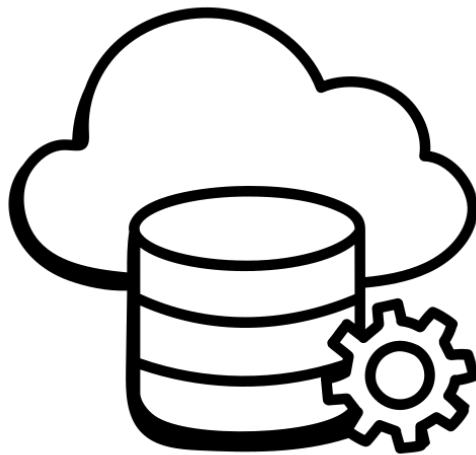


95-703: Database Management Implementation Project

Project Report



Group 7

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PART II.A.

Script #1

```
SET ECHO ON
SET LINESIZE 255
SET PAGESIZE 999
```

```
DROP TABLE Client          CASCADE CONSTRAINTS;
DROP TABLE Employee        CASCADE CONSTRAINTS;
DROP TABLE Outlet          CASCADE CONSTRAINTS;
DROP TABLE Vehicle         CASCADE CONSTRAINTS;
DROP TABLE Ragreement      CASCADE CONSTRAINTS;
DROP TABLE FaultReport     CASCADE CONSTRAINTS;
```

```
CREATE TABLE Client
(ClientNo      Number(5),
 Fname        Varchar2(25),
 Lname        Varchar2(25),
 Phone        Varchar2(15),
 Email        Varchar2(25),
 Street       Varchar2(25),
 City         Varchar2(25),
 State        Char(2),
 ZipCode      Char(5),
 CONSTRAINT Client_clientNo_PK PRIMARY KEY (clientNo),
 CONSTRAINT Client_Phone_CH CHECK (REGEXP_LIKE(Phone, '^([0-9]{3}-[0-9]{3}-[0-9]{4}$)'),
 CONSTRAINT Client_Email_CH CHECK (Email LIKE '%_@%._%'));
```

```
CREATE TABLE Employee
(EmpNo        Number(5),
 Fname        Varchar2(25),
 Lname        Varchar2(25),
 Position     Varchar2(20),
 Phone        Varchar2(15),
 Email        Varchar2(40),
 DOB          Date,
 Gender       Char(10),
 Salary       Number(20),
 HireDate     Date DEFAULT SYSDATE,
 OutNo        Number(5),
```

```

Super_No      Number(5),
CONSTRAINT Employee_EmpNo_PK PRIMARY KEY (EmpNo),
CONSTRAINT Employee_SuperNo_FK FOREIGN KEY (Super_No) REFERENCES Employee (EmpNo),
CONSTRAINT Employee_Phone_CH CHECK (REGEXP_LIKE(PHONE, '^([0-9]{3}-)[0-9]{3}-[0-9]{4}$')),
CONSTRAINT Employee_Email_CH CHECK (Email LIKE '%@heinz.com'),
CONSTRAINT Employee_DOB_CH CHECK ((HireDate - DOB) > 14),
CONSTRAINT Employee_Salary_CH CHECK (Salary > 0));

```

CREATE TABLE Outlet

```

(outNo      Number(5),
Street      Varchar2(25),
City        Varchar2(25),
State       Char(2),
ZipCode     Char(5),
Phone       Varchar2(15),
ManagerNo   Number(5),
CONSTRAINT Outlet_outNo_PK PRIMARY KEY (outNo),
CONSTRAINT Outlet_ManagerNo_FK FOREIGN KEY (ManagerNo) REFERENCES Employee (EmpNo),
CONSTRAINT Outlet_Phone_CH CHECK (REGEXP_LIKE(PHONE, '^([0-9]{3}-)[0-9]{3}-[0-9]{4}$')));

```

CREATE TABLE Vehicle

```

(LicenseNo   Number(5),
Make         Varchar2(25),
Model        Varchar2(25),
Color        Varchar2(25),
Year         Number(4),
NoDoors      Number(1),
Capacity     Number(2),
DailyRate    Number(6),
InspectionDate Date DEFAULT SYSDATE,
outNo        Number(5),
CONSTRAINT Vehicle_LicenseNo PRIMARY KEY (LicenseNo),
CONSTRAINT Vehicle_outNo_FK FOREIGN KEY (outNo) REFERENCES Outlet (outNo),
CONSTRAINT Vehicle_Year_CH CHECK (Year > 2012));

```

CREATE TABLE Ragreement

```

(RentalNo    Number(5),
StartDate    Date DEFAULT SYSDATE,
ReturnDate   Date DEFAULT SYSDATE,
MileageBefore Number(10),
MileageAfter  Number(10),
InsuranceType Varchar2(25),
ClientNo     Number(5),

```

```
LicenseNo          Number(5),
CONSTRAINT Rgreement_RentalNo_PK PRIMARY KEY (RentalNo),
CONSTRAINT Rgreement_ClientNo_FK FOREIGN KEY (ClientNo) REFERENCES Client (clientNo),
CONSTRAINT Rgreement_LicenseNo_FK FOREIGN KEY (LicenseNo) REFERENCES Vehicle (LicenseNo),
CONSTRAINT Rgreement_Mileage_CH CHECK (MileageAfter > MileageBefore));
```

```
CREATE TABLE FaultReport
(ReportNum          Number(5),
 DateChecked        Date DEFAULT SYSDATE,
 Comments           Varchar2(100),
 EmpNo              Number(5),
 LicenseNo          Number(5),
 RentalNo           Number(5),
CONSTRAINT FaultReport_ReportNum_PK PRIMARY KEY (ReportNum),
CONSTRAINT FaultReport_EmpNo_FK FOREIGN KEY (EmpNo) REFERENCES Employee (EmpNo),
CONSTRAINT FaultReport_LicenseNo_FK FOREIGN KEY (LicenseNo) REFERENCES Vehicle (LicenseNo),
CONSTRAINT FaultReport_RentalNo_FK FOREIGN KEY (RentalNo) REFERENCES Rgreement (RentalNo));
```

```
ALTER TABLE Employee
ADD CONSTRAINT Employee_OutNo_FK FOREIGN KEY (OutNo) REFERENCES Outlet (OutNo);
```

Script #2

```
--INSERT CLIENT (50001-50020)
INSERT INTO CLIENT VALUES (50001,'Kamal','Sandoval','373-347-8897','kamal.sandoval@gmail.com','8723 Leo. Avenue','Chicago','IL','60611');
INSERT INTO CLIENT VALUES (50002,'Caesar','Henson','412-611-7329','h_caesar@gmail.com','8095 Lorem. Road','Pittsburgh','PA','15217');
INSERT INTO CLIENT VALUES (50003,'Abraham','Huffman','316-203-4677','h_abraham@gmail.com','6795 Integer St.','Wichita','KS','66778');
INSERT INTO CLIENT VALUES (50004,'Sarah','Riddle','316-855-4211','riddlesarah@gmail.com','5275 Diam. St.','Wichita','KS','66778');
INSERT INTO CLIENT VALUES (50005,'Ruby','Morrow','714-297-3436','r.morrow@gmail.com','8797 Aliquam Rd.','Anaheim','CA','92685');
INSERT INTO CLIENT VALUES (50006,'Bianca','Finch','208-504-5236','finch.bianca@gmail.com','7797 Augue Rd.','Boise','ID','83213');
INSERT INTO CLIENT VALUES (50007,'Anika','Young','315-642-3268','y.anika@gmail.com','1029 Suspendisse Street','Syracuse','NY','12965');
INSERT INTO CLIENT VALUES (50008,'Gemma','Gaines','801-921-5853','gemmagaines@gmail.com','2703 Maecenas Road','Salt Lake City','UT','84002');
INSERT INTO CLIENT VALUES (50009,'Tanya','Rutledge','407-412-0117','rutledge.tanya@gmail.com','7166 Ornare Rd.','Orlando','FL','32701');
INSERT INTO CLIENT VALUES (50010,'Otto','Williamson','206-901-1231','o-williamson@gmail.com','187 Sagittis. Av.','Seattle','WA','98040');
INSERT INTO CLIENT VALUES (50011,'Arthur','Conway','717-547-2853','conway.arthur@outlook.com','4106 Iaculis St.','Harrisburg','PA','19550');
INSERT INTO CLIENT VALUES (50012,'Cameron','Osborne','265-821-8770','cameron.o@outlook.com','4950 Vitae Street','Philadelphia','PA','18925');
INSERT INTO CLIENT VALUES (50013,'Martha','Henson','215-639-6213','h.martha@outlook.com','3100 Facilisis St.','Philadelphia','PA','18928');
INSERT INTO CLIENT VALUES (50014,'Alan','Gallegos','462-269-5956','a.gallegos@yahoo.com','5855 Turpis Rd.','Pittsburgh','PA','15217');
INSERT INTO CLIENT VALUES (50015,'Blythe','Olson','512-214-8607','blythe_olson@google.com','2543 Duis St.','Austin','TX','76567');
INSERT INTO CLIENT VALUES (50016,'Aaron','Jacobs','315-875-3603','jacobs.aaron@hotmail.com','6025 Nullam Av.','Syracuse','NY','13030');
INSERT INTO CLIENT VALUES (50017,'Brandon','Preston','702-634-5154','b-preston@outlook.com','4099 Ut. Street','Las Vegas','NV','89129');
INSERT INTO CLIENT VALUES (50018,'Troy','Houston','312-514-1729','houston_troy@outlook.com','9906 Nulla St.','Chicago','IL','60616');
INSERT INTO CLIENT VALUES (50019,'Chase','Higgins','513-927-7026','h.chase@icloud.com','1477 Facilisis Ave','Cincinnati','OH','45208');
INSERT INTO CLIENT VALUES (50020,'Blake','Forbes','717-552-3415','blakeforbes@hotmail.com','3314 Ullamcorper, Avenue','Harrisburg','PA','17011');

--INSERT OUTLET (10001-10005)
INSERT INTO OUTLET VALUES (10001,'225 Sit Street','Pittsburgh','PA','15217','412-772-2938',NULL);
INSERT INTO OUTLET VALUES (10002,'5881 Quisque Rd.','Philadelphia','PA','18928','215-188-8032',NULL);
INSERT INTO OUTLET VALUES (10003,'4061 Elit Ave','Wichita','KS','66778','316-250-8513',NULL);
INSERT INTO OUTLET VALUES (10004,'4805 Tortor St.','Chicago','IL','60611','312-523-7139',NULL);
INSERT INTO OUTLET VALUES (10005,'8520 Malesuada St.','Syracuse','NY','13030','315-668-6415',NULL);

--INSERT EMPLOYEE (20001-20020)
INSERT INTO EMPLOYEE VALUES (20001,'Hop','Cardenas','Head
Manager','782-714-3335','h.cardenas@heinz.com','23-Jun-1998','Male',180000,'01-Aug-2020','10001',NULL);
INSERT INTO EMPLOYEE VALUES (20002,'Mufutau','Diaz','Sales
Manager','157-844-3773','mufutau.diaz@heinz.com','04-Apr-1998','Male',102000,'15-Aug-2020','10001','20001');
INSERT INTO EMPLOYEE VALUES (20003,'Hoyt','Kline','Senior Store
Manager','213-285-8977','hoyt.kline@heinz.com','14-Mar-1980','Male',144000,'15-Aug-2020','10002','20001');
INSERT INTO EMPLOYEE VALUES (20004,'Beck','Pugh','Technical
Manager','116-234-3898','b.pugh8381@heinz.com','22-May-1977','Female',102000,'15-Aug-2020','10001','20001');
INSERT INTO EMPLOYEE VALUES
(20005,'Chava','Leach','Sales','436-111-3458','lchava@heinz.com','14-Mar-1980','Female',96000,'15-Nov-2020','10002','20002');
INSERT INTO EMPLOYEE VALUES
(20006,'Haviva','Norman','Sales','768-307-4497','haviva.norman@heinz.com','03-Sep-1981','Female',96000,'30-Nov-2020','10002','20005');
```

```

INSERT INTO EMPLOYEE VALUES (20007,'Jennifer','Sampson','Junior Store
Manager','486-686-3158','jennifer.sampson@heinz.com','21-May-1977','Female',120000,'01-Jan-2021','10003','20003');
INSERT INTO EMPLOYEE VALUES
(20008,'Whitney','Hawkins','Sales','256-132-7178','hawkins-whitney@heinz.com','06-Nov-1997','Female',96000,'01-Feb-2021','10005','20002');
INSERT INTO EMPLOYEE VALUES (20009,'Xaviera','Parks','Senior
Technician','898-427-9540','xaviera.parks@heinz.com','26-Jan-1995','Male',72000,'01-Feb-2021','10001','20004');
INSERT INTO EMPLOYEE VALUES (20010,'Hayes','Payne','Senior
Technician','130-114-9998','paynehayes@@heinz.com','03-Sep-1981','Male',72000,'15-Mar-2021','10005','20004');
INSERT INTO EMPLOYEE VALUES (20011,'Ocean','Shields','Junior Store
Manager','490-166-6063','ocean.shields@heinz.com','12-May-1995','Male',120000,'01-May-2021','10001','20003');
INSERT INTO EMPLOYEE VALUES (20012,'Sigourney','Cummings','Senior
Technician','689-753-2347','s-cummings@heinz.com','15-Jan-1994','Male',72000,'15-May-2021','10004','20004');
INSERT INTO EMPLOYEE VALUES
(20013,'Quynn','Garza','Sales','345-199-4557','q.garza@@heinz.com','14-Feb-1984','Male',90000,'01-Jul-2021','10002','20002');
INSERT INTO EMPLOYEE VALUES
(20014,'Nero','Franks','Sales','346-112-4467','franks.nero@@heinz.com','16-Oct-1977','Male',90000,'01-Aug-2021','10003','20002');
INSERT INTO EMPLOYEE VALUES
(20015,'Megan','Mccray','Sales','382-937-1558','megan-mccray@heinz.com','01-May-1998','Female',90000,'01-Sep-2021','10003','20002');
INSERT INTO EMPLOYEE VALUES
(20016,'Ruth','Powers','Sales','695-554-4131','r.powers@heinz.com','20-Aug-1981','Female',90000,'15-Oct-2021','10004','20002');
INSERT INTO EMPLOYEE VALUES
(20017,'Ishmael','Hoover','Sales','723-843-4942','i.hoover@heinz.com','16-Oct-1977','Female',90000,'01-Jan-2022','10001','20002');
INSERT INTO EMPLOYEE VALUES (20018,'Shaine','Ellis','Junior
Technician','863-777-1733','shaine.ellis@heinz.com','14-Feb-1984','Female',60000,'01-Feb-2022','10001','20009');
INSERT INTO EMPLOYEE VALUES (20019,'Keegan','Osborn','Junior
Technician','745-889-3747','keegan.osborn@heinz.com','17-Nov-1998','Male',60000,'01-Mar-2022','10002','20009');
INSERT INTO EMPLOYEE VALUES (20020,'Gwendolyn','Reed','Junior
Tehnician','358-815-5502','gwendolynreed@heinz.com','30-Mar-1994','Male',60000,'15-Apr-2022','10004','20012');

--UPDATE OUTLET (10001-10005)
UPDATE OUTLET SET ManagerNo = 20011 WHERE OutNo = 10001;
UPDATE OUTLET SET ManagerNo = 20003 WHERE OutNo = 10002;
UPDATE OUTLET SET ManagerNo = 20007 WHERE OutNo = 10003;
UPDATE OUTLET SET ManagerNo = 20001 WHERE OutNo = 10004;
UPDATE OUTLET SET ManagerNo = 20001 WHERE OutNo = 10005;

--INSERT VEHICLE (30001-30015)
INSERT INTO VEHICLE VALUES (30001,'Toyota','Highlander','Red',2020,4,6,200,'09-Mar-22',10001);
INSERT INTO VEHICLE VALUES (30002,'Toyota','Sienna','Blue',2020,4,6,125,'04-Jun-22',10002);
INSERT INTO VEHICLE VALUES (30003,'Toyota','Sequoia','Blue',2017,4,6,125,'03-Mar-22',10003);
INSERT INTO VEHICLE VALUES (30004,'Mercedes-Benz','E-Class Coupe','Grey',2018,2,2,200,'15-Feb-22',10001);
INSERT INTO VEHICLE VALUES (30005,'Mercedes-Benz','GLS SUV','Grey',2018,4,6,250,'01-Apr-22',10001);
INSERT INTO VEHICLE VALUES (30006,'Toyota','Highlander','Red',2021,4,6,200,'01-Jan-22',10004);
INSERT INTO VEHICLE VALUES (30007,'Mercedes-Benz','AMG GT','Grey',2019,2,2,300,'13-Nov-21',10002);

```

```

INSERT INTO VEHICLE VALUES (30008,'Toyota','Prius','Blue',2016,4,6,125,'17-Feb-22',10005);
INSERT INTO VEHICLE VALUES (30009,'Mercedes-Benz','GLC SUV','Blue',2017,4,6,250,'03-Jan-22',10004);
INSERT INTO VEHICLE VALUES (30010,'Mercedes-Benz','GLE SUV','Red',2019,4,6,250,'12-Nov-21',10005);
INSERT INTO VEHICLE VALUES (30011,'Mercedes-Benz','SL Roadster','Grey',2019,2,2,300,'11-Jun-22',10003);
INSERT INTO VEHICLE VALUES (30012,'Mercedes-Benz','G-Class SUV','Blue',2020,4,6,200,'17-Jul-22',10001);
INSERT INTO VEHICLE VALUES (30013,'Mercedes-Benz','Maybach GLS SUV','Grey',2020,4,6,200,NULL,10005);
INSERT INTO VEHICLE VALUES (30014,'Mercedes-Benz','A-Class Sedan','Grey',2020,4,6,200,NULL,10004);
INSERT INTO VEHICLE VALUES (30015,'Toyota','GR86','Blue',2019,2,6,250,NULL,10002);

```

```
--INSERT RAGREEMENT (40001-40025)
```

```

INSERT INTO RAGREEMENT VALUES (40001,TO_DATE('27-Mar-2021 09.53.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('01-Apr-2021 10.30.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),4329,5671,'Collision Coverage',50015,30006);
INSERT INTO RAGREEMENT VALUES (40002,TO_DATE('06-Apr-2021 10.40.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('10-Apr-2021 03.06.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),5012,5671,'Collision Coverage',50017,30006);
INSERT INTO RAGREEMENT VALUES (40003,TO_DATE('07-May-2021 10.48.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('12-May-2021 04.32.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),5761,6157,'Collision Coverage',50013,30002);
INSERT INTO RAGREEMENT VALUES (40004,TO_DATE('18-Jun-2021 05.34.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('23-Jun-2021 09.25.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),6972,8450,'Collision Coverage',50004,30003);
INSERT INTO RAGREEMENT VALUES (40005,TO_DATE('21-Jul-2021 09.16.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('23-Jul-2021 01.50.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),6817,7320,'Collision Coverage',50002,30004);
INSERT INTO RAGREEMENT VALUES (40006,TO_DATE('17-Aug-2021 02.45.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('20-Aug-2021 11.54.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),7320,8121,'Collision Coverage',50020,30004);
INSERT INTO RAGREEMENT VALUES (40007,TO_DATE('20-Sep-2021 03.03.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('24-Sep-2021 09.32.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),5671,6612,'Comprehensive Coverage',50009,30009);
INSERT INTO RAGREEMENT VALUES (40008,TO_DATE('28-Sep-2021 02.47.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('01-Oct-2021 03.15.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),5671,6078,'Collision Coverage',50001,30006);
INSERT INTO RAGREEMENT VALUES (40009,TO_DATE('08-Oct-2021 01.57.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('11-Oct-2021 10.14.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),5782,6415,'Comprehensive Coverage',50003,30007);
INSERT INTO RAGREEMENT VALUES (40010,TO_DATE('15-Oct-2021 11.42.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('18-Oct-2021 10.07.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),6078,7843,'Comprehensive Coverage',50018,30006);
INSERT INTO RAGREEMENT VALUES (40011,TO_DATE('08-Nov-2021 04.58.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('12-Nov-2021 09.41.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),3467,4516,'Collision Coverage',50006,30010);
INSERT INTO RAGREEMENT VALUES (40012,TO_DATE('09-Nov-2021 09.56.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('13-Nov-2021 05.51.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),6415,7025,'Collision Coverage',50005,30007);
INSERT INTO RAGREEMENT VALUES (40013,TO_DATE('23-Dec-2021 01.17.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('01-Jan-2022 01.41.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),7843,9007,'Collision Coverage',50019,30006);
INSERT INTO RAGREEMENT VALUES (40014,TO_DATE('01-Jan-2022 03.15.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('03-Jan-2022 11.26.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),9007,9982,'Collision Coverage',50010,30006);
INSERT INTO RAGREEMENT VALUES (40015,TO_DATE('03-Jan-2022 03.48.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('05-Jan-2022 03.34.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),3789,4122,'Collision Coverage',50006,30008);
INSERT INTO RAGREEMENT VALUES (40016,TO_DATE('20-Jan-2022 11.50.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('25-Jan-2022 11.58.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),4122,4872,'Comprehensive Coverage',50007,30008);
INSERT INTO RAGREEMENT VALUES (40017,TO_DATE('27-Jan-2022 05.14.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('31-Jan-2022 01.24.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),4872,5167,'Comprehensive Coverage',50008,30008);

```

```

INSERT INTO RAGREEMENT VALUES (40018,TO_DATE('12-Feb-2022 10.28.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('15-Feb-2022 04.18.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),8121,8931,'Collision Coverage',50014,30004);
INSERT INTO RAGREEMENT VALUES (40019,TO_DATE('15-Feb-2022 09.17.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('17-Feb-2022 02.21.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),5167,6001,'Comprehensive Coverage',50016,30008);
INSERT INTO RAGREEMENT VALUES (40020,TO_DATE('01-Mar-2022 11.46.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('03-Mar-2022 05.09.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),8450,8932,'Collision Coverage',50004,30003);
INSERT INTO RAGREEMENT VALUES (40021,TO_DATE('06-Mar-2022 02.51.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('09-Mar-2022 03.43.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),7320,7560,'Collision Coverage',50002,30001);
INSERT INTO RAGREEMENT VALUES (40022,TO_DATE('29-Mar-2022 01.15.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('01-Apr-2022 11.37.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),3432,3781,'Comprehensive Coverage',50011,30005);
INSERT INTO RAGREEMENT VALUES (40023,TO_DATE('31-May-2022 11.39.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('04-Jun-2022 04.05.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),6157,7356,'Comprehensive Coverage',50013,30002);
INSERT INTO RAGREEMENT VALUES (40024,TO_DATE('08-Jun-2022 03.01.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),TO_DATE('11-Jun-2022 03.13.00 PM',
'DD-MON-YYYY HH.MI.SS PM'),3412,4015,'Comprehensive Coverage',50010,30011);
INSERT INTO RAGREEMENT VALUES (40025,TO_DATE('11-Jul-2022 09.52.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('17-Jul-2022 11.26.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),2938,4051,'Comprehensive Coverage',50012,30012);
INSERT INTO RAGREEMENT VALUES (40026,TO_DATE('30-May-2022 03.50.00 PM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('04-Jun-2022 09.23.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),7560,8123,'Comprehensive Coverage',50013,30001);
INSERT INTO RAGREEMENT VALUES (40027,TO_DATE('18-Jun-2022 09.42.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('21-Jun-2022 02.09.00 PM',
'DD-MON-YYYY HH.MI.SS AM'),6001,6931,'Comprehensive Coverage',50010,30008);
INSERT INTO RAGREEMENT VALUES (40028,TO_DATE('21-Jun-2022 01.52.00 PM', 'DD-MON-YYYY HH.MI.SS AM'),TO_DATE('27-Jun-2022 10.23.00 AM',
'DD-MON-YYYY HH.MI.SS AM'),9982,11081,'Comprehensive Coverage',50012,30006);

```

--FAULTREPORT 31001-31010

```

INSERT INTO FAULTREPORT VALUES (60001,TO_DATE('12-Apr-2021 02.19.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),'Slight',20012,30009,40002);
INSERT INTO FAULTREPORT VALUES (60002,TO_DATE('29-Jul-2021 01.36.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),'Medium',20011,30004,40005);
INSERT INTO FAULTREPORT VALUES (60003,TO_DATE('23-Aug-2021 09.48.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),'Severe',20018,30004,40006);
INSERT INTO FAULTREPORT VALUES (60004,TO_DATE('25-Sep-2021 10.30.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),'Medium',20012,30009,40007);
INSERT INTO FAULTREPORT VALUES (60005,TO_DATE('13-Nov-2021 09.25.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),'Slight',20010,30010,40011);
INSERT INTO FAULTREPORT VALUES (60006,TO_DATE('27-Nov-2021 02.54.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),'Medium',20003,30007,40012);
INSERT INTO FAULTREPORT VALUES (60007,TO_DATE('15-Jan-2022 01.54.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),'Slight',20010,30008,40015);
INSERT INTO FAULTREPORT VALUES (60008,TO_DATE('01-Feb-2022 03.30.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),'Slight',20010,30008,40017);
INSERT INTO FAULTREPORT VALUES (60009,TO_DATE('17-Feb-2022 11.10.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),'Severe',20018,30004,40018);
INSERT INTO FAULTREPORT VALUES (60010,TO_DATE('19-Feb-2022 09.43.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),'Severe',20010,30008,40019);
INSERT INTO FAULTREPORT VALUES (60011,TO_DATE('10-Mar-2022 03.40.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),'Slight',20018,30001,40021);
INSERT INTO FAULTREPORT VALUES (60012,TO_DATE('02-Apr-2022 02.20.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),'Severe',20018,30005,40022);
INSERT INTO FAULTREPORT VALUES (60013,TO_DATE('09-Apr-2022 11.27.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),'Severe',20018,30005,40022);
INSERT INTO FAULTREPORT VALUES (60014,TO_DATE('05-Jun-2022 09.42.00 AM', 'DD-MON-YYYY HH.MI.SS AM'),'Slight',20019,30002,40023);
INSERT INTO FAULTREPORT VALUES (60015,TO_DATE('19-Jul-2022 04.45.00 PM', 'DD-MON-YYYY HH.MI.SS PM'),'Medium',20018,30012,40025);

```


PART II.B

SQL> --ASSUMPTION

SQL> --It is calculated as one day once if it's over one second in (returndate - startdate).

SQL> --Question 1

```
SQL> SELECT clientno,
2         fname || ' ' || lname AS name,
3         rentalno,
4         startdate,
5         ROUND((returndate - startdate)*24,0) AS "DURATION(H)",
6         TO_CHAR((TRUNC((returndate - startdate),0) + 1)*dailyrate, '$999990.99') AS rentalcost
7 FROM client JOIN ragreement USING (clientno)
8         JOIN vehicle USING (licenseno)
9 WHERE UPPER(state) = 'PA'
10 ORDER BY name, startdate;
```

CLIENTNO	NAME	RENTALNO	STARTDATE	DURATION(H)	RENTALCOST
50014	Alan Gallegos	40018	12-FEB-22	78	\$800.00
50011	Arthur Conway	40022	29-MAR-22	70	\$750.00
50020	Blake Forbes	40006	17-AUG-21	69	\$600.00
50002	Caesar Henson	40005	21-JUL-21	53	\$600.00
50002	Caesar Henson	40021	06-MAR-22	73	\$800.00
50012	Cameron Osborne	40028	21-JUN-22	141	\$1200.00
50012	Cameron Osborne	40025	11-JUL-22	146	\$1400.00
50013	Martha Henson	40003	07-MAY-21	126	\$750.00
50013	Martha Henson	40026	30-MAY-22	114	\$1000.00
50013	Martha Henson	40023	31-MAY-22	100	\$625.00

10 rows selected.

SQL> --Question 2

SQL> COLUMN name FORMAT A20

```
SQL> SELECT empno,
2         fname || ', ' || lname name,
3         NVL(COUNT(reportnum),0) numoffaultreports,
4         DENSE_RANK () OVER (ORDER BY NVL(COUNT(reportnum),0) DESC) rank
5 FROM employee LEFT JOIN faultreport USING (EmpNo)
6 GROUP BY empno, fname || ', ' || lname
7 ORDER BY numoffaultreports DESC;
```

EMPNO	NAME	NUMOFFAULTREPORTS	RANK
20018	Shaine, Ellis	6	1
20010	Hayes, Payne	4	2
20012	Sigourney, Cummings	2	3
20003	Hoyt, Kline	1	4
20019	Keegan, Osborn	1	4
20011	Ocean, Shields	1	4
20007	Jennifer, Sampson	0	5
20008	Whitney, Hawkins	0	5
20009	Xaviera, Parks	0	5
20004	Beck, Pugh	0	5
20020	Gwendolyn, Reed	0	5
20002	Mufutau, Diaz	0	5
20005	Chava, Leach	0	5
20014	Nero, Franks	0	5
20015	Megan, Mccray	0	5
20016	Ruth, Powers	0	5
20017	Ishmael, Hoover	0	5
20001	Hop, Cardenas	0	5
20006	Haviva, Norman	0	5
20013	Quynn, Garza	0	5

20 rows selected.

SQL> --Question 3

SQL> SELECT *

```

2 FROM (SELECT TO_CHAR(outno) outno,
3             COUNT(rentalno) AS numofrental,
4             TO_CHAR(SUM((TRUNC((returndate - startdate),0) + 1)*dailyrate), '$999990.99') AS revenue,
5             DENSE_RANK () OVER (ORDER BY SUM(ROUND((returndate - startdate),0)*dailyrate) DESC) rank
6       FROM outlet JOIN vehicle USING (outno)
7             JOIN ragreement USING (licenseno)
8       GROUP BY outno)
9 WHERE rank <= 2;
```

OUTNO	NUMOFRENTAL	REVENUE	RANK
10004	8	\$8200.00	1
10001	7	\$5950.00	2

SQL> --Question 4

```
SQL> SELECT rentalno, startdate, returndate, clientno, fname, lname, outlet.street
  2 FROM ragreement JOIN client USING (clientno)
  3         JOIN vehicle USING (licenseno)
  4         JOIN outlet USING (outno)
  5 WHERE outno = (SELECT outno
  6         FROM ragreement JOIN vehicle USING (licenseno)
  7         JOIN outlet USING (outno)
  8         GROUP BY outno
  9         HAVING COUNT(rentalno) = (SELECT MAX(rentalcount)
10         FROM (SELECT outno, COUNT(rentalno) AS rentalcount
11         FROM ragreement JOIN vehicle USING (licenseno)
12         JOIN outlet USING (outno)
13         GROUP BY outno)))
14 ORDER BY rentalno;
```

RENTALNO	STARTDATE	RETURNDAT	CLIENTNO	FNAME	LNAME	STREET
40001	27-MAR-21	01-APR-21	50015	Blythe	Olson	4805 Tortor St.
40002	06-APR-21	10-APR-21	50017	Brandon	Preston	4805 Tortor St.
40007	20-SEP-21	24-SEP-21	50009	Tanya	Rutledge	4805 Tortor St.
40008	28-SEP-21	01-OCT-21	50001	Kamal	Sandoval	4805 Tortor St.
40010	15-OCT-21	18-OCT-21	50018	Troy	Houston	4805 Tortor St.
40013	23-DEC-21	01-JAN-22	50019	Chase	Higgins	4805 Tortor St.
40014	01-JAN-22	03-JAN-22	50010	Otto	Williamson	4805 Tortor St.
40028	21-JUN-22	27-JUN-22	50012	Cameron	Osborne	4805 Tortor St.

8 rows selected.

SQL> --Question 5

```
SQL> SELECT clientno,
  2     fname || ' ' || lname AS name,
  3     NVL(totalrentals,0) AS numofrentals,
  4     NVL(ROUND(average,0),0) AS avgdistance,
  5     NVL(totalreports, 0) AS numoffaultreports
  6 FROM client LEFT OUTER JOIN (SELECT clientno,
  7     SUM(rentals) totalrentals,
  8     SUM(reports) totalreports,
  9     AVG(distance) average
10 FROM (SELECT clientno,
11     COUNT(reportnum) AS reports,
12     COUNT(DISTINCT rentalno) rentals,
13     mileageafter-mileagebefore AS distance
```

```

14          FROM ragreement LEFT OUTER JOIN faultreport USING (rentalno)
15          GROUP BY clientno, mileageafter, mileagebefore)
16          GROUP BY clientno) USING (clientno)
17 ORDER BY clientno;

```

CLIENTNO	NAME	NUMOFRENTALS	AVGDISTANCE	NUMOFFAULTREPORTS
50001	Kamal Sandoval	1	407	0
50002	Caesar Henson	2	372	2
50003	Abraham Huffman	1	633	0
50004	Sarah Riddle	2	980	0
50005	Ruby Morrow	1	610	1
50006	Bianca Finch	2	691	2
50007	Anika Young	1	750	0
50008	Gemma Gaines	1	295	1
50009	Tanya Rutledge	1	941	1
50010	Otto Williamson	3	836	0
50011	Arthur Conway	1	349	2
50012	Cameron Osborne	2	1106	1
50013	Martha Henson	3	719	1
50014	Alan Gallegos	1	810	1
50015	Blythe Olson	1	1342	0
50016	Aaron Jacobs	1	834	1
50017	Brandon Preston	1	659	1
50018	Troy Houston	1	1765	0
50019	Chase Higgins	1	1164	0
50020	Blake Forbes	1	801	1

20 rows selected.

```

SQL> --Question 6
SQL> COLUMN numofrent FORMAT A10
SQL> BREAK ON outno
SQL> SELECT NVL(TO_CHAR(outNo), '~~~~') outno,
2          NVL(make, LPAD('TOTAL:',15,'~')) make,
3          TO_CHAR(SUM((TRUNC((returndate-startdate),0) + 1)*dailyrate), '$999990.99') sales,
4          TO_CHAR(COUNT(licenseno)) numofrent
5 FROM OUTLET JOIN vehicle USING (outno)
6          JOIN ragreement USING (licenseno)
7 GROUP BY CUBE(outno,make)
8 ORDER BY outno, make;

```

OUTNO	MAKE	SALES	NUMOFRENT
-------	------	-------	-----------

```

-----
10001    Mercedes-Benz      $4150.00 5
         Toyota           $1800.00 2
         ~~~~~TOTAL:      $5950.00 7
10002    Mercedes-Benz      $2400.00 2
         Toyota           $1375.00 2
         ~~~~~TOTAL:      $3775.00 4
10003    Mercedes-Benz      $1200.00 1
         Toyota           $1000.00 2
         ~~~~~TOTAL:      $2200.00 3
10004    Mercedes-Benz      $1000.00 1
         Toyota           $7200.00 7
         ~~~~~TOTAL:      $8200.00 8
10005    Mercedes-Benz      $1000.00 1
         Toyota           $2375.00 5
         ~~~~~TOTAL:      $3375.00 6
~~~~~    Mercedes-Benz      $9750.00 10
         Toyota           $13750.00 18
         ~~~~~TOTAL:      $23500.00 28

```

18 rows selected.

SQL> --PARAGRAPH

SQL> --The measures for sales and num of rentals will give

SQL> --a clear figure on how each vehicle make performed in each outlet. The sales show the

SQL> --revenue contribution while the number of rentals shows the enthusiasm of the company's

SQL> --client in a particular brand. By comparing these two metrics, the company could

SQL> --consider the future purchase of vehicles from both company and client point of view.

SQL> --For example, the result shows that Mercedes-Benz contributes mostly to outlets 10001,

SQL> --10002, and 10003. However, Toyota turns the table in outlets 10004 and 10005 by having

SQL> --a significant gap both in sales and number of rent. So, the company can consider

SQL> --adding more Toyota cars in outlets 10004 and 10005. However, the team can also

SQL> --analyze deeper the data from outlets 10001, 10002, and 10003 whether the number of

SQL> --sales and rentals for Toyota is low because of lack of enthusiasm or no-adequate

SQL> --supply in particular outlets.

SQL> --Question 7

```

SQL> SELECT fname || ' ' || lname AS managename,
2         numofoutlets,
3         SUM(employees) AS numofemployees,
4         SUM(vehicles) AS numofvehicles
5 FROM (SELECT empno, fname, lname, outno
6        FROM employee

```

```

7      WHERE empno IN (SELECT managerno
8                        FROM outlet)) m LEFT OUTER JOIN (SELECT managerno, COUNT(empno) AS employees
9                                                         FROM outlet JOIN employee USING (outno)
10                                                        WHERE empno NOT IN managerno
11                                                         GROUP BY managerno) e ON m.empno = e.managerno
12      LEFT OUTER JOIN (SELECT managerno, COUNT(licenseno) AS vehicles
13                       FROM outlet JOIN vehicle USING (outno)
14                       GROUP BY managerno) v ON m.empno = v.managerno
15      LEFT OUTER JOIN (SELECT managerno, COUNT(outno) AS numofoutlets
16                       FROM outlet
17                       GROUP BY managerno) o ON m.empno = o.managerno
18 GROUP BY fname, lname, numofoutlets;

```

MANAGERNAME	NUMOFOUTLETS	NUMOFEMPLOYEES	NUMOFVEHICLES
Ocean Shields	1	6	4
Hoyt Kline	1	4	3
Jennifer Sampson	1	2	2
Hop Cardenas	2	5	6

```

SQL> --Question 8
SQL> COLUMN revenue FORMAT $99990.99
SQL> COLUMN city FORMAT 'A20'
SQL> SELECT TO_CHAR(outno) outno,
2      street,
3      city,
4      COUNT(licenseno) vehiclecount,
5      NVL(revenue, 0) Revenue,
6      TO_CHAR(NVL((RATIO_TO_REPORT(revenue) OVER()), 0) * 100, '990.99') "PERCENTSCORE"
7 FROM outlet LEFT OUTER JOIN (SELECT outno,
8                                   NVL(SUM((TRUNC((returndate-startdate),0) + 1)*dailyrate),0) revenue
9                                   FROM outlet JOIN vehicle USING (outno)
10                                  JOIN ragreement USING (licenseno)
11                                  WHERE EXTRACT(YEAR FROM startdate) = EXTRACT(YEAR FROM SYSDATE)
12                                  AND EXTRACT(MONTH FROM startdate) IN (4, 5, 6)
13                                  GROUP BY outno
14                                  ) USING (outno)
15      JOIN vehicle USING (outno)
16 GROUP BY outno,street,city,revenue
17 ORDER BY revenue DESC;

```

OUTNO	STREET	CITY	VEHICLECOUNT	REVENUE	PERCENT
-----	-----	-----	-----	-----	-----

10004	4805 Tortor St.	Chicago	3	\$1200.00	26.52
10003	4061 Elit Ave	Wichita	2	\$1200.00	26.52
10001	225 Sit Street	Pittsburgh	4	\$1000.00	22.10
10002	5881 Quisque Rd.	Philadelphia	3	\$625.00	13.81
10005	8520 Malesuada St.	Syracuse	3	\$500.00	11.05

SQL> --Question 9

```
SQL> SELECT NVL(TO_CHAR(outno),'TOTALRENT') AS outno,
2         SUM((CASE WHEN EXTRACT(MONTH from startdate) IN (1, 2, 3) THEN 1 ELSE 0 END)) AS "Q1",
3         SUM((CASE WHEN EXTRACT(MONTH from startdate) IN (4, 5, 6) THEN 1 ELSE 0 END)) AS "Q2",
4         COUNT(rentalno) AS totalperoutlets
5 FROM outlet JOIN vehicle USING (outno)
6         JOIN ragreement USING (licenseno)
7 WHERE EXTRACT(YEAR FROM startdate) = EXTRACT(YEAR FROM SYSDATE)
8 AND EXTRACT(MONTH FROM startdate) IN (1,2,3,4,5,6)
9 GROUP BY GROUPING SETS (outno,())
10 ORDER BY outno;
```

OUTNO	Q1	Q2	TOTALPEROUTLETS
10001	3	1	4
10002	0	1	1
10003	1	1	2
10004	1	1	2
10005	4	1	5
TOTALRENT	9	5	14

6 rows selected.

Part II.C

MEMORANDUM

ATTENTION: CEO of the Car Rental Company
DATE: July 26, 2022
FROM: Data Analysts (Edvin William Handoko, I-Wen Chou)
SUBJECT: Extend and Enhance Partnership with Toyota for The Next Five Years

The data analyst team urges the CEO to extend and enhance the partnership with Toyota for the next five years. The historical numbers from the past two years show that Toyota has contributed up to 60% of the total revenue. As our company has reached the end of the short-term contract with Toyota, we have come up with the required data to drive the partnership decision. We listed the revenue in 2021 and 2022 followed by the total for each existing vehicle brand and capacity. We compare each vehicle's brand-capacity revenue with the grand total to get the sales ratio. Furthermore, we calculated the number of active vehicles and fault reports to consider potential expenses from maintenance.

Analysis,

Toyota has contributed almost the same revenue in 2021, although we are still in the middle of the year. Furthermore, The revenue from Toyota presents a considerable gap of up to \$3000 compared to all car types of Mercedes-Benz. Besides the sales, the ratio of active vehicles with the number of fault reports shows how Toyota's cars perform better. The management must see this ratio as a possible cost when the cars fail. In summary, Toyota has become the primary contributor to our company's revenue and performed well over the past two years.

Recommendations

CEO must take the following actions.

1. CEO must **extend the partnership agreement with Toyota** for the next five years and accommodate any potential evaluation of the purchase amount and the procurement package in the contract. Management must allocate the new vehicles in the top-ranked outlets to maximize the sales and number of rentals.
2. CEO must **enhance the collaboration scope with Toyota** to optimize the company's benefits. Management must move into strategic partnerships besides procurement. This decision will boost the company in various sectors such as maintenance, brand image, supply chain stability, etc.

We have attached the query and table result in **Exhibit 1**. Please direct any questions or concerns to our email (dataanalyst@carrental.com) or extend to 51. Thank you.

Exhibit 1 – Question, SQL Query, and the Query Results

Question:

List the revenue in 2021 and 2022 and the total for each vehicle brand and its capacity. Provide the ratio of each revenue to the grand total. Calculate the number of active vehicles and fault reports for further analysis.

Query:

```
SQL> SELECT v.make || '-' || v.capacity AS "MAKE-CAPACITY",
2         TO_CHAR(revenue1,'$99999990.99') "REVENUE2021",
3         TO_CHAR(revenue2,'$99999990.99') "REVENUE2022",
4         TO_CHAR(revenue,'$99999990.99') totalrevenue,
5         TO_CHAR((RATIO_TO_REPORT(revenue) OVER()) * 100,'999990.99') "% R_to_R",
6         numofactvvhcl,
7         numoffault
8 FROM vehicle v JOIN (SELECT Make, Capacity, COUNT(DISTINCT licenseno) AS numofactvvhcl,
9                     SUM((TRUNC((ReturnDate-StartDate),0) + 1)*DailyRate) AS revenue
10                    FROM vehicle JOIN ragreement USING (licenseNo)
11                    GROUP BY Make, Capacity) rtotal
12 ON v.make = rtotal.make AND v.capacity = rtotal.capacity
13 JOIN (SELECT Make, Capacity, SUM((TRUNC((ReturnDate-StartDate),0) + 1)*DailyRate) AS revenue1
14      FROM vehicle JOIN ragreement USING (licenseNo)
15      WHERE EXTRACT(YEAR from startdate) = 2021
16      GROUP BY Make, Capacity) r1
17 ON v.make = r1.make AND v.capacity = r1.capacity
18 JOIN (SELECT Make, Capacity, SUM((TRUNC((ReturnDate-StartDate),0) + 1)*DailyRate) AS revenue2
19      FROM vehicle JOIN ragreement USING (licenseNo)
20      WHERE EXTRACT(YEAR from startdate) = 2022
21      GROUP BY Make, Capacity) r2
22 ON v.make = r2.make AND v.capacity = r2.capacity
23 JOIN (SELECT Make, Capacity, COUNT(DISTINCT ReportNum) AS numoffault
24      FROM vehicle JOIN faultreport USING (licenseNo)
25      GROUP BY Make, Capacity) f
26 ON v.make = f.make AND v.capacity = f.capacity
27 GROUP BY v.make, v.capacity, revenue, revenue1, revenue2, numofactvvhcl, numoffault
28 ORDER BY revenue DESC;
```

Results:

MAKE-CAPACITY	REVENUE2021	REVENUE2022	TOTALREVENUE	% R_to_R	NUMOFACTVVHCL	NUMOFFAULT
Toyota-6	\$6975.00	\$6775.00	\$13750.00	58.51	5	5
Mercedes-Benz-2	\$3600.00	\$2000.00	\$5600.00	23.83	3	4
Mercedes-Benz-6	\$2000.00	\$2150.00	\$4150.00	17.66	4	6

