Music Hub

IT6038 Web Services

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# API Planning

|  |  |  |  |
| --- | --- | --- | --- |
| Method | Endpoint | Usage | Returns |
| GET | /hub | Get all artists and songs | Artist + Songs |
| GET | /hub/songs | Get song list | Songs |
| GET | /hub/artists | Get artists list | Artists |
| GET | /hub/song/:id | Get a song | Song |
| GET | /hub/artist/:id | Get an artist | Artist |
| GET | /hub/user/:id | Get the user | User |
| POST | /hub/song/:id/update | Update a song | Song |
| POST | /hub/artist/:id/update | Update an artist | Artist |
| POST | /hub/song/:id/delete | Delete a song | Song deleted |
| POST | /hub/artist/:id/delete | Delete an artist | Artist deleted |

## Benefits and uses:

Based on simple REST principles, this Music Hub API would benefit singers and music companies that would like to add new songs and/or remove them from our Music hub Database.

Creating this API will allow people to stay always updated with new songs if those were to be added into the database.

## Methods and actions:

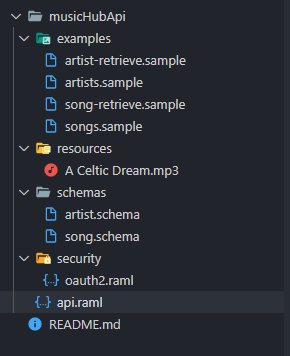
Methods and actions available to this API are based on REST principles with its resources being accessed through HTTP requests.

|  |  |
| --- | --- |
| Method | Action |
| GET | Retrieves the information |
| POST | Creates a new resource |
| UPDATE | Changes or replaces resources |
| DELETE | Removes resources |

# API Design

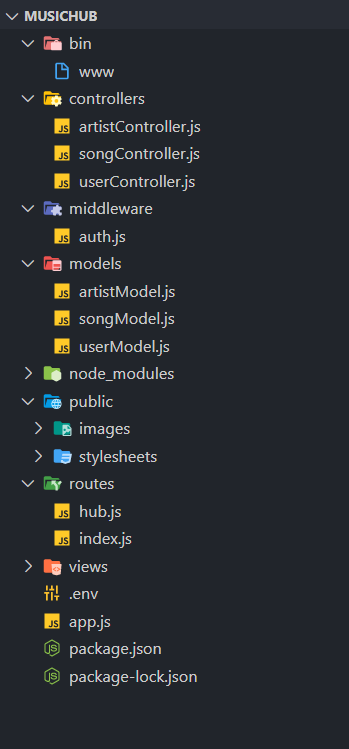
## API Modelling:

For this API we have used RAML API modelling language with Atom and API Workbench. The files are attached to this submission in the folder musicHubApi/api.raml



# API Implementation

## Music Hub API structure:

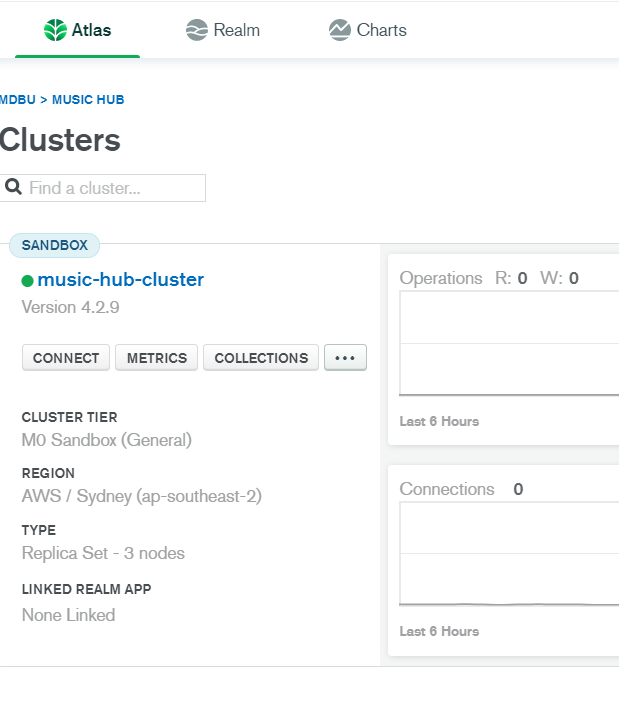
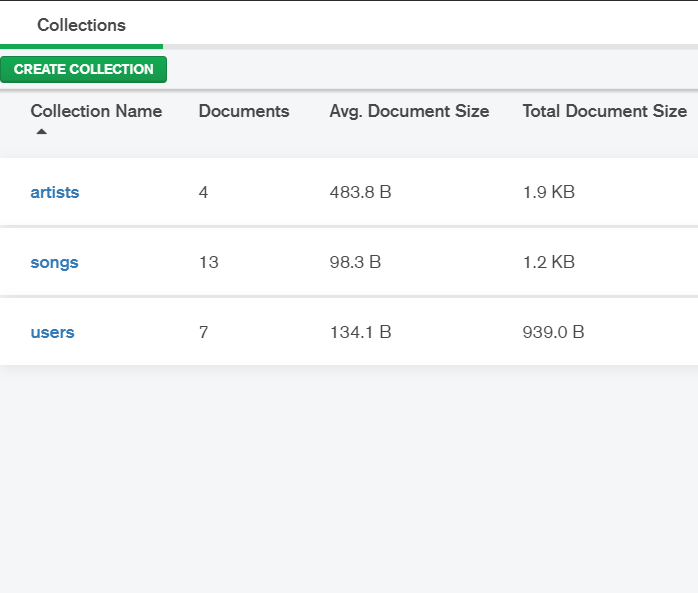
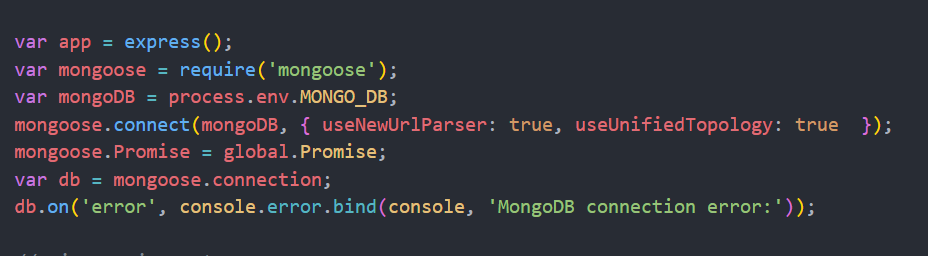


I have created a Node JS project with Express and install the required Node packages to be able to achieve the outcome that is required. Some of these packages are;

* Bcrypt it will be used to has the password adding an extra layer of security.
* Dotenv will be used to load the variables from .env package into process.env to be able to hide the sensitive information
* Jsonwebtoken JWT is used to create tokens between the parties for security purpose.
* Mongoose it will be installed to help us communicate with Mongo DB
* Helmet I will be using it to secure the Express project by setting various HTTP headers.

## MongoDB:

I have created a Mongo Database in the cloud using Atlas and with mongoose packet I am connecting the API to our database.

## API folder structure:

For our purpose I have created 2 controller files and 2 model files; one controller and one model for songs and one controller and one model for artists.

I have created a new file for routes and have redirected the index page of Express to our own routes in hub.js.

Artist Controller has the following functions:

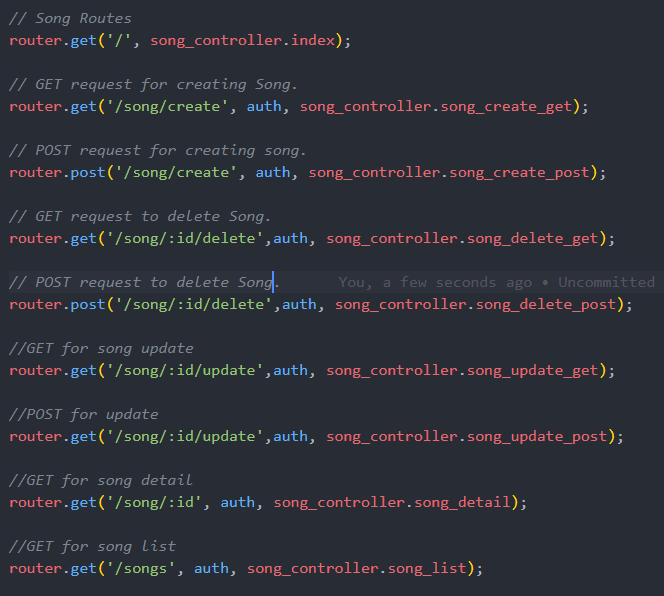
* artist\_list – to return a list of artists
* artist\_detail – to return details about an artist
* artist\_create\_get – to render the form for creating an artist
* artist\_create\_post – insert newly created artist into the database
* artist\_delete\_get – to retrieve details about an artist that is about to be deleted
* artist\_delete\_post - which gets the artist that has been retrieved and deletes from database if there are no songs related with it.
* artist\_update\_get - gets the information about an artist and adds it to the updating form
* artist\_update\_post – updates the artist in the database.

Song Controller has the following functions:

* index – that return a list of all artists and songs
* song\_list – returns a list of songs
* song\_detail – return details about a specific song
* song\_create\_get – returns the song creation form
* song\_create\_post – adds the song to the database
* song\_delete\_get – gets details about specific song to be deleted
* song\_delete\_post – checks the details and removes the song from database
* song\_update\_get – gets details about a song based on id and autofill the form to be able to make changes
* song\_update\_post – saves changes to the song into the database

For each of the functions I have create a HTTP request.

Song Routes



Artist Routes:



# User Authentication

## User model:

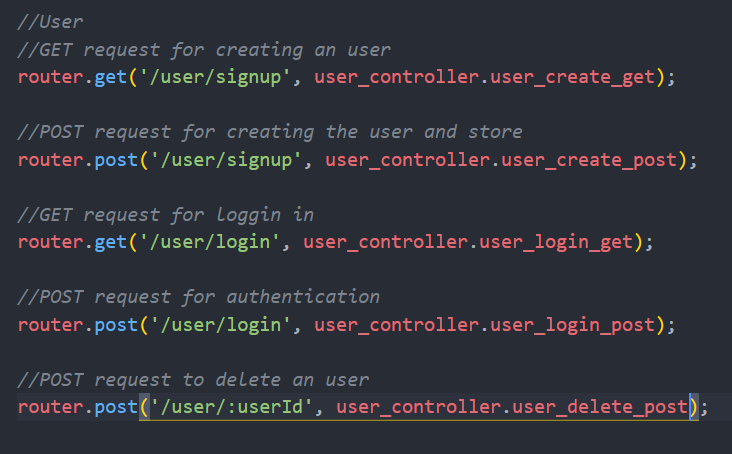
I have created a user model that has the following fields as requested:



User Controller has the following functions:

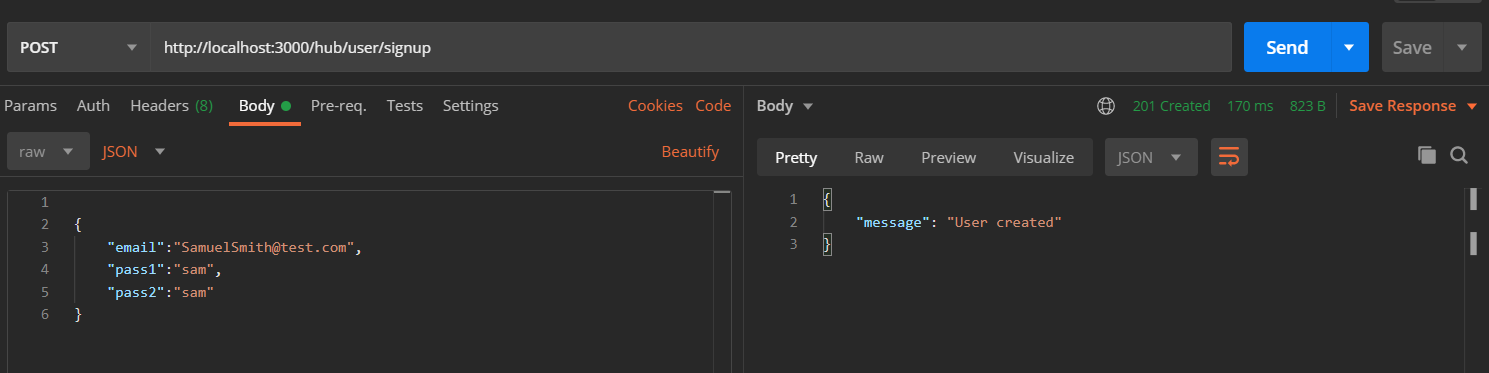
* user\_create\_get – returns the view with the form to create a new user
* user\_create\_post – saves the user to database
* user\_login\_get – renders the form for the user to login
* user\_login\_post – checks details and performs authentication
* user\_delete\_post – deletes an user and returns message.

Routes:

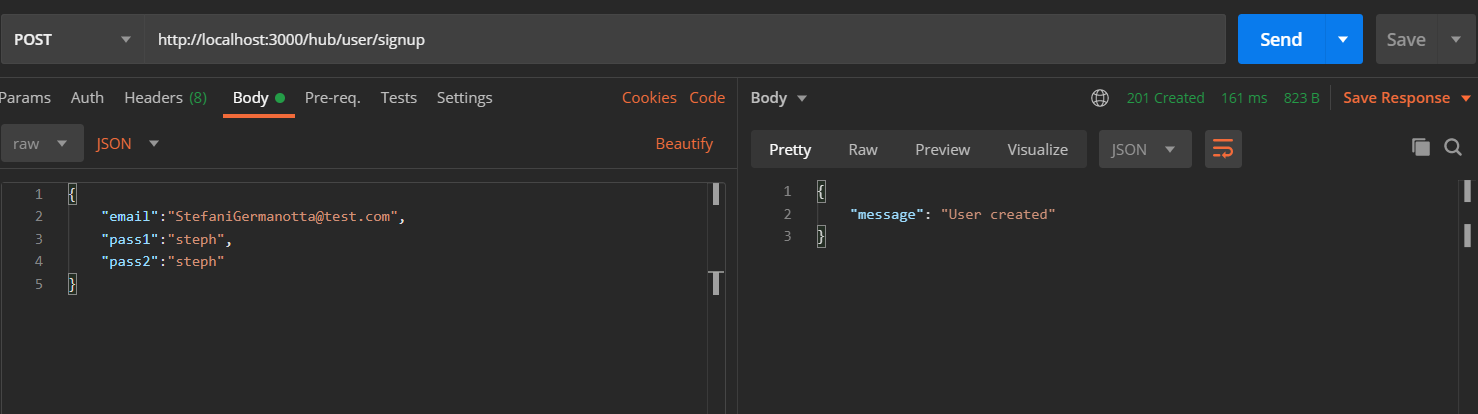


For users I have added double password field that will have to match before creating a user:

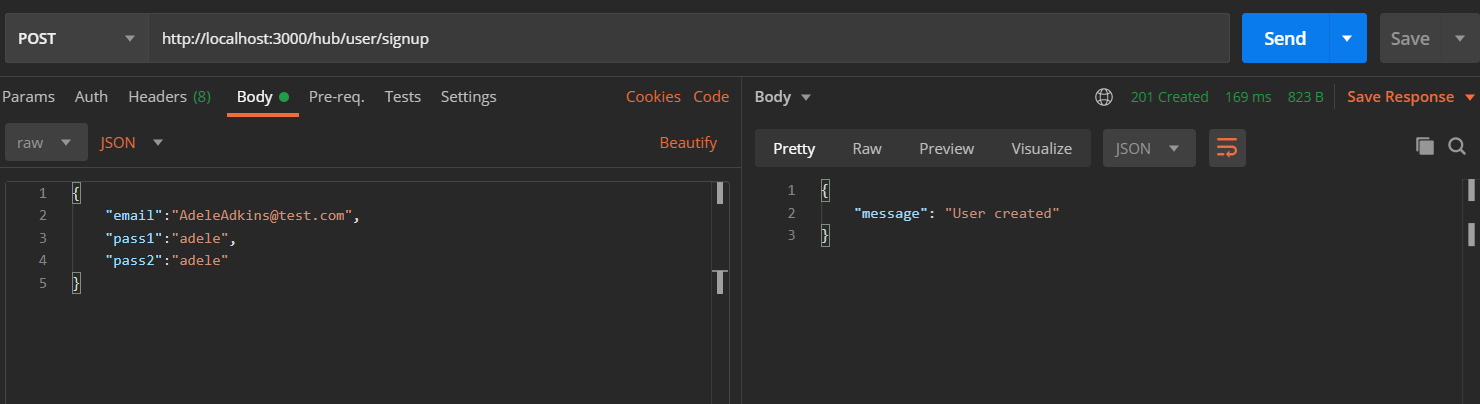
[SamuelSmith@test.com](mailto:SamuelSmith@test.com) – sam



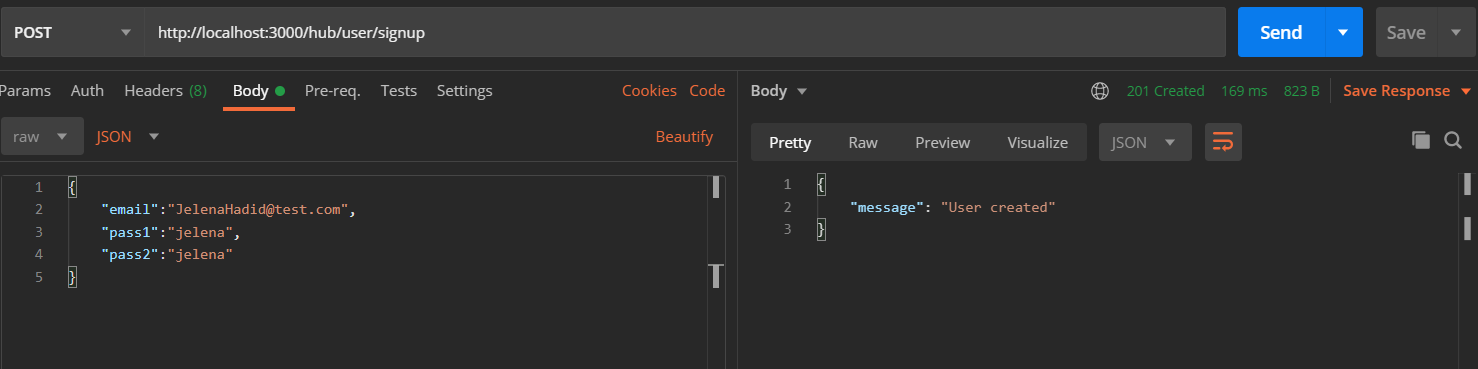
[StefaniGermanotta@test.com](mailto:StefaniGermanotta@test.com) – steph



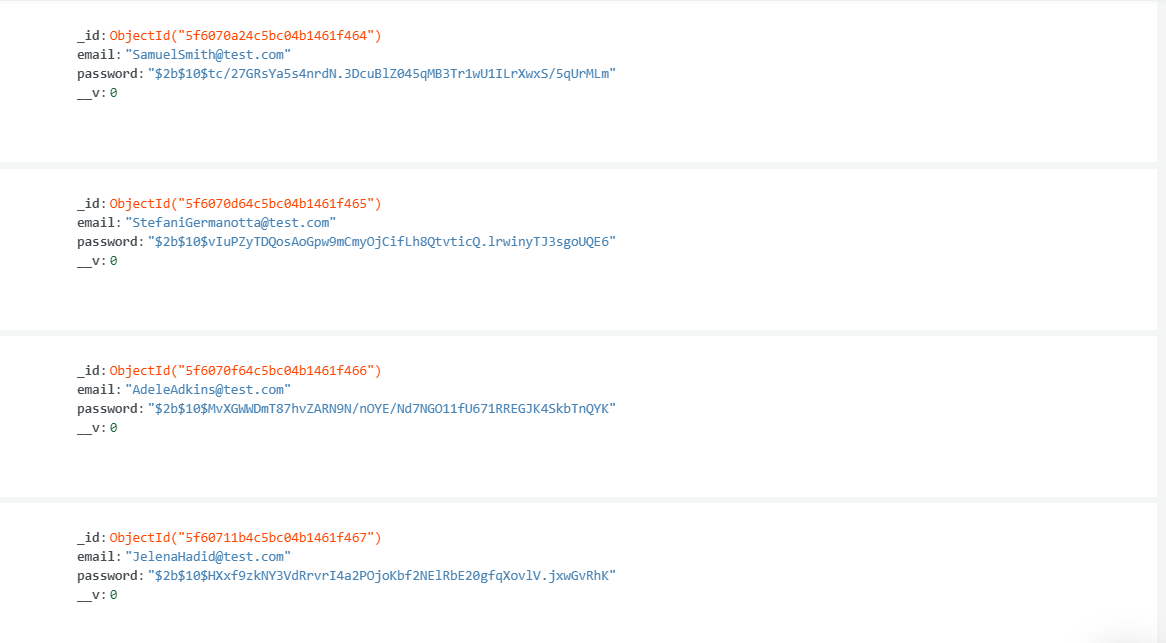
[AdeleAdkins@test.com](mailto:AdeleAdkins@test.com) – adele



[JelenaHadid@test.com](mailto:JelenaHadid@test.com) – jelena



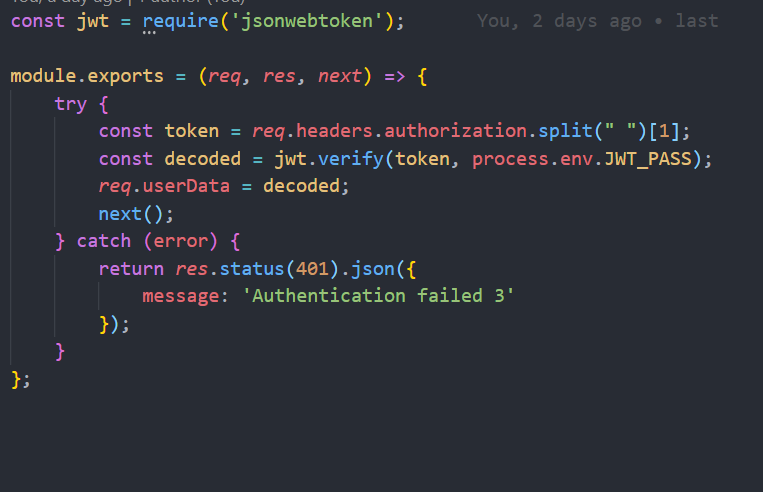
Mong DB



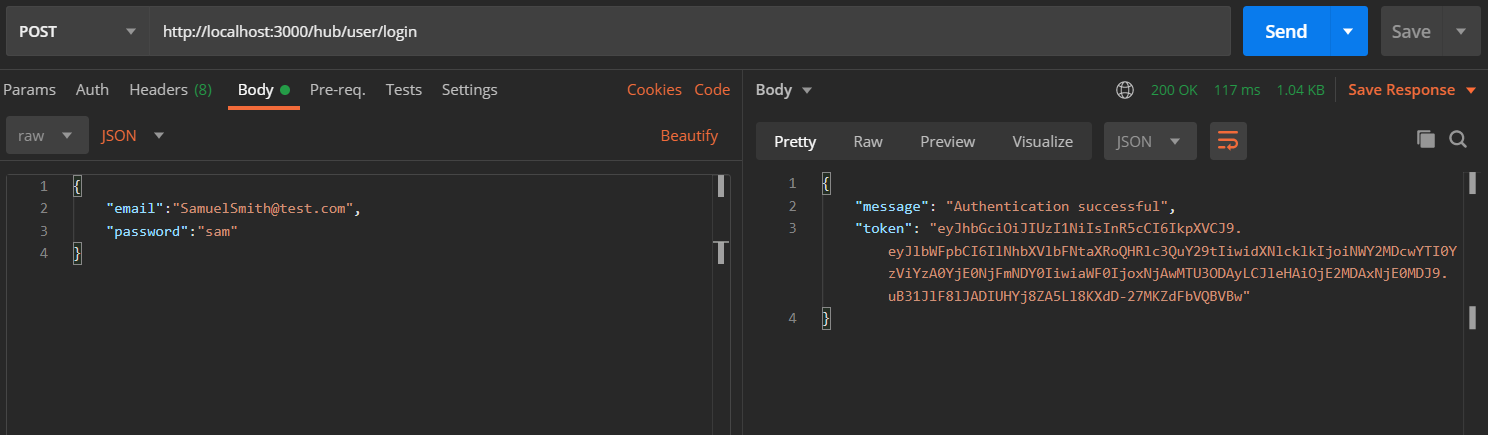
## JWT authentication:

At the moment our API doesn’t have any authentication requirements. I have implemented the the code for establishing a JWT authentication.

I have created a middleware and that will split the Bearer from the token just to purely retrieve the token without any other words and then it verifies always when the function will be called, if the token match with the one provided on logging in.



User logging in:



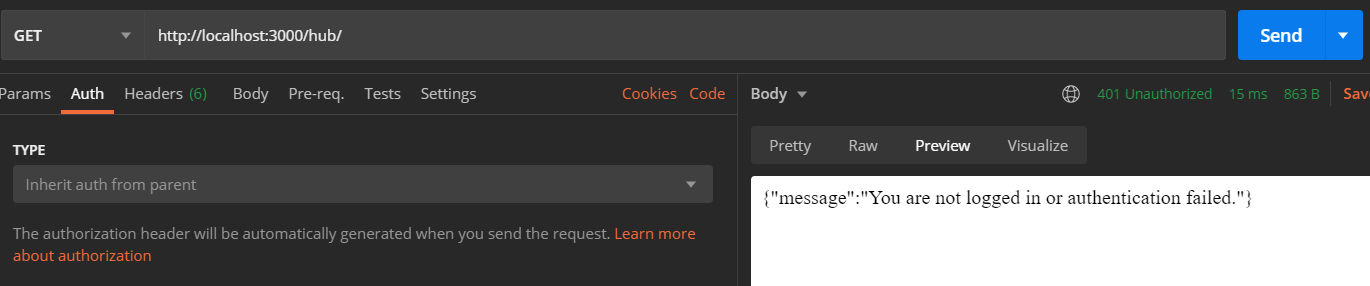
The code for signing up it is as follow: 

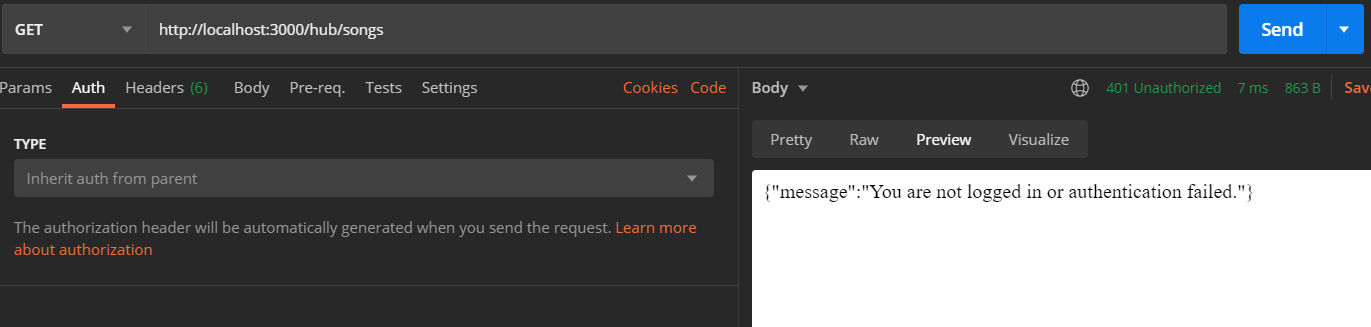
The code for signing the user in is as follows:

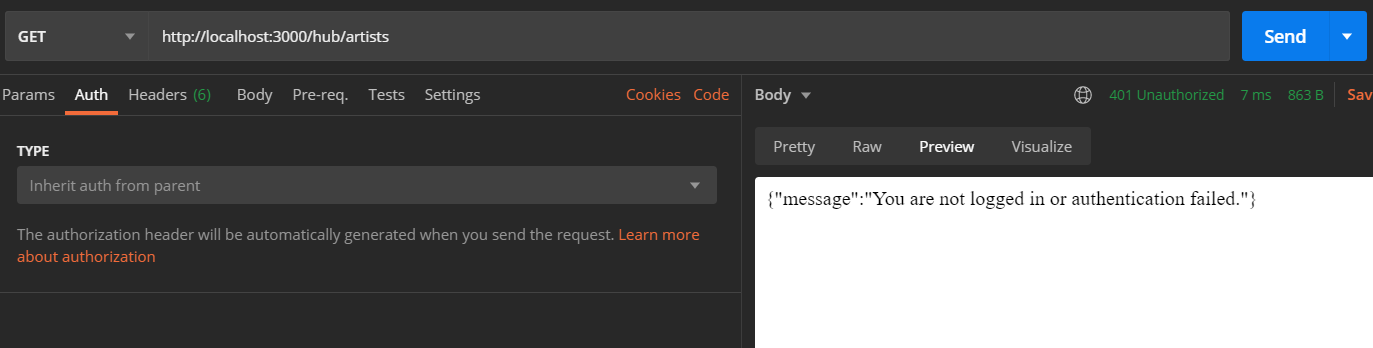


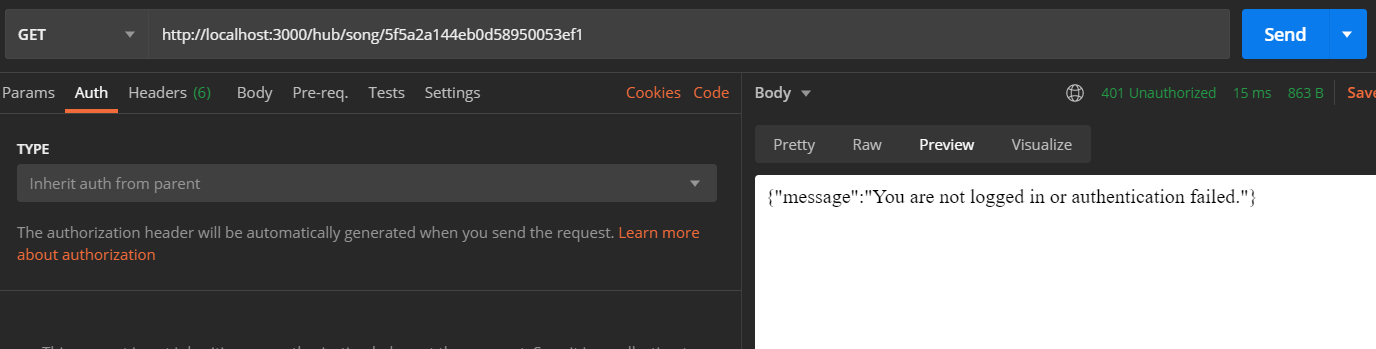
# API Testing

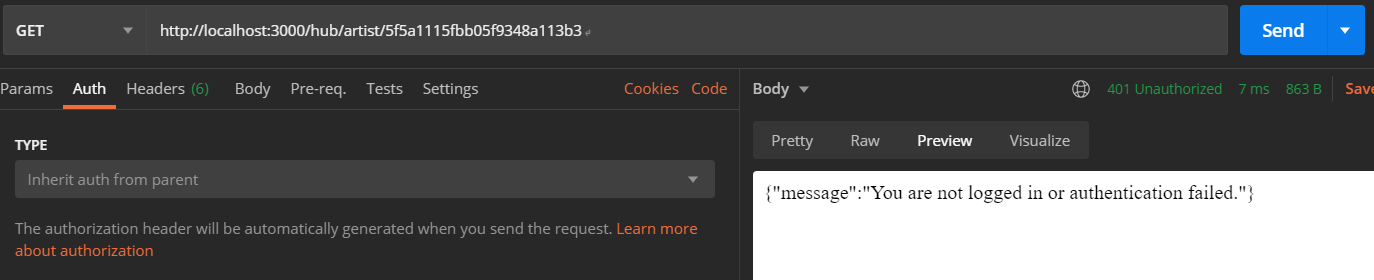
|  |  |  |  |
| --- | --- | --- | --- |
| Date | Route and parameters tested | Expected outcome | Actual outcome |
| 15/09/20 | Route: /hub | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |
| 15/09/20 | Route: /hub/songs | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |
| 15/09/20 | Route: /hub/artists | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |
| 15/09/20 | Route: /hub/song/5f5a2a144eb  0d58950053ef1 | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |
| 15/09/20 | Route: /hub/artist/5f5a1115fbb  05f9348a113b3 | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |
| 15/09/20 | Route: /hub/user/5f6070a24c5  bc04b1461f464 | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |
| 15/09/20 | Route: /hub/song/5f5a2a144eb  0d58950053ef1/update | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |
| 15/09/20 | Route: /hub/artist/5f5a1115fbb  05f9348a113b3/update | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |
| 15/09/20 | Route: /hub/song/5f5a2a144eb  0d58950053ef1/delete | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |
| 15/09/20 | Route: /hub/artist/5f5a1115fbb  05f9348a113b3/delete | {"message":"You are not logged in or authentication failed."} | {"message":"You are not logged in or authentication failed."} |

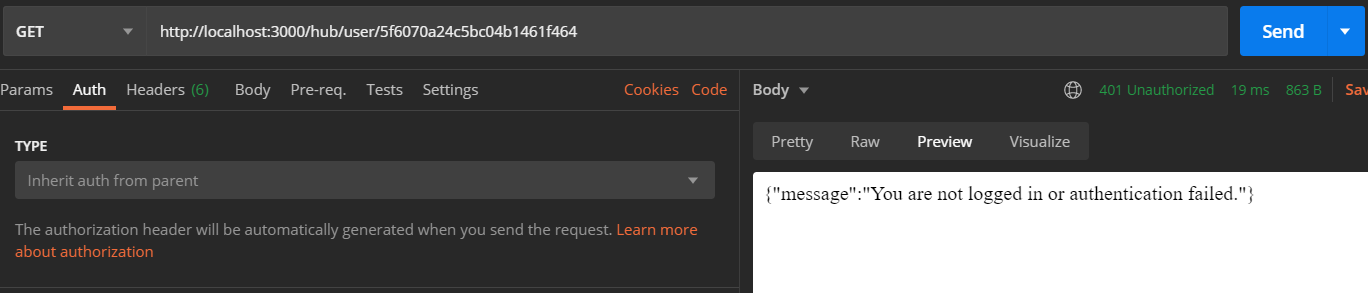


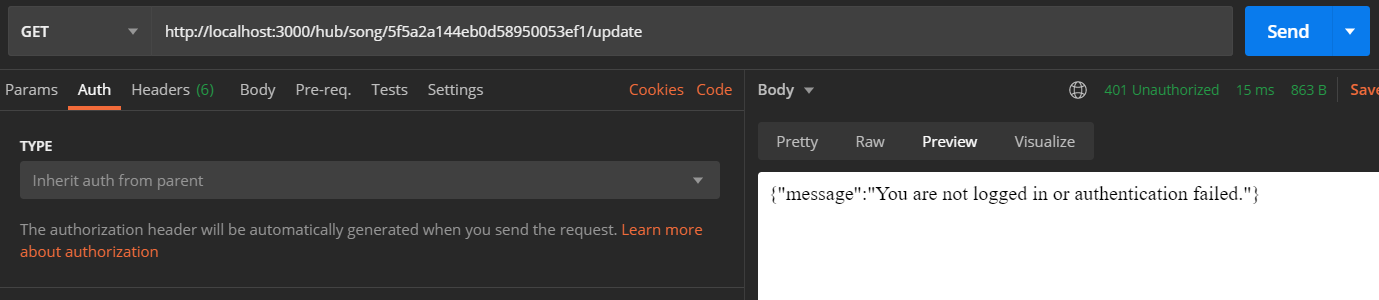


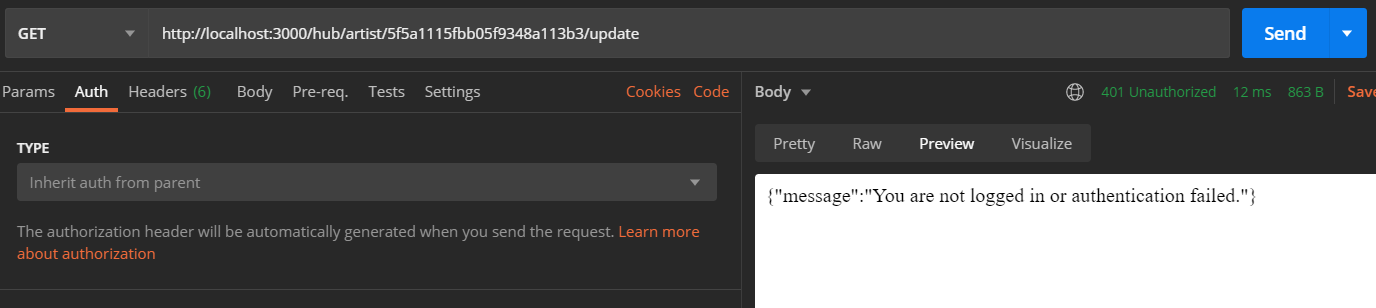


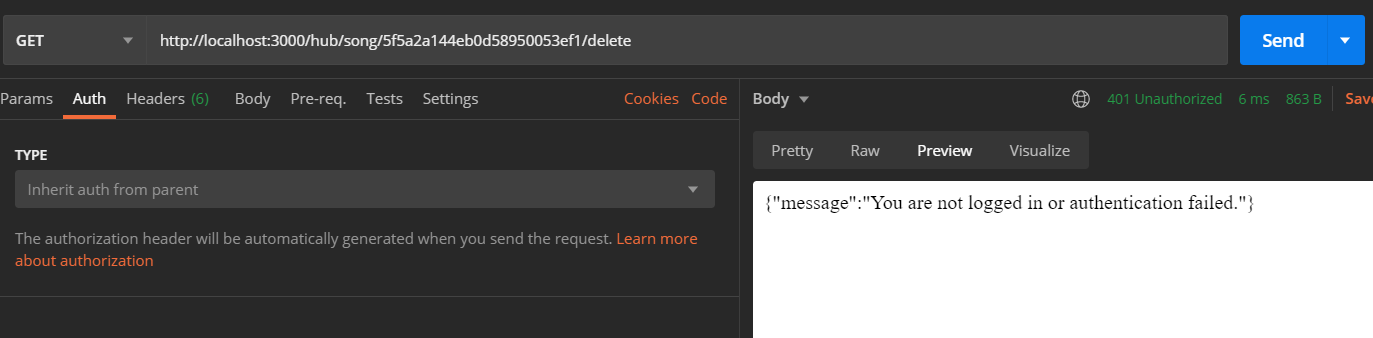


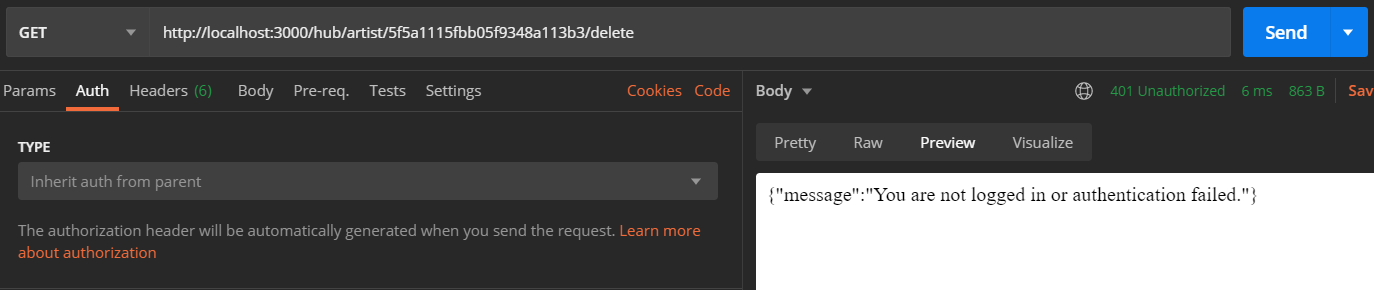












|  |  |  |  |
| --- | --- | --- | --- |
| Date | Route and parameters tested | Expected outcome | Actual outcome |
| 15/09/20 | Route: /hub  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI | Songs: 13  Artists: 4 | Songs: 13  Artists: 4 |
| 15/09/20 | Route: /hub/songs  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI | Song list | Song List |
| 15/09/20 | Route: /hub/artists  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI | Artists List | Artists List |
| 15/09/20 | Route: /hub/song/5f5a2a144eb  0d58950053ef1  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI | Title: I won’t dance  Artist: Frank Sinatra  Length: 04:07 | Title: I won’t dance  Artist: Frank Sinatra  Length: 04:07 |
| 15/09/20 | Route: /hub/artist/5f5a1115fbb  05f9348a113b3  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI | Artist: Frank Sinatra  Artist image  Songs list | Artist: Frank Sinatra  Artist image  Songs list |
| 15/09/20 | Route: /hub/user/5f6070a24c5  bc04b1461f464  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI | User:  SamuelSmith@test  .com | User:  SamuelSmith@test  .com |
| 15/09/20 | Route: /hub/song/5f5a2a144eb  0d58950053ef1/update  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI  title: I will not dance  artist: 5f5a9a34fa07b74ea012c4a9  length: 01:10 | I won’t dance by Frank Sinatra will become I will not dance by Adele  but with same id | I won’t dance by Frank Sinatra will become I will not dance by Adele  but with same id |
| 15/09/20 | Route: /hub/artist/5f5a1115fbb  05f9348a113b3/update  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI  name: Franky  description: someone  imageUrl: no needed | Frank Sinatra changed to Franky  and with no image | Frank Sinatra changed to Franky  and with no image |
| 15/09/20 | Route: /hub/song/5f5a2a144eb  0d58950053ef1/delete  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI  id: 5f5a2a144eb0d58950053ef1 | The song I will not dance is deleted | The song I will not dance is deleted |
| 15/09/20 | Route: /hub/artist/ 5f5dec7538912862e0fd3049/delete  Parameters:  Token: eyJhbGciOiJIUzI1NiIsInR5cCI6I  kpXVCJ9.eyJlbWFpbCI6IlNhbXVlbFN  taXRoQHRlc3QuY29tIiwidXNlcklkIjoiN  WY2MDcwYTI0YzViYzA0YjE0NjFmNDY  0IiwiaWF0IjoxNjAwMTY0NTc3LCJleHAi  OjE2MDAxNjgxNzd9.dbtEEc\_ECZS36H  qhrowQ8cQqx\_irD0Pj7ew5BhYyQOI  artistid: 5f5dec7538912862e0fd3049 | Artist Dumitru Dan Hayworth is deleted | Artist Dumitru Dan Hayworth is deleted |

