Middle East Technical University
Department of Computer Engineering

CENG 495
Cloud Computing
Spring 2019-2020 Homework 2

Due Date: 10.04.2020, 23:55

This homework aims to get you familiar with the NoSQL databases and Database as a Service (DBaaS) platforms. MongoDB is classified as a NoSQL database program, which is open-source. As a document store database, it uses JSON like queries to handle the database operations. Atlas is the cloud platform of MongoDB. You are going to develop and deploy a simple online invention gallery using MongoDB database on Atlas.

Keywords: PaaS, DBaaS, BaaS, MongoDB, JSON, Atlas, Stitch, Heroku, Cloud Computing

1. MongoDB Atlas

- Create an Atlas account as a free user. (mongodb.com/cloud/Atlas)
- Create a database with MongoDB and deploy it into Atlas.
- Use the Backend as a Service Platform (BaaS) of Atlas (Stitch) to communicate with your database through an html code. Alternatively, you can use Heroku to reach your MongoDB database.

2. Invention Gallery

- You will implement an html code that communicates with your MongoDB on Atlas through Stitch. Your database will be tested through this code. Or you can just deploy an application on Heroku that communicates with MongoDB.
- The homepage of your code should have these options: **Add User**, **Delete User**, **Login as a User** which navigates through the homepage of the selected user as him or her. Note that you do not have to implement passwords or any kind of protection.

- User homepage shows 3 different kinds of elements: **User Name**, **rating**, **gallery**. Rating is the average score that user got from all of her/his inventions (between 1 and 5). Gallery shows the inventions that the user exhibits.
- Invention page shows **6** main + **2** optional elements. Main elements are **product name**, **photo**, **cost**, **materials used, inventors name, product rating**. It is necessary for the photo to be visually seen on the invention page. (Note that there is no need to really upload the photos, you can just use links) For the optional elements, users are free to choose what to add. (i.e. they can be empty, the invention date, patent number, dedication, some advertisement quotes or else. There should be no limit on what to add thanks to NoSQL)
- A user can apply these 3 operations: **exhibit** an invention, **rate** some others' product/invention (a user can rate the same invention more than once, however the last rate operation overwrites the previous ones, thus only one rate operation will be counted), **drop** to stop exhibition of an invention (ratings from the dropped products, and all history should remain, remove it only from the gallery).
- You can use just one page with different elements or different pages as you wish. However, these elements and operations should work exactly as described.
- Before submission, your database should have at least 10 different users, and at least 3 of them having more than one product on gallery. For these users at least one of those products should have the optional fields filled with different kinds of elements.

3. Useful Links

- mongodb.com/cloud/atlas
- mongodb.com/cloud/stitch
- docs.mongodb.com/
- tutorialspoint.com/mongodb/

4. Submission

- In this assignment, you are expected to submit your html code(s) through ODTÜClass. The main file should be named as "index.html". For submission on ODTÜClass, a tar.gz archive file (named hw2.tar.gz) that contains all your source code files and a README file that includes the design choices you made and a user's guide. If you

want to use Heroku instead of html code, just include your Heroku source codes and give your app link on the README file.

- Do not forget to change the privacy settings on Atlas since your database will be reached from an IP address other than yours for grading.
- The work you submit should be implemented by only you and genuine. However, you can use external libraries for graphical user interface if any. If you do so, you need to state your references for these codes in your README file.
- We have zero tolerance policy for cheating. There is no teaming up! People involved in cheating will be punished according to the university regulations and will get 0. You can discuss design choices or language preferences, but sharing code between each other or submitting third party code as a whole is strictly forbidden. In case a match is found, this will be considered as cheating.