

**University Of Engineering and Technology, Lahore**  
**Computer Engineering Department**

<b>Course Name: Database Systems</b>	<b>Course Code: CS363L</b>
<b>Assignment Type: Lab</b>	<b>Dated: 17-01-2022</b>
<b>Semester: 6<sup>th</sup></b>	<b>Session: 2019</b>
<b>Lab/Project/Assignment #: Lab 1</b>	<b>CLOs to be covered: CLO3</b>
<b>Lab Title: Introduction to DBMS and databases</b>	<b>Teacher Name: Ms. Darakhshan</b>

**Lab Evaluation:**

<b>CLO3</b>	<b>Derive physical model from conceptual design methods</b>					
<b>Levels (Marks)</b>	<b>Level1</b>	<b>Level2</b>	<b>Level3</b>	<b>Level4</b>	<b>Level5</b>	<b>Level6</b>
Cognitive (5)						
Report Marks (5)						
<b>Total</b>						<b>/10</b>

**Rubrics for Current Lab:**

<b>Scale</b>	<b>Marks</b>	<b>Level</b>	<b>Rubric</b>
<b>Excellent</b>	<b>5</b>	L1	Created GCP account and have explored GitHub dataset. + Rubric IV requirements
<b>Very Good</b>	<b>4</b>	L2	Generated database's scripts. + Rubrics III requirements
<b>Good</b>	<b>3</b>	L3	Created a new database. + Rubrics II requirements
<b>Basic</b>	<b>2</b>	L4	Installed SQL server and Management Studio and restored Northwind schema.
<b>Barely Acceptable</b>	<b>1</b>	L5	Only installed MS SQL server
<b>Not Acceptable</b>	<b>0</b>	L6	Did not attempt anything

**Rubrics for Homework**

<b>Scale</b>	<b>Marks</b>	<b>Level</b>	<b>Rubric</b>
<b>Excellent</b>	<b>5</b>	L1	Properly formatted, less than 5% plagiarism. More than 1000 words. Downloaded the tool and have used it. Created sample databases. Have added all the working in the lab report with the help of screenshots. Have explained how the tool works.
<b>Good</b>	<b>3</b>	L2	Properly formatted. Less than 5% plagiarism. More than 1000 words. Explored the tool and have understand it. Have explained the tool in the document with the help of screenshots and text.
<b>Barely Acceptable</b>	<b>1</b>	L3	Poorly formatted. Less than 5% plagiarism. Less than 500 words. Less than 2-page document.
<b>Not Acceptable</b>	<b>0</b>	L6	Did not submit the report

## LAB DETAILS:

### Lab Goals/Objectives:

- Installation of DBMS
- Registration on BigQuery
- Google Cloud Platform Creation and reloading of database tables on DBMS

### Theory/Relevant Material:

Chap 1, TSQL Fundamentals – Professional (latest Ed.) by Itzik Ben-Gan

### Lab Tasks:

#### Part 1

#### Installation of SQL Server

- Download and Install MS SQL Server 2019 Express edition from <https://www.microsoft.com/en-us/sql-server/sql-server-downloads>
- Install the latest version of SQL Server Management Studio from [Download SQL Server Management Studio \(SSMS\) - SQL Server Management Studio \(SSMS\) | Microsoft Docs](#)
- Instance of SQL Server should support both Windows based authentication and SQL Server Authentication.

#### Create a New Database

- Create a new database named Northwind. The steps are as follows
  - Step 1  
Open Microsoft SQL server management studio and connect it with the SQL server using Window based authentication as shown below

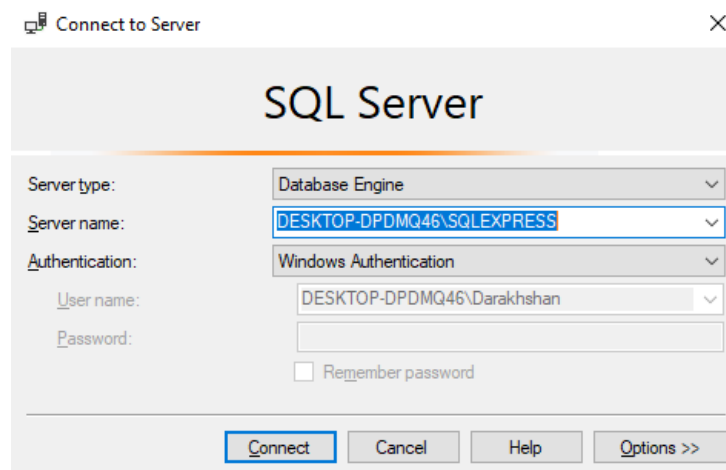


Figure 1

- Step 2  
Right click on Databases and click on 'New Database'

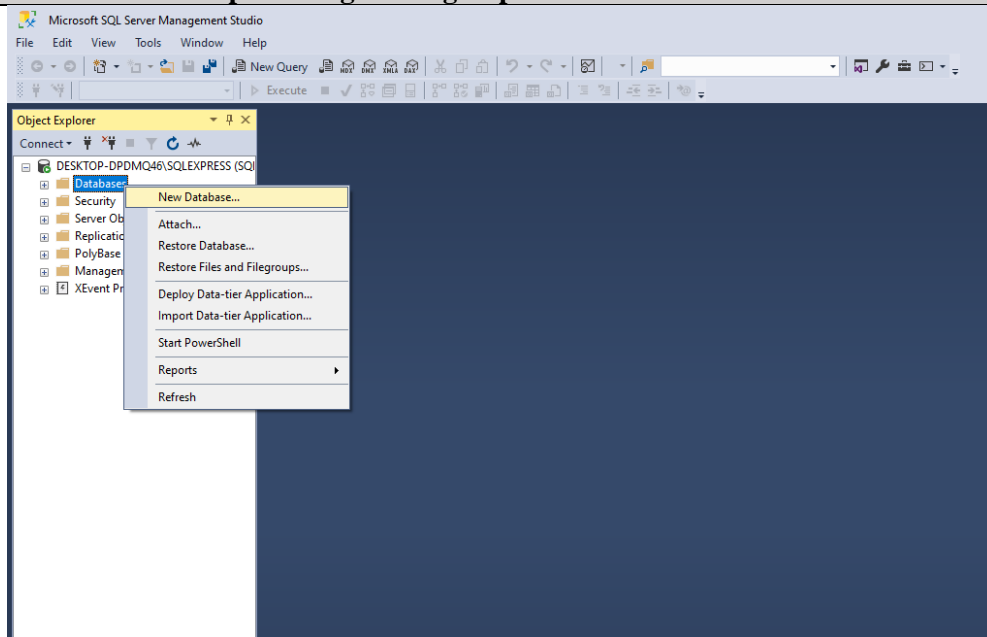


Figure 2

- Step 3  
Choose a database name such as 'Northwind' and click 'OK'

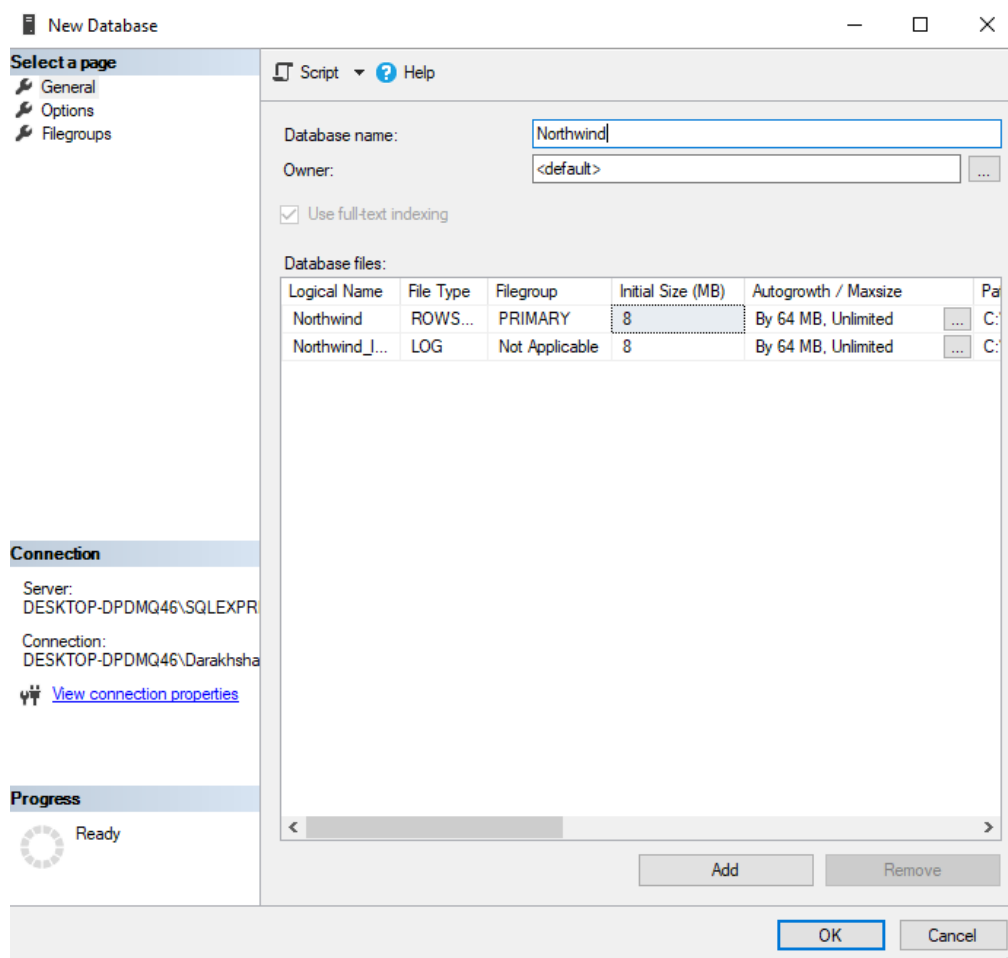


Figure 3

- Restore Schema using scripts northwind.sql available at <https://drive.google.com/file/d/1V66pnAgWgJo6Y76XwkTTWrq0KdZGp-x9/view?usp=sharing>.

The steps are as follows

- Step 1  
Download the script from the above mentioned link
- Step 2  
Right click on the Northwind database and select New Query

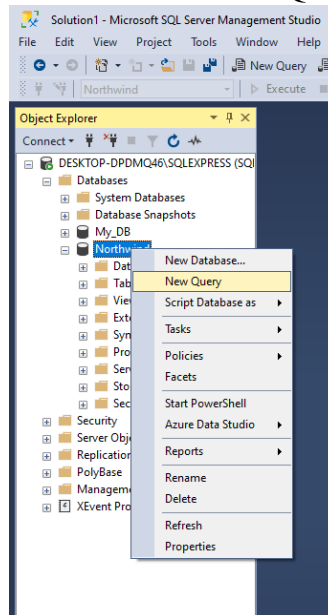


Figure 4

- Step 3  
Open the downloaded northwind.sql script in any editor (say Notepad) and copy the script in the newly created query window

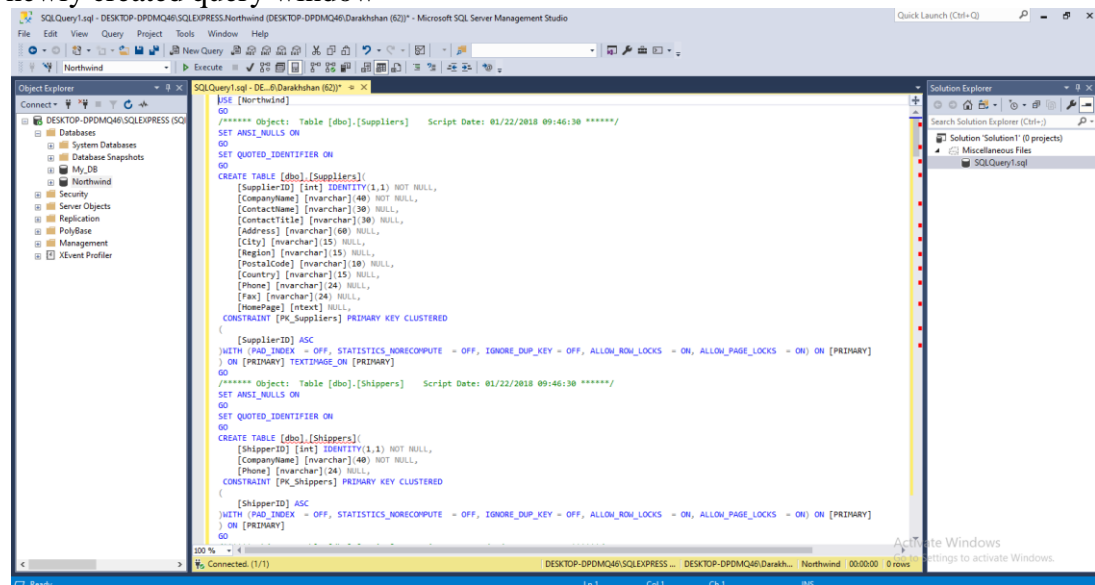


Figure 5

- Step 4  
Execute the script by clicking on 'Execute' button

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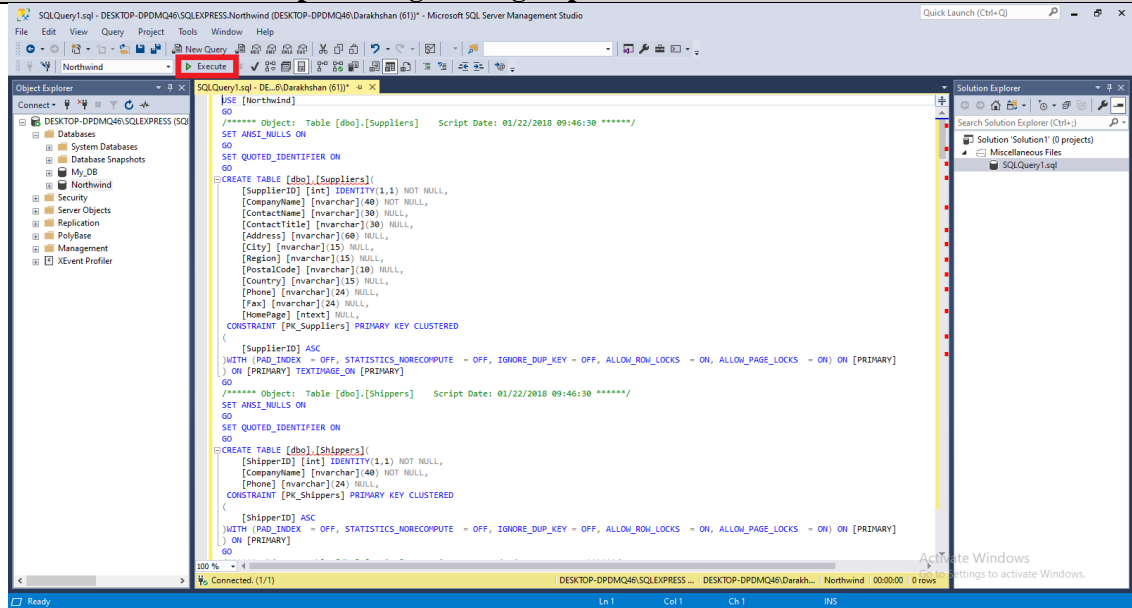


Figure 6

- Restore schema data using northwind\_data.sql available at <https://drive.google.com/file/d/1wS9soGuKHe0LNrYZiioXQHusJzGTCCf/view?usp=sharing>. The steps are as follows
  - Step 1  
Download the script from the above mentioned link
  - Step 2  
Right click on the Northwind database and select New Query

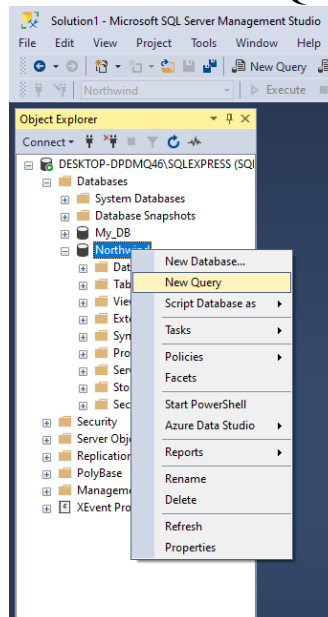


Figure 7

- Step 3  
Open the downloaded northwind\_data.sql script in any editor (say Notepad) and copy the script in the newly created query window

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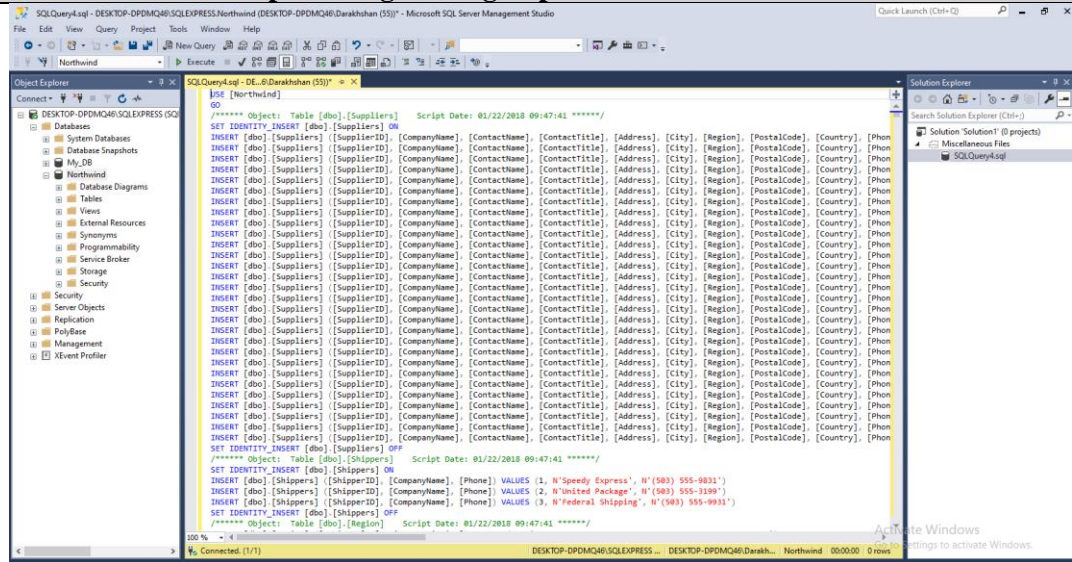


Figure 8

- Step 4  
Execute the script by clicking on 'Execute' button

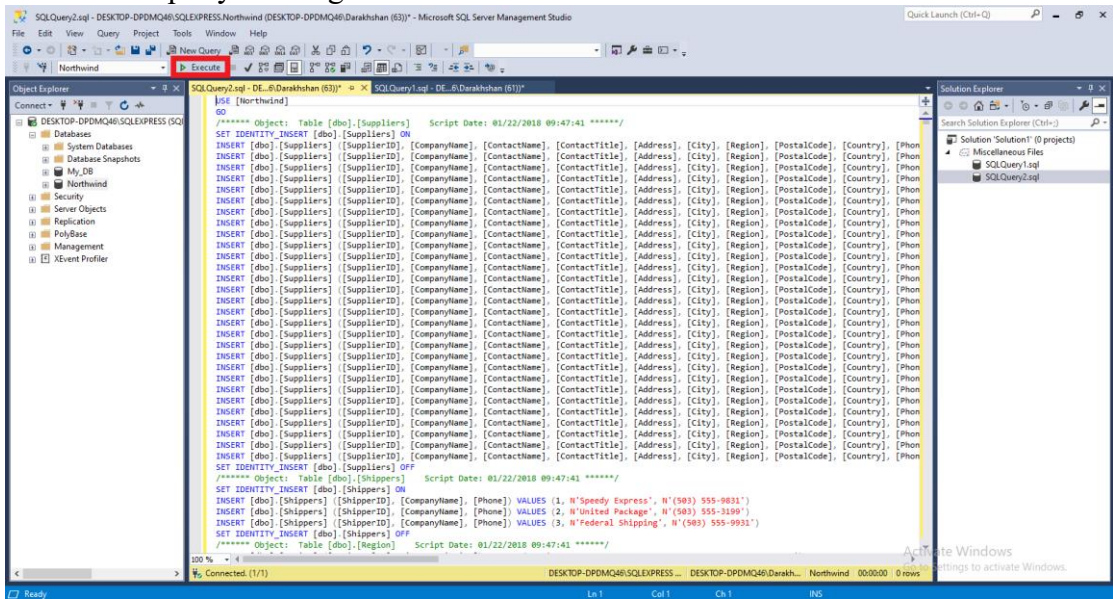


Figure 9

### Generate Scripts of a schema

- Step 1  
Right click on your database and select Task -> generate script.



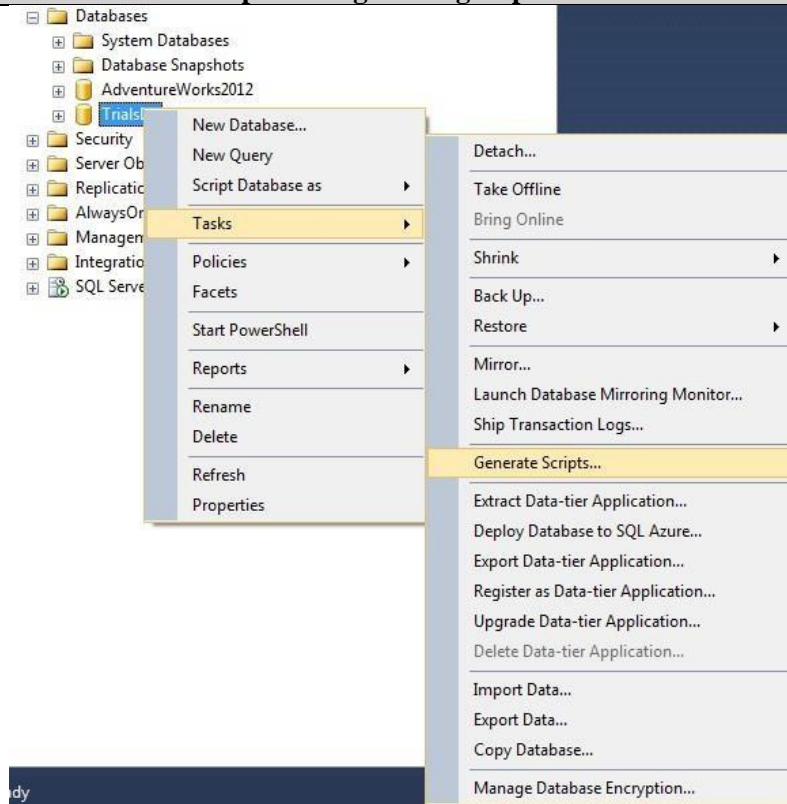


Figure 10

### Figure 1 Database\_Scripts\_With\_Data\_Select\_Option

- Step 2  
Click next in the introduction screen

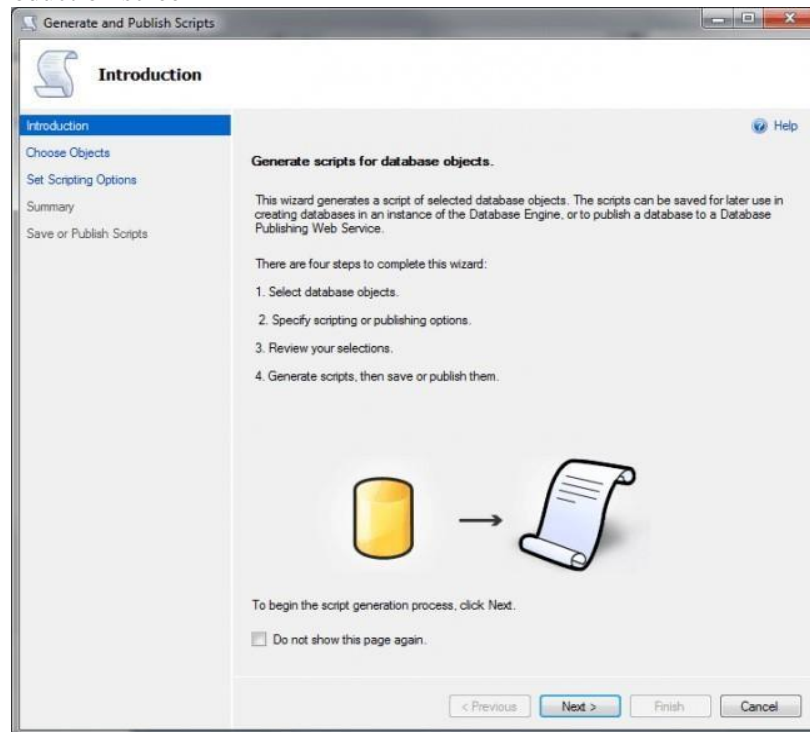


Figure 11 Database\_Scripts\_With\_Data\_Introduction

- Step 3  
Select the database object which you are all you need and then click next.

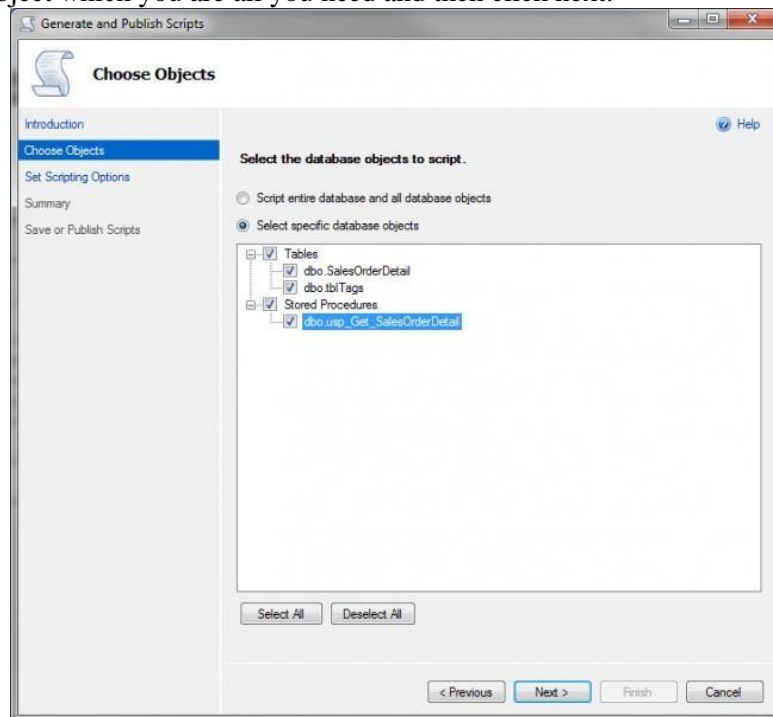


Figure 12

- Step 4  
Now you will be shown a window which asks you about how your script should be published.

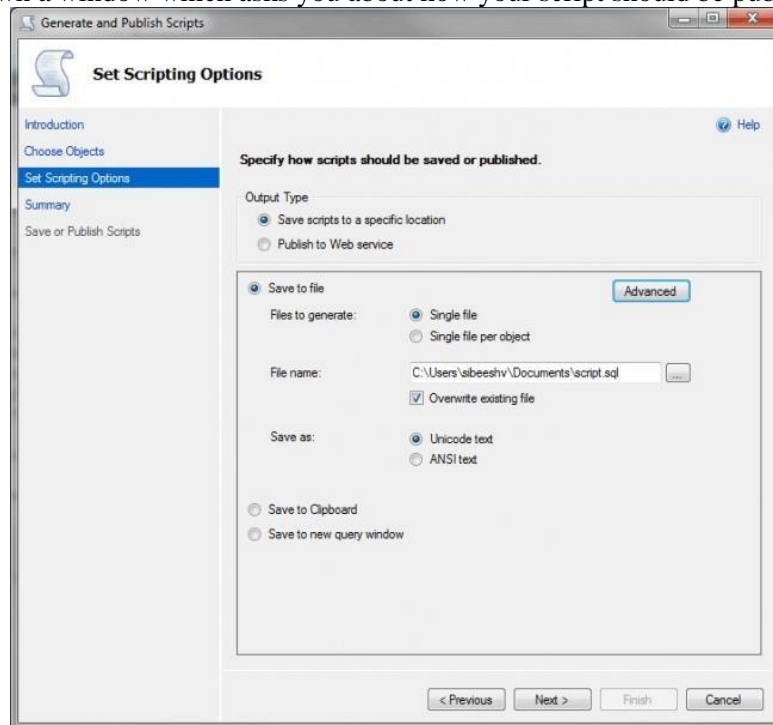


Figure 13 Database\_Scripts\_With\_Data\_Publish\_Options

Click advanced in that window.

- Step 5



Select 'Schema and data' from type of data to script option and then click OK.

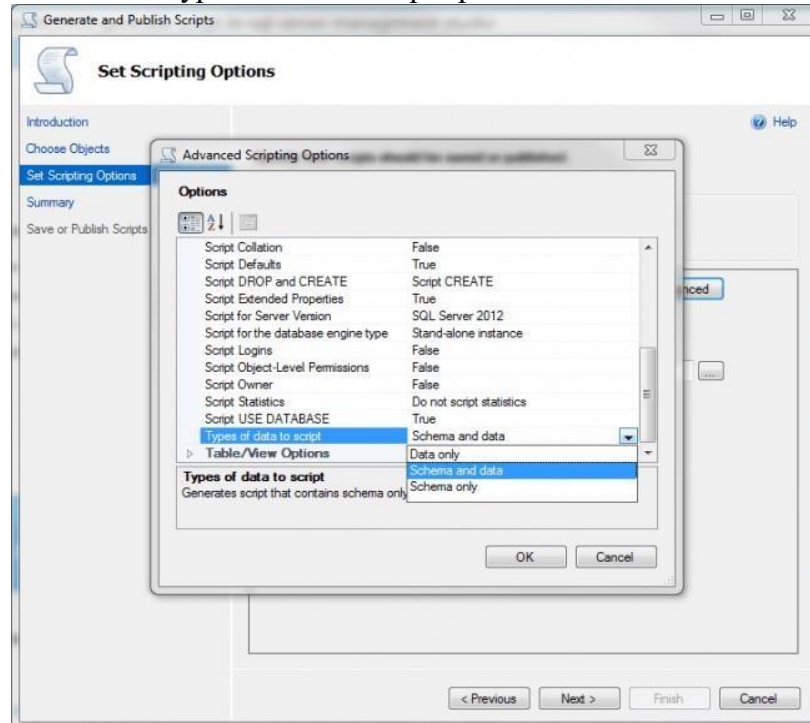


Figure 14 Database\_Scripts\_With\_Data\_Advanced

Click next.

- Step 6  
Click finish, now check the script file, it must be having the insert queries too.

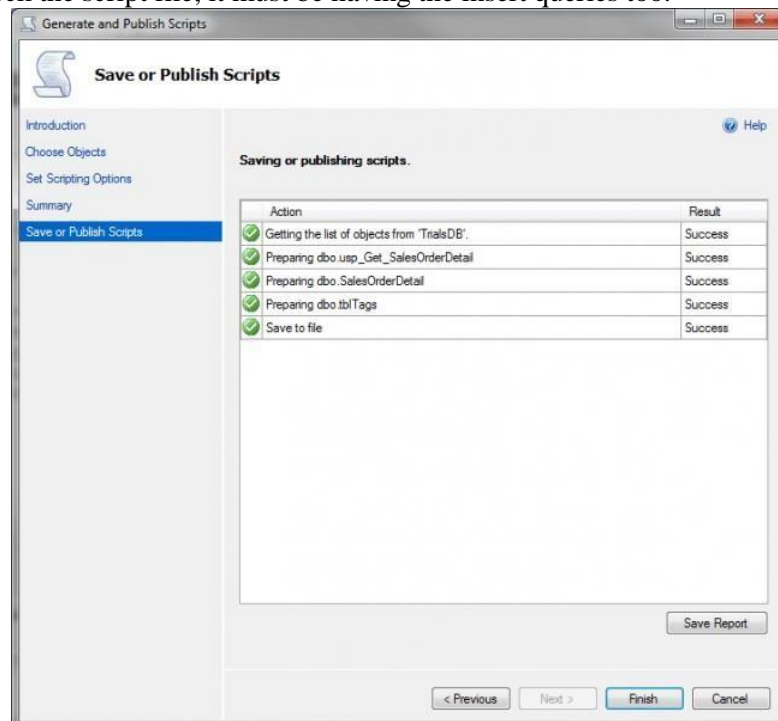


Figure 15 Database\_Scripts\_With\_Data\_Finish

Now what else is pending, go ahead and run your script.

### Task 1

1. Create a new database named TestDB\_2019\_CE\_X
2. Create a new table named student using some attributes
3. Generate Scripts of your database
4. Restore your schema to another machine
5. Generate scripts of data
6. Restore data to other system as well

### Task 2

- Google Cloud Platform (GCP) provides the cloud services for writing queries. Create an account on GCP big query. The steps are as follows
  - Step 1  
Go to the link [Google Cloud Platform](#) to create an account on GCP bigquery
  - Step 2  
Click on 'Select a project' button

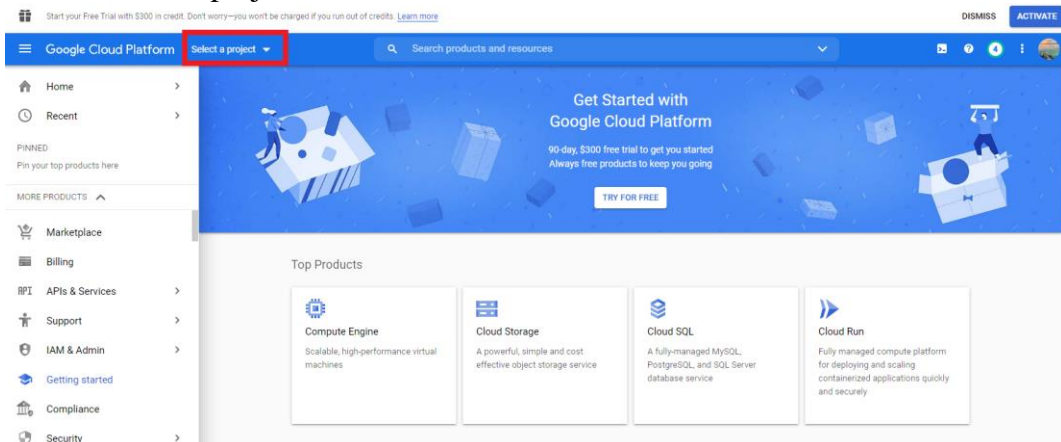


Figure 16

- Step 3  
Create New Project

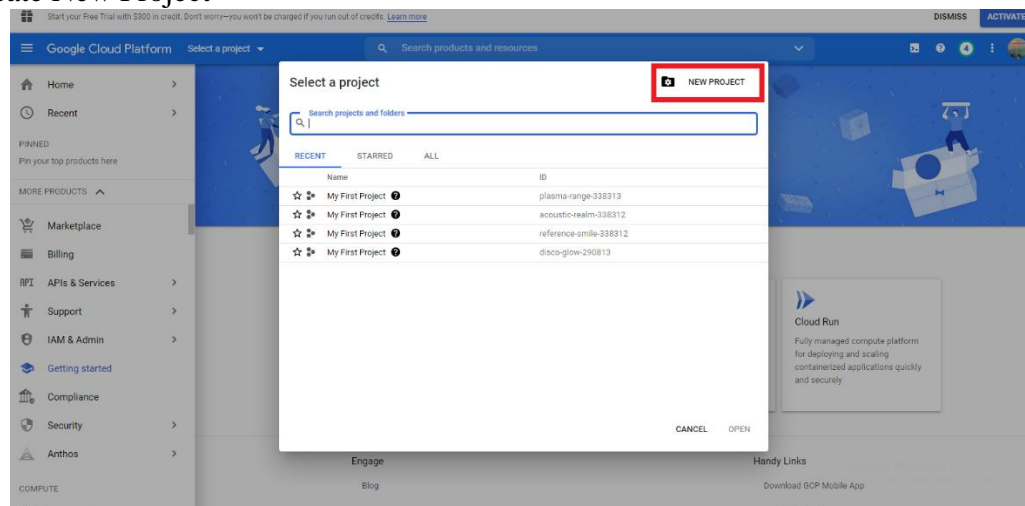


Figure 17

- Step 4  
Now again click on “Select a project” to choose the created project to work with

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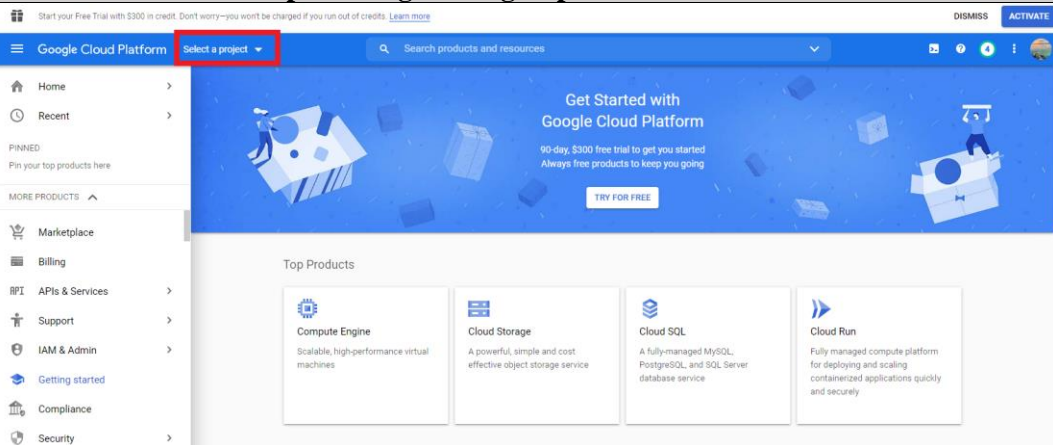


Figure 18

- Step 5  
Select the created project from the project's list

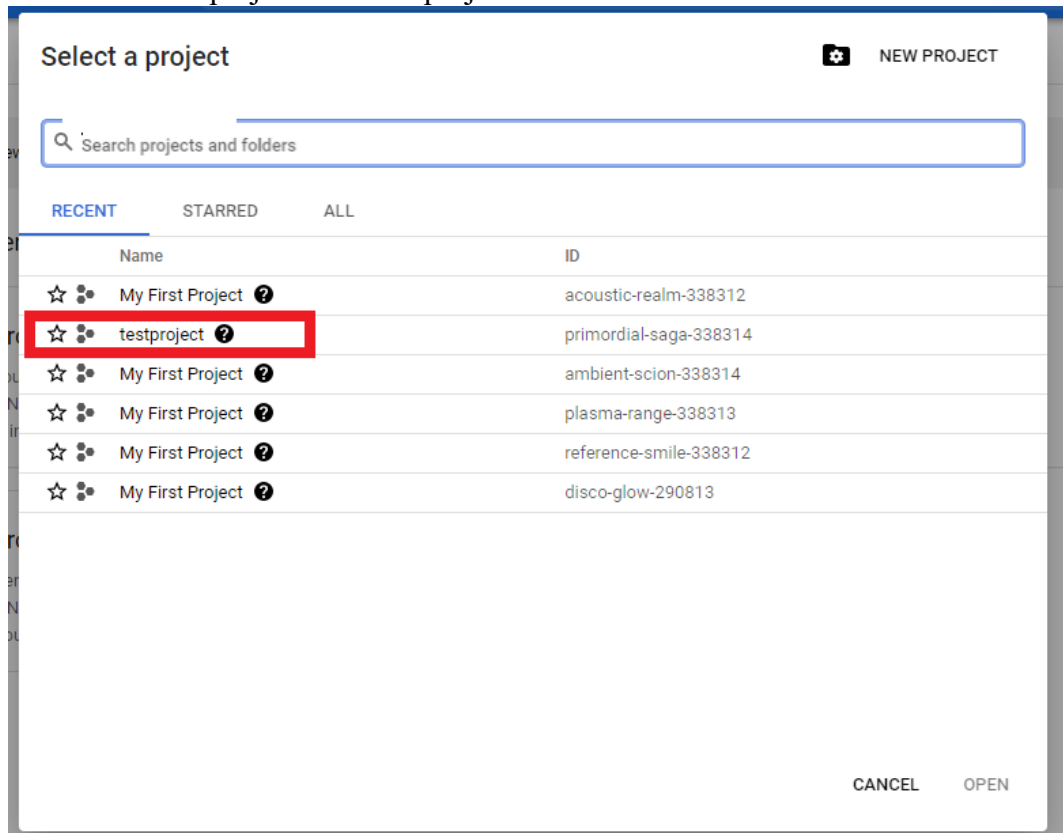


Figure 19

- Step 6  
Click on BigQuery resource

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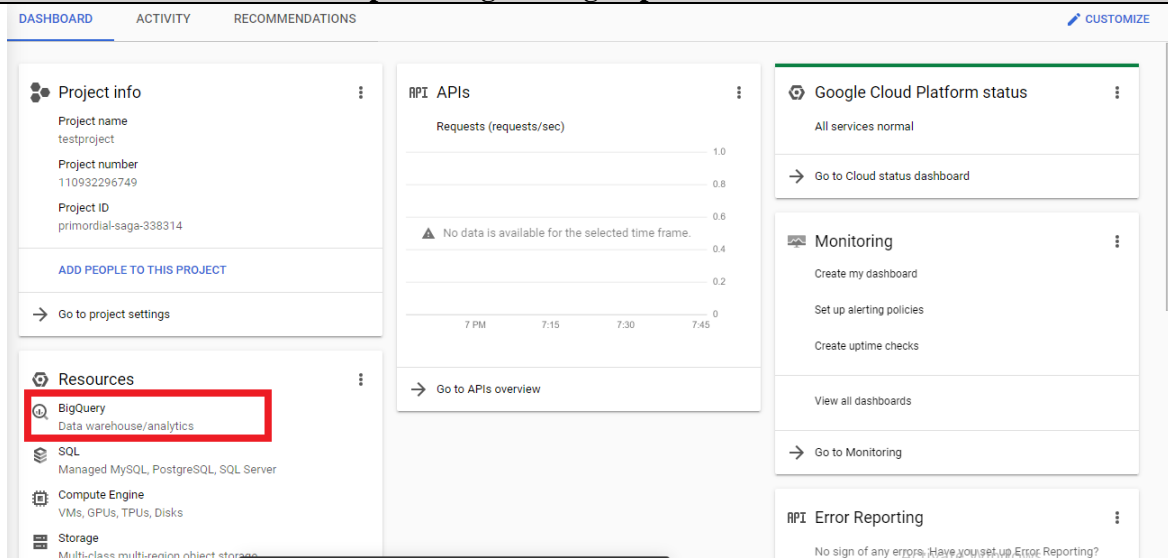


Figure 20

- Step 7  
You may read the available BigQuery guide or click on Done

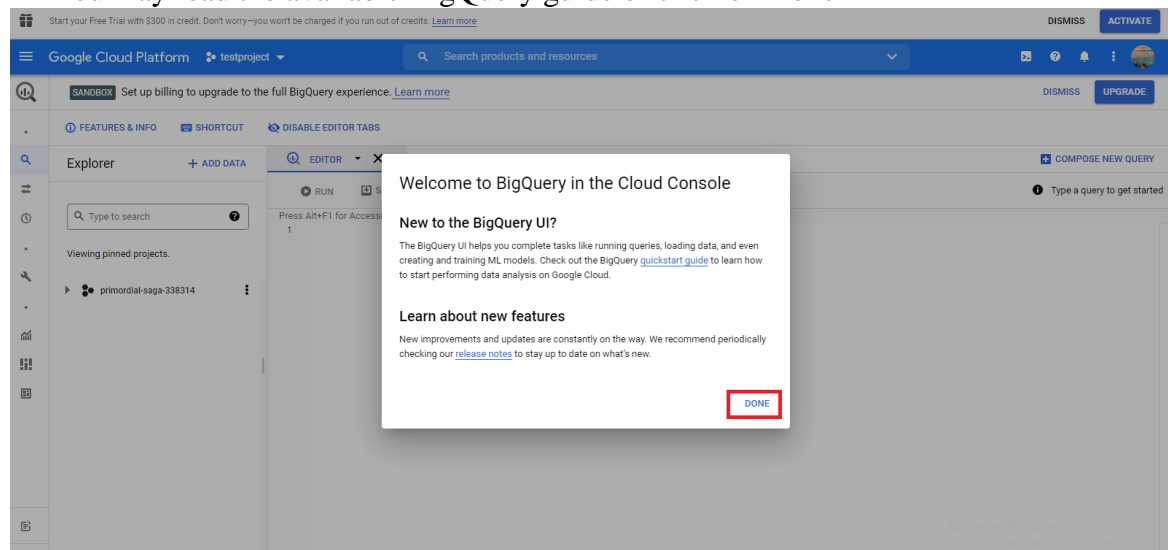


Figure 21

- Step 8  
Here is the workspace overview where you will explore about BigQuery

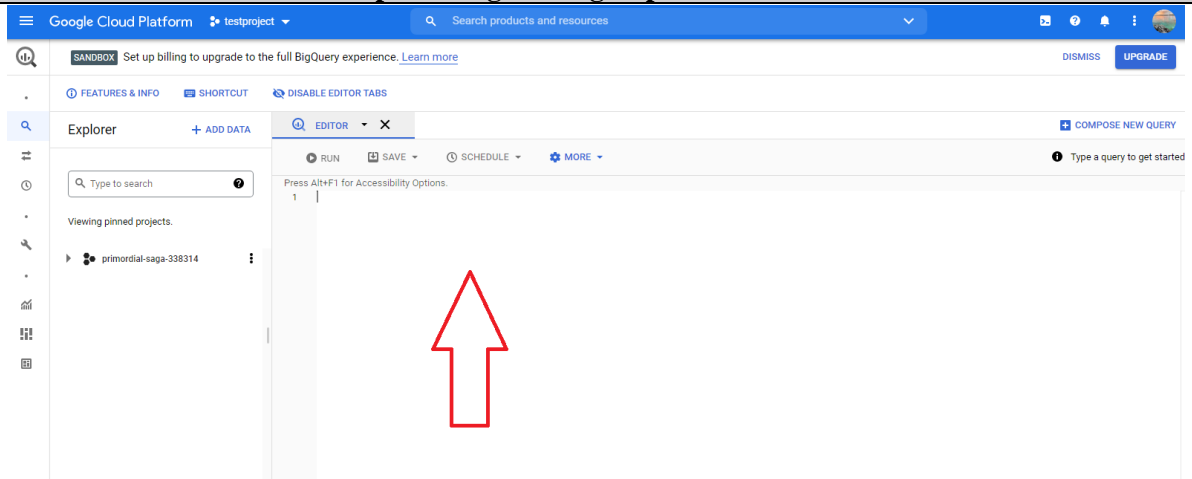


Figure 22

- Explore Bigquery sandbox.
- Explore public datasets
- Explore Github dataset

### **Homework Questions:**

- Write your understanding related to Bigquery and Github dataset in the file GCP\_2019\_CE\_X.docx and submit on google classroom.
- Explore one additional tool for database models, run it on your machine and write your learning experience in a document named as DBtool\_2019\_CE\_X.docx format.

### **Submission Instructions:**

- Submit your homework in .docx files format by Sunday, 23<sup>rd</sup> January, 2022 9 P.M