Create the following table as shown below.

Table Name : Train Details

Train ID	Train Name
11404	Shatabdi
22505	Rajdhani
33606	Passenger

Table Name: Station Details

Station ID	Station Name
101	Delhi
102	Aligarh
103	Lucknow
104	Kanpur

Table Name : Journey Details

Train ID	Station ID	Distance	Schedule Arrival (GMT)	Departure (GMT)
11404	101	0	NULL	25/1/2012 03:00:00
11404	103	750	25/1/2012 09:30:00	NULL
22505	101	0	NULL	25/1/2012 15:0400
22505	102	225	25/1/2012 5:30:00	25/1/2012 06:00:00
22505	104	150	25/1/2012 07:10:00	25/1/2012 07:50:00
22505	103	100	25/1/2012 08:30:00	NULL
33606	102	0	NULL	25/1/2012 10:45:00
33606	104	150	25/1/2012 13:20:00	25/1/2012 13:45:00
33606	103	100	25/1/2012 17:20:00	NULL

SECTION – A (30 Marks)

1. Write an SQL which gives the route map for each train and also the total distance (in KM) covered by each train and their average speed (In Km/hr) during the journey, as shown below.

Train Name	Station Name	Distance	Avg. Speed
XYZ	A,B,C	120	25.6

***Avg Speed = Distance/Time**

2. Write an SQL query which gives following result.
   a. Name of the train which covered the maximum distance during its journey.
   b. Name of the train which has the max Average speed.
   c. Name those trains which stop at least at three stations.
   d. Name those trains whose stoppage is not Aligarh and Kanpur.

3. Write an SQL query which results out the boarding and destination station name for each train as shown below.

Train ID	Train Name	Boarding	Destination
111	A	Delhi	Aligarh
222	B	Aligarh	Delhi

4. Write an SQL query which displays time taken by a train to reach the respective destination as shown below.

Train name	Delhi(hr	Lucknow(hr)	Aligarh(hr)	Kanpur(hr)	Total Time(hr)
Rajdhani	0	10	5	0	15

SECTION – B (20-marks)

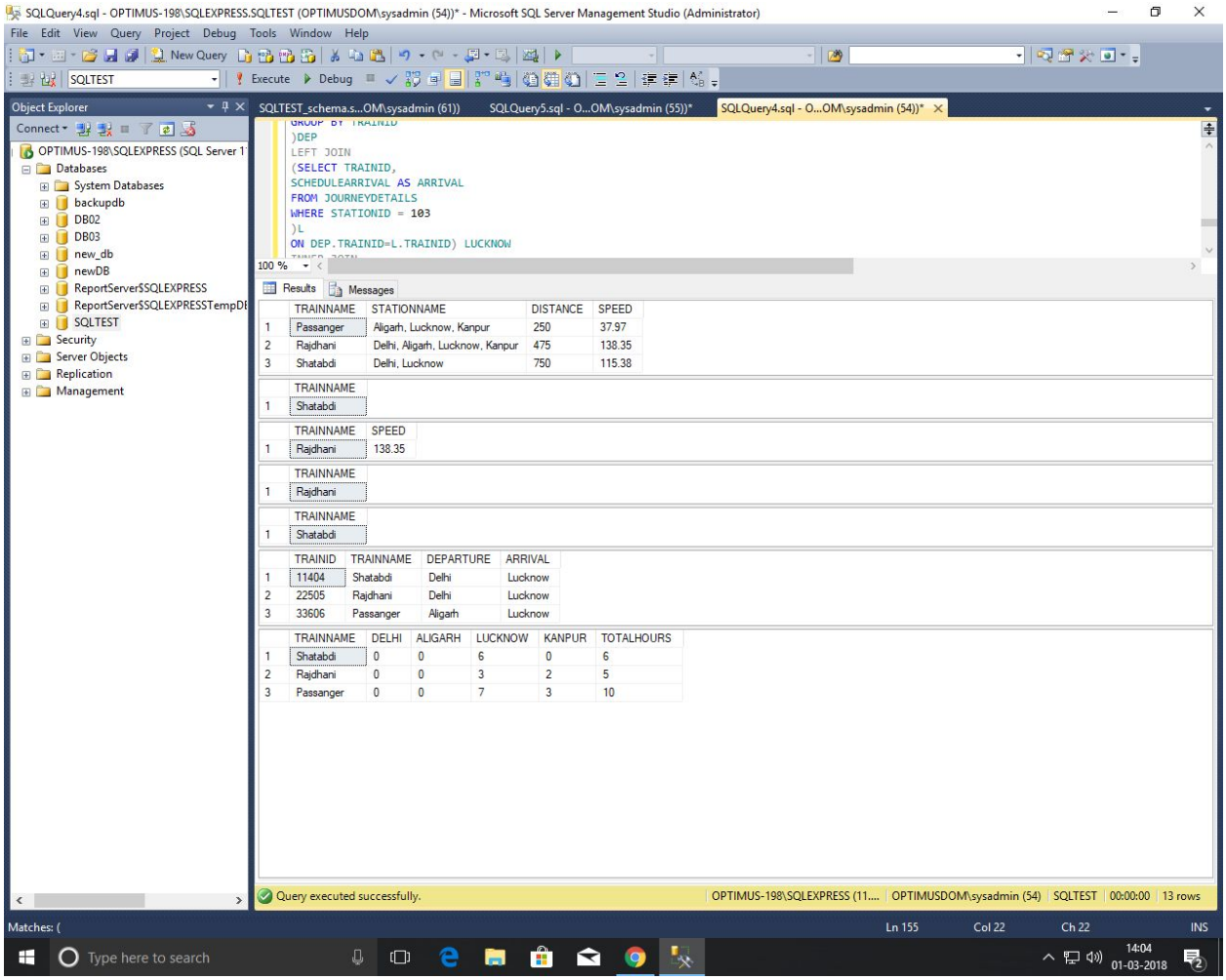
Scenario:

An organization names “Optimus Information Inc.”, has 3 department , HR, Development and Testing. Each Department work around several activities for which they are assigned. In Development and testing, each department has at least 3 projects and each project have at least 2 Engineers. Every engineer updates the total number of hours spends in each project daily.

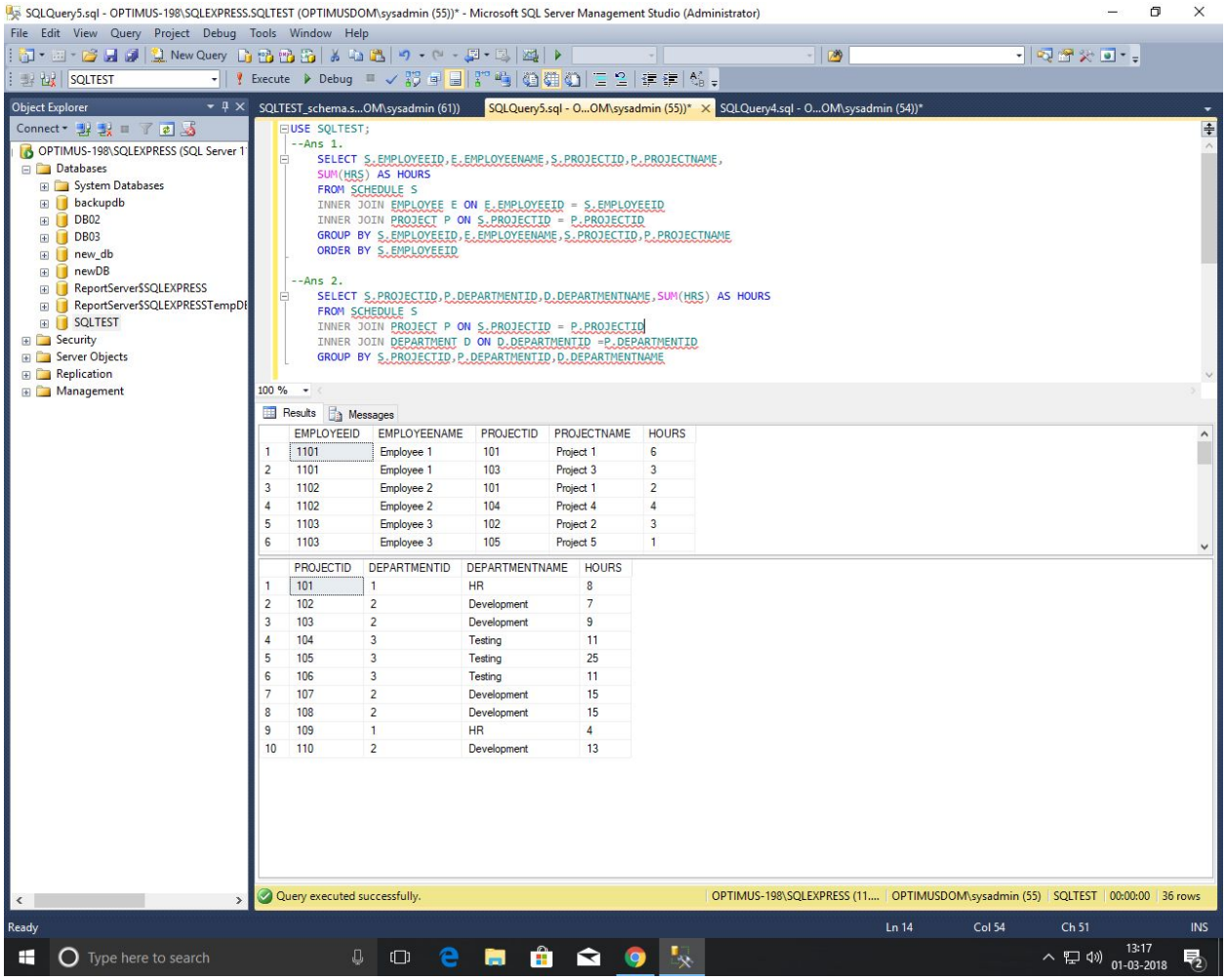
Based on the above scenario answer the following:

1. Create a schema for this scenario which covers all the information related to each department in Optimus.
2. One day the manager of the company ask you to write an SQL query which displays the total number of hours spent as
    a. Each engineer in their respective project.
    b. Each project in their respective department.

SECTION A


SQLQuery4.sql - OPTIMUS-198\SQLEXPRESS.SQLTEST (OPTIMUSDOM\sysadmin (54))* - Microsoft SQL Server Management Studio (Administrator)
File Edit View Query Project Debug Tools Window Help
New Query
SQLTEST
Execute Debug
Object Explorer
Connect
OPTIMUS-198\SQLEXPRESS (SQL Server 1
Databases
System Databases
backupdb
DB02
DB03
new_db
newDB
ReportServer$SQLEXPRESS
ReportServer$SQLEXPRESSTempDB
SQLTEST
Security
Server Objects
Replication
Management
SQLTEST_schema.s...OM\sysadmin (61))
SQLQuery5.sql - O...OM\sysadmin (55))*
SQLQuery4.sql - O...OM\sysadmin (54))*
)DEP
LEFT JOIN
(SELECT TRAINID,
SCHEDULEARRIVAL AS ARRIVAL
FROM JOURNEYDETAILS
WHERE STATIONID = 103
)L
ON DEP.TRAINID=L.TRAINID) LUCKNOW
100 %
Results
Messages
TRAINNAME STATIONNAME DISTANCE SPEED
1 Passanger Aligarh, Lucknow, Kanpur 250 37.97
2 Rajdhani Delhi, Aligarh, Lucknow, Kanpur 475 138.35
3 Shatabdi Delhi, Lucknow 750 115.38
TRAINNAME
1 Shatabdi
TRAINNAME SPEED
1 Rajdhani 138.35
TRAINNAME
1 Rajdhani
TRAINNAME
1 Shatabdi
TRAINID TRAINNAME DEPARTURE ARRIVAL
1 11404 Shatabdi Delhi Lucknow
2 22505 Rajdhani Delhi Lucknow
3 33606 Passanger Aligarh Lucknow
TRAINNAME DELHI ALIGARH LUCKNOW KANPUR TOTALHOURS
1 Shatabdi 0 0 6 0 6
2 Rajdhani 0 0 3 2 5
3 Passanger 0 0 7 3 10
Query executed successfully.
OPTIMUS-198\SQLEXPRESS (11.... OPTIMUSDOM\sysadmin (54) SQLTEST 00:00:00 13 rows
Matches: (
Ln 155 Col 22 Ch 22 INS
Type here to search
14:04
01-03-2018

SECTION B


SQLQuery5.sql - OPTIMUS-198\SQLEXPRESS.SQLTEST (OPTIMUSDOM\sysadmin (55))* - Microsoft SQL Server Management Studio (Administrator)
File Edit View Query Project Debug Tools Window Help
New Query
SQLTEST
Execute Debug
Object Explorer
Connect
OPTIMUS-198\SQLEXPRESS (SQL Server 1
Databases
System Databases
backupdb
DB02
DB03
new_db
newDB
ReportServer$SQLEXPRESS
ReportServer$SQLEXPRESSTempDB
SQLTEST
Security
Server Objects
Replication
Management
SQLTEST_schema.s...OM\sysadmin (61))
SQLQuery5.sql - O...OM\sysadmin (55))*
SQLQuery4.sql - O...OM\sysadmin (54))*
USE SQLTEST;
--Ans 1.
SELECT S.EMPLOYEEID,E.EMPLOYEENAME,S.PROJECTID,P.PROJECTNAME,
SUM(HRS) AS HOURS
FROM SCHEDULE S
INNER JOIN EMPLOYEE E ON E.EMPLOYEEID = S.EMPLOYEEID
INNER JOIN PROJECT P ON S.PROJECTID = P.PROJECTID
GROUP BY S.EMPLOYEEID,E.EMPLOYEENAME,S.PROJECTID,P.PROJECTNAME
ORDER BY S.EMPLOYEEID
--Ans 2.
SELECT S.PROJECTID,P.DEPARTMENTID,D.DEPARTMENTNAME,SUM(HRS) AS HOURS
FROM SCHEDULE S
INNER JOIN PROJECT P ON S.PROJECTID = P.PROJECTID
INNER JOIN DEPARTMENT D ON D.DEPARTMENTID =P.DEPARTMENTID
GROUP BY S.PROJECTID,P.DEPARTMENTID,D.DEPARTMENTNAME
100 %
Results
Messages
EMPLOYEEID EMPLOYEENAME PROJECTID PROJECTNAME HOURS
1 1101 Employee 1 101 Project 1 6
2 1101 Employee 1 103 Project 3 3
3 1102 Employee 2 101 Project 1 2
4 1102 Employee 2 104 Project 4 4
5 1103 Employee 3 102 Project 2 3
6 1103 Employee 3 105 Project 5 1
PROJECTID DEPARTMENTID DEPARTMENTNAME HOURS
1 101 1 HR 8
2 102 2 Development 7
3 103 2 Development 9
4 104 3 Testing 11
5 105 3 Testing 25
6 106 3 Testing 11
7 107 2 Development 15
8 108 2 Development 15
9 109 1 HR 4
10 110 2 Development 13
Query executed successfully.
OPTIMUS-198\SQLEXPRESS (11....
OPTIMUSDOM\sysadmin (55)
SQLTEST
00:00:00
36 rows
Ready
Ln 14
Col 54
Ch 51
INS
Type here to search
13:17
01-03-2018