Mlungisi

Time limit : 30 minutes

## Section 1

1. What does the acronym SQL stand for?
   1. \_\_\_Structured Query Language\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Given tblHomeFloorSurfaceArea(Address, KitchenSurface, LoungeSurface, BathroomSurface) how would you normalize this table to 2NF?
   1. \_\_\_I would have Address, SurfaceType and SurfaceArea columbs\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Given tblPrices(id, name, level, price) which column should be a primary key
   1. \_\_\_id\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Based on tblPrices in Q3, observing the names of the columns; what data types will you expect them to be defined as.
   1. \_\_\_\_id – int, name -VARCHAR, level-VARCHAR, Price-Double\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
5. What is the difference between a primary-key and a foreign-key?
   1. \_A primary-key uniquely identify a row in a table and foreign-key is a primary key of one table on another table\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. State one of the aspects of a relational database
   1. \_\_It \_has rows and columbs and tables that have related information\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Section 2

For this section; refer to the tables at the end of the document and formulate SELECT queries that will answer each of the below questions

1. List the content of the Gender table
   1. \_\_\_SELECT \* FROM Gender;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. List the name and isbn for all the books in the library and sort them by name in ascending order
3. \_\_\_SELECT Name, ISBN FROM Library ORDER BY Name ASC;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. List the student names that are above 24 years of age.
5. SELECT Name FROM Students WHERE Age > 24;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. List the student names and ages that are between 20 and 23 years old.
7. SELECT Name, Age FROM Students WHERE Age >=20 AND Age <= 23;\_OR Select Name, Age FROM Students Where Age BETWEEN 20 AND 23;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
8. How many books are listed in the library?
9. \_\_\_SELECT Count(\*)\_From Library\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
10. How many students are there, based on gender?

-SELECT Gender.Type, Count(\*)AS TOTALFROM Students LEFT JOIN Gender ON Students.genderID = Gender.id

GROUP BY Students.genderID

13. List the books in the order of popularity (based on how many books have being checked out).

SELECT Library.id, Library.Name, Library.ISBN,

Library.Author, Library.Category, COUNT(StudentBooks.LibraryId) AS NO\_OF\_SALES

FROM Library LEFT JOIN StudentBooks ON StudentBooks.LibraryId = Library.id

GROUP BY StudentBooks.LibraryId

ORDER BY COUNT(StudentBooks.LibraryId) DESC;\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

14.How many “To Kill A Mockingbird” books have being checked out by Female students?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SELECT Library.Name, COUNT(Library.Name) AS NO\_OF\_BOOKS\_CHECKED\_BY\_FEMALE FROM Library, StudentBooks, Students, Gender

WHERE StudentBooks.LibraryId = Library.id AND StudentBooks.StudentId = Students.id AND Students.GenderID = Gender.id

AND Gender.Type = "Female" AND Library.Name = "To Kill A Mockingbird";

Data tables;

* + 1. Students.Gender references Gender.id
    2. StudentBooks.LibraryId references Library.id
    3. StudentBooks.StudentId references Students.id

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **StudentBooks** | | |  | **Students** | | | |  | **Gender** | |
| id (PK) | LibraryId (FK) | StudentId (FK) |  | id (PK) | Name | Age | Gender (FK) |  | id (PK) | Type |
| 1 | 1 | 1 |  | 1 | John | 23 | 1 |  | 1 | Male |
| 2 | 3 | 1 |  | 2 | Thabo | 21 | 1 |  | 2 | Female |
| 3 | 4 | 1 |  | 3 | Sinawo | 22 | 1 |  |  |  |
| 4 | 4 | 5 |  | 4 | Lenny | 19 | 1 |  |  |  |
| 5 | 4 | 8 |  | 5 | Wendy | 22 | 2 |  |  |  |
| 6 | 5 | 8 |  | 6 | Logan | 22 | 1 |  |  |  |
| 7 | 3 | 3 |  | 7 | Thabo | 27 | 1 |  |  |  |
|  |  |  |  | 8 | Thandi | 25 | 2 |  |  |  |
|  |  |  |  | 9 | Lucky | 24 | 1 |  |  |  |
|  |  |  |  | 10 | Vince | 20 | 1 |  |  |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Library** | | | | |
| id (PK) | Name | ISBN | Author | Category |
| 1 | Old man and the sea | 123-AA-32377 | Hemingway, Ernest | Fiction |
| 2 | The nature of the Universe | 123-AA-32378 | Gallant, Roy A | Science |
| 3 | The Great Gatsby | 374-DC-23056 | F. Scott Fitzgerald | Novel |
| 4 | To Kill A Mockingbird | 939-MA-4456 | Harper Lee | Novel |
| 5 | Hitch Hikers Guide To The Galaxy | 001-AA-3902 | M. J. Simpson | Fiction |