# *Advanced Topics in Computer Science II (420-G50-HR)*

# *Lab 8 – MongoDB Updates*

Date due: **March 20, 2025**

**Learning Objectives**

Upon successful completion of this lab exercise, the student will be able to:

* Updating MongoDB records
* Accessing MongoDB programmatically through Python

Lab Set-Up

1. Create a folder called *initials*G50L08 where *initials* are your initials.

To Do

**Part A – Mongo in VSCode for Updates**

Use the database you created (initials\_db) and the **cars** collection to do the following:

* 1. Update the car with the model name ‘Vibe’ (there is only one) to change the year (set) to 2001 and the safetied field to false.
  2. Update all cars with a year less than 1990 to change the safetied field to false.
  3. Update the car with the manufacturer Lincoln and the model Continental (use both in the find) to change the model to be “Continental Mark X”
  4. Update the car with the lowest year to set the field colour to the value rust
  5. Update the car with the third lowest year to remove the field vin (Hint: use $unset)

Use the database you created and the **employees** collection (from previous lab) to do the following. You can refer to the [documentation on bulk write methods](https://www.mongodb.com/docs/manual/reference/method/Bulk.find.upsert/#update-operator-expressions):

1. Create a variable that allows bulk operations on the employees collection
2. Find the employee with the phone number “123-456-7890”. Replace the employee with an employee with the fields:
   1. name.first\_name = “George”
   2. name.last\_name = “Nadeau”
   3. phone = “123-456-7899”
   4. salary = 1000
   5. hire\_date = 2022-02-01 (you will have to make this a date type)

If the employee does not exist (they won’t) add them to the collection

**Part B – Mongo In Python**

1. Add the pymongo module using pip
2. Require the MongoClient from the pymongo module (or the entire module might be better).
3. In a try statement
   1. Create a client object with the attribute of the connection string as “mongodb:// csdevdb.cegep-heritage.qc.ca:27017”.
   2. Set a variable (usually called db) which is the database you are using (initials\_db)
   3. Create a collection variable which specifies the collection you are using (you will be using two – **cars** and **employees**).
   4. For the functions described below you will need to create them before you can use them within the try block:
      1. Call a function called **find\_z** (passing the relevant collection as parameter) that will create a cursor that finds all cars where the model contains a letter **z** (either case). There are 8 documents. Use print or pprint to display the information.
      2. Use a function called **list\_employees** to list all the employees sorted by their last name. Once again, the collection is sent as a parameter.
      3. Create a function called **update\_employee** which takes a collection as well as an employee’s last name as parameters. Update this employee by incrementing ($inc) their salary by 20000. Do a find on that employee and display their information to the console.
         1. Call the function by passing in the relevant collection as well as the employee last name “Maine”

**To submit**

When you have completed the lab exercise, call the Teacher’s attention and we’ll go over it together. Then, create a single zip file called *initials*G50L08.zip and copy the file to the Moodle page for the course.