DATABASE PROJECT IMPLEMENTATION REPORT

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Car Manufacturing Process Monitoring System

PROJECT SUMMARY

In the automobile Industry, most of the automobile manufacturers use MES (Manufacturing Execution System) to manage the production schedule and quality. Without a doubt, most of the manufacturers strive to improve overall product qualities and production efficiency while maintaining a reasonable cost in the factory. However, most MES only focus on the total quantity produced instead of workers' performance, process or product quality because their database systems are not able to detect such detailed working situation. The current system can only record the employees' total working hours, which line or in which factory. In addition, the data are usually input by those employees manually. Due to the lack of detailedness, it is difficult for management to spot and further analyze possible reasons for the lower-quality products. Furthermore, it costs even more when the product qualities and functionalities were only examined at the end of the production.

In the most cases, the manufacturers have already designed and planned their resources for each production line to ensure that it operates at its highest efficiency. To achieve the goal, the management endeavors to monitor the process in a more accurate way so they can detect the frequent suspected moral hazards made by production workers, such as working-hour manipulation or duty negligence and so on, or examine product quality regularly and in a timely manner. Thus, we need a discreet and detailed database system to manage our process regularly and automatically to reduce the level of manuality, and eventually, optimize the efficiency and productivity in the automobile factories.

We restructure the current database management system by linking the MES and HR (Human Resource) system, so the management can monitor those workers in a more accurate and efficient way to prevent unexpected situations to happen and, therefore, improve product failure rate. The two systems collaboratively enhance the production quality by monitoring if the overall target daily yields are actually met in a more detailed procedure and in real time. By doing so, we can develop a system to check whether there are any illegal work pattern or moral hazard of employees in factory, and we can develop online portal to help Factory managers or HR Team managers to check this information real-time.

ENTITY AND ATTRIBUTE TABLE

1. Employee : The database system based on Human Resource department

Role	Attribute name	Description	FIELD TYPE	NULL/NOT NULL
Primary Key	Employee_ID	Unique identifier of the employees	INT	NOT NULL
	Employee_Type	Type of employee, could be Manager or Production worker (Define permission degree)	VARCHAR(10)	NOT NULL
	Employee_FName	First name of the employee	VARCHAR(20)	NOT NULL
	Employee_LName	Last name of the employee	VARCHAR(20)	NOT NULL
	Work_Primary_Shift	Preferred work shift (Options: 6 to 12; 13 to 19)	VARCHAR(20)	NOT NULL
	Work_Secondary_Shift	Secondary work shift (Options: 6 to 12; 13 to 19)	VARCHAR(20)	NULL

2. Factory : The Factory information about their production line

Role	Attribute name	Description	FIELD TYPE	NULL/NOT NULL
Primary Key	Factory_ID	Unique identifier of the factory	INT	NOT NULL
	Factory_Name	Name of the Factory and products produced	VARCHAR(20)	NOT NULL
	Factory_Description	Descriptions of the Factory	VARCHAR(350)	NULL

3. Production_Line : Details of the production line

Role	Attribute name	Description	FIELD TYPE	NULL/NOT NULL
Primary Key	ProductionLine_ID	Identifies the production line	INT	NOT NULL
	ProductionLine_Name	Identifies the production line name	VARCHAR(40)	NOT NULL
	LineDailyTarget_QTY	Daily target production quantity for each line	NUM	NOT NULL
Foreign Key	Factory_ID	Unique identifier of the factory	INT	NOT NULL

4. Line_Assignment : History of employees line assignment

Role	Attribute name	Description	FIELD TYPE	NULL/NOT NULL
Primary Key	Assignment_ID	Identifies the each line assignment	INT	NOT NULL
Foreign Key	Employee_ID	Unique identifier of the employees	INT	NOT NULL

Foreign Key	ProductionLine_ID	Identifies the production line	INT	NOT NULL
	Line_Assignment_Date	Today's Date	DATE	NOT NULL
	Employee_Starting_Time	Working starting time information for each employee	NUM	NOT NULL
	Employee_Ending_Time	Working ending time information for each employee	NUM	NOT NULL
	Machine_Checkedtime	Number of hours operating of each Machine	NUM	NOT NULL
	IndividualDailyTarget_QTY	Daily target production quantity for each employee	NUM	NOT NULL
	IndividualActual_QTY	Actual production quantity made by employee	NUM	NOT NULL

5. Car Model : The bill of materials of the car models made in production line

Role	Attribute name	Description	FIELD TYPE	NULL/NOT NULL
Primary Key	CarModel_ID	Unique identifier of the car	INT	NOT NULL
	CarModel_Type	Type of the car - e.g. Sedan, SUV, hatchback, Convertible	VARCHAR(20)	NOT NULL
	CarModel_Description	Descriptions of the Car model	VARCHAR(350)	NOT NULL

6. Parts Assembly : The assembly association table between parts and car models

Role	Attribute name	Description	FIELD TYPE	NULL/NOT NULL
Primary Key	Assembly_ID	Unique identifier of the assembly	INT	NOT NULL
Foreign Key	CarModel_ID	Type of the car - e.g. Sedan, SUV, Truck	INT	NOT NULL
Foreign Key	Part_ID	Identifies the part	INT	NOT NULL
	QtyOfthePart	Quantity of part used to produce one car	NUM	NOT NULL
	Year Of The Make	Information of year the car made	NUM	NOT NULL
	Color	The exterior color of the car	VARCHAR(20)	NOT NULL
	Parts Assembly_Date	The date is was made	DATE	NOT NULL

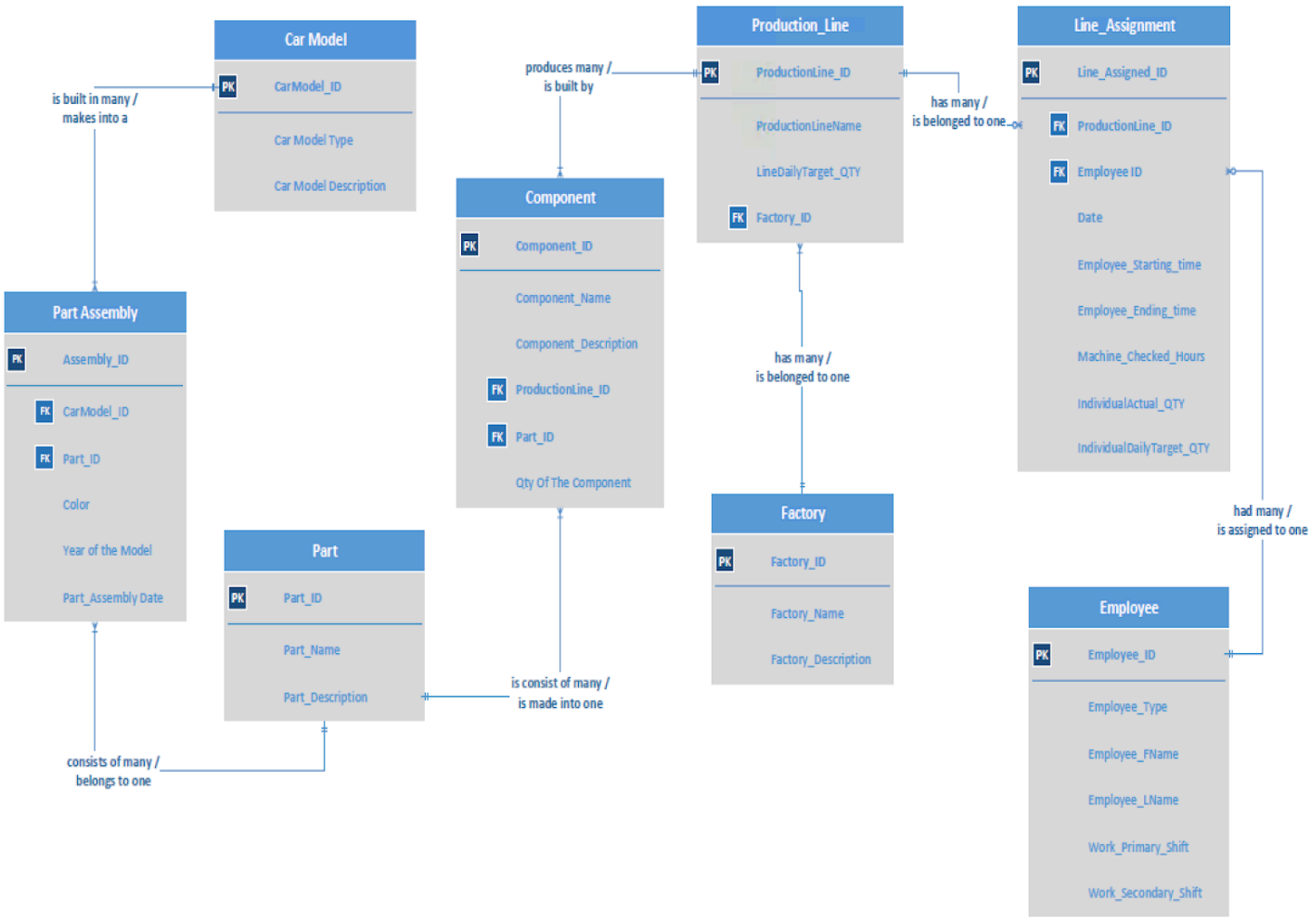
7. Part : The parts that will be built into cars

Role	Attribute name	Description	FIELD TYPE	NULL/NOT NULL
Primary Key	Part ID	Unique identifier of the part	INT	NOT NULL
	Part_Name	Name of each part	VARCHAR(20)	NOT NULL
	Part_Description	Description of each Part	VARCHAR(350)	NULL

8. Component : Basic information about each component

Role	Attribute name	Description	FIELD TYPE	NULL/NOT NULL
Primary Key	Component_ID	Unique identifier of the component	INT	NOT NULL
	Component_Name	Name of each component	VARCHAR(20)	NOT NULL
	Component_Description	Description of each component	VARCHAR(350)	NULL
Foreign Key	Productionline_ID	Identifies the production line	INT	NOT NULL
Foreign Key	Part ID	Unique identifier of the part	INT	NOT NULL
	Qty Of The Component	Quantity of component used to produce one part	NUM	NOT NULL

ENTITY-RELATIONSHIP DIAGRAM

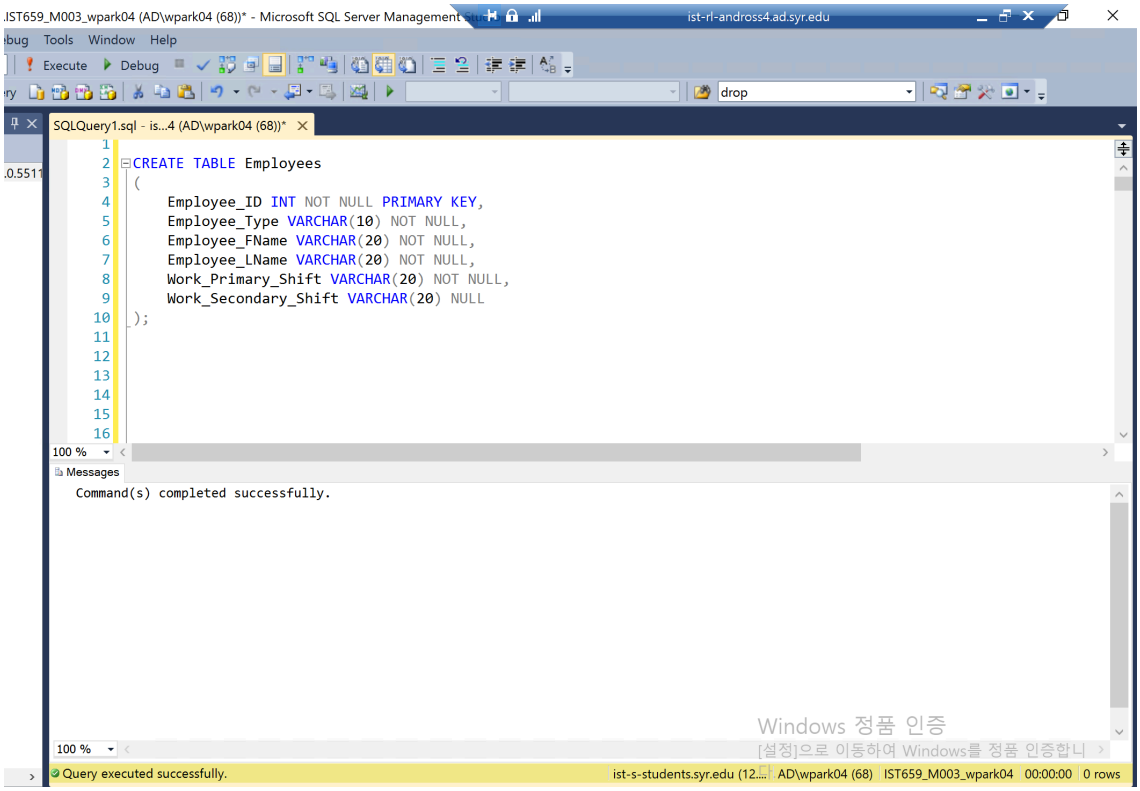


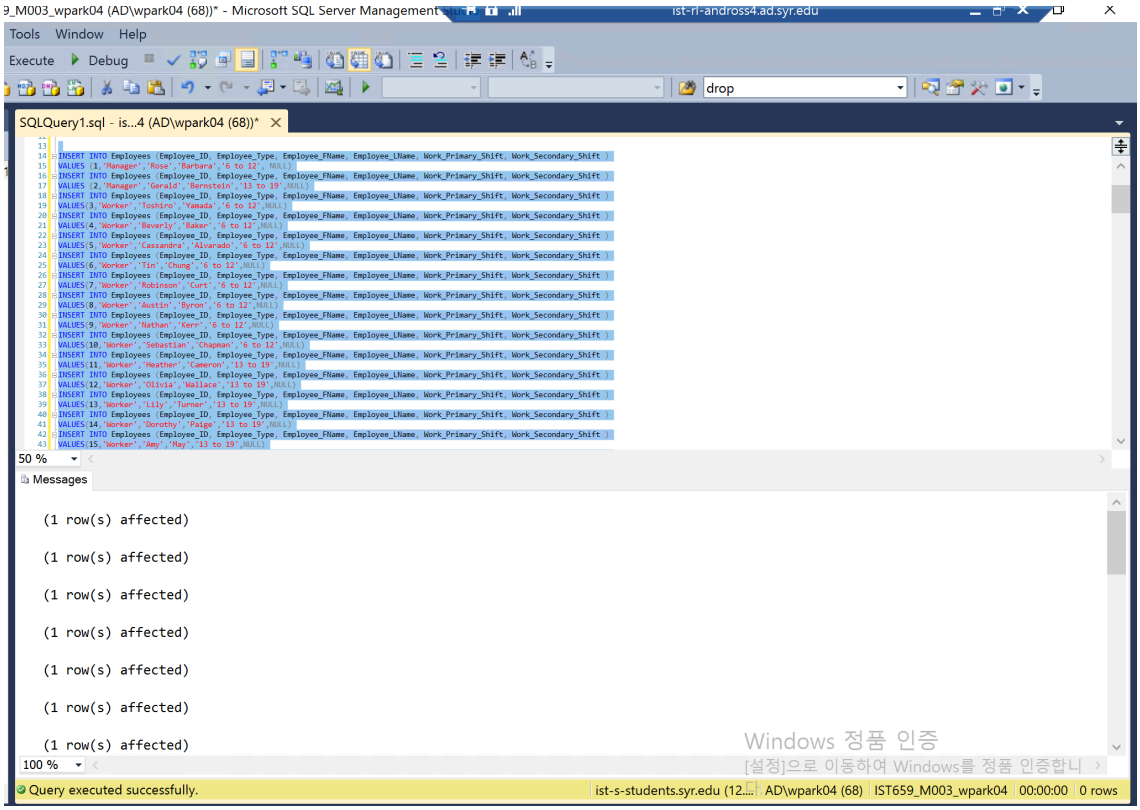
CREATION OF TABLES

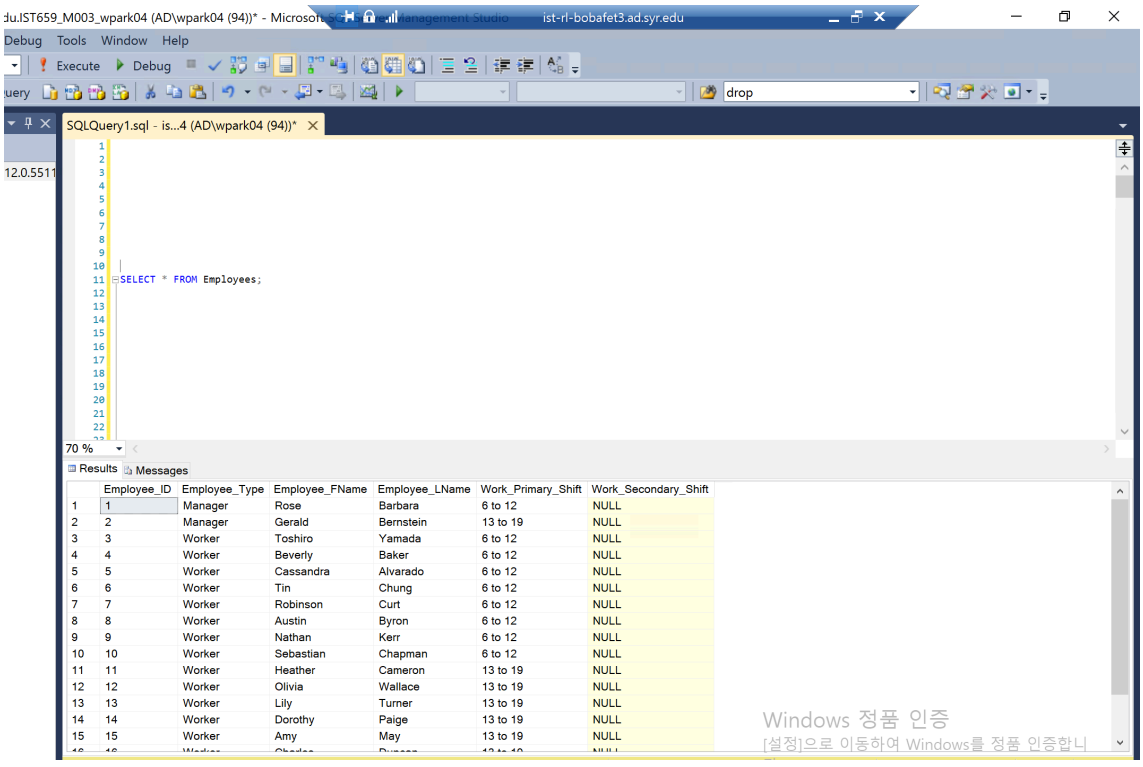
```
CREATE TABLE Employees
(
    Employee_ID INT NOT NULL PRIMARY KEY,
    Employee_Type VARCHAR(10) NOT NULL,
    Employee_FName VARCHAR(20) NOT NULL,
    Employee_LName VARCHAR(20) NOT NULL,
    Work_Primary_Shift VARCHAR(20) NOT NULL,
    Work_Secondary_Shift VARCHAR(20) NULL
);

INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES (1,'Manager','Rose','Barbara','6 to 12', NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES (2,'Manager','Gerald','Bernstein','13 to 19',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(3,'Worker','Toshiro','Yamada','6 to 12',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(4,'Worker','Beverly','Baker','6 to 12',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(5,'Worker','Cassandra','Alvarado','6 to 12',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(6,'Worker','Tin','Chung','6 to 12',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(7,'Worker','Robinson','Curt','6 to 12',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(8,'Worker','Austin','Byron','6 to 12',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(9,'Worker','Nathan','Kerr','6 to 12',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(10,'Worker','Sebastian','Chapman','6 to 12',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(11,'Worker','Heather','Cameron','13 to 19',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(12,'Worker','Olivia','Wallace','13 to 19',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(13,'Worker','Lily','Turner','13 to 19',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(14,'Worker','Dorothy','Paige','13 to 19',NULL)
```

```
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(15,'Worker','Amy','May','13 to 19',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(16,'Worker','Charles','Duncan','13 to 19',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(17,'Worker','Victor','Miller','13 to 19',NULL)
INSERT INTO Employees (Employee_ID, Employee_Type, Employee_FName, Employee_LName,
Work_Primary_Shift, Work_Secondary_Shift )
VALUES(18,'Worker','Ray','Mysterio','13 to 19',NULL);
```





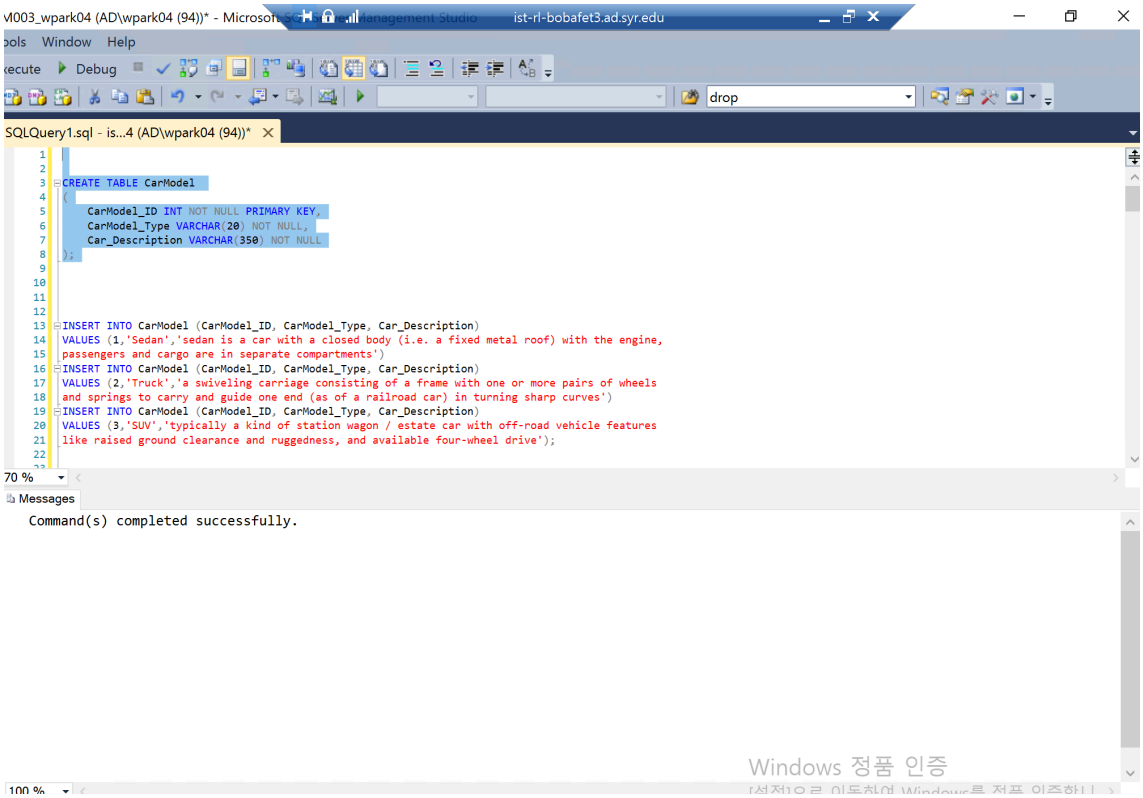


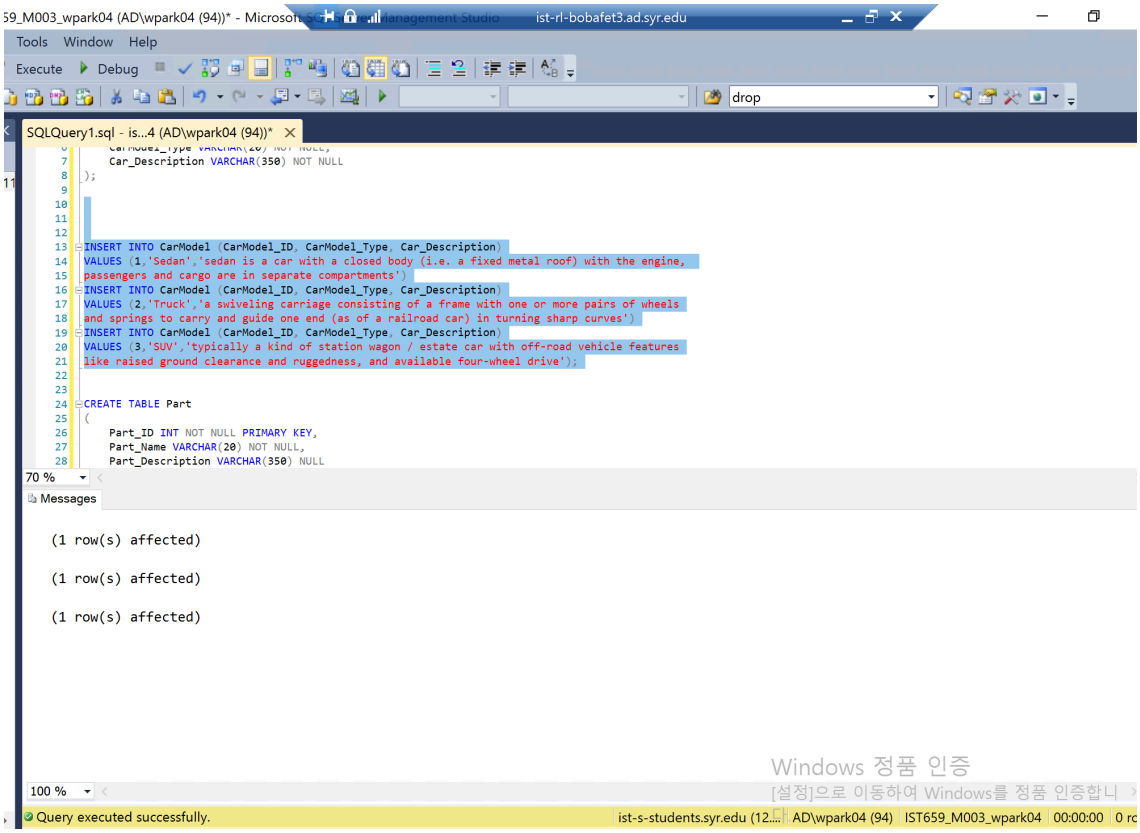
	Employee_ID	Employee_Type	Employee_FName	Employee_LName	Work_Primary_Shift	Work_Secondary_Shift
1	1	Manager	Rose	Barbara	6 to 12	NULL
2	2	Manager	Gerald	Bernstein	13 to 19	NULL
3	3	Worker	Toshiro	Yamada	6 to 12	NULL
4	4	Worker	Beverly	Baker	6 to 12	NULL
5	5	Worker	Cassandra	Alvarado	6 to 12	NULL
6	6	Worker	Tin	Chung	6 to 12	NULL
7	7	Worker	Robinson	Curt	6 to 12	NULL
8	8	Worker	Austin	Byron	6 to 12	NULL
9	9	Worker	Nathan	Kerr	6 to 12	NULL
10	10	Worker	Sebastian	Chapman	6 to 12	NULL
11	11	Worker	Heather	Cameron	13 to 19	NULL
12	12	Worker	Olivia	Wallace	13 to 19	NULL
13	13	Worker	Lily	Turner	13 to 19	NULL
14	14	Worker	Dorothy	Paige	13 to 19	NULL
15	15	Worker	Amy	May	13 to 19	NULL

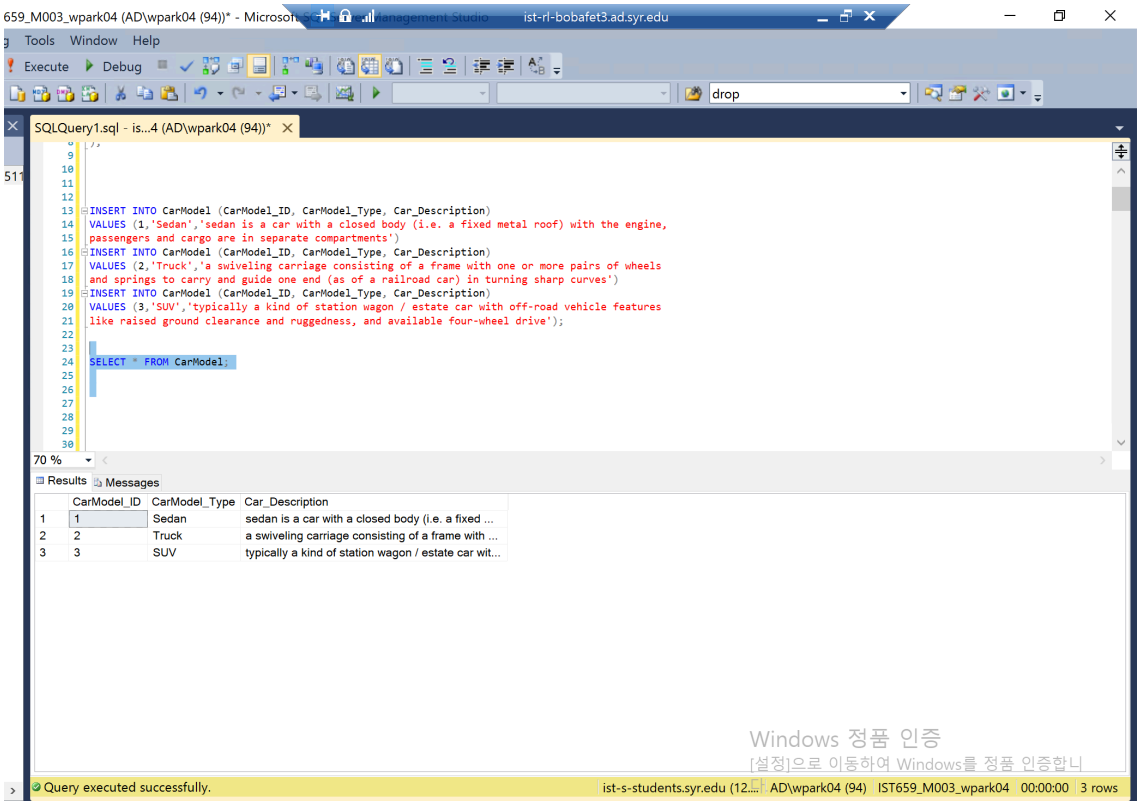
```sql
CREATE TABLE CarModel
(
    CarModel_ID INT NOT NULL PRIMARY KEY,
    CarModel_Type VARCHAR(20) NOT NULL,
    Car_Description VARCHAR(350) NOT NULL
);


INSERT INTO CarModel (CarModel_ID, CarModel_Type, Car_Description)
VALUES (1,'Sedan','sedan is a car with a closed body (i.e. a fixed metal roof) with the
engine,
passengers and cargo are in separate compartments')
INSERT INTO CarModel (CarModel_ID, CarModel_Type, Car_Description)
VALUES (2,'Truck','a swiveling carriage consisting of a frame with one or more pairs of wheels
and springs to carry and guide one end (as of a railroad car) in turning sharp curves')
INSERT INTO CarModel (CarModel_ID, CarModel_Type, Car_Description)
VALUES (3,'SUV','typically a kind of station wagon / estate car with off-road vehicle features
like raised ground clearance and ruggedness, and available four-wheel drive');

SELECT * FROM CarModel;
```



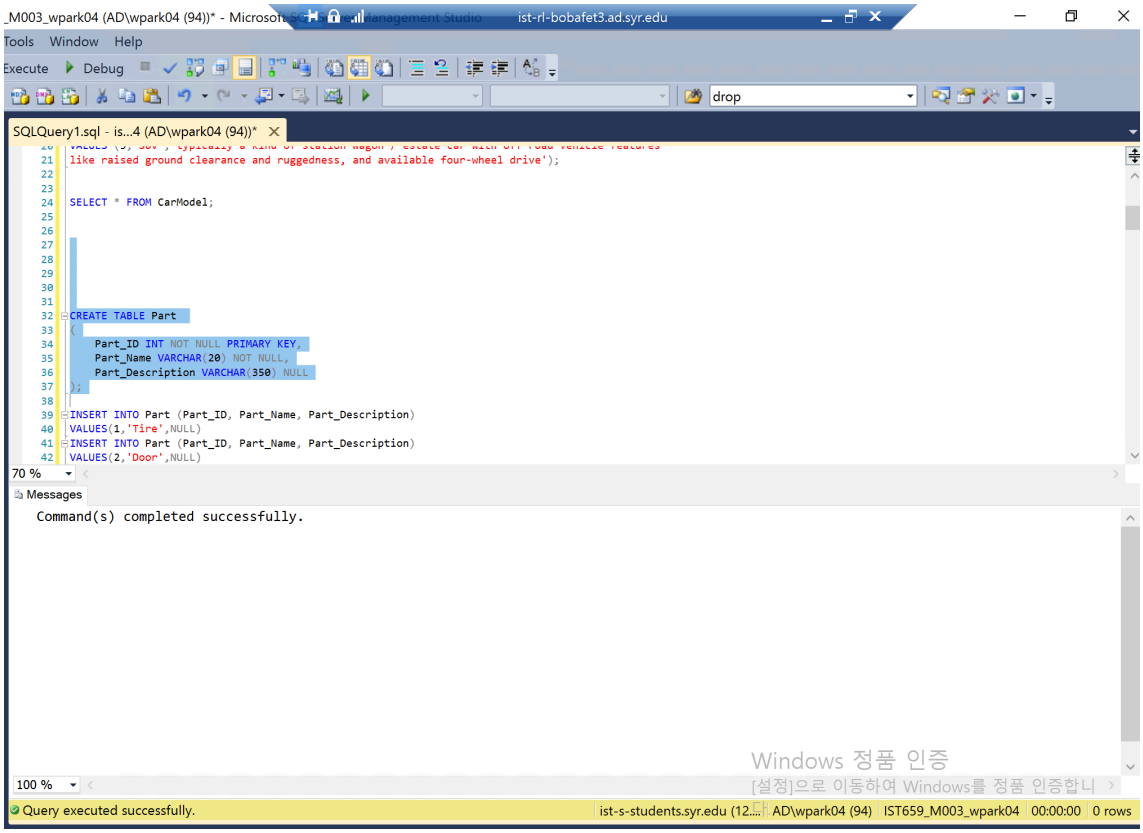

59_M003_wpark04 (AD\wpark04 (94))* - Microsoft
ist-rl-bobafet3.ad.syr.edu
Tools Window Help
Execute Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
Car_Description VARCHAR(350) NOT NULL
);
INSERT INTO CarModel (CarModel_ID, CarModel_Type, Car_Description)
VALUES (1,'Sedan','sedan is a car with a closed body (i.e. a fixed metal roof) with the engine,
passengers and cargo are in separate compartments')
INSERT INTO CarModel (CarModel_ID, CarModel_Type, Car_Description)
VALUES (2,'Truck','a swiveling carriage consisting of a frame with one or more pairs of wheels
and springs to carry and guide one end (as of a railroad car) in turning sharp curves')
INSERT INTO CarModel (CarModel_ID, CarModel_Type, Car_Description)
VALUES (3,'SUV','typically a kind of station wagon / estate car with off-road vehicle features
like raised ground clearance and ruggedness, and available four-wheel drive');
CREATE TABLE Part
(
Part_ID INT NOT NULL PRIMARY KEY,
Part_Name VARCHAR(20) NOT NULL,
Part_Description VARCHAR(350) NULL
70 %
Messages
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
100 %
Query executed successfully.
ist-s-students.syr.edu (12...
AD\wpark04 (94)
IST659_M003_wpark04
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0 rc

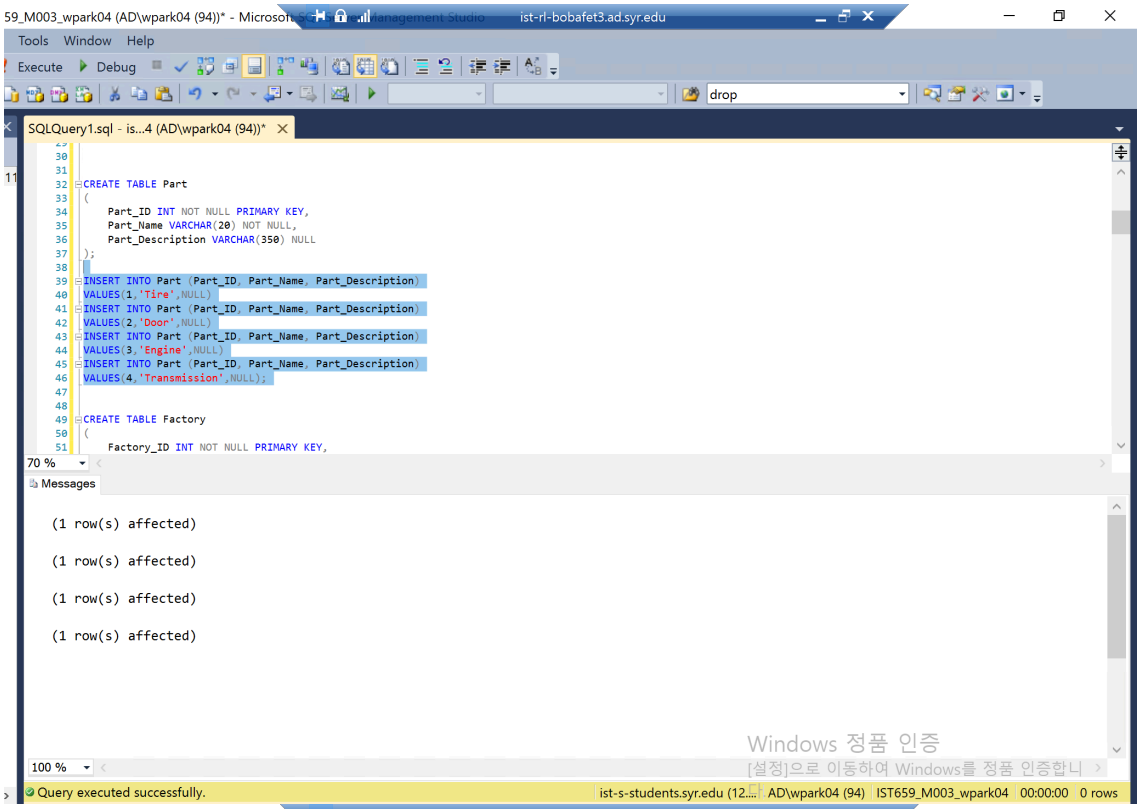

659_M003_wpark04 (AD\wpark04 (94))* - Microsoft
ist-rl-bobafet3.ad.syr.edu
Tools Window Help
Execute Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
INSERT INTO CarModel (CarModel_ID, CarModel_Type, Car_Description)
VALUES (1,'Sedan','sedan is a car with a closed body (i.e. a fixed metal roof) with the engine,
passengers and cargo are in separate compartments')
INSERT INTO CarModel (CarModel_ID, CarModel_Type, Car_Description)
VALUES (2,'Truck','a swiveling carriage consisting of a frame with one or more pairs of wheels
and springs to carry and guide one end (as of a railroad car) in turning sharp curves')
INSERT INTO CarModel (CarModel_ID, CarModel_Type, Car_Description)
VALUES (3,'SUV','typically a kind of station wagon / estate car with off-road vehicle features
like raised ground clearance and ruggedness, and available four-wheel drive');
SELECT * FROM CarModel;
70 %
Results
Messages
CarModel_ID
CarModel_Type
Car_Description
1
1
Sedan
sedan is a car with a closed body (i.e. a fixed ...
2
2
Truck
a swiveling carriage consisting of a frame with ...
3
3
SUV
typically a kind of station wagon / estate car wit...
Query executed successfully.
ist-s-students.syr.edu (12...
AD\wpark04 (94)
IST659_M003_wpark04
00:00:00
3 rows

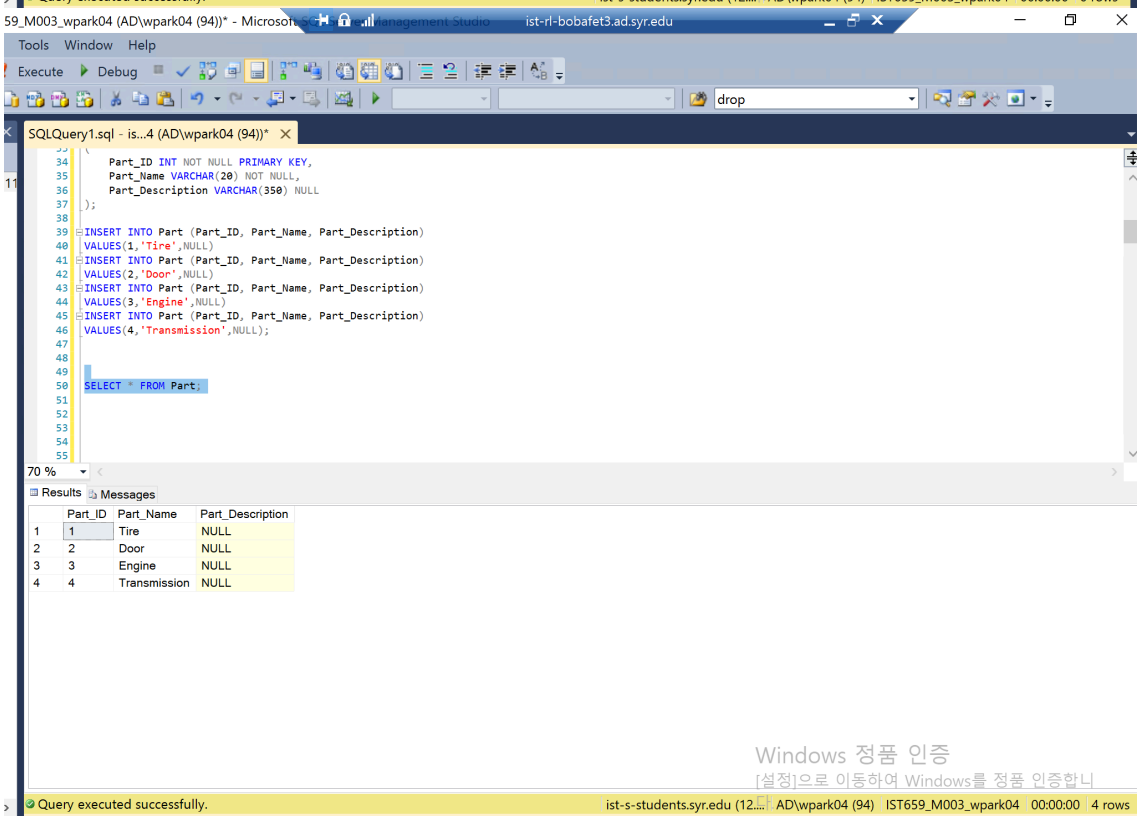
```sql
CREATE TABLE Part
(
    Part_ID INT NOT NULL PRIMARY KEY,
    Part_Name VARCHAR(20) NOT NULL,
    Part_Description VARCHAR(350) NULL
);

INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(1,'Tire',NULL)
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(2,'Door',NULL)
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(3,'Engine',NULL)
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(4,'Transmission',NULL);


SELECT * FROM Part;
```



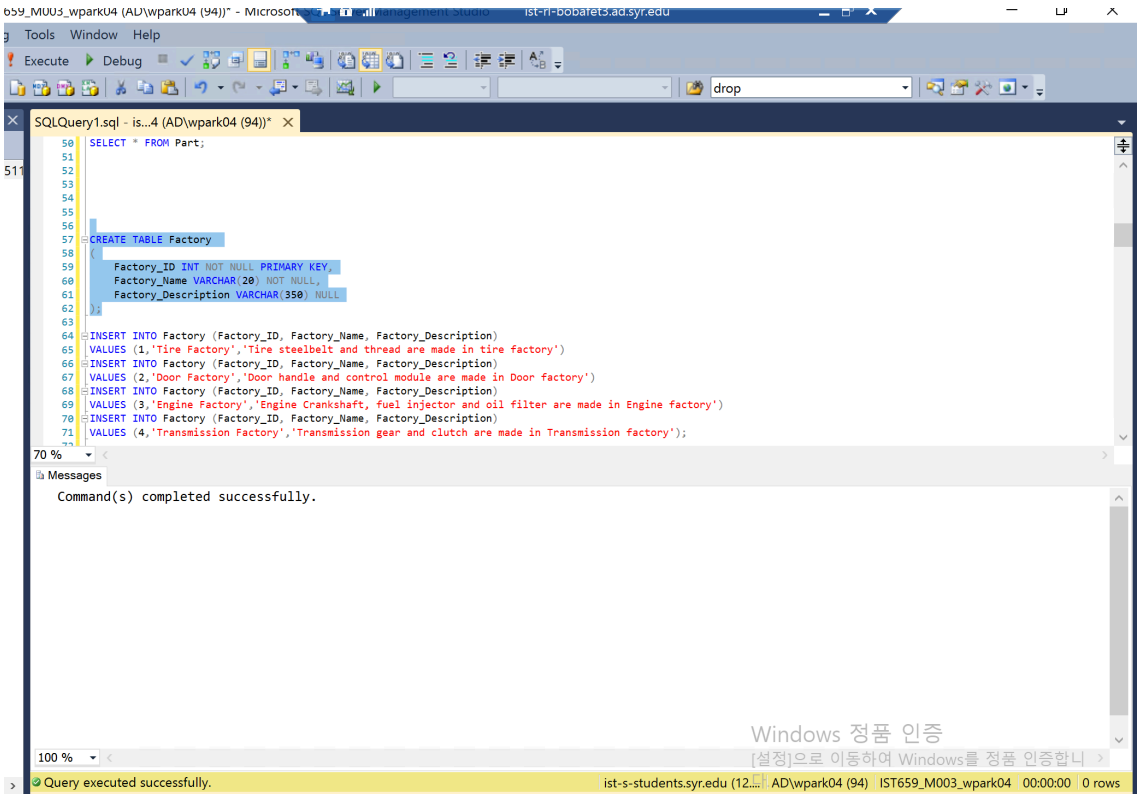

59_M003_wpark04 (AD\wpark04 (94))* - Microsoft
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Tools Window Help
Execute Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
CREATE TABLE Part
(
Part_ID INT NOT NULL PRIMARY KEY,
Part_Name VARCHAR(20) NOT NULL,
Part_Description VARCHAR(350) NULL
);
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(1,'Tire',NULL)
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(2,'Door',NULL)
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(3,'Engine',NULL)
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(4,'Transmission',NULL);
CREATE TABLE Factory
(
Factory_ID INT NOT NULL PRIMARY KEY,
70 %
Messages
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
100 %
Query executed successfully.
ist-s-students.syr.edu (12...
AD\wpark04 (94)
IST659_M003_wpark04
00:00:00
0 rows

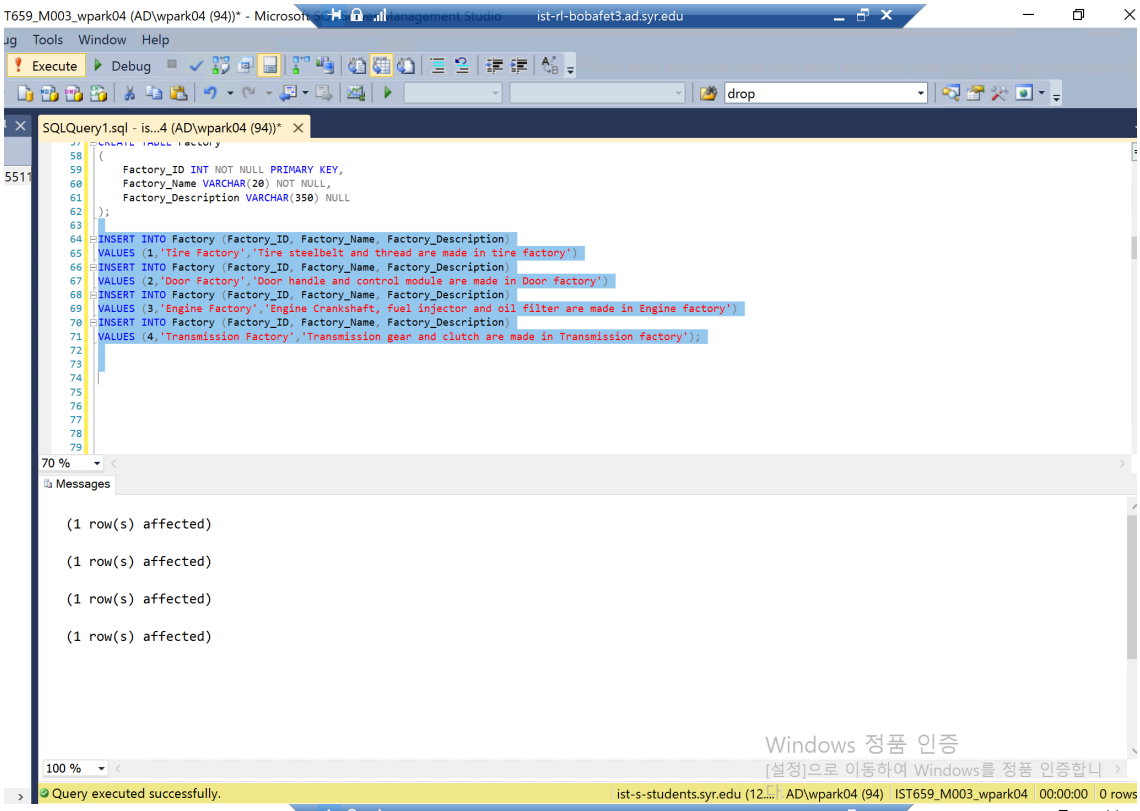

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Tools Window Help
Execute Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
Part_ID INT NOT NULL PRIMARY KEY,
Part_Name VARCHAR(20) NOT NULL,
Part_Description VARCHAR(350) NULL
);
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(1,'Tire',NULL)
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(2,'Door',NULL)
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(3,'Engine',NULL)
INSERT INTO Part (Part_ID, Part_Name, Part_Description)
VALUES(4,'Transmission',NULL);
SELECT * FROM Part;
70 %
Results
Messages
Part_ID Part_Name Part_Description
1 1 Tire NULL
2 2 Door NULL
3 3 Engine NULL
4 4 Transmission NULL
Query executed successfully.
ist-s-students.syr.edu (12...
AD\wpark04 (94)
IST659_M003_wpark04
00:00:00
4 rows

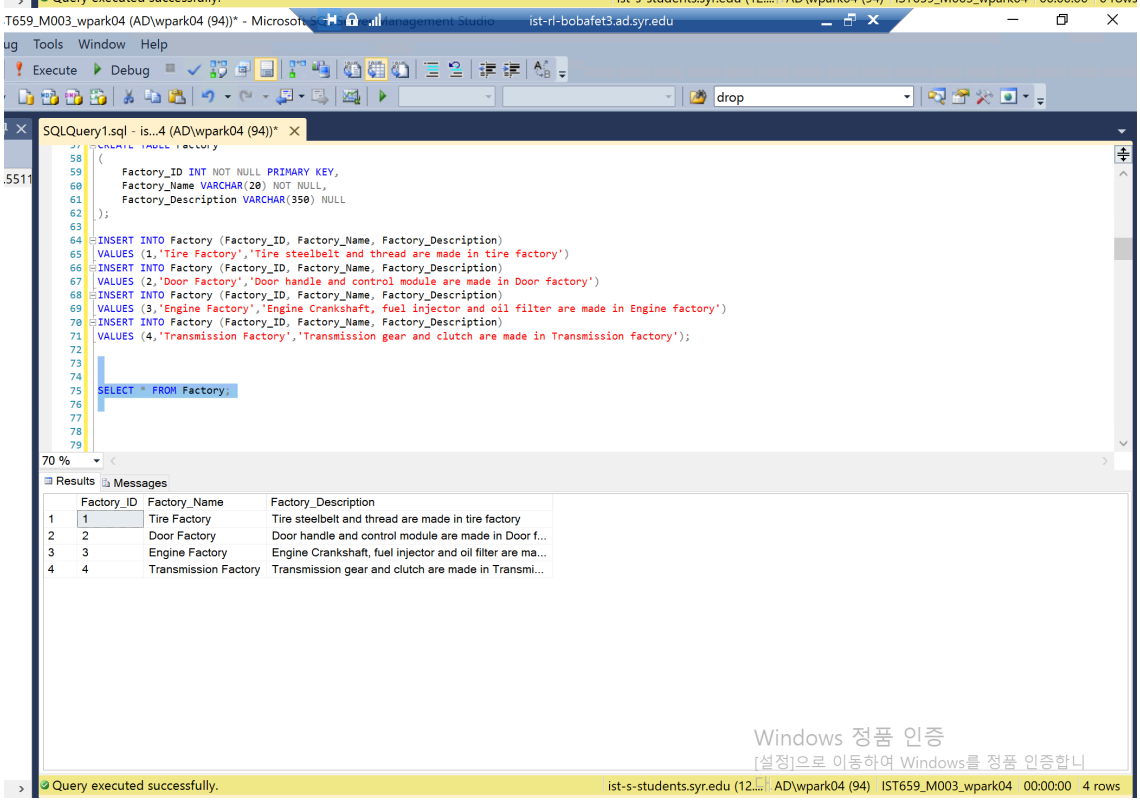
```sql
CREATE TABLE Factory
(
    Factory_ID INT NOT NULL PRIMARY KEY,
    Factory_Name VARCHAR(20) NOT NULL,
    Factory_Description VARCHAR(350) NULL
);

INSERT INTO Factory (Factory_ID, Factory_Name, Factory_Description)
VALUES (1,'Tire Factory','Tire steelbelt and thread are made in tire factory')
INSERT INTO Factory (Factory_ID, Factory_Name, Factory_Description)
VALUES (2,'Door Factory','Door handle and control module are made in Door factory')
INSERT INTO Factory (Factory_ID, Factory_Name, Factory_Description)
VALUES (3,'Engine Factory','Engine Crankshaft, fuel injector and oil filter are made in Engine
factory')
INSERT INTO Factory (Factory_ID, Factory_Name, Factory_Description)
VALUES (4,'Transmission Factory','Transmission gear and clutch are made in Transmission
factory');


SELECT * FROM Factory;
```



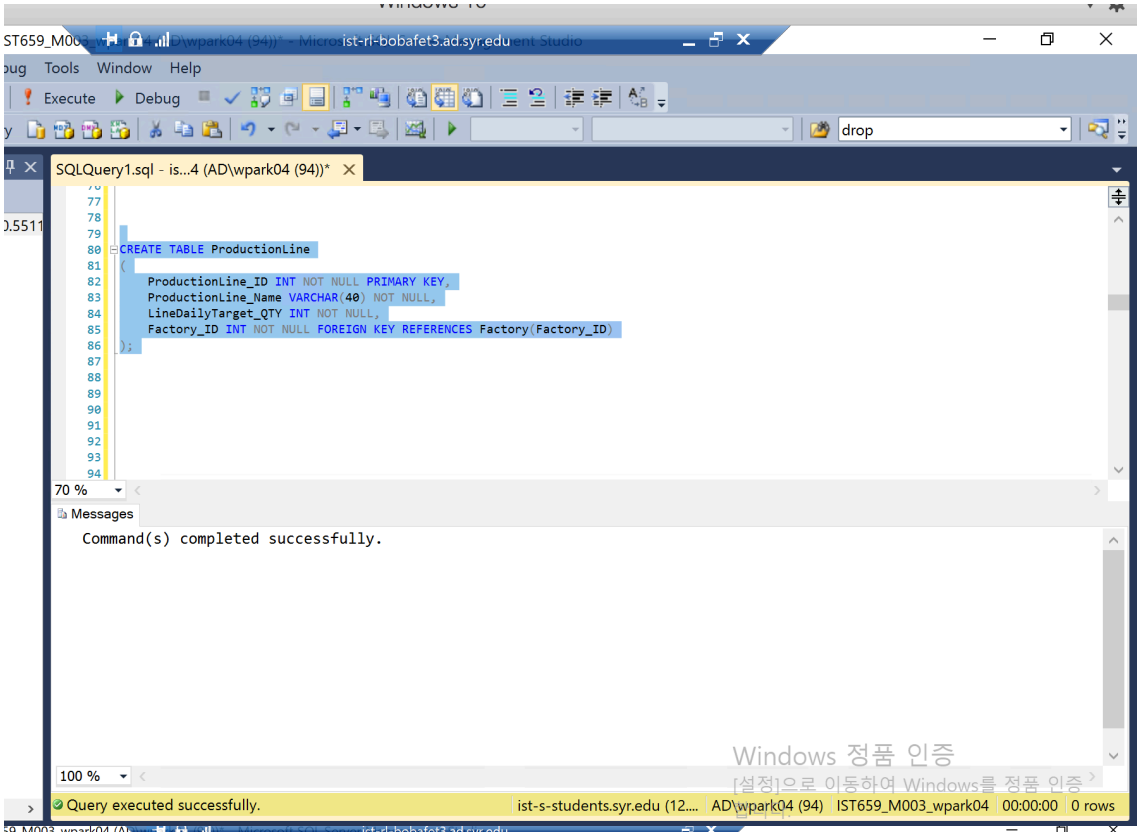

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Tools Window Help
Execute Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
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Factory_ID INT NOT NULL PRIMARY KEY,
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);
INSERT INTO Factory (Factory_ID, Factory_Name, Factory_Description)
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VALUES (2,'Door Factory','Door handle and control module are made in Door factory')
INSERT INTO Factory (Factory_ID, Factory_Name, Factory_Description)
VALUES (3,'Engine Factory','Engine Crankshaft, fuel injector and oil filter are made in Engine factory')
INSERT INTO Factory (Factory_ID, Factory_Name, Factory_Description)
VALUES (4,'Transmission Factory','Transmission gear and clutch are made in Transmission factory');
70 %
Messages
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
Windows 정품 인증
[설정]으로 이동하여 Windows를 정품 인증합니
100 %
Query executed successfully.
ist-s-students.syr.edu (12...
AD\wpark04 (94)
IST659_M003_wpark04
00:00:00
0 rows

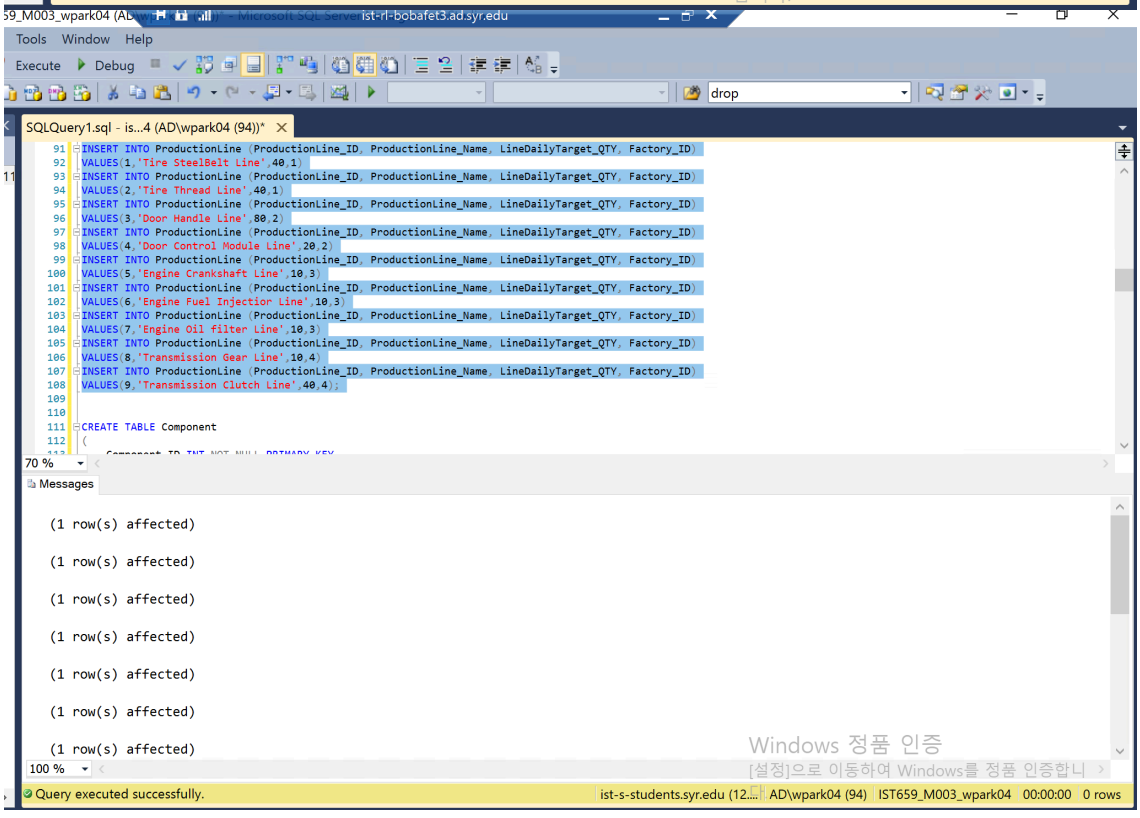

T659_M003_wpark04 (AD\wpark04 (94))* - Microsoft
ist-rl-bobafet3.ad.syr.edu
Tools Window Help
Execute Debug
drop
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INSERT INTO Factory (Factory_ID, Factory_Name, Factory_Description)
VALUES (4,'Transmission Factory','Transmission gear and clutch are made in Transmission factory');
SELECT * FROM Factory;
70 %
Results
Messages
Factory_ID Factory_Name Factory_Description
1 1 Tire Factory Tire steelbelt and thread are made in tire factory
2 2 Door Factory Door handle and control module are made in Door f...
3 3 Engine Factory Engine Crankshaft, fuel injector and oil filter are ma...
4 4 Transmission Factory Transmission gear and clutch are made in Transmi...
Windows 정품 인증
[설정]으로 이동하여 Windows를 정품 인증합니
Query executed successfully.
ist-s-students.syr.edu (12...
AD\wpark04 (94)
IST659_M003_wpark04
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4 rows

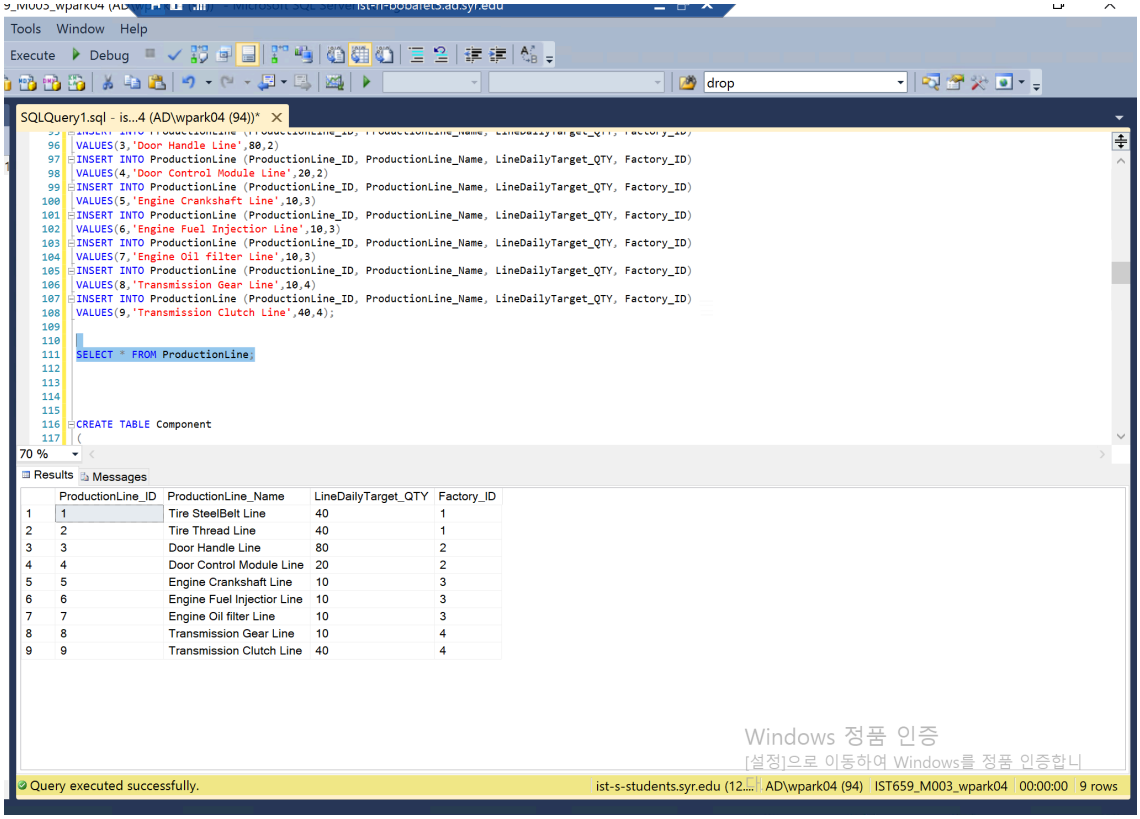
```sql
CREATE TABLE ProductionLine
(
    ProductionLine_ID INT NOT NULL PRIMARY KEY,
    ProductionLine_Name VARCHAR(40) NOT NULL,
    LineDailyTarget_QTY INT NOT NULL,
    Factory_ID INT NOT NULL FOREIGN KEY REFERENCES Factory(Factory_ID)
);


INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY,
Factory_ID)
VALUES(1,'Tire SteelBelt Line',40,1)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY,
Factory_ID)
VALUES(2,'Tire Thread Line',40,1)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY,
Factory_ID)
VALUES(3,'Door Handle Line',80,2)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY,
Factory_ID)
VALUES(4,'Door Control Module Line',20,2)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY,
Factory_ID)
VALUES(5,'Engine Crankshaft Line',10,3)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY,
Factory_ID)
VALUES(6,'Engine Fuel Injectior Line',10,3)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY,
Factory_ID)
VALUES(7,'Engine Oil filter Line',10,3)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY,
Factory_ID)
VALUES(8,'Transmission Gear Line',10,4)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY,
Factory_ID)
VALUES(9,'Transmission Clutch Line',40,4);


SELECT * FROM ProductionLine;
```


ist-rl-bobafet3.ad.syr.edu
Execute
Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
CREATE TABLE ProductionLine
(
ProductionLine_ID INT NOT NULL PRIMARY KEY,
ProductionLine_Name VARCHAR(40) NOT NULL,
LineDailyTarget_QTY INT NOT NULL,
Factory_ID INT NOT NULL FOREIGN KEY REFERENCES Factory(Factory_ID)
);
70 %
Messages
Command(s) completed successfully.
100 %
Query executed successfully.
ist-s-students.syr.edu (12....
AD\wpark04 (94)
IST659_M003_wpark04
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0 rows


ist-rl-bobafet3.ad.syr.edu
Execute
Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY, Factory_ID)
VALUES(1,'Tire SteelBelt Line',40,1)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY, Factory_ID)
VALUES(2,'Tire Thread Line',40,1)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY, Factory_ID)
VALUES(3,'Door Handle Line',80,2)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY, Factory_ID)
VALUES(4,'Door Control Module Line',20,2)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY, Factory_ID)
VALUES(5,'Engine Crankshaft Line',10,3)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY, Factory_ID)
VALUES(6,'Engine Fuel Injection Line',10,3)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY, Factory_ID)
VALUES(7,'Engine Oil filter Line',10,3)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY, Factory_ID)
VALUES(8,'Transmission Gear Line',10,4)
INSERT INTO ProductionLine (ProductionLine_ID, ProductionLine_Name, LineDailyTarget_QTY, Factory_ID)
VALUES(9,'Transmission Clutch Line',40,4);
CREATE TABLE Component
(
70 %
Messages
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
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Query executed successfully.
ist-s-students.syr.edu (12...
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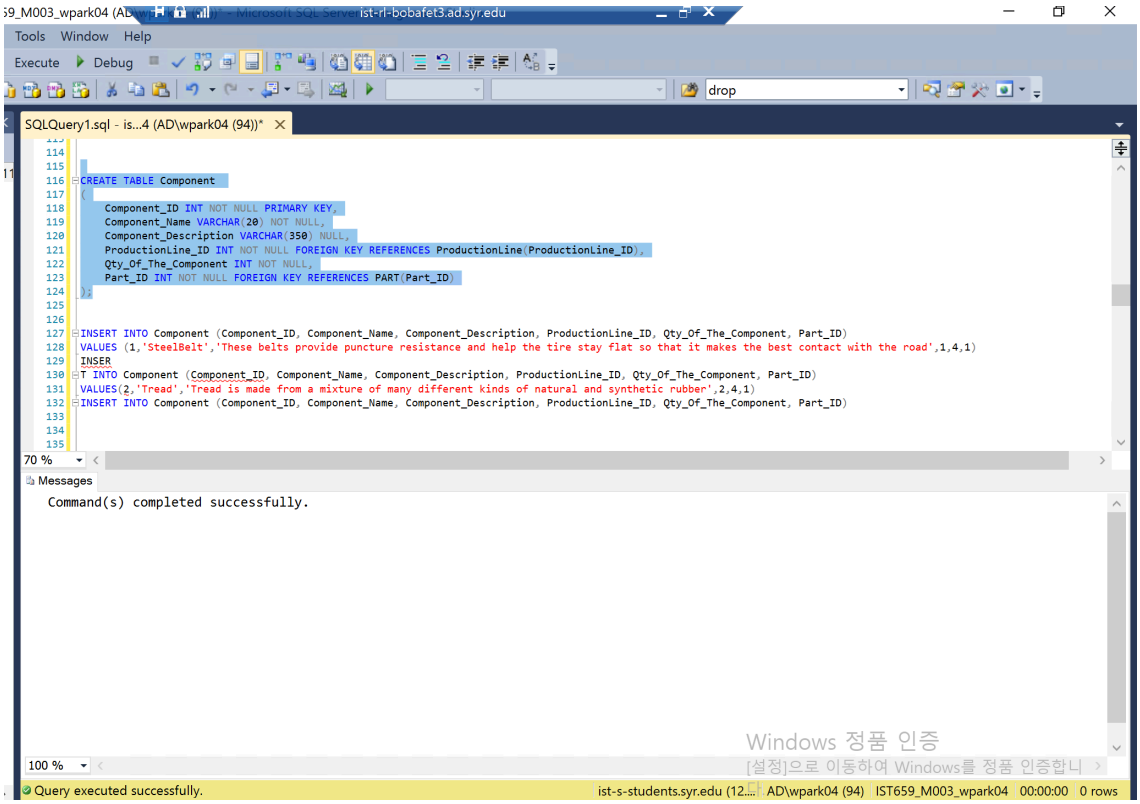


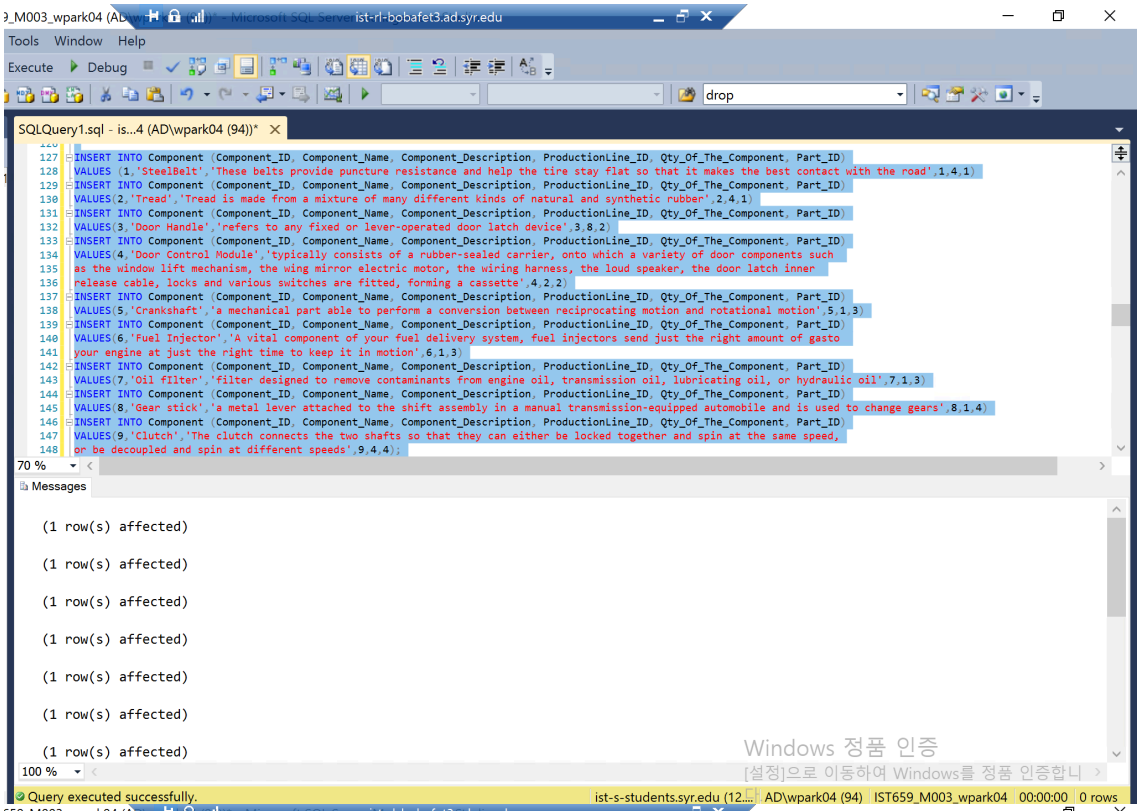

```
CREATE TABLE Component
(
    Component_ID INT NOT NULL PRIMARY KEY,
    Component_Name VARCHAR(20) NOT NULL,
    Component_Description VARCHAR(350) NULL,
    ProductionLine_ID INT NOT NULL FOREIGN KEY REFERENCES ProductionLine(ProductionLine_ID),
    Qty_Of_The_Component INT NOT NULL,
    Part_ID INT NOT NULL FOREIGN KEY REFERENCES PART(Part_ID)
);
```

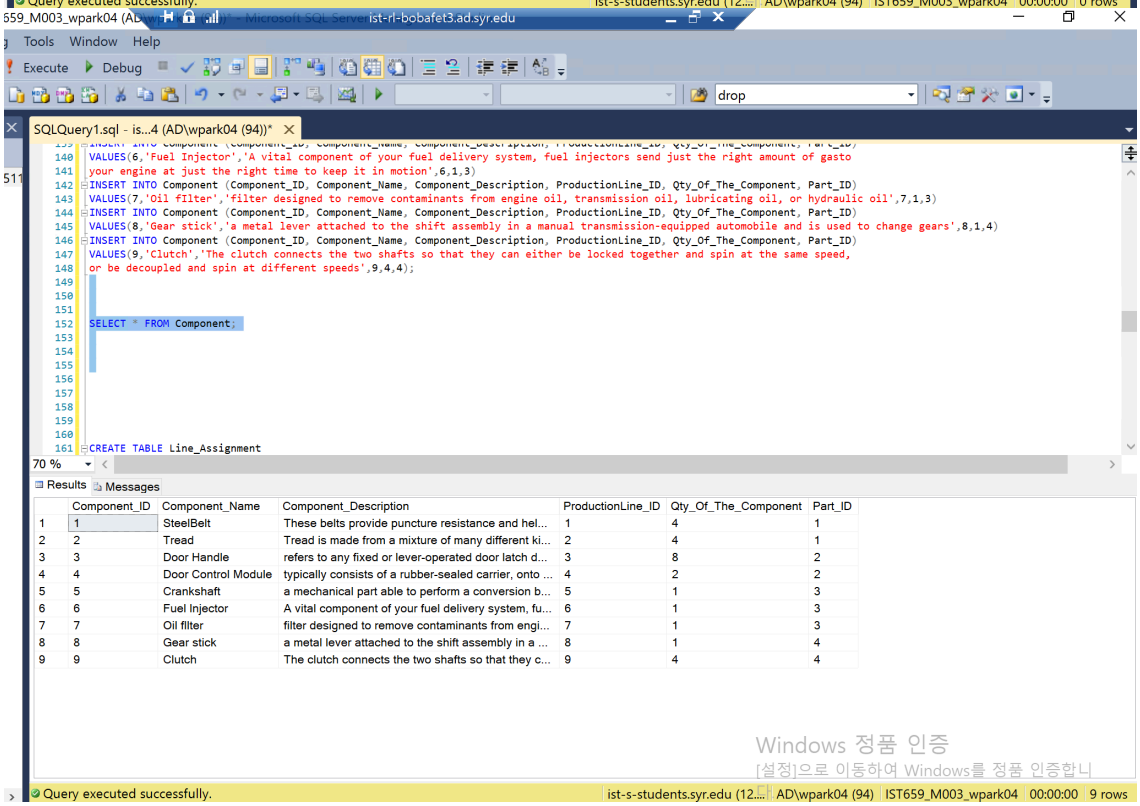
```
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID,
Qty_Of_The_Component, Part_ID)
VALUES (1,'SteelBelt','These belts provide puncture resistance and help the tire stay flat so
that it makes the best contact with the road',1,4,1)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID,
Qty_Of_The_Component, Part_ID)
VALUES(2,'Tread','Tread is made from a mixture of many different kinds of natural and
synthetic rubber',2,4,1)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID,
Qty_Of_The_Component, Part_ID)
VALUES(3,'Door Handle','refers to any fixed or lever-operated door latch device',3,8,2)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID,
Qty_Of_The_Component, Part_ID)
VALUES(4,'Door Control Module','typically consists of a rubber-sealed carrier, onto which a
variety of door components such
as the window lift mechanism, the wing mirror electric motor, the wiring harness, the loud
speaker, the door latch inner
release cable, locks and various switches are fitted, forming a cassette',4,2,2)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID,
Qty_Of_The_Component, Part_ID)
VALUES(5,'Crankshaft','a mechanical part able to perform a conversion between reciprocating
motion and rotational motion',5,1,3)
```

```
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID,
Qty_Of_The_Component, Part_ID)
VALUES(6,'Fuel Injector','A vital component of your fuel delivery system, fuel injectors send
just the right amount of gasto
your engine at just the right time to keep it in motion',6,1,3)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID,
Qty_Of_The_Component, Part_ID)
VALUES(7,'Oil fIlter','filter designed to remove contaminants from engine oil, transmission
oil, lubricating oil, or hydraulic oil',7,1,3)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID,
Qty_Of_The_Component, Part_ID)
VALUES(8,'Gear stick','a metal lever attached to the shift assembly in a manual transmission-
equipped automobile and is used to change gears',8,1,4)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID,
Qty_Of_The_Component, Part_ID)
VALUES(9,'Clutch','The clutch connects the two shafts so that they can either be locked
together and spin at the same speed,
or be decoupled and spin at different speeds',9,4,4);


SELECT * FROM Component;
```




Tools Window Help
Execute Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES (1,'SteelBelt','These belts provide puncture resistance and help the tire stay flat so that it makes the best contact with the road',1,4,1)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(2,'Tread','Tread is made from a mixture of many different kinds of natural and synthetic rubber',2,4,1)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(3,'Door Handle','refers to any fixed or lever-operated door latch device',3,8,2)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(4,'Door Control Module','typically consists of a rubber-sealed carrier, onto which a variety of door components such
as the window lift mechanism, the wing mirror electric motor, the wiring harness, the loud speaker, the door latch inner
release cable, locks and various switches are fitted, forming a cassette',4,2,2)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(5,'Crankshaft','a mechanical part able to perform a conversion between reciprocating motion and rotational motion',5,1,3)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(6,'Fuel Injector','A vital component of your fuel delivery system, fuel injectors send just the right amount of gasto
your engine at just the right time to keep it in motion',6,1,3)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(7,'Oil filter','filter designed to remove contaminants from engine oil, transmission oil, lubricating oil, or hydraulic oil',7,1,3)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(8,'Gear stick','a metal lever attached to the shift assembly in a manual transmission-equipped automobile and is used to change gears',8,1,4)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(9,'Clutch','The clutch connects the two shafts so that they can either be locked together and spin at the same speed,
or be decoupled and spin at different speeds',9,4,4);
70 %
Messages
(1 row(s) affected)
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(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
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100 %
Query executed successfully.
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0 rows

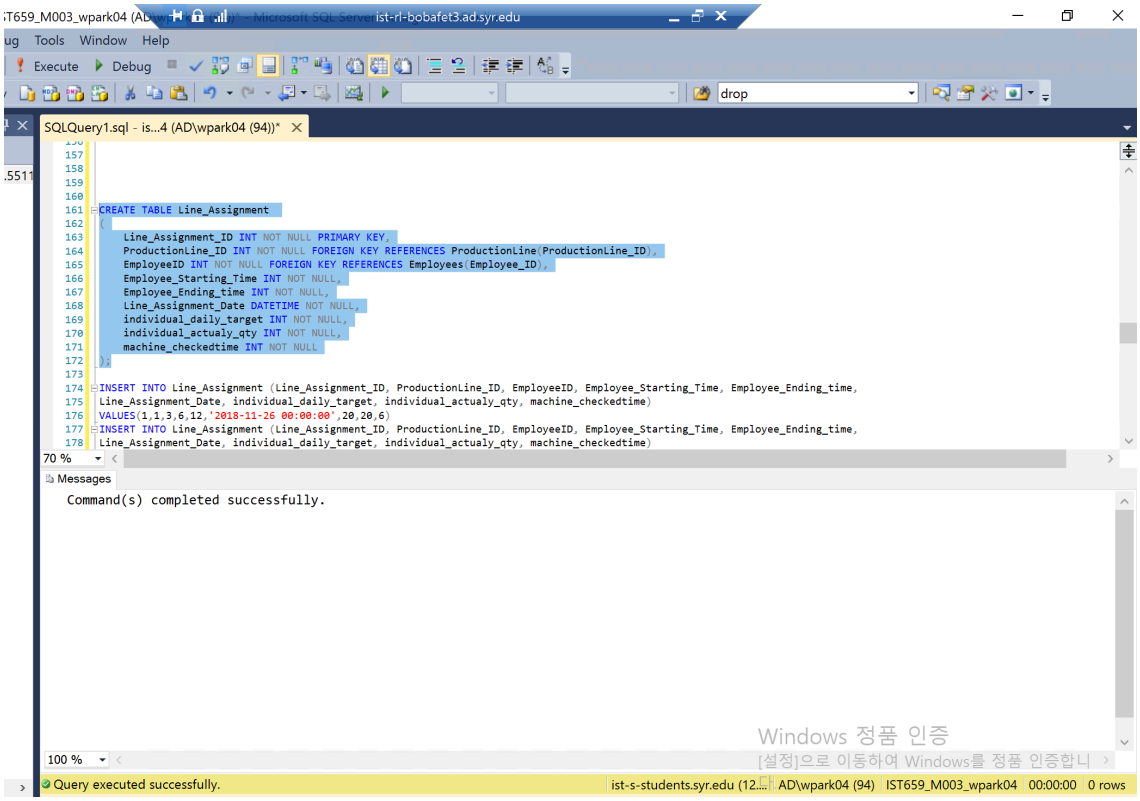

Tools Window Help
Execute Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
VALUES(6,'Fuel Injector','A vital component of your fuel delivery system, fuel injectors send just the right amount of gasto
your engine at just the right time to keep it in motion',6,1,3)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(7,'Oil filter','filter designed to remove contaminants from engine oil, transmission oil, lubricating oil, or hydraulic oil',7,1,3)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(8,'Gear stick','a metal lever attached to the shift assembly in a manual transmission-equipped automobile and is used to change gears',8,1,4)
INSERT INTO Component (Component_ID, Component_Name, Component_Description, ProductionLine_ID, Qty_Of_The_Component, Part_ID)
VALUES(9,'Clutch','The clutch connects the two shafts so that they can either be locked together and spin at the same speed,
or be decoupled and spin at different speeds',9,4,4);
SELECT * FROM Component;
CREATE TABLE Line_Assignment
70 %
Results
Messages
Component_ID Component_Name Component_Description ProductionLine_ID Qty_Of_The_Component Part_ID
1 1 SteelBelt These belts provide puncture resistance and hel... 1 4 1
2 2 Tread Tread is made from a mixture of many different ki... 2 4 1
3 3 Door Handle refers to any fixed or lever-operated door latch d... 3 8 2
4 4 Door Control Module typically consists of a rubber-sealed carrier, onto ... 4 2 2
5 5 Crankshaft a mechanical part able to perform a conversion b... 5 1 3
6 6 Fuel Injector A vital component of your fuel delivery system, fu... 6 1 3
7 7 Oil filter filter designed to remove contaminants from engi... 7 1 3
8 8 Gear stick a metal lever attached to the shift assembly in a ... 8 1 4
9 9 Clutch The clutch connects the two shafts so that they c... 9 4 4
Query executed successfully.
ist-s-students.syr.edu (12...
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00:00:00
9 rows

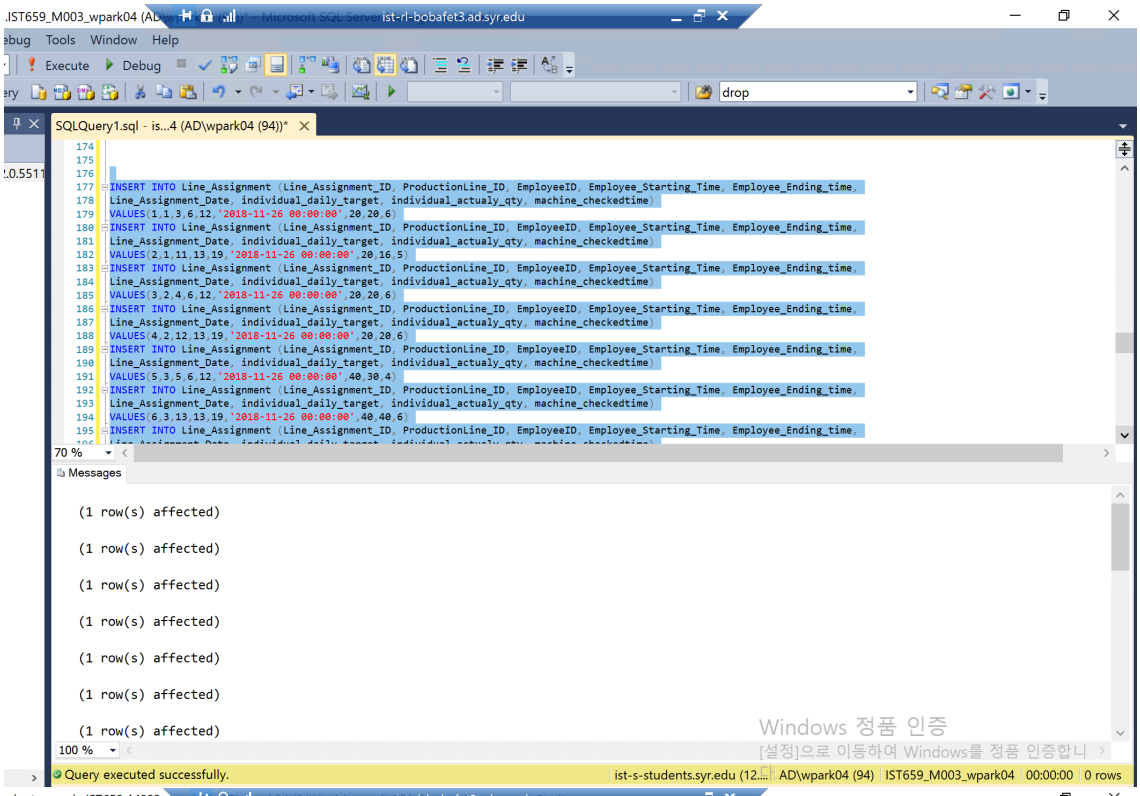
```sql
CREATE TABLE Line_Assignment
(
    Line_Assignment_ID INT NOT NULL PRIMARY KEY,
    ProductionLine_ID INT NOT NULL FOREIGN KEY REFERENCES ProductionLine(ProductionLine_ID),
    EmployeeID INT NOT NULL FOREIGN KEY REFERENCES Employees(Employee_ID),
    Employee_Starting_Time INT NOT NULL,
    Employee_Ending_time INT NOT NULL,
    Line_Assignment_Date DATETIME NOT NULL,
    individual_daily_target INT NOT NULL,
    individual_actualy_qty INT NOT NULL,
    machine_checkedtime INT NOT NULL
);

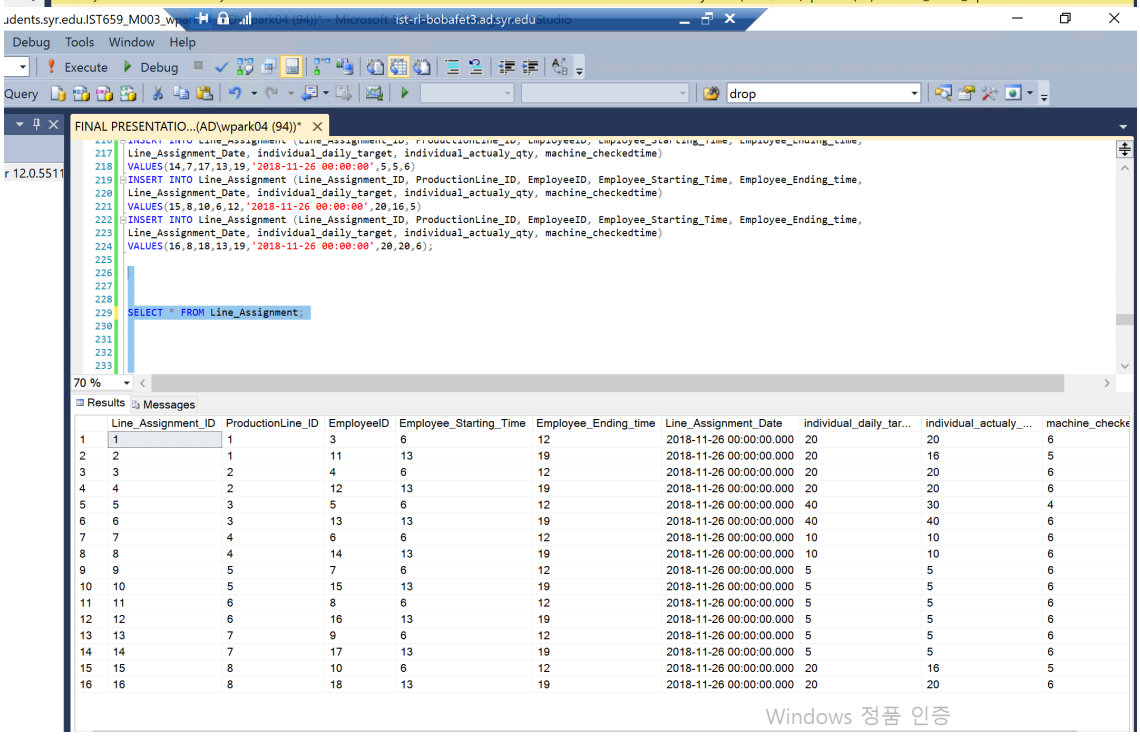

INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(1,1,3,6,12,'2018-11-26 00:00:00',20,20,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(2,1,11,13,19,'2018-11-26 00:00:00',20,16,5)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(3,2,4,6,12,'2018-11-26 00:00:00',20,20,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(4,2,12,13,19,'2018-11-26 00:00:00',20,20,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(5,3,5,6,12,'2018-11-26 00:00:00',40,30,4)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(6,3,13,13,19,'2018-11-26 00:00:00',40,40,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(7,4,6,6,12,'2018-11-26 00:00:00',10,10,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(8,4,14,13,19,'2018-11-26 00:00:00',10,10,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(9,5,7,6,12,'2018-11-26 00:00:00',5,5,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
```

```
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(10,5,15,13,19,'2018-11-26 00:00:00',5,5,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(11,6,8,6,12,'2018-11-26 00:00:00',5,5,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(12,6,16,13,19,'2018-11-26 00:00:00',5,5,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(13,7,9,6,12,'2018-11-26 00:00:00',5,5,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(14,7,17,13,19,'2018-11-26 00:00:00',5,5,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(15,8,10,6,12,'2018-11-26 00:00:00',20,16,5)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID,
Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(16,8,18,13,19,'2018-11-26 00:00:00',20,20,6);


SELECT * FROM Line_Assignment
```



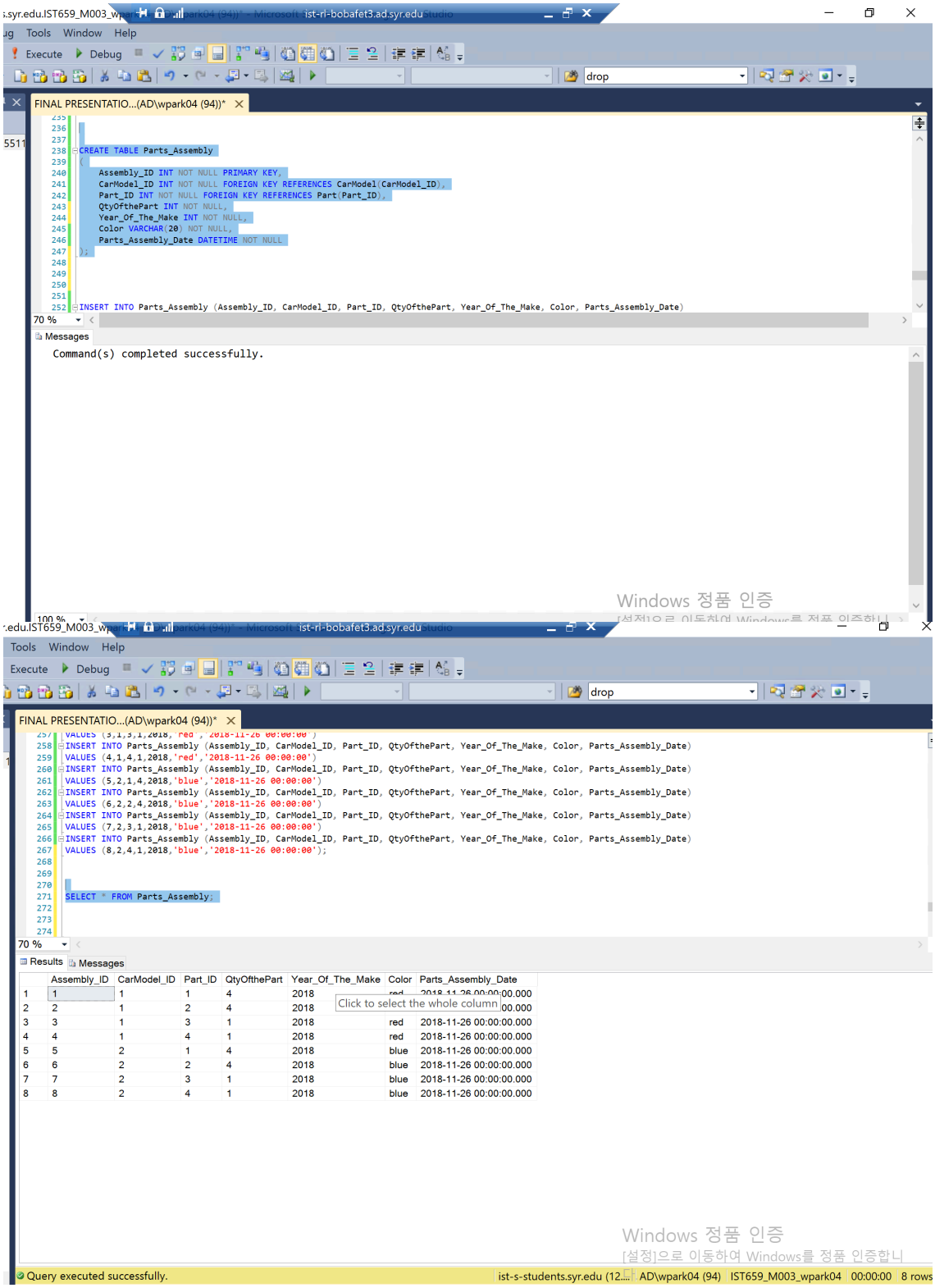

Debug Tools Window Help
Execute Debug
drop
SQLQuery1.sql - is...4 (AD\wpark04 (94))*
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID, Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(1,1,3,6,12,'2018-11-26 00:00:00',20,20,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID, Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(2,1,11,13,19,'2018-11-26 00:00:00',20,16,5)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID, Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(3,2,4,6,12,'2018-11-26 00:00:00',20,20,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID, Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(4,2,12,13,19,'2018-11-26 00:00:00',20,20,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID, Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(5,3,5,6,12,'2018-11-26 00:00:00',40,30,4)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID, Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(6,3,13,13,19,'2018-11-26 00:00:00',40,40,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID, Employee_Starting_Time, Employee_Ending_time,
70 %
Messages
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
(1 row(s) affected)
100 %
Windows 정품 인증
[설정]으로 이동하여 Windows를 정품 인증합니
Query executed successfully.
ist-s-students.syr.edu (12....
AD\wpark04 (94)
IST659_M003_wpark04
00:00:00
0 rows


Debug Tools Window Help
Execute Debug
drop
FINAL PRESENTATIO...(AD\wpark04 (94))*
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(14,7,17,13,19,'2018-11-26 00:00:00',5,5,6)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID, Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(15,8,10,6,12,'2018-11-26 00:00:00',20,16,5)
INSERT INTO Line_Assignment (Line_Assignment_ID, ProductionLine_ID, EmployeeID, Employee_Starting_Time, Employee_Ending_time,
Line_Assignment_Date, individual_daily_target, individual_actualy_qty, machine_checkedtime)
VALUES(16,8,18,13,19,'2018-11-26 00:00:00',20,20,6);
SELECT * FROM Line_Assignment;
70 %
Results
Messages
Line_Assignment_ID ProductionLine_ID EmployeeID Employee_Starting_Time Employee_Ending_time Line_Assignment_Date individual_daily_tar... individual_actualy_... machine_checke
1 1 1 3 6 12 2018-11-26 00:00:00.000 20 20 6
2 2 1 11 13 19 2018-11-26 00:00:00.000 20 16 5
3 3 2 4 6 12 2018-11-26 00:00:00.000 20 20 6
4 4 2 12 13 19 2018-11-26 00:00:00.000 20 20 6
5 5 3 5 6 12 2018-11-26 00:00:00.000 40 30 4
6 6 3 13 13 19 2018-11-26 00:00:00.000 40 40 6
7 7 4 6 6 12 2018-11-26 00:00:00.000 10 10 6
8 8 4 14 13 19 2018-11-26 00:00:00.000 10 10 6
9 9 5 7 6 12 2018-11-26 00:00:00.000 5 5 6
10 10 5 15 13 19 2018-11-26 00:00:00.000 5 5 6
11 11 6 8 6 12 2018-11-26 00:00:00.000 5 5 6
12 12 6 16 13 19 2018-11-26 00:00:00.000 5 5 6
13 13 7 9 6 12 2018-11-26 00:00:00.000 5 5 6
14 14 7 17 13 19 2018-11-26 00:00:00.000 5 5 6
15 15 8 10 6 12 2018-11-26 00:00:00.000 20 16 5
16 16 8 18 13 19 2018-11-26 00:00:00.000 20 20 6
Windows 정품 인증

```
CREATE TABLE Parts_Assembly
(
    Assembly_ID INT NOT NULL PRIMARY KEY,
    CarModel_ID INT NOT NULL FOREIGN KEY REFERENCES CarModel(CarModel_ID),
    Part_ID INT NOT NULL FOREIGN KEY REFERENCES Part(Part_ID),
    QtyOfthePart INT NOT NULL,
    Year_Of_The_Make INT NOT NULL,
    Color VARCHAR(20) NOT NULL,
    Parts_Assembly_Date DATETIME NOT NULL
);


INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make,
Color, Parts_Assembly_Date)
VALUES (1,1,1,4,2018,'red','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make,
Color, Parts_Assembly_Date)
VALUES (2,1,2,4,2018,'red','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make,
Color, Parts_Assembly_Date)
VALUES (3,1,3,1,2018,'red','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make,
Color, Parts_Assembly_Date)
VALUES (4,1,4,1,2018,'red','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make,
Color, Parts_Assembly_Date)
VALUES (5,2,1,4,2018,'blue','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make,
Color, Parts_Assembly_Date)
VALUES (6,2,2,4,2018,'blue','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make,
Color, Parts_Assembly_Date)
VALUES (7,2,3,1,2018,'blue','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make,
Color, Parts_Assembly_Date)
VALUES (8,2,4,1,2018,'blue','2018-11-26 00:00:00');


SELECT * FROM Parts_Assembly;
```


Tools Window Help
Execute Debug
drop
FINAL PRESENTATIO...(AD\wpark04 (94))*
CREATE TABLE Parts_Assembly
(
Assembly_ID INT NOT NULL PRIMARY KEY,
CarModel_ID INT NOT NULL FOREIGN KEY REFERENCES CarModel(CarModel_ID),
Part_ID INT NOT NULL FOREIGN KEY REFERENCES Part(Part_ID),
QtyOfthePart INT NOT NULL,
Year_Of_The_Make INT NOT NULL,
Color VARCHAR(20) NOT NULL,
Parts_Assembly_Date DATETIME NOT NULL
);
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make, Color, Parts_Assembly_Date)
70 %
Messages
Command(s) completed successfully.
Windows 정품 인증

Tools Window Help
Execute Debug
drop
FINAL PRESENTATIO...(AD\wpark04 (94))*
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make, Color, Parts_Assembly_Date)
VALUES (4,1,4,1,2018,'red','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make, Color, Parts_Assembly_Date)
VALUES (5,2,1,4,2018,'blue','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make, Color, Parts_Assembly_Date)
VALUES (6,2,2,4,2018,'blue','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make, Color, Parts_Assembly_Date)
VALUES (7,2,3,1,2018,'blue','2018-11-26 00:00:00')
INSERT INTO Parts_Assembly (Assembly_ID, CarModel_ID, Part_ID, QtyOfthePart, Year_Of_The_Make, Color, Parts_Assembly_Date)
VALUES (8,2,4,1,2018,'blue','2018-11-26 00:00:00');
SELECT * FROM Parts_Assembly;
70 %
Results
Messages
Assembly_ID CarModel_ID Part_ID QtyOfthePart Year_Of_The_Make Color Parts_Assembly_Date
1 1 1 1 4 2018 red 2018-11-26 00:00:00.000
2 2 1 2 4 2018 Click to select the whole column 00.000
3 3 1 3 1 2018 red 2018-11-26 00:00:00.000
4 4 1 4 1 2018 red 2018-11-26 00:00:00.000
5 5 2 1 4 2018 blue 2018-11-26 00:00:00.000
6 6 2 2 4 2018 blue 2018-11-26 00:00:00.000
7 7 2 3 1 2018 blue 2018-11-26 00:00:00.000
8 8 2 4 1 2018 blue 2018-11-26 00:00:00.000
Windows 정품 인증
Query executed successfully.
ist-s-students.syr.edu (12...
AD\wpark04 (94)
IST659_M003_wpark04
00:00:00
8 rows

MAJOR DATA QUESTION

1) What is schedule and actual working hours for a particular production worker on a Specific day?

2) Are there any issues on the working hours?

Answer : Using our database system, we can actually detect specific worker whose name is Cassandra (EmployeeID=5) and she should work for 6 hours for the day, but we can detect that her actually working hour was 4.

```
641 /* Data Question (1). What is schedule and actual working hours for a particular production worker (ID=5) on a specific day?
642                   (2). Are there any issues on the working hours? Yes, we can see that Employee#5 should work for 6 hours
643                   while he/she only worked for 4 hours */
644
645 SELECT l.EmployeeID, e.Employee_FName, e.Employee_LName, [Line Assignment Date],
646         sum([machine checkedtime]) as actual_hr, sum(l.Employee_Ending_time - l.Employee_Starting_Time) as schedule_hr
647 FROM Line_Assignment l
648 join Employee e on l.EmployeeID=e.Employee_ID
649 WHERE l.EmployeeID=5
650 group by [Line Assignment Date], l.EmployeeID, e.Employee_FName, e.Employee_LName;
651
```

100 %

Results | Messages

	EmployeeID	Employee_FName	Employee_LName	Line Assignment Date	actual_hr	schedule_hr
1	5	Cassandra	Alvarado	2018-11-26 00:00:00.000	4	6

3) What are the target and actual total units of components produced at specific day?

4) Can you highlight ones that didn't meet target?

Answer : In database system, we can detect specific worker who didn't meet the target at the specific day. For example we have 'having' condition and put specific date we find out 3 workers didn't meet the target quantity.

```
658 /* Data Question (3). What are the target and actual total units of components produced at specific day (i.e. 11/26/2018)?
659                   (4). Can you highlight ones that didn't meet target? Yes, we can, by adding 'having' condition */
660
661
662 SELECT pl.[ProductionLine_ID], pl.ProductionLine_Name,
663         sum([individual actualy qty]) as actual_qty,
664         sum([individual daily target]) as target_qty
665 FROM Line_Assignment l
666 join ProductionLine pl on l.ProductionLine_ID=pl.ProductionLine_ID
667 WHERE l.[Line Assignment Date] = '11/26/2018'
668 group by pl.[ProductionLine_ID], pl.ProductionLine_Name
669 having sum([individual actualy qty]) < sum([individual daily target]);
670
```

100 %

Results | Messages

	ProductionLine_ID	ProductionLine_Name	actual_qty	target_qty
1	3	Door Handle Line	70	80
2	1	Tire SteelBelt Line	36	40
3	8	Transmission Clutch Line	36	40

5) Which production line and factory was a component build at?

Answer : In database system, we can detect detailed information of the component made at, for example, when we look at our component ID 3, we can find out the the specific ID of production line and factory. And also we can find out the name of each component such as Door Handle

```
672  /* Data Question (5). Which production line and factory was a component (i.e. ID=3) built at? */
673
674  select c.Component_ID, c.Component_Name, c.ProductionLine_ID, pl.Factory_ID, f.Factory_Name
675  from Component c
676  join ProductionLine pl on c.ProductionLine_ID=pl.ProductionLine_ID
677  join Factory f on pl.Factory_ID=f.Factory_ID
678  where c.Component_ID=3;
679
```

100 %

Results | Messages

	Component_ID	Component_Name	ProductionLine_ID	Factory_ID	Factory_Name
1	3	Door Handle	3	2	Door Factory

SQL QUERY OF DATA QUESTIONS

```
/* Data Question (1). What is schedule and actual working hours for a particular production worker
(ID=5) on a specific day?
                                (2). Are there any issues on the working hours? Yes, we can see that
Employee#5 should work for 6 hours
                                while he/she only worked for 4 hours */

SELECT l.EmployeeID, e.Employee_FName, e.Employee_LName, [Line Assignment Date],
                sum([machine checkedtime]) as actual_hr, sum(l.Employee_Ending_time -
l.Employee_Starting_Time) as schedule_hr
FROM Line_Assignment l
join Employee e on l.EmployeeID=e.Employee_ID
WHERE l.EmployeeID=5
group by [Line Assignment Date], l.EmployeeID, e.Employee_FName, e.Employee_LName;

/* Data Question (3). What are the target and actual total units of components produced at specific day
(i.e. 11/26/2018)?
                                (4). Can you highlight ones that didn't meet target? Yes, we can, by
adding 'having' condition */

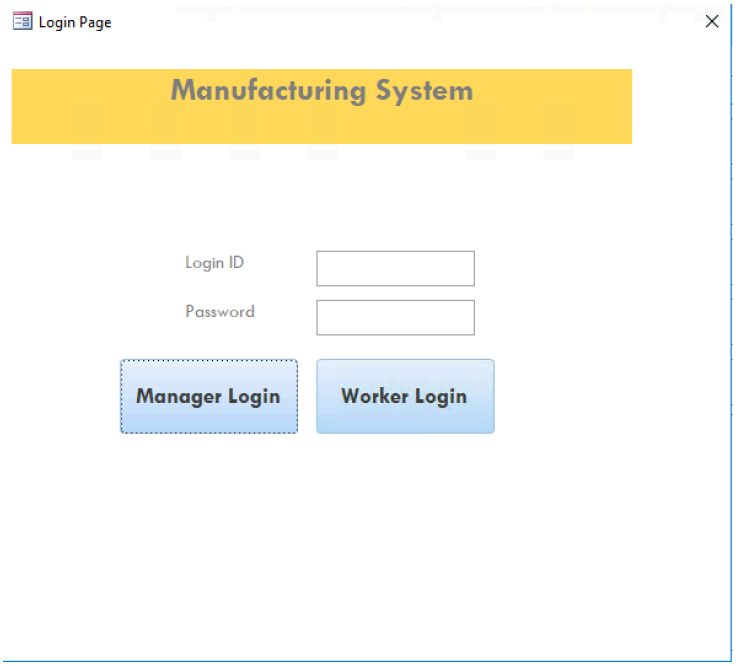

SELECT pl.[ProductionLine_ID], pl.ProductionLine_Name,
                sum([individual actualy qty]) as actual_qty,
                sum([individual daily target]) as target_qty
FROM Line_Assignment l
join ProductionLine pl on l.ProductionLine_ID=pl.ProductionLine_ID
WHERE l.[Line Assignment Date] = '11/26/2018'
group by pl.[ProductionLine_ID], pl.ProductionLine_Name
having sum([individual actualy qty]) < sum([individual daily target]);


/* Data Question (5). Which production line and factory was a component (i.e. ID=3) built at? */

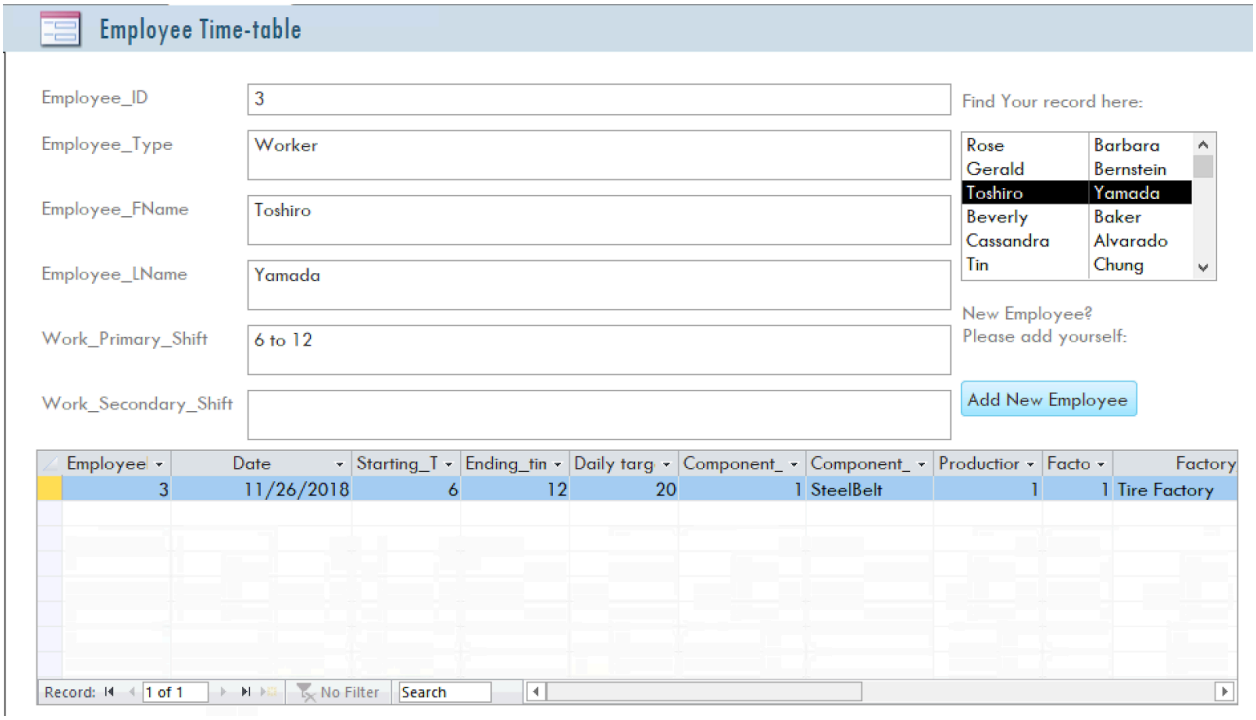
select c.Component_ID, c.Component_Name, c.ProductionLine_ID, pl.Factory_ID, f.Factory_Name
from Component c
join ProductionLine pl on c.ProductionLine_ID=pl.ProductionLine_ID
join Factory f on pl.Factory_ID=f.Factory_ID
where c.Component_ID=3
```

INTERFACES

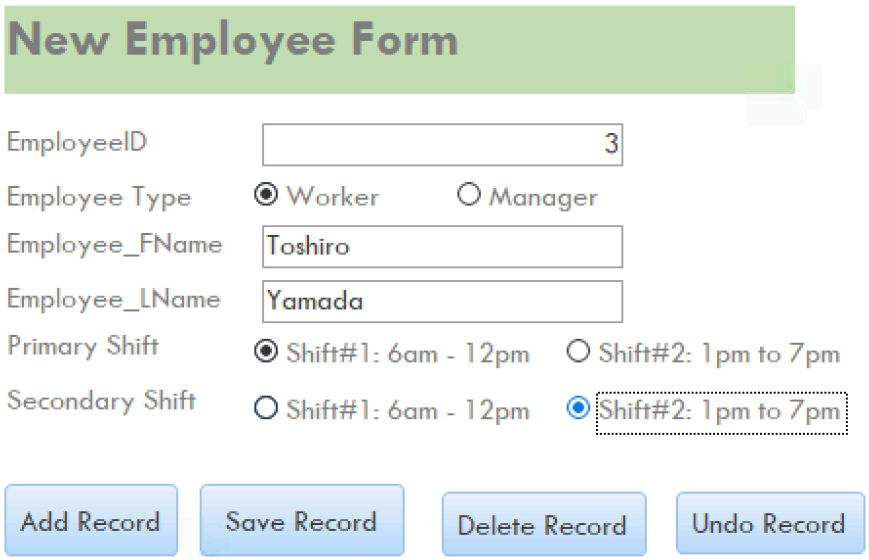
1. We give separate permissions when login into the system - worker and manager, so this is a simple login page:



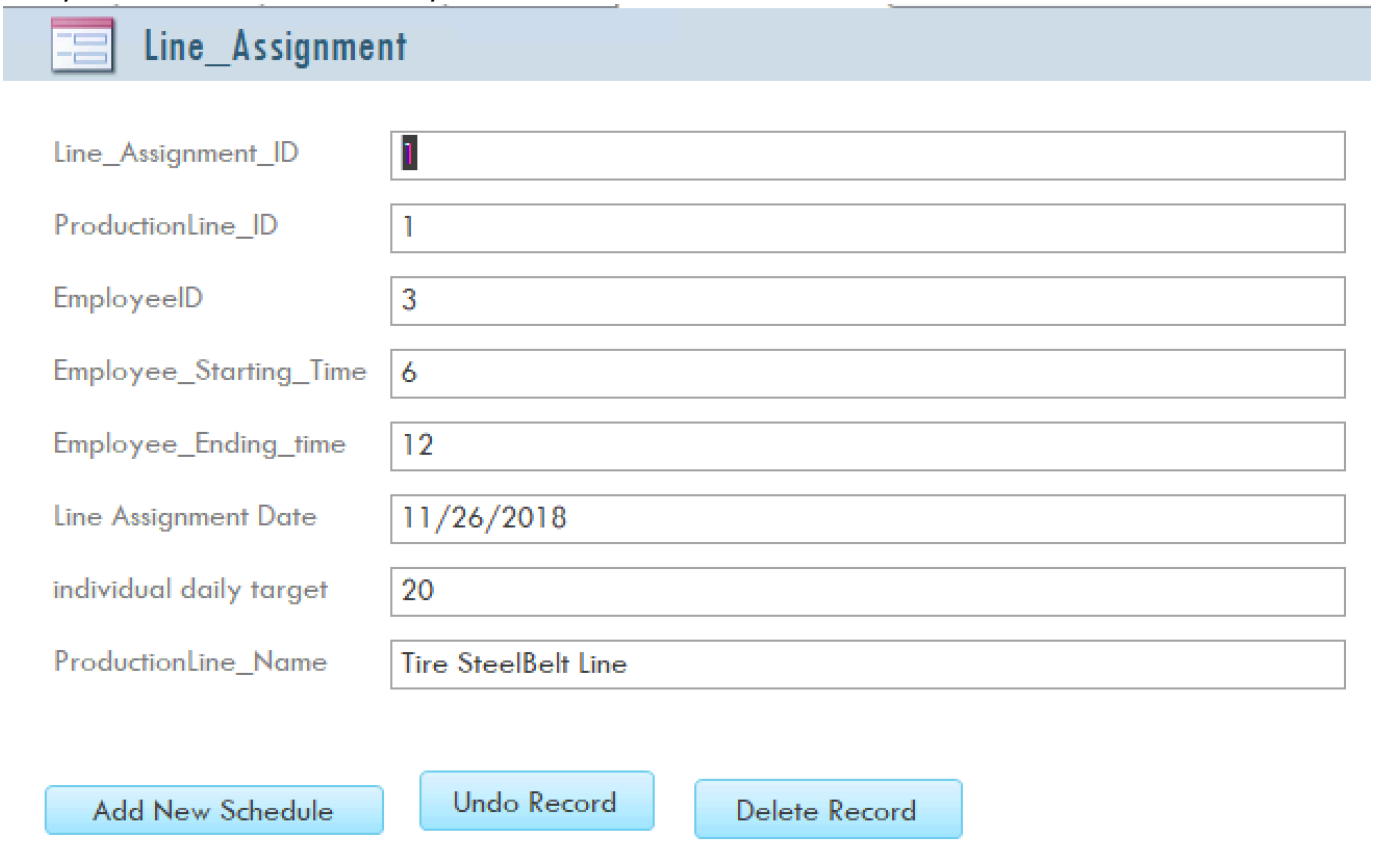
2. <u>After worker login</u>, he or she will be able to see his or her own history timetable in the past and in the future.



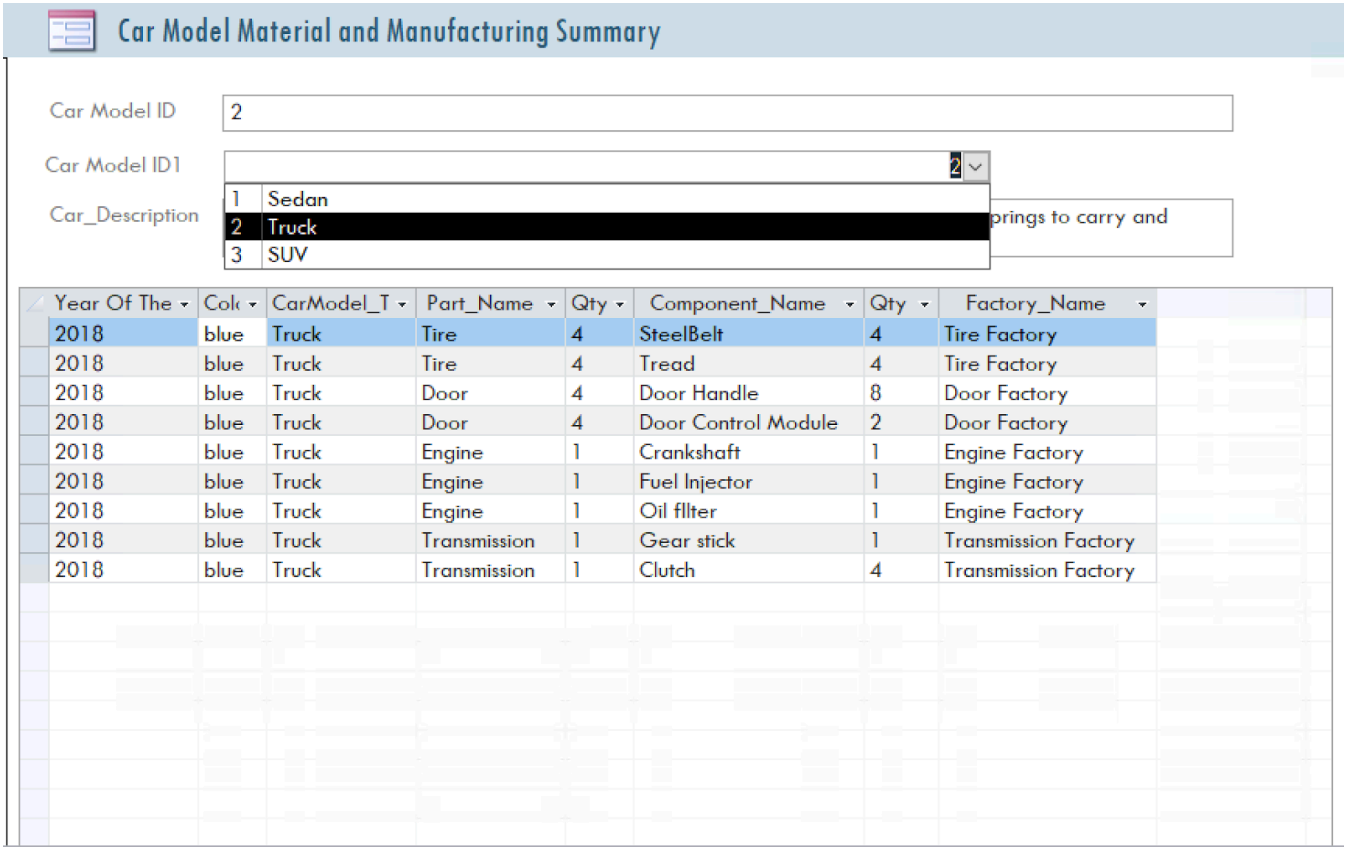
3. If you are the new employee, you can also add a new record here as well, where you will be re-direct to another page and add/edit the record there.



4. <u>If you are a manager</u>, you can also check the bills of materials of different cars, so you can quickly report if any materials are short or if any schedule is behind.



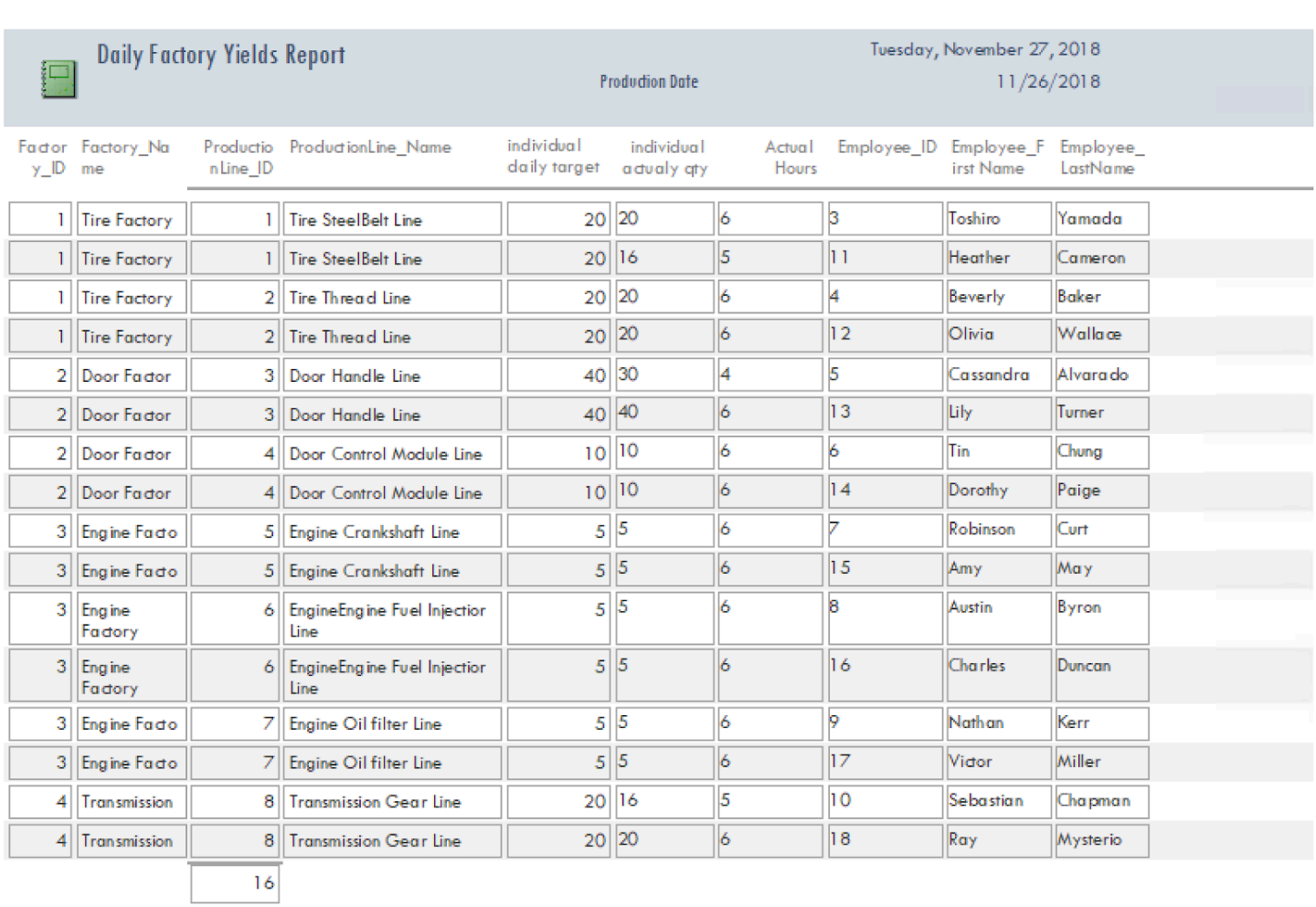
5. Also, you can also create a new schedule (line-assignment) for future dates, and the workers can check their future schedules to plan accordingly.



Year Of The	Col	CarModel_T	Part_Name	Qty	Component_Name	Qty	Factory_Name
2018	blue	Truck	Tire	4	SteelBelt	4	Tire Factory
2018	blue	Truck	Tire	4	Tread	4	Tire Factory
2018	blue	Truck	Door	4	Door Handle	8	Door Factory
2018	blue	Truck	Door	4	Door Control Module	2	Door Factory
2018	blue	Truck	Engine	1	Crankshaft	1	Engine Factory
2018	blue	Truck	Engine	1	Fuel Injector	1	Engine Factory
2018	blue	Truck	Engine	1	Oil fllter	1	Engine Factory
2018	blue	Truck	Transmission	1	Gear stick	1	Transmission Factory
2018	blue	Truck	Transmission	1	Clutch	4	Transmission Factory

REPORT

Finally as a manager, you should receive a report like below daily at the end of each working day, where you can see which employee is not doing their work properly for which production line and in which factory. Each employee should work for 6 hours for each section, so if the actual hours do not equal to 6 hours, then the managers can know he/she is not doing it right.



Daily Factory Yields Report

Production Date: Tuesday, November 27, 2018 / 11/26/2018

Factory_ID	Factory_Name	ProductionLine_ID	ProductionLine_Name	individual daily target	individual actualy qty	Actual Hours	Employee_ID	Employee_First Name	Employee_LastName
1	Tire Factory	1	Tire SteelBelt Line	20	20	6	3	Toshiro	Yamada
1	Tire Factory	1	Tire SteelBelt Line	20	16	5	11	Heather	Cameron
1	Tire Factory	2	Tire Thread Line	20	20	6	4	Beverly	Baker
1	Tire Factory	2	Tire Thread Line	20	20	6	12	Olivia	Wallace
2	Door Factor	3	Door Handle Line	40	30	4	5	Cassandra	Alvarado
2	Door Factor	3	Door Handle Line	40	40	6	13	Lily	Turner
2	Door Factor	4	Door Control Module Line	10	10	6	6	Tin	Chung
2	Door Factor	4	Door Control Module Line	10	10	6	14	Dorothy	Paige
3	Engine Facto	5	Engine Crankshaft Line	5	5	6	7	Robinson	Curt
3	Engine Facto	5	Engine Crankshaft Line	5	5	6	15	Amy	May
3	Engine Factory	6	EngineEngine Fuel Injection Line	5	5	6	8	Austin	Byron
3	Engine Factory	6	EngineEngine Fuel Injection Line	5	5	6	16	Charles	Duncan
3	Engine Facto	7	Engine Oil filter Line	5	5	6	9	Nathan	Kerr
3	Engine Facto	7	Engine Oil filter Line	5	5	6	17	Victor	Miller
4	Transmission	8	Transmission Gear Line	20	16	5	10	Sebastian	Chapman
4	Transmission	8	Transmission Gear Line	20	20	6	18	Ray	Mysterio
		16							