

**Graduate Business School**

**CHINHOYI UNIVERSITY OF TECHNOLOGY**

**Master of Science in Data Analytics**

**NAME OF STUDENT:**

**STUDENT NUMBER:**

**NAME OF LECTURER:**

**COURSE: Business Intelligence**

**COURSE CODE:**

**ASSIGNMENT:**

**DUE DATE:** **27 March 2020**

**QUESTION:**

**Group 3 Team Members**

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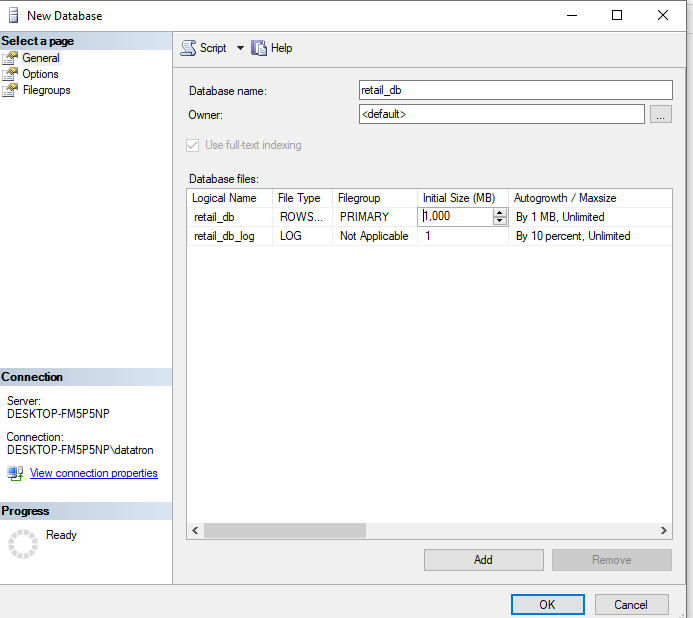
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1. **Create a database namely retail\_db in SQL Server [2 MARKS]**



1. **Create the required tables and show the queries that you have used [12 MARKS] - We have also attached the SQL file for this question**

IF EXISTS (SELECT \* FROM sysobjects WHERE id = object\_id(N'[dbo].[categories]')

AND OBJECTPROPERTY(id, N'IsUserTable') = 1)

DROP TABLE [dbo].[categories];

CREATE TABLE categories (

[category\_id] int NOT NULL IDENTITY,

[category\_department\_id] int NOT NULL,

[category\_name] varchar(45) NOT NULL,

PRIMARY KEY ([category\_id])

) ;

IF EXISTS (SELECT \* FROM sysobjects WHERE id = object\_id(N'[dbo].[customers]')

AND OBJECTPROPERTY(id, N'IsUserTable') = 1)

DROP TABLE [dbo].[customers];

CREATE TABLE customers (

[customer\_id] int NOT NULL IDENTITY,

[customer\_fname] varchar(45) NOT NULL,

[customer\_lname] varchar(45) NOT NULL,

[customer\_email] varchar(45) NOT NULL,

[customer\_password] varchar(45) NOT NULL,

[customer\_street] varchar(255) NOT NULL,

[customer\_city] varchar(45) NOT NULL,

[customer\_state] varchar(45) NOT NULL,

[customer\_zipcode] varchar(45) NOT NULL,

PRIMARY KEY ([customer\_id])

) ;

IF EXISTS (SELECT \* FROM sysobjects WHERE id = object\_id(N'[dbo].[departments]')

AND OBJECTPROPERTY(id, N'IsUserTable') = 1)

DROP TABLE [dbo].[departments];

CREATE TABLE departments (

[department\_id] int NOT NULL IDENTITY,

[department\_name] varchar(45) NOT NULL,

PRIMARY KEY ([department\_id])

) ;

IF EXISTS (SELECT \* FROM sysobjects WHERE id = object\_id(N'[dbo].[order\_items]')

AND OBJECTPROPERTY(id, N'IsUserTable') = 1)

DROP TABLE [dbo].[order\_items];

CREATE TABLE order\_items (

[order\_item\_id] int NOT NULL IDENTITY,

[order\_item\_order\_id] int NOT NULL,

[order\_item\_product\_id] int NOT NULL,

[order\_item\_quantity] smallint NOT NULL,

[order\_item\_subtotal] float NOT NULL,

[order\_item\_product\_price] float NOT NULL,

PRIMARY KEY ([order\_item\_id])

) ;

IF EXISTS (SELECT \* FROM sysobjects WHERE id = object\_id(N'[dbo].[orders]')

AND OBJECTPROPERTY(id, N'IsUserTable') = 1)

DROP TABLE [dbo].[orders];

CREATE TABLE orders (

[order\_id] int NOT NULL IDENTITY,

[order\_date] datetime2(0) NOT NULL,

[order\_customer\_id] int NOT NULL,

[order\_status] varchar(45) NOT NULL,

PRIMARY KEY ([order\_id])

) ;

IF EXISTS (SELECT \* FROM sysobjects WHERE id = object\_id(N'[dbo].[products]')

AND OBJECTPROPERTY(id, N'IsUserTable') = 1)

DROP TABLE [dbo].[products];

CREATE TABLE products (

[product\_id] int NOT NULL IDENTITY,

[product\_category\_id] int NOT NULL,

[product\_name] varchar(45) NOT NULL,

[product\_description] varchar(255) NOT NULL,

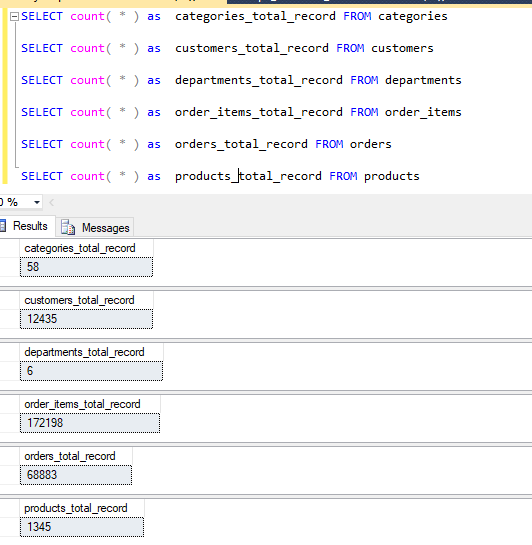
[product\_price] float NOT NULL,

[product\_image] varchar(255) NOT NULL,

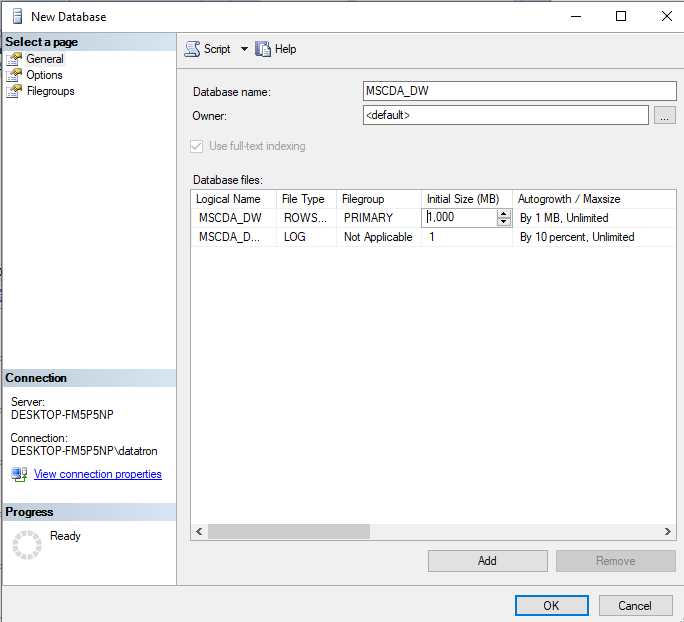
PRIMARY KEY ([product\_id])

) ;

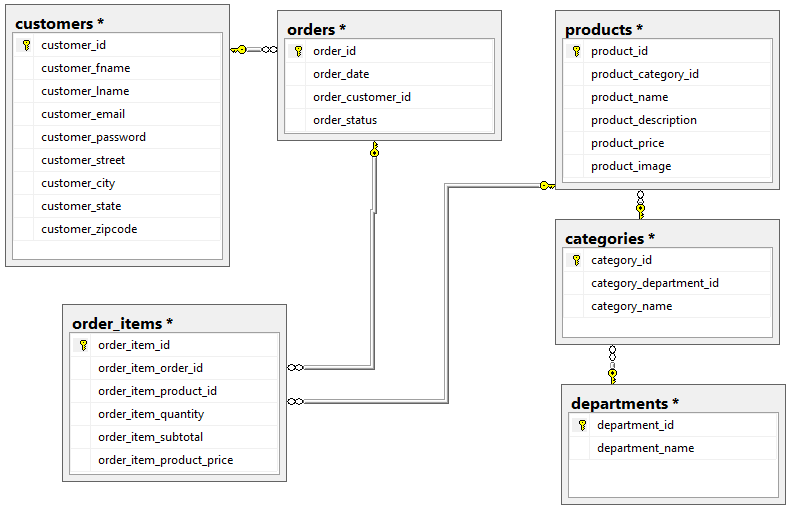
1. **Load the data into the tables you just created [50 MARKS] - We used python to insert the data into the retail\_db database and have attached the python file named LoadDataIntoTables\_Group3.py**
2. **Write queries to show the total number of records in each table and take screenshots together with the results. [6 MARKS]**



1. **Create another database called MSCDA\_DW which will be your data warehouse**



1. **During your logical data modelling phase, model a star schema which will be part of your data warehouse showing the source tables and suggested names for your facts and dimensions [5 MARKS]**

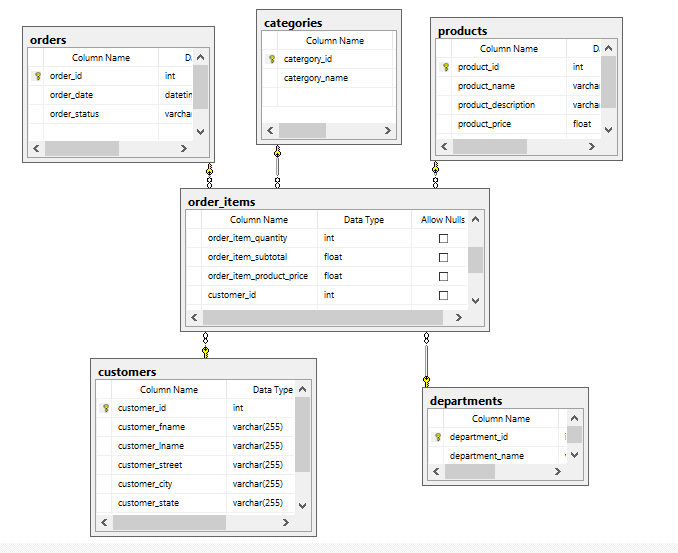


**Above is the OLTP retail\_db table relationships schema – from the below schema we collapsed the relationships to other tables to come up with the fact and dimension tables.**

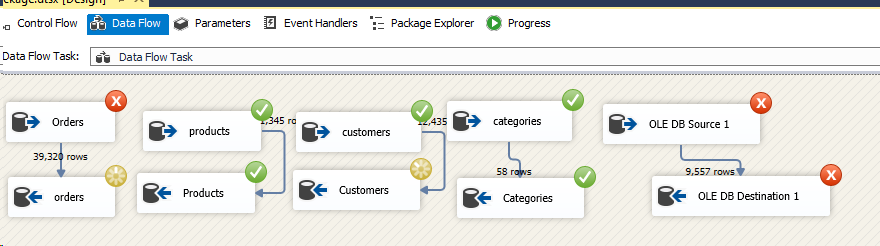
**Fact table – Order Items**

**Dimension tables – orders, categories, products, customers, departments**

1. **Create the tables for the star schema in MSCDA\_DW and draw the database diagram [15 MARKS]**

**MSCDA\_DW - Modelled star schema model [OLAP]**

1. **Develop the ETL jobs that will populate data into the model. [20 MARKS]**



1. **Think of any 2 BI questions that can be answered by your star schema. After that, answer the questions using a query. Please note that your queries should have at least one join.**
   1. **2 questions that can be answered by our star schema – [Queries have been included on github]** 
      1. **How many customer bought product X from department X**
      2. **How many orders with status COMPLETE where ordered from department X**
2. **Design a very beautiful dashboard using Qliksense and try to capture all the possible KPIs that the company might need to know.**

**Have included all dashboards exported to PDF on github**