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| **National University of Computer and Emerging Sciences** |
| Lab Manual 3b  “Introduction to Database Systems and MSSQL” |
|  |
| Database Systems |
| Spring 2018 |

Department of Computer Science

FAST-NU, Lahore, Pakistan

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# Objective

The purpose of this lab activity is to make you familiar with SQL Server 2008 that is the backend infrastructure of DB implementation and manipulation. SQL Server installation and configuration steps are depicted for students to install the server on their personal machines and get a knowhow of SQL architecture and its components. Further, it contains the DB creation with table having specific definitions w.r.t DT and constraints of Null ability (if applied any). Data population using Query analyzer (Queries) and design view would be covered. For Data in files that needs to be inserted in DBMS, the import & export wizard would be used that is later used to query and retrieve data w.r.t user requirements.

At the end of this lab you will be able to learn

* Table creation, definition through script & Design view.
* Data population through Query analyzer and Design view.
* Data import and export from files to DBMS (tables) using SQL import export utility.

# Task Distribution

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| --- | --- |
| Total Time | 120 Minutes |
| Table creation, definition through script & Design | 20 Minutes |
| Data population through Query analyzer and Design view | 20 Minutes |
| Data import and export from files to DBMS (tables) | 20 Minutes |
| Practice Exercise | 60 |

# Required material

Script files in scripts folder of lab 3.

# Creating table

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| --- | --- |
| **Task 1: Creating table using SQL server management studio designer** | **Estimated completion time (mins):** 30 |
| **Step 1: Open SQL server management studio**     1. Start->Program Files ->SQL server 2008 -> SQL server management studio 2. Enter your server name as “cactus” username as “lab” password as “123456789”      1. Add new Database     **Step 2: Creating Table through designer**   1. Add new table     2.Define column field    **Choosing Data Types**  [**http://sqlblog.com/blogs/aaron\_bertrand/archive/2009/10/12/bad-habits-to-kick-using-the-wrong-data-type.aspx**](http://sqlblog.com/blogs/aaron_bertrand/archive/2009/10/12/bad-habits-to-kick-using-the-wrong-data-type.aspx)  3. Save table and Give it meaningful name to save. | |

# Import data into table

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| --- | --- |
| **Task 1: Import data in to tables using Import Export utility** | **Estimated completion time (mins):** 30 |
| **Step 1:**     1. Start->Program Files ->SQL server 2008 -> Import and Export data 2. Select Your source “source files are also given in script folder refer to Requirements Section .You have to repeat the following steps for all the tables you are going to create and source text files related to all tables are also given in the script file.      1. Don’t forget to check “Column names in the first data row” 2. Select your destination table.      1. Press finish button to start importing data from text file to your destination table. | |

# Selecting Data

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| --- | --- |
| **Task 1: Selecting data from the table using selection Query** | **Estimated completion time (mins):** 30 |
| **Step 1:**     1. Start->Program Files ->SQL server 2008 -> Management studio 2. Select your database 3. Open Query window 4. Execute Query. | |

# In lab Exercise

**Question 1**

**Create a Database with all the tables as mentioned below using design grid**

AUTHOR (**AuthorID**, AuthorName, City)

PUBLISHER (**PublisherID**, PublisherName, PublisherAddress, PubContactNumber)

CUSTOMER (**CustomerID,** CustomerName, Address, CustomerContactNumber)

BOOK (**BookID, AuthorID**, **PublisherID**, PublishDate, Price)

SALE (**SaleID**, **CustomerID**, **BookID**, SaleDate)

INT: AuthorID, PublisherID, PubContactNumber, CustomerID, CustomerContactNumber, BookID, SaleID

FLOAT: Price

DateTime: PublishDate, SaleDate

Varchar: AuthorName, PublisherName, PublisherAddress, CustomerName, Address

**The Data types of all the table fields would be based on real term scenario considering all the aspects of space, performance and requirements and Insert three rows in it**

**Question 2**

**Create a Database with all the tables as mentioned below using design grid**

GALLERY (**GalleryID**, GalleryName, City, Address)

ARTIST (**ArtistID**, ArtistName, City)

PAINTING (**PaintingID**, **PaintingName**, **ArtistID**, CreationDate, Type)

EXHIBITION (**ExhibitionID**, **GalleryID**, StartDate, EndDate)

EXHIBITION\_PAINTINGS (**ExhibitionID**, **PaintingID**)

**The Data types of all the table fields would be based on real term scenario considering all the aspects of space, performance and requirements.**

**Question 3**

Populate the tables with the files given for all the tables using import/export wizard of SQL Server 2008.

**Question 4**

Transfer the data of at least 2 tables from DB to flat files using both formats as mentioned below

* .txt files
* .csv files

# Post lab Exercise:

**Create a Database with all the tables as mentioned below using design grid**

Suppose we have the following scheme for a chain of take away restaurants with several branches. Old order record is preserved.

**BRANCH (BranchID,** Address, City, ContactNumber**)**

**FOOD\_ITEMS (ItemID,** Name, Type, Price**)**

**CUSTOMER (CustomerID,** Name, CustomerAddress, CustomerContactNumber, CustomerCity**)  
ORDER (OrderID, CustomerID, ItemID, BranchID ,** Amount, OrderDate**)**

**The Data types of all the table fields would be based on real term scenario considering all the aspects of space, performance and requirements.**

1. **Task 2:**

Create a database for the above schema in sql server.

1. **Task 3:**

Make separate text file for all the tables and insert some records in them

1. **Task 4:**

Populate the tables with the files created in the above task for all the tables using import/export wizard of SQL Server 2008.

1. **Task 5 :**

Transfer the data of at least 2 tables from DB to flat files using both formats as mentioned below

.txt files

.csv files