Lab08DatabaseFundamentals

CSC 120 Computing Fundamentals I

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| **Question 1: Concept Review: Databases** | **10 points** |
| * What is a database? According to the linked video, a database is a program that helps store date and provides functionality for adding, modifying, and querying that data. * What is a table in databases? Tables are database objects that contain all the data in a database. Like a spreadsheet, a table uses rows to represent items, and columns to represent properties about the items * What does relational mean in relational databases? Relational means that the data points being stored are related to each other * What is SQL (Structured query language) and why do we need it? SQL is a language designed entirely for accessing databases. This makes it easier to perform tasks such as updating or retrieving data from a database. |  |

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| **Question 2: Designing a database 10 points** |
| * What is the advantage of storing medical records in a database instead of in text files? <https://beginnersbook.com/2015/04/dbms-vs-file-system/>   No redundant data, better data security and privacy, and easier access to data   * What two tables did you think of for a personal medical records database? Why?   Customer table and a Procedure table. The customer table will have information about the customer and the procedure table with have attributes relating to different procedures   * Name two-three columns that each table will have. 3 attributes my Customer table will have are Customer ID (primary attribute), first name, and last name   3 attributes my Procedure table will have are procedure ID (primary attribute), hospital address, and procedure type   * What column will you indicate as primary key? What column is foreign key? Why?   In the customer table, Customer ID will be the primary key because this is different for every customer. The procedure ID will be the foreign key because it is the primary key in the other table.   * Can the primary key contain a NULL value? No |

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| **Question 3: Installation** | **10 points** |
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* You can add, delete, modify, update, query your database from the command prompt.
* Create a new database using the CLI tool. Open Command Prompt, navigate to the installation directory.
  + - [Command Line Shell for SQLite](https://sqlite.org/cli.html)
    - [SQLite CREATE command](https://www.sqlite.org/lang_createtable.html)
    - [Basic syntax for CREATE command](https://www.tutorialspoint.com/sqlite/sqlite_create_table.htm)
* Name your database appropriately. For the command line examples below, I have used the name newdb.db
  + The following are some CLI commands to help you get started. You should already know what tables you want to create and what each column should be.

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| **Question 4: CREATE command 10 points** |
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| **Question 5: INSERT command 10 points** |
| INSERT INTO customers (id, firstname, lastname) VALUES (1, ‘Shawn’, ‘Palmer’);  INSERT INTO customers (id, firstname, lastname) VALUES (2, ‘Bryce’, ‘Charette’);  INSERT INTO customers (id, firstname, lastname) VALUES (3, ‘Michaux’, ‘Davis’);  INSERT INTO customers (id, firstname, lastname) VALUES (4, ‘Matt’, ‘Haynes’); |

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| **Question 6: SELECT command 10 points** |
| 1. Paste the output of SELECT \* FROM members;   1|Shawn|Palmer  2|Bryce|Charette  3|Michaux|Davis  4|Matt|Haynes   1. Select only one column of the table. What will this query look like? Paste the query you have constructed in the answer document.   Shawn  Bryce  Michaux  Matt |

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| **Question 7: DELETE and UPDATE commands** | **10 points** |
| * Construct a query to delete one entry in the table called members.   DELETE FROM customers WHERE id = 4;   * Construct a query to update the age of one of the members.   UPDATE customers SET lastname = 'Test' WHERE id = 4;  (I updated last name instead of age)   * Paste both these queries in the answer document. |  |
| **Question 8: Personal Medical Records Database 20 points** | |
| * Construct the personal medical records database that you designed in the previous section. * Create the appropriate tables. * Make sure that they are connected correctly using foreign keys. * Enter dummy data into each table for demonstration purposes. 3-4 entries is good enough. * Print the tree of the database and paste the output.   CREATE TABLE customers(  id INT PRIMARY KEY NOT NULL,  firstname TEXT NOT NULL,  lastname TEXT NOT NULL);  CREATE TABLE operations(  id INT references customers(id));  CREATE TABLE operations1(  price INT NOT NULL,  name TEXT NOT NULL,  id INT REFERENCES customers(id));   * Print all tables using the SELECT command and paste the output.   1|Shawn|Palmer|Heart bypass surgery|150000|1  1|Shawn|Palmer|Tonsillectomy|3000|2  1|Shawn|Palmer|Blood work|150|3  2|Bryce|Charette|Heart bypass surgery|150000|1  2|Bryce|Charette|Tonsillectomy|3000|2  2|Bryce|Charette|Blood work|150|3  3|Michaux|Davis|Heart bypass surgery|150000|1  3|Michaux|Davis|Tonsillectomy|3000|2  3|Michaux|Davis|Blood work|150|3  4|Matt|Test|Heart bypass surgery|150000|1  4|Matt|Test|Tonsillectomy|3000|2  4|Matt|Test|Blood work|150|3 | |
| **Question 9: Feedback questions 10 points** | |
| This assignment was created with the objective to allow students to "learn on the job“. Please answer the feedback questions below.   1. Did the assignment fulfill its objective of learning on the job? Did you manage to learn how to use SQLite as well as understand the basics? I was able to understand the very basic components of SQLite but am not confident that I answered some of the questions correctly. Particularly, the questions involving the PRIMARY and FOREIGN keys. 2. In your opinion, what would have made this assignment more useful? Its hard to say, video tutorials with example problems could definitely help, but that also might make the assignment too easy and I do understand the importance of having to use your own resources to answer the problems. 3. On a scale of 1-10, how would you rate this assignment as compared to the others in this course? I would rate this a 7. It was good to get a brief introduction to SQLite. It was a lot of information to take in so I am not confident that I clearly understand everything but at least I have some idea of what it is now. | |

# EXTRA CREDIT Version control using Git

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| **Question 10: EXTRA CREDIT Version Control using Git 30 points** |
| 1. Watch the following videos for reference and to understand how to use a distributed version control system such as git. Git is a tool that you use on your local machines for version control. Why version control and the course lectures to understand why you are doing these tasks.    1. [Why version control?](https://www.youtube.com/watch?v=9GKpbI1siow)    2. [Git basics reference video](https://www.youtube.com/watch?v=SWYqp7iY_Tc) 2. Download and install Git version control on your system.    1. Download link: https://git-scm.com/downloads    2. Verify the installation Starting a new command prompt and type git –version (c) Paste a screenshot of the installation for points.     (d) Create an online account on Github or Bitbucket. Paste a screenshot of the account   1. Create a new repository called CSC 120 Computer Fundamentals on the online account. Paste a link to your repository   https://github.com/spalmer12121/CSC-120-Computer-Fundamentals   1. Clone the repository on your local machine using the following command    1. git clone <repo\_name>    2. Copy the files that you created for this course into the repository folder.    3. Add the Python files that you have created during this course to the repository.   Use the command. |
| 1. git add file1.py file2.py 2. Commit the changes using the following command 3. Git commit -m “Added files for the CSC 120 course”.   5. Push the changes to the remote repository. Paste the link to your repository below. |

INSERT INTO customers (id, firstname, lastname) VALUES (1, ‘Shawn’, ‘Palmer’);