Lighthouse

Database Proposal

CS 546: Web Programming I | Fall 2020

Eric Altenburg
`ealtenbu@stevens.edu`

Daniel Kimball
`dkimball@stevens.edu`

Hamzah Nizami
`hnizami1@stevens.edu`

Max Shi
`mshi7@stevens.edu`

Contents

1 Users Collection

1.1 Description

The users collection will hold the data for each user including the _id, email, username, password, fullName, posts, type, comments under other users' posts, and a list of classes they are currently taking.

1.2 Sample Users JSON

```
userCollection: [
  {
    "_id": ObjectId("7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6310"),
    "email": "validEmail@address.com",
    "fullName": {"firstName": "Eric", "lastName": "Altenburg"},
    "posts": ["7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6311", ... , "7
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b63134"],
    "comments": ["7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6411", ... , "7
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b63434"],
    "classes": ["8b7997a2-c0d2-4f8c-b27a-6a1d4b5b6411", ... , "8
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b63434"],
    "type": "instructor"
  },
  ...,
  {
    "_id": ObjectId("7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6510"),
    "email": "validEmail@address.com",
    "fullName": {"firstName": "John", "lastName": "Doe"},
    "posts": ["7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6511", ... , "7
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b63534"],
    "comments": ["8b7997a2-c0d2-4f8c-b27a-6a1d4b5b6511", ... , "8
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b63534"],
    "classes": ["8b7997a2-c0d2-4f8c-b27a-6a1d4b5b6411", ... , "8
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b63434"],
    "type": "student"
  }
]
```

1.3 User Table

Name	Type	Description
_id	ObjectId	Automatically generated
email	String	Email address for the user, must be valid
fullName	Subdocument	Subdocument that contains the first and last name of the user which are both strings
posts	Array[String]	Array of post ids the user has posted
comments	Array[String]	Array of comment ids the user has commented on other posts
classes	Array[String]	Array of the classes the user is currently taking
type	String	String representing the type of account that this document represents

2 Posts Collection

2.1 Description

The posts collection will hold the data for each post, which includes the _id, title, author, subtitle, time_submitted, content, class, tags, score, and a list of comments on this post.

2.2 Sample Posts JSON

```
userCollection: [
  {
    "_id": ObjectId("7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6310"),
    "title": "Question about Assignment 4",
    "author": "7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6230",
    "content": "I have a question regarding the code...",
    "comments": ["7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6411", ... , "7b7997a2-c0d2-4f8c-b27a-6a1d4b5b63434"],
    "score": 10,
    "time_submitted": "Sun, 20 Oct 2020 10:47:02 GMT",
    "tags": ["Assignment 4", "Question"]
  },
  ...,
  {
    "_id": ObjectId("7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6390"),
    "title": "Question about Assignment 2",
    "author": "7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6230",
    "content": "I have a question regarding the wording of the assignment...",
    "comments": ["7b7997a2-c0d2-4f8c-b27a-6a1d4b5b641231", ... , "7b7997a2-c0d2-4f8c-b27a-6a11dfee163434"],
    "score": 10,
    "time_submitted": "Sun, 01 Nov 2020 20:47:02 GMT",
    "tags": ["Assignment 2", "Question"]
  }
]
```

2.3 Posts Table

Name	**Type**	**Description**
_id	ObjectId	Automatically generated
title	String	Title of the post
author	String	The ID as a string of the author that references the author of the post
time_submitted	String	String representing the time that the post was submitted
content	String	The content of this post
comments	Array[String]	Array of comment ids for the comments on this post
tags	Array[String]	Array of associated tags with this post
score	Integer	The score of this post, as rated by peers

3 Comments Collection

3.1 Description

The comments collection will hold the data for all comments users have posted on any posts in the Posts collection. This includes data such as _id, author, parent_post, time_submitted, and the content of the comment.

3.2 Sample Comments JSON

```
userCollection: [
  {
    "_id": ObjectId("7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6310"),
    "author": "7b7997a2-c0d2-4f8c-b27a-103ab394c293",
    "parent_post": "7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6310",
    "time_submitted": "Sun, 01 Nov 2020 10:27:02 GMT",
    "content": "I think you might be misinterpreting the problem."
  },
  ...,
  {
    "_id": ObjectId("7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6311"),
    "author": "7b7997a2-c0d2-4f8c-b27a-103ab394c2234",
    "parent_post": "7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6310",
    "time_submitted": "Sun, 01 Nov 2020 12:27:42 GMT",
    "content": "No, I think he’s right about that part."
  }
]
```

3.3 Comments Table

Name	**Type**	**Description**
_id	ObjectId	Automatically generated
author	String	The ID as a string of the author that references the author of the post
parent_post	String	The ID as a string of the post that this comment is associated with
time_submitted	String	A string representing when the comment was posted
content	String	The content of the comment

4 Classes Collection

4.1 Description

The classes collection will hold the data for each class in the system, which includes the _id, name, description, posts, tags, students, and instructor.

4.2 Sample Classes JSON

```
userCollection: [
  {
    "_id": ObjectId("7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6710"),
    "name": "CS 546 Web Programming I",
    "description": "Web Programming I course at Stevens Institute
        ↪ of Technology",
    "posts": ["7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6311", ... , "7
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b63134"],
    "students": ["7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6411", ... , "7
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b63434"],
    "tags": ["Question", "Clarification", "Assignment 1"],
    "instructor": "7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6729",
  },
  ...,
  {
    "_id": ObjectId("7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6720"),
    "name": "CS 554 Web Programming II",
    "description": "Web Programming II course at Stevens Institute
        ↪  of Technology",
    "posts": ["7b7997a2-c0d2-4f8c-b27a-6a1d4b5b63123", ... , "7
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b634567"],
    "students": ["7b7997a2-c0d2-4f8c-b27a-6a1d4b5b61231", ... , "7
        ↪ b7997a2-c0d2-4f8c-b27a-6a1d4b5b632354"],
    "tags": ["Question", "Clarification", "Assignment 1"],
    "instructor": "7b7997a2-c0d2-4f8c-b27a-6a1d4b5b6729",
  }
]
```

4.3 Classes Table

Name	**Type**	**Description**
_id	ObjectId	Automatically generated
name	String	Name of the course
description	String	Description of the course
posts	Array[String]	Array of post id associated with this class
students	Array[String]	Array of user ids for users enrolled in this class
tags	Array[String]	Array of strings for available tags on posts for this class
instructor	String	Id of instructor teaching this class

5 Github Repository

https://github.com/hniz/Lighthouse