**MongoDB Assignment – 20%**

This assignment consists of:

1. MongoDB practical lab (5%)

You are required to submit a word document with screen shots for each question showing both the command the response

1. The written Report referring to the whitepapers on Moodle. (15%).

You are required to submit your written report via the Turnitin link on Moodle

Note the separate upload links for 1 & 2 on Moodle.

**MongoDB Practical Lab**.

1. Issue the following command to use the MongoLab database
   * use MongoLab
2. Insert the following document into the People collection
   * name: Joe Bloggs
   * age: 21
3. Insert the following document into the People collection
   * name: Tom Kelly
   * age: 21
4. Display all the documents in the People collection
5. Insert the following document into the People collection
   * name: Joe Whyte
   * age: 23
6. Display the documents with age =21
7. Insert the following document into the People collection
   * name: Jill Finnerty
   * age: 30
   * Occupation:Teacher
8. Explain why MongoDB is described as a schema free database. Insert 3 more documents into the People collection to illustrate your answer
9. Count the number of documents in the People collection
10. Update Tom Kelly’s age to 22
11. Run the following command to verify that the People collection has **no** validation rules set
    * db.getCollectionInfos({name:"People"})
12. Run a command (collMod) to add a rule to ensure that an insert will fail if you don’t include a name attribute
13. Verify that your validation rule has been added using the following command
    * db.getCollectionInfos({name:"People"})
14. Try to insert a person with the following details
    * FirstName: Tom
    * LastName: Kelly
    * age: 21
15. Use the following command to add a gender field with the value ‘M’ to all documents in the People collection.

db.People.update({}, {$set: {"Gender": 'M'}}, false, true)

(See slide on “Adding a new field to all documents in a collection” for details of this command)

Then display all the documents in the People collection.

1. Insert a person with the following details
   * name: Mary Kelly
   * age: 19
   * gender: ‘F’
2. Run a command to ensure that each document that is inserted or updated should have the gender field set to ‘M’ or ‘F’.
3. Verify that your validation rule has been added using the following command
   * db.getCollectionInfos({name:"People"})
4. Try to insert a person with the following details
   * name: Mary Black
   * age: 19
   * gender: “Female”
5. Briefly discuss the advantages of validating documents in MongoDB

**The Implications of selecting a NoSQL rather than a relational database**

The Internet has resulted in the creation of massive quantities of data. The scale of data produced has resulted in a re-evaluation of traditional data persistence approaches. The relational model was traditionally the default selection for the implementation of a persistence tier; however issues such as scalability, processing time and hardware utilisation have led to a potential re-evaluation of approach.

Create a report **(1500 - 1600 words max)** on the implications of selecting a NoSQL rather than a relational database. Your report should consist of the following major sections:

**Background –** Why has the relational model been so dominant? Why have NoSQL models evolved?

**Comparing Relational and NOSQL approaches** - With reference to Boicea et.al “MongoDB vs Oracle - database comparison” [2] discuss the implications of utilising a NOSQL rather than a relational database model. How do the characteristics of the data impact on this choice, e.g. internet data versus bank data?

**Comparing NOSQL approaches** – With reference to Burtica et.al’s article “Practical application and evaluation of no-SQL databases in Cloud Computing” [1] compare the applicability of variant NOSQL approaches; key value pair stores, document oriented data stores, BigTable clones, Graph Databases in a telecommunications context.

**Conclusion** – Summarize the main points of your report

Your upload will be via turnitin. Please see the plagiarism section of the **Academic Writing Skills** Moodle page

This also provides a link for you to upload your assignment to turnitin without it being added to the Turnitin database.

[1] Burtica, R.; Mocanu, E.M.; Andreica, M.I.; Tapus, N., "Practical application and evaluation of no-SQL databases in Cloud Computing," *Systems Conference (SysCon), 2012 IEEE International* , vol., no., pp.1,6, 19-22 March 2012

[2] Boicea, A.; Radulescu, F.; Agapin, L.I., "MongoDB vs Oracle -- Database Comparison," *Emerging Intelligent Data and Web Technologies (EIDWT), 2012 Third International Conference on* , vol., no., pp.330,335, 19-21 Sept. 2012