**Database Indexing and Authentication**

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CS 340 – Client/Server Development

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**Each page of this document contains a screenshot of each command that was executed…**

1. Upload the Austin Animal Center (AAC) Outcomes dataset into MongoDB by importing a CSV file using the appropriate MongoDB import tool. Use the database name “AAC” and collection name “animals.” (Part 1-1):

A screenshot of a computer

Description automatically generated

Screenshot of the import command prior to its execution.

1. Screenshot of the import command after its execution (Part 1-1):

A screenshot of a computer

Description automatically generated

1. Create a simple index on the key “breed.” (Part 1-2):

A screenshot of a computer

Description automatically generated

1. This picture is used to show how I used the distinct function to get a type of breed that I could use for the example queries.

A screenshot of a computer

Description automatically generated

1. Show an example query using the simple index, and use the explain function to verify that the index will be used. (Part 1-2):

A computer screen shot of a program

Description automatically generated

Here we see the winningPlan uses the indexName: ‘breed\_1’, which is the simple index created on the key “breed.”

1. This screenshot is a continuation of the previous screenshot:

A screenshot of a computer screen

Description automatically generated

1. Create a compound index that will improve the performance of queries looking for breeds that have an “outcome\_type” of “Transfer.” (Part 1-3):

A screenshot of a computer

Description automatically generated

1. Show an example query using this compound index, and use the explain function to confirm the index will be used. (Part 1-3):

A screenshot of a computer screen

Description automatically generated

Here we see the winningPlan uses the compound index that was created.

1. This screenshot is a continuation of the previous screenshot:

A screenshot of a computer program

Description automatically generated

Here we see the rejectedPlans includes the simple index.

1. Create a new user called “aacuser” for the database AAC in the mongo shell. (Part 2-1):

A screenshot of a computer

Description automatically generated

1. Take a screenshot of your login process to MongoDB using the mongo shell. Be sure you can access MongoDB and list the databases using both the admin and aacuser accounts. (Part 2-2):

A screenshot of a computer screen

Description automatically generated

When the linux terminal is first open, the user is already logged in as the root or administrative user. The db.runCommand({connectionStatus:1}) shows the authenticated user is the root user and is able to see all database when the “show dbs” command is executed.

1. The following screenshot for the user: aacuser. (Part 2-2):

A screenshot of a computer screen

Description automatically generated

This screenshot shows the username and password being changed from the root user to the aacuser. Once in the mongo shell, the db.runCommand({connectionStatus:1}) is again used to show what user is logged into the mongo shell. Lastly, the “show dbs” command is executed to show that the aacuser can only read and write the AAC database.