CS 5200 Homework 5

SQL SELECT practice in MySQL

This assignment gives you another opportunity to hone your skills as an SQL programmer. Please download the self-contained exported database schema and import the schema into a database named *lotrfinal*lastnamefirstinitial, where *lastname* is your last name and *firstinitial* is the first letter of your first name. Please submit one lotrfinallastnamefirstinitial.sql file to canvas. The database contains 5 tables: lotr_book, lotr_character, lotr_first_encounter, lotr_region and lotr_species. The **lotr_book** table contains a tuple for each book in the trilogy. The **lotr_character** table fields are: the character's name (name), the character's species (species, the character's home land(if known)), a Boolean value indicating if the character is royalty, another boolean value representing if a character is a member of the fellowship, and a third boolean value representing if a character survives throughout the trilogy. The last field is the character's alias, another moniker the characters is known by. The **lotr_species** table, contains: the species' name (name), the species' description (description), the species' size relative to other species (size). The variable size is an ordinal value, where larger number represent on average larger species. A value of 0 represents a variable sized species.The **lotr_region** table contains: the region's name (name), the species composing the majority of the region's population (majority_species), a textual description of the region (description), the geographical area in Middle Earth where the region is located (middle_earth_location) and the name of the region's leader (leader). The l**otr_first_encounter** table contains the first encounter between two characters in the trilogy. Each row contains the names of the two character's meeting (character1 and character2), The region where the two characters meet (region) and the book number of the book when the encounter occurred.

Within your solution file please provide the question number in comments before the solution.

Write SQL queries that answer the following questions. Make sure you compose a query that does not use literal values determined by perusing the tuples. Also, remember some queries may generate an empty result.

1. (10 points) For each character (found in the lotr_character table) , count the number of encounters documented within the database. Note: a character's name may appear in two different fields in the encounter table. Each tuple in the result should contain the character's name and the count of encounters.
2. (10 points) Count the number of regions each character has visited (as documented in the database). Each tuple in the result should contain the character's name and the number of regions the character has been documented as visiting as specified in the database. Note: the character's home region should be included in the count.

3. (5 points) Count the number of regions whose majority species is ‘hobbit’. The result should consist of a number.
4. (10 points) What region has been documented as having the most number of first encounters?
5. (10 points) What region has been visited by all characters?
6. (5 points) Make a separate table from the lotr_first_encounters table – where the records are for the first book. Name the new table book1 encounters.
7. (10 points) Which book (book name) does ‘Frodo’ encounter ‘Faramir’? The result should contain the book id and its title.
8. (5 points) For each Middle Earth region (each region in the lotr_region table) , create an aggregated field that contains a list of character names that have it as his homeland. The result set should contain the region name and the grouped character names. Do not duplicate names within the grouped list of character names.
9. (5 points) Which is the largest species (by size)?
10. (5 points) How many characters are “human”?
11. (5 points) Make a separate table from the first encounter table – where the tuples are the first encounters between one hobbit and one human. Name the table HumanHobbitFirstEncounters.
12. (5 points) List the names of the characters that have “gondor” listed as their home land.
13. (5 points) How many characters have “hobbit” listed as their species?
14 (5 points) For each Middle Earth region, determine the number of characters from each homeland. The result set should contain the region name and the count of the number of characters. Make sure you do not count characters more than once.
15 (5 points) For each character determine the number of first encounters they have had according to the database. Rename the computed number of encounters as *encounters*. Make sure each character appears in the result. If a character has not had any encounters, the number of encounters should be equal to NULL or 0.