Project: CouchDB

Do the following questions and produce a report with your answers, showing screen pictures and discussion of your code.

* Identify and download an open data set from Kaggle or another site. Import the data set into CouchDB. Describe how you imported the data and describe the data structure in your report. Use Curl or Postman to show examples of CRUD on your database. (10 marks)
* Write the following queries in MapReduce and show them in your report and explain how they work (20 marks)
* Find one particular document
* Find documents in a range
* Use and explain the \_sum, \_count and \_stats reduce functions
* Write your own mapreduce function to generate a sensible result from your data using the group and group\_level parameters and a reduce function.

Write the following queries in Mango and show them working in your report

* Find a particular document
* Find documents in a range

From what you have learned, discuss the advantages and the disadvantages of building queries using MapReduce and using Mango, giving examples. (12 marks)

* Imagine you were asked to build an application in your favourite programming language (other than Javascript) to allow data scientists run MapReduce and Mango queries against the database. Read the evaluation document that is given and evaluate (under four headings you can choose) the available clients you find for CouchDB in your chosen language and explain which client you would recommend for this project and why. You should briefly test that the chosen client works using a GET request as part of this evaluation, and show the results. (15 marks)
* Research and describe how the replication protocol works in CouchDB. Build a simple mobile Javascript (offline first) program that allows you to do CRUD operations on a local database (using pouchDB or Couchbase lite). You can use any Javascript Framework you wish for your application. The app should also do a synch with the CouchDB database from part 1. (20 marks)
* Investigate using Postman whether a DBaaS can be added to the application architecture. This will require you to create a database on either IBM Cloudant or Couchbase Capella and testing it with Postman. If successful make some suggestions about how the mobile app might be designed to sync with both the DBaaS and the desktop CouchDB applications. (15 marks).
* Create a report of your work (8%). See University of Sussex document.

Due: Monday 28 October. Upload your report and code to Turnitin. Turnitin can be used from 20 October to check your references.

(Note Cloudant requires an IBM Cloud account which is free but needs a credit card like Revolut to sign up (with 1 euro on the card which will be returned to you). Be careful to only use free services on Cloudant.

(Note you can get a 1 month trial of Couchbase Capella so don’t don’t sign up until you are doing part 5.)

Report

See University of Sussex example report.

Includes accurate and concise sections (8 marks); Title, Summary , Content, Introduction, Sections (numbered and headed), Conclusions, References, Bibliography, Appendices if needed)

Tables, diagrams, graphs, maths, headings, referenes to diagrams, layout etc