Microsoft SQL Server

Programming Basics – Training

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| ***Author*** | ***Date*** | ***Notes*** |
| Gourav Salanke  Pankaj Jadhav  Vandana Maurya | 04-02-2011 | Initial Draft |
| Gourav Salanke  Pankaj Jadhav  Vandana Maurya | 08-07-2011 | Added/Edited few exercises  Removed research session on Indexes, Tables vs. Views and Identity property  It is being covered in Advance Training Document |
| Pankaj Jadhav | 06-02-2017 | Database renamed ZeusCatLMS\_Training to Zeus\_SQL\_Training and function renamed |

**Prerequisites**

The following section lists the frameworks and technologies that are required to complete this training document.

* Microsoft SQL Server 2008 or above
* Microsoft SQL Server Management Studio 2008 or above
* Database “ZeusCatLMS\_Training” hosted on ADDServer SQL server
* Basic knowledge of Relational Database System

**Notes**

* Copy-pasting code from the Internet is prohibited. You can study the code samples available on the Internet or any other sources but you should always roll out your own implementation.
* Please use a separate document to write your answers. The answers should be filed for future reference.

**Session 01**

**Concepts**

* SQL server management studio

**Exercise**

* Understand how to connect to a SQL database server using SQL Management Studio
* Explore various options, tools, windows of SQL management studio and understand their usage

**Session 02**

**Concepts**

* SELECT statement
* WHERE clause
* Operators in WHERE clause
  + AND OR NOT
  + LIKE
* ORDER BY clause
* UNION, INTERSECT, EXCEPT operations
* Aliases
* Computed columns
* DISTINCT, TOP clauses

**Exercise**  
  
List of database objects required for following queries -

* ForumUsers

Write SQL queries to perform following actions

1. Display contact details of all "non Active" users
2. Display contact details of users from “Mumbai”
3. Display contact details or users from “Hyderabad” who have not given their address
4. Display contact details of users who are either from “Chennai” or have their Birthday on “1986-05-13”
5. Display contact details of users whose first names start with “K”
6. Display contact details of users whose first name does not start with “S”
7. Display contact details of users, arranged in ascending order of their age (in years)
8. Display contact details of the 5 newest users

**Session 03**

**Concepts**

* Joins
* Sub-queries

**Exercise**  
  
Answer the following questions in short -

1. What are different types of joins?
2. What are sub-queries? Which sub-query is called co-related sub-query?
3. Compare Sub-queries and Joins

List of database objects required for following queries -

* tblWord
* tblWordUsages
* tblWordTypeMapping
* tblWordTypeEnum
* ForumUsers
* tblPartnerOrganizationUsers
* tblPartnerOrganization
* tblMerchandise
* tblMerchandiseAttributes
* tblMerchandiseColorEnum
* tblMerchandiseDisplayTypeEnum
* tblMerchandiseDisplayTypeMapping
* tblMerchandiseSizeEnum
* tblMerchandiseTypeEnum
* tblUserTypeUsers

Write SQL queries to perform following actions –

1. Display details (Word, Meaning, Pronunciation, Usage) of all words
2. Display words which are of type “noun”
3. Display words which have not been scheduled for SMS
4. Display contact details of users of partner “acme” (Partner Org ID = 1)
5. Display contact details of users which are not registered under any of the partners
6. Display Name and size details of T-shirts from merchandises table which are available in black color
7. Display Name, type, color and size details of all merchandises to be displayed on User Points Reward Gallery (tblMerchandiseDisplayTypeEnum)
8. Display contact details of all users of type Administrator
9. Display Merchandise Name, Size, Color and Quantity available for Black color T-shirts (MerchandiseType) and Red Color Backpacks (MerchandiseType)

**Session 04**

**Concepts**

* CASE statement
* String functions
* Date functions
* CONVERT function

**Exercise**  
  
Document following for your reference -

1. List all the STRING functions & their usage in tabular form
2. List all the DATE functions & their usage in tabular form
3. Understand the use of CAST/CONVERT function and options for various date-time styles

List of database objects required for following queries -

* Forumusers

Write SQL queries to perform following actions -

1. Using CASE statement write a simple query to print 3 letter form of current month (e.g. Jan, Feb etc.)
2. Display contact details and registration date [in format: dd/mm/yyyy] of all paid users
3. Write a query to display today’s date in form 13th Dec 2010
4. Display names of all paid users in the form FirstName<space>InitialOfLastName<dot>

**Session 05**

**Concepts**

* GROUP BY, HAVING clause
* Aggregate functions
* Ranking functions

**Exercise**   
  
List of database objects required for following queries -

* tblQuiz
* tblQuizRound
* tblQuizRoundwiseScore
* tblEmployer
* ForumUsers
* tblEntranceTestTypeEnum
* tblUserEntranceTestsInterestedIn

Write SQL queries to perform following actions -

1. Display details of quiz for which the total question count is greater than or equal to 5
2. Display details of quiz for which total duration is greater than 500 and less than 720 seconds(both inclusive)
3. Display list of participants with their total score for QuizID 355
4. Re-write and extend above query to display ranks of users for all quizzes
5. Display list of participants who have scored 50 or more points in QuizID 355
6. Display no. of users employed under each of the employer listed in tblEmployer. Note: If any employer has no users then the count should appear as 0
7. Display the list of the entrance tests along with the count of users who have opted for them.

**Session 06**

**Concepts**

* INSERT statement
* DELETE statement
* TRUNCATE statement
* UPDATE statement
* UPDATE, DELETE with multiple tables (Join)

**Exercise**   
  
Answer the following questions in short -

1. Compare DELETE and TRUNCATE

List of database objects required for following queries -

* tblUserTypeEnum
* tblWordForSMS
* tblWordForSMSSchedule

Write SQL queries to perform following actions -

1. INSERT a row for “Training User” in table tblUserTypeEnum
2. UPDATE column vcUserType to “SQL Training Users” of the row inserted with the above query (1.)
3. DELETE the row inserted with the above query (1.)
4. Replace without using sub-query, all occurrences of “<br/>” with “ “(space), from the Usage statements of the words which are scheduled for SMS word service for the future dates
5. Delete without using sub-query, the schedule for SMS word service, for the future dates, of the words for which the length of the usage statement is more than 30 characters

**Session 07**

**Concepts**

* DECLARE statement
* Conditional statements
* Looping statements
* Transactions
* Executing stored procedures
* Executing functions

**Exercise**  
  
Answer the following questions in short -

1. What are transactions? Why are they used?
2. Which statements are required for executing transactions

List of database objects required for following queries -

* uspSelectUserAvailibility
* udfRandBetween
* udfParseString

Write SQL queries to perform following actions -

1. Script to print all leap years between year 1900 and 2000
2. Script to execute stored procedure uspSelectUserAvailibility to check if username “testfunda” or email “contact@testfunda.com” exists in database
3. Script to get Random Number between 1 to 100 using function udfRandomBetween
4. Script to parse the string “19,45,64,85” into a table using function udfParseString