Database Management Systems II (DBMS-2004)
Assignment #3 – Table Management

For this assignment you will be using the database 'JRMOVIE' (created in your schema) and running a stored procedure in the 'MPOITRAS' schema. Don't forget to run your course setup file (located in the course files module of LEARN) to reset your schema before starting.

Part A

1. Add the column 'CreditCardNumber. To the Customer table. It must be an integer value with exactly 12 digits. It can be null.

2. Add a default value to the AgreementDate column in the RentalAgreement table. The default value is 'CURRENT_DATE'.

3. Rename the Customer table to Client.

4. Rename the PCode column in Client to 'PostalCode'.

5. Purge all files in your recyclebin.

6. Create a non-unique index on columns FName and LName in the Client table. The table must be available when the index is being built. Do not gather statistics when building the index.

7. Collect statistics for your Client table. Make sure to collect statistics for all indexes on this table as well.

8. Create a unique index on the CreditCard column in Client. The table must not be available when the index is being built. Gather statistics when building the index.

Part B

9. Create a sequence named RA_Sequence for the RentalAgreement table. It must start at value 1000 and increment by 3 for each new value. The maximum value is 9999.The sequence should automatically restart when it reaches 9999, and should start at the number 5. There should be 5 pre-generated sequence values available at all times.

10. Using the sequence created in step 9, write an INSERT statement to add a new row into the RentalAgreement table. The data to add is indicated in the following table.

Agreement ID	CustID	Agreement Date	MovieCount	DurationID
Next Sequence Value (the sequence must be used)	23	*Date the statement is run*	1	1

11. Using the sequence created in step 9, write an INSERT statement to add a new row to the MovieRented table for the RentalAgreement just added

MovieID	Agreement ID	RentalAmount	PercentReductionApplied
6	The same sequence value as the one used by the previous step must be used	3.76	0

12. Create a public synonym on your Movies table called <yourdatabaseid>_Movies where <yourdatabaseid> is your unique database identifier. Make sure to grant access the users 'BHOTHI' and 'MPOITRAS' so the synonym can be used by these users.

13. Run the stored procedure 'BuildTables' using the following command:

    EXEC BuildTables;

    The stored procedure above creates a table with a primary key called 'SamplePK'. Analyze Primary Key index and validate its structure. Show the statement used.

Part C
14. Answer the following questions based on the analysis performed in step 13:

    a. How many levels are in the tree?
    b. How many blocks are in the index?
    c. How many of those blocks are branch blocks?
    d. How many of those blocks are leaf blocks?
    e. How many branch rows are there?
    f. How many leaf rows are there?
    g. Draw a diagram of what the diagram may look like (assuming it is a balanced tree). Draw the diagram in Microsoft Word and use a filename of 'Q14-Diagram.docx'.

15. Determine the index Balance Ratio for the index created in step 13. In your answer provide the following:
    a. The statement you use to determine the balance ratio.
    b. What the balance ratio is.
    c. Does it need to be rebuilt based on your calculated value?

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Submission Instructions:

Submit the following:

- The SQL Commands necessary to perform the required acions.
- The answers to the questions asked.

The following standards are to be used when coding:

- Keywords are in Uppercase

- Names are coded in 'TitleCase' (First letter of each word capitalized)

- Each clause is placed on a line by itself

Submission Instructions

- Compress all files into a zip archive named '*lastname,firstname_A3.zip*' and submit the archive to the appropriate LEARN dropbox.

Marking Guidelines

- The assignment will be marked using a rubric (attached to the assignment in LEARN).

- The rubric will include marks sections for the following:
  o Proper file naming & submission
  o Proper commenting
  o Proper coding guidelines (capitalization, clause placement, etc)
  o Solution produces correct results