UNIVERSITY OF LEEDS

School of Computing: Assessment brief

Module title	Databases
Module code	COMP1121
Assignment title	Coursework 1
Assignment type and description	In-course assessment, writing SQLite queries
Rationale	Write SQLite queries to retrieve data from a database
Word limit and guidance	This coursework should take less than 10 hours to complete
Weighting	30%
Submission deadline	10:00 14 March 2024
Submission method	Online through Gradescope
Feedback provision	Rubric and additional comments
Learning outcomes assessed	LO2: use appropriate tools to manipulate database systems LO3: design and implement a database using appropriate tools
Module lead	Hui Lau
Other Staff contact	None

1. Assignment guidance

A. Introduction

For this coursework, you will be utilising the `musicstore` database, which comprises of 11 tables: `albums`, `artists`, `employees`, `customers`, `genres`, `invoice_items`, `invoices`, `media_types`, `playlist_track`, `playlists` and `tracks`. Your task is to write SQLite queries to retrieve data from tables within the `musicstore` database. The queries will demonstrate your understanding of the structure of the `musicstore` database and your ability to write SQLite queries to retrieve data from multiple tables. This coursework will be marked using SQLite version 3.37.2 and above.

B. Preparation

Please follow the instructions carefully:

1. Download the zip file `cwk1-files.zip` from Minerva. The file `cwk1-files.zip` contains a database file (`musicstore.db`), a database diagram on the relationships between tables in the database for your reference (`musicstore_db_diagram.pdf`), and a template sql file (`sqlcwk.sql`) in which you write the SQLite queries.
2. Unzip `cwk1-files.zip` and put these files in a folder/directory.
3. Write your SQLite queries in the template sql file `sqlcwk.sql`. You can edit `sqlcwk.sql` with any document editing software such as Notepad or Notepad++. Write your name or username at the top of the file indicated by `@author`.
4. To test the SQLite queries that you have written:
   i. Launch a terminal or navigate to the same directory containing both `musicstore.db` and `sqlcwk.sql`, and then open the database with the command `sqlite3 musicstore.db`.
   ii. Run the sql file by typing `.read sqlcwk.sql` on the terminal.
   iii. Check to make sure views were created, which can be done with basic `SELECT` statements. It is advised to specify name of each column to ensure all column names are correct.

2. Assessment tasks

1. Write a SQLite query to create a view named `vNoCustomerEmployee` for employees that have not served any customers with the following columns:
    - `EmployeeId` – the id of the employee that has not served any customers
    - `FirstName` – the employee's first name
    - `LastName` – the employee's last name
    - `Title` - the title (position) of the employee

    Sample output is shown in Figure 1. You can check the created view by selecting all data from the view.

EmployeeId	FirstName	LastName	Title
1	Andrew	Adams	General Manager
2	Nancy	Edwards	Sales Manager
6	Michael	Mitchell	IT Manager
7	Robert	King	IT Staff
8	Laura	Callahan	IT Staff

Figure 1: Sample output for `vNoCustomerEmployee`

[5 marks]

2. Write a SQLite query to create a view named `v10MostSoldMusicGenres` for the 10 best-selling genres with the following columns:
    - `Genre` – the name for the 10 most-sold music genres
    - `Sales` – the total quantity of tracks sold for that genre.

    The view is **ordered** by `Sales` in **descending order** as shown by sample output in Figure 2.

Genre	Sales
Rock	835
Latin	388
Metal	266
Alternative & Punk	245
Jazz	80
Blues	61
TV Shows	48
R&B/Soul	43
Classical	43
Reggae	30

Figure 2: Sample output for `v10MostSoldMusicGenres`

[6 marks]

3. Write a SQLite query to create a view named `vTopAlbumEachGenre` for the top-selling album in each genre with the following columns:

   - `Genre` – the name of the genre
   - `Album` – the name of the album with the most tracks sold for that genre
   - `Artist` – the name of the artist for the album with the most tracks sold for that genre
   - `Sales` – the quantity of tracks sold on that album for that genre.

   Sample output is shown in Figure 3. You can check the created view by selecting all data from the view.

Genre	Album	Artist	Sales
Rock	Greatest Kiss	Kiss	20
Jazz	Up An' Atom	Gene Krupa	17
Metal	Chemical Wedding	Bruce Dickinson	13
Alternative & Punk	Acústico	Titãs	22
Rock And Roll	BackBeat Soundtrack	BackBeat	7
Blues	The Cream Of Clapton	Eric Clapton	15
Latin	Minha Historia	Chico Buarque	27
Reggae	Acústico MTV [Live]	Cidade Negra	9
Pop	Instant Karma: The Amnesty International Campaign to Save Darfur	U2	17
Soundtrack	Original Soundtracks 1	Passengers	9
Bossa Nova	Vinícius De Moraes - Sem Limite	Toquinho & Vinícius	15
Easy Listening	My Way: The Best Of Frank Sinatra [Disc 1]	Frank Sinatra	12
Heavy Metal	Killers	Iron Maiden	7
R&B/Soul	Back to Black	Amy Winehouse	14
Electronica/Dance	Radio Brasil (O Som da Jovem Vanguarda) - Seleccao de Henrique Amaro	O Rappa	8
World	Demorou...	Mônica Marianno	7
Hip Hop/Rap	House of Pain	House Of Pain	10
Science Fiction	Battlestar Galactica, Season 3	Battlestar Galactica	7
TV Shows	Lost, Season 2	Lost	11
Sci Fi & Fantasy	Battlestar Galactica (Classic), Season 1	Battlestar Galactica (Classic)	19
Drama	Heroes, Season 1	Heroes	11
Comedy	The Office, Season 3	The Office	9
Alternative	Revelations	Audioslave	5
Classical	Bach: Orchestral Suites Nos. 1 - 4	Academy of St. Martin in the Fields, Sir Neville Marriner & Thurston Dart	4

Figure 3: Sample output for `vTopAlbumEachGenre`

[6 marks]

4. Write a SQLite query to create a view called `v20TopSellingArtists` for the 20 top-selling artists with the following columns:

   - `Artist` – the name of the top 20 artists with the most tracks sold
   - `TotalAlbum` – the number of albums with tracks sold for that artist
   - `TrackSold` – total quantity of tracks sold for that artist.

   The view is **ordered** in **descending order** of `TrackSold` as shown in the sample output in Figure 4. You can check the created view by selecting all data from the view.

Artist	TotalAlbum	TrackSold
Iron Maiden	21	142
U2	10	108
Metallica	10	91
Led Zeppelin	14	87
Os Paralamas Do Sucesso	3	45
Deep Purple	11	44
Lost	4	42
Faith No More	4	42
Eric Clapton	2	40
R.E.M.	3	39
Creedence Clearwater Revival	2	37
Queen	3	37
Guns N' Roses	3	36
Titãs	2	34
Green Day	2	33
Pearl Jam	5	32
Kiss	2	31
Van Halen	4	29
Various Artists	4	29
Red Hot Chili Peppers	3	28

Figure 4: Sample output for `v20TopSellingArtists`

[6 marks]

5. Write a SQLite query to create a view named `vTopCustomerEachGenre` for the customer that spent the most for each genre of music with the columns:

   - `Genre` – the name of the genre
   - `TopSpender` – the full name (in the format `firstname lastName`) of the customer that spent the most on each genre of music
   - `TotalSpending` – the total spending of the customer on that genre of music, based on `quantity` x `unitprice`, rounded to two decimal points.

Sample output is shown in Figure 5. You can check the created view by selecting all data from the view.

Genre	TopSpender	TotalSpending
Alternative	Frank Ralston	4.95
Alternative & Punk	Daan Peeters	13.86
Blues	Leonie Köhler	8.91
Bossa Nova	François Tremblay	3.96
Classical	Isabelle Mercier	5.94
Comedy	Frank Ralston	9.95
Drama	Richard Cunningham	11.94
Easy Listening	Jack Smith	4.95
Electronica/Dance	Jennifer Peterson	3.96
Heavy Metal	Frank Harris	3.96
Hip Hop/Rap	Steve Murray	3.96
Jazz	Dominique Lefebvre	5.94
Latin	Roberto Almeida	17.82
Metal	Hannah Schneider	17.82
Pop	João Fernandes	4.95
R&B/Soul	Ladislav Kovács	4.95
Reggae	Emma Jones	4.95
Rock	Eduardo Martins	28.71
Rock And Roll	François Tremblay	2.97
Sci Fi & Fantasy	Julia Barnett	9.95
Science Fiction	Luis Rojas	5.97
Soundtrack	Marc Dubois	4.95
TV Shows	Hugh O'Reilly	13.93
World	Roberto Almeida	2.97

Figure 5: sample output for `vTopCustomerEachGenre`

[7 marks]

3. General guidance and study support

Developing your academic skills will enable you to become a more effective learner. Online resources on critical thinking, reading, academic writing and more can be found at Skills@Library website at https://library.leeds.ac.uk/info/1401/academic_skills#minerva.

4. Assessment criteria and marking process

When you submit work for assessment it is expected that it will meet the University's academic integrity standards. Standard university penalty of 5% of available marks per day, or part of a day, will apply to late work. Late submissions are acceptable up to 7 days late. Feedback on late submissions may not be provided within 3 weeks of submission deadline.

5. Presentation and referencing

All SQLite queries **must** be **written in** the file **`sqlcwk.sql`**, **DO NOT CHANGE THE FILENAME**.

6. Submission requirements

You only need to submit the SQL file **`sqlcwk.sql`** containing all your SQL queries to Gradescope. Please **do not submit any other files** and **do not change the filename**. Make sure you have tested `sqlcwk.sql` with no errors and checked the views created with `SELECT` statements.

7. Academic misconduct and plagiarism

Academic integrity means engaging in good academic practice. This involves essential academic skills, such as keeping track of where you find ideas and information and referencing these accurately in your work.

By submitting this assignment you are confirming that the work is a true expression of your own work and ideas and that you have given credit to others where their work has contributed to yours.

8. Assessment/ marking criteria grid

All question	All values correct for all columns and rows Some missing/incorrect values for columns/rows	3 marks 1 mark
	The spelling of all columns is correct	1 mark
Question specific	Correct use of GROUP BY + COUNT/MAX/DISTINCT/SUM	1 mark
	Correct use of ORDER BY + DESC + LIMIT	1 mark
	Correct use of || to concatenate strings	1 mark