description to category ID 5 without including title field in the body. Error message is “title: field mandatory” with PUT call.

2:44PM Tried to add a description to category ID 5 including title field in the body with no comma between line “title” and line “description” with PUT call. Error message is

{"errorMessages":["com.google.gson.stream.MalformedJsonException: Unterminated object at line 3 column 6 path $."]}.

A screenshot of a computer

Description automatically generated

2:45PM Closed the API server with GET call. http://localhost:4567/shutdown.

Summary of Deliverables

* GET: works normally when getting all categories or categories/:id.
* GET: the ordering of the categories seems random.
* GET: when getting the todos or projects in the categories, an empty list return. Possible bug.
* HEAD: works normally with categories.
* POST: works normally when putting correct body field.
* POST: when creating new categories, the ID assigned are in order. However, the numbers are also associated with errors.

i.e., when you send without a body, it gives you an error, after fixing the error, the number associated with ID would be skipped.

* POST: if the json body value is not a string, it would convert it to a string, but integers are converted to a string of float.
* POST and DELETE: when trying to establish a relationship with existing category ID and existing todos ID or project ID, the server seems to not find the corresponding object. Possible bug.
* POST and PUT: seems both have the same functionality when working with categories/:id.
* PUT: when changing the content of a category with json error, the error message is not server message.
* DELETE: works normally when deleting with categories/:id.
* OPTIONS/PATCH: doesn’t do anything but displays different code.

Findings of Exploratory Testing

Section *categories*

When entering the server for the first time, there are 2 existing categories: Office and Home. For GET calls, everything works normally. We realized that after creating new categories, the categories display in a random order of ID. The one bug about this call is when attempting quiring the todos or projects based on the categories. It returns an empty list. However, we realized that the todos and projects are not stored in the category. This should be rather an easy fix within the server.

For HEAD calls, nothing really changes for each API documentation. However, everything calls does return the same headers, therefore we are unsure if there is anything wrong and the system code seems to be good.

For POST call, there were multiple bugs, and we expect more bugs since we didn’t have time to explore everything during the 45min session. To start, when you create a new category without specifying the title in the body, it will show a normal error message. However, we realized that if any error occurs, the IDs are also skipped for the next correct POST call. i.e., the last category ID would be 2 and after 4 error POST calls, the next correct category created with POST call would have ID 7. Furthermore, if the value associated with the “title” key is not a string, the system will automatically convert it to a string value. However, when converting integers, they become a string in float form. i.e., 2 becomes 2.0. Another bug with this call is that when trying to establish relationship between categories and todos or projects, the output message explains that the ID is inexistant. Lastly, we realized that POST and PUT calls have the same functionality when using it with categories/:id.

For DELETE calls, everything works normally when using it with categories/:id. Similarly, POST calls doesn’t work when it comes to trying to delete the relationship between categories and todos or projects.

We have also tried to send commands using OPTIONS and PATCH calls, but no results.