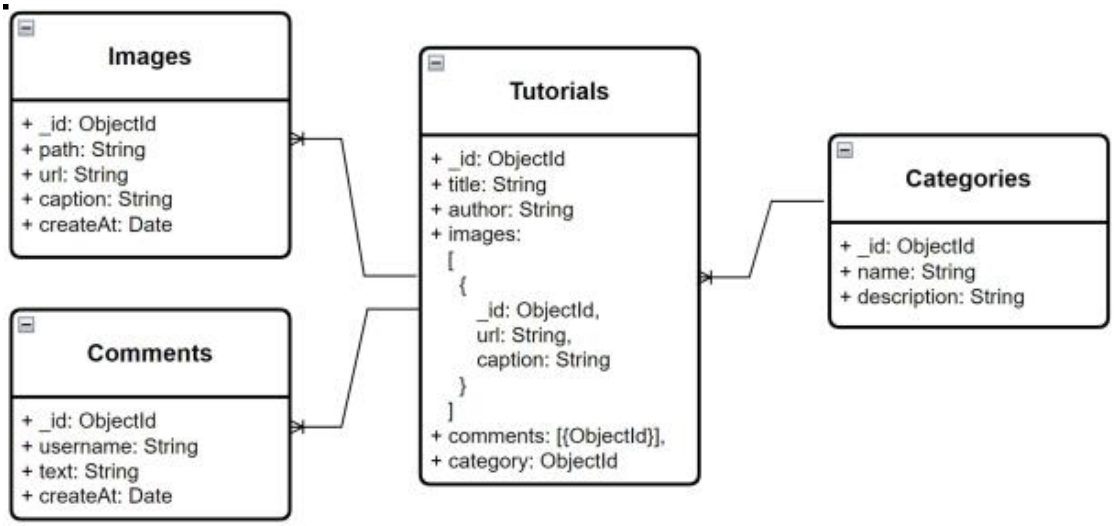
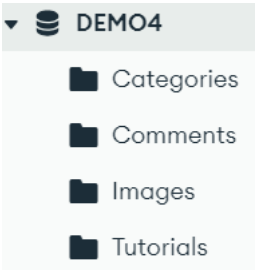
The following database diagram for doing this test:



Requirements:

Using MongoDB, create a database named “DEMO4”. Create collections corresponding to the data in the given directory. Then, import data into the collections created in the database.



Question 1:

In this question, you are asked to write an application (back-end given folder).

1.1 The API at url: http://localhost:9999/tutorials return information of all tutorials in database, using GET method.
Each tutorial requires the information shown as below figure. Note that:
- [images]: is an embedded attribute from Images entities
- [comments]: is a reference attribute of the Comments entities
- [category]: is a reference attribute of the Categories entities

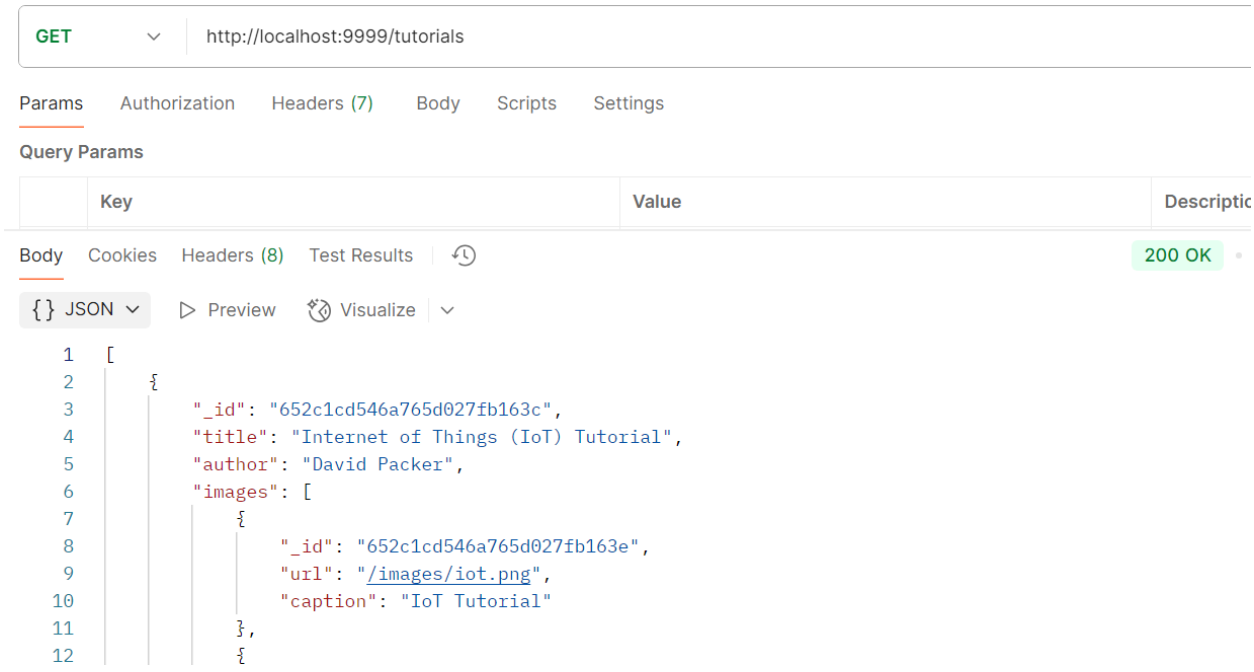


Figure 1 – The result of API at http://localhost:9999/tutorials (using method GET)

1.2 The API at url: http://localhost:9999/tutorials/:id/comments (:id - is an ObjectId of the Tutorial) return information of all comments by Id of the tutorial in database, using GET method.

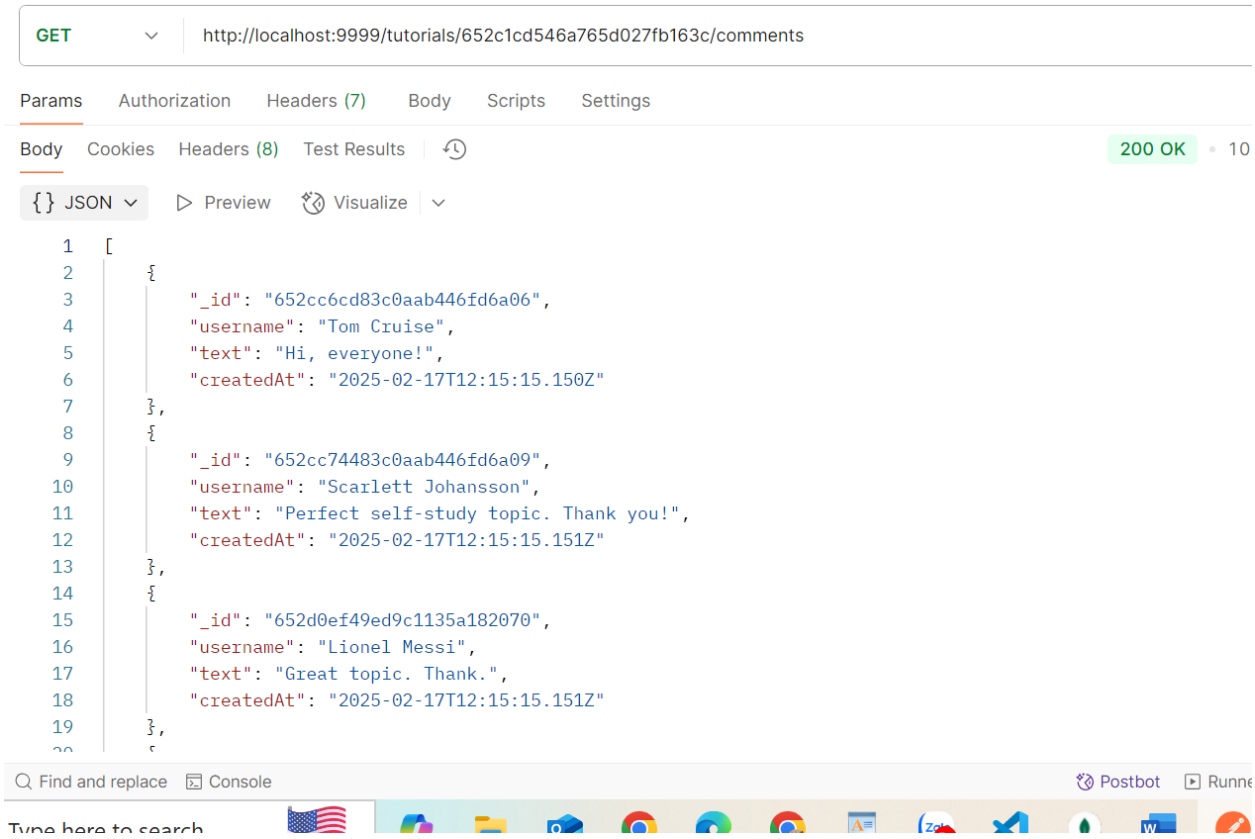


Figure 2 - API at http://localhost:9999/tutorials/652c1cd546a765d027fb163c/comments (using method GET)

1.3 The API at url: http://localhost:9999/tutorials/create

Using POST method to create a new tutorial. Tutorial.Save the list of images to the Images collection. At the same time, each image object saves information, including _id, URL, and caption, into the Tutorial you want to add.

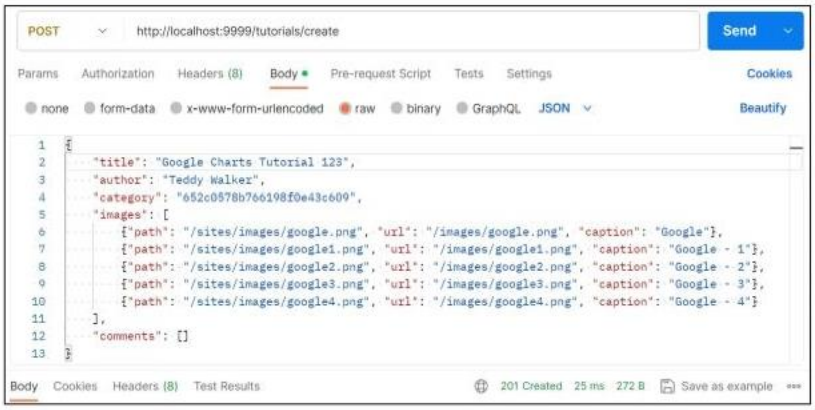


Figure 3 – Using POST method to create a new Tutorial at url: http://localhost:9999/tutorials/create

Question 2:

In this question, to write a React web application (in front-end given folder), that using APIs of Question 1 to manage Tutorials, Categories and Comments.

Copy the Image folder from given download and paste it into the public folder to serve as Question 2

Note: using the root path http://localhost:3000 to call APIs.

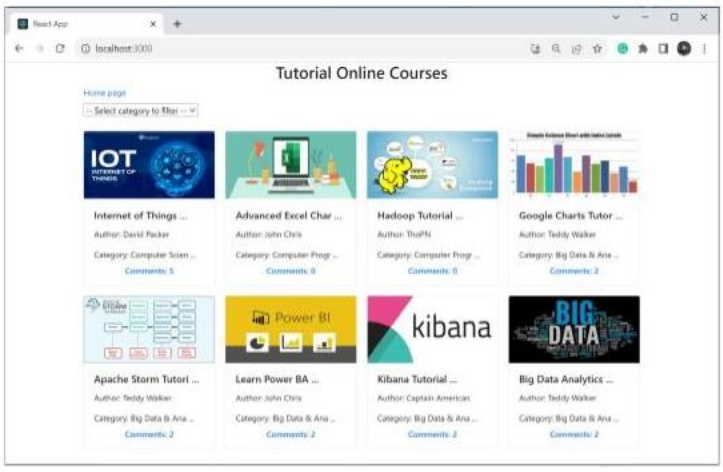
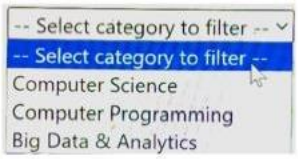


Figure 4 – The page when first loaded

2.1 When user open http://localhost:3000/ , load all Tutorials from database



2.2 when users select a Category from the dropdown list, filter out all Tutorials of this Category.

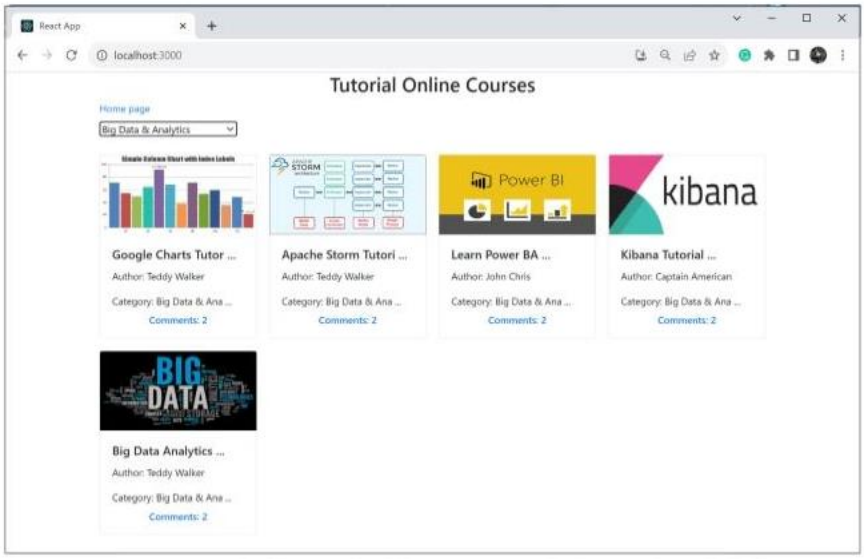
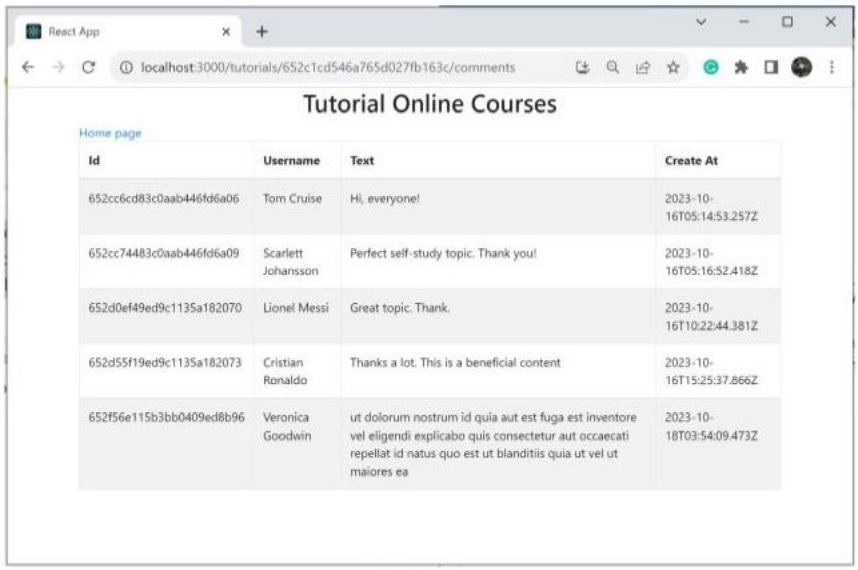


Figure 5 - The filter result with category name is "Big Data & Analytics"

2.3 when the user clicks on the "comments" link, navigate to the URL:



Id	Username	Text	Create At
652cc6cd83c0aab446fd6a06	Tom Cruise	Hi, everyone!	2023-10-16T05:14:53.257Z
652cc74483c0aab446fd6a09	Scarlett Johansson	Perfect self-study topic. Thank you!	2023-10-16T05:16:52.418Z
652d0ef49ed9c1135a182070	Lionel Messi	Great topic. Thank.	2023-10-16T10:22:44.381Z
652d55f19ed9c1135a182073	Cristian Ronaldo	Thanks a lot. This is a beneficial content	2023-10-16T15:25:37.866Z
652f56e115b3bb0409ed8b96	Veronica Goodwin	ut dolorum nostrum id quia aut est fuga est inventore vel eligendi explicabo quis consectetur aut occaecati repellat id natus quo est ut blanditiis quia ut vel ut maiores ea	2023-10-18T03:54:09.473Z

Figure 6 - List of comments by tutorialId at url:
http://localhost:3000/tutorials/652c1cd546a765d027fb163c/comments

--- END ---