Group Assignment

Asia Pacific University of Technology & Innovation

CT042-3-1-IDB

INTRODUCTION TO DATABASES

APD1F2019CS(CYB)

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Hand Out Date: 6 April 2022

Hand In Date: 14 June 2022

Weightage: 42 %

Group: Group 15

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1.0 SQL-Data Definition Language (DDL)

1.1 Create Tables

1.1.1 Book

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))   ⌐ ✕
CREATE TABLE Book(
    BookID nvarchar(20) PRIMARY KEY,
    BookTitle nvarchar(100),
    PublisherID nvarchar(20) FOREIGN KEY REFERENCES Publisher(PublisherID),
    Price decimal(10,2),
    PublishedDate date,
    Author nvarchar(50),
    Quantity int,
    TotalSold int,
    );
```

1.1.2 Member

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))   ⌐ ✕
CREATE TABLE Member(
    MemberID nvarchar(20) PRIMARY KEY,
    MemberName nvarchar(50),
    IC nvarchar(20),
    ContactNumber nvarchar(20),
    Email nvarchar(100),
    Address nvarchar(500),
    );
```

1.1.3 Publisher

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))   ⌐ ✕
CREATE TABLE Publisher(
    PublisherID nvarchar(20) PRIMARY KEY,
    PublisherName nvarchar(50),
    );
```

1.1.4 Publisher Books

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))    ⊏  ✕
CREATE TABLE PublisherBooks(
    ISBN nvarchar(50) PRIMARY KEY,
    PublisherID nvarchar(20) FOREIGN KEY REFERENCES Publisher(PublisherID),
    BookTitle nvarchar(100),
    Author nvarchar(50),
    );
```

1.1.5 Rating

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))*    ⊏  ✕
CREATE TABLE Rating(
    RatingID nvarchar(20) PRIMARY KEY,
    MemberID nvarchar(20) FOREIGN KEY REFERENCES Member(MemberID),
    BookID nvarchar(20) FOREIGN KEY REFERENCES Book(BookID),
    Rating int,
    Comment nvarchar(1000),
    );
```

1.1.6 Sales Order

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))*    ⊏  ✕
CREATE TABLE SalesOrder(
    OrderID nvarchar(20) PRIMARY KEY,
    OrderDate date,
    MemberID nvarchar(20) FOREIGN KEY REFERENCES Member(MemberID),
    PaymentMethod nvarchar(20),
    TotalAmount decimal(10,2),
    DeliveryStatus nvarchar(50),
    );
```

1.1.7 Sales Order Details

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))*    ⊏  ✕
CREATE TABLE SalesOrderDetails(
    SOrderID nvarchar(20) PRIMARY KEY,
    OrderID nvarchar(20) FOREIGN KEY REFERENCES SalesOrder(OrderID),
    BookID nvarchar(20) FOREIGN KEY REFERENCES Book(BookID),
    OrderQuantity int,
    Amount decimal(10,2),
    );
```

1.1.8 Shopping Cart

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))*  ⊡ ✕
CREATE TABLE ShoppingCart(
    CartID nvarchar(20) PRIMARY KEY,
    MemberID nvarchar(20) FOREIGN KEY REFERENCES Member(MemberID),
    BookID nvarchar(20) FOREIGN KEY REFERENCES Book(BookID),
    CartQuantity int,
    CartAmount decimal(10,2),
    CartTotalAmount decimal(10,2),
    );
```

1.1.9 Supply Order

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))*  ⊡ ✕
CREATE TABLE SupplyOrder(
    POrderID nvarchar(20) PRIMARY KEY,
    POrderDate date,
    PublisherID nvarchar(20) FOREIGN KEY REFERENCES Publisher(PublisherID),
    );
```
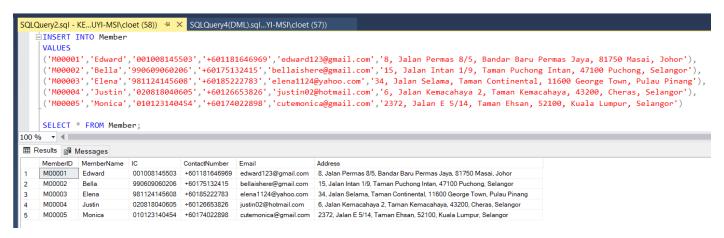
1.1.10 Supply Order Details

```
SQLQuery1.sql - KE...UYI-MSI\cloet (62))*  ⊡ ✕
CREATE TABLE SupplyOrderDetails(
    SPOrderID nvarchar(20) PRIMARY KEY,
    POrderID nvarchar(20) FOREIGN KEY REFERENCES SupplyOrder(POrderID),
    ISBN nvarchar(50) FOREIGN KEY REFERENCES PublisherBooks(ISBN),
    BookID nvarchar(20) FOREIGN KEY REFERENCES Book(BookID),
    Quantity int,
    );
```

1.2 Insert Data

1.2.1 Book

```
SQLQuery2.sql - KE...UYI-MSI\cloet (59))*  ⇥ ×
⊟INSERT INTO Book
  VALUES
  ('B00001','MATLAB For Engineers','P00001',227,'14 Jan 2017','Holly Moore',45,5),
  ('B00002','Computer Vision: Principles, Algorithms, Application, Learning','P00002',386,'15 Nov 2017','E.R. Davies',45,5),
  ('B00003','Dessert: A Tale of Happy Endings','P00003',155,'13 Aug 2018','Jeri Quinzio',46,4),
  ('B00004','Predicting Cyberbullying','P00002',438,'24 Apr 2019','Christopher Paul Barett',48,2),
  ('B00005','Be well, learn well: improve your wellbeing and academic performance','P00004',122,'29 Aug 2020','Gareth Hughes',41,9)

  SELECT * FROM Book;
```

	BookID	BookTitle	PublisherID	Price	PublishedDate	Author	Quantity	TotalSold
1	B00001	MATLAB For Engineers	P00001	227.00	2017-01-14	Holly Moore	45	5
2	B00002	Computer Vision: Principles, Algorithms, Application, Learning	P00002	386.00	2017-11-15	E.R. Davies	45	5
3	B00003	Dessert: A Tale of Happy Endings	P00003	155.00	2018-08-13	Jeri Quinzio	46	4
4	B00004	Predicting Cyberbullying	P00002	438.00	2019-04-24	Christopher Paul Barett	48	2
5	B00005	Be well, learn well: improve your wellbeing and academic performance	P00004	122.00	2020-08-29	Gareth Hughes	41	9

1.2.2 Member

```
SQLQuery2.sql - KE...UYI-MSI\cloet (58))  ⇥ ×   SQLQuery4(DML).sql...YI-MSI\cloet (57))
⊟INSERT INTO Member
  VALUES
  ('M00001','Edward','001008145503','+601181646969','edward123@gmail.com','8, Jalan Permas 8/5, Bandar Baru Permas Jaya, 81750 Masai, Johor'),
  ('M00002','Bella','990609060206','+60175132415','bellaishere@gmail.com','15, Jalan Intan 1/9, Taman Puchong Intan, 47100 Puchong, Selangor'),
  ('M00003','Elena','981124145608','+60185222783','elena1124@yahoo.com','34, Jalan Selama, Taman Continental, 11600 George Town, Pulau Pinang'),
  ('M00004','Justin','020818040605','+60126653826','justin02@hotmail.com','6, Jalan Kemacahaya 2, Taman Kemacahaya, 43200, Cheras, Selangor'),
  ('M00005','Monica','010123140454','+60174022898','cutemonica@gmail.com','2372, Jalan E 5/14, Taman Ehsan, 52100, Kuala Lumpur, Selangor')

  SELECT * FROM Member;
```

	MemberID	MemberName	IC	ContactNumber	Email	Address
1	M00001	Edward	001008145503	+601181646969	edward123@gmail.com	8, Jalan Permas 8/5, Bandar Baru Permas Jaya, 81750 Masai, Johor
2	M00002	Bella	990609060206	+60175132415	bellaishere@gmail.com	15, Jalan Intan 1/9, Taman Puchong Intan, 47100 Puchong, Selangor
3	M00003	Elena	981124145608	+60185222783	elena1124@yahoo.com	34, Jalan Selama, Taman Continental, 11600 George Town, Pulau Pinang
4	M00004	Justin	020818040605	+60126653826	justin02@hotmail.com	6, Jalan Kemacahaya 2, Taman Kemacahaya, 43200, Cheras, Selangor
5	M00005	Monica	010123140454	+60174022898	cutemonica@gmail.com	2372, Jalan E 5/14, Taman Ehsan, 52100, Kuala Lumpur, Selangor

1.2.3 Publisher

1.2.4 Publisher Books

1.2.5 Rating

```sql
INSERT INTO Rating
VALUES
('R00001','M00001','B00001',7,'Good book!'),
('R00002','M00001','B00002',9,'Perfect book with examples.'),
('R00003','M00001','B00003',5,NULL),
('R00004','M00002','B00002',6,NULL),
('R00005','M00003','B00005',9,'Recommended')

SELECT * FROM Rating;
```

	RatingID	MemberID	BookID	Rating	Comment
1	R00001	M00001	B00001	7	Good book!
2	R00002	M00001	B00002	9	Perfect book with examples.
3	R00003	M00001	B00003	5	NULL
4	R00004	M00002	B00002	6	NULL
5	R00005	M00004	B00005	9	Recommended

1.2.6 Sales Order

```sql
INSERT INTO SalesOrder
VALUES
('O00001','1 May 2020','M00001','Credit Card',1460.,'Complete'),
('O00002','9 June 2020','M00002','Credit Card',2034,'Complete'),
('O00003','5 September 2020','M00001','Online Banking',1064,'Complete'),
('O00004','9 September 2020','M00004','Online Banking',874,'Incomplete'),
('O00005','20 September 2020','M00001','Debit Card',227,'Incomplete');

SELECT * FROM SalesOrder;
```

	OrderID	OrderDate	MemberID	PaymentMethod	TotalAmount	DeliveryStatus
1	O00001	2020-05-01	M00001	Credit Card	1460.00	Complete
2	O00002	2020-06-09	M00002	Credit Card	2034.00	Complete
3	O00003	2020-09-05	M00001	Online Banking	1064.00	Complete
4	O00004	2020-09-09	M00004	Online Banking	874.00	Incomplete
5	O00005	2020-09-20	M00001	Debit Card	227.00	Incomplete

1.2.7 Sales Order Details

```
SQLQuery2.sql - KE...UYI-MSI\cloet (59))*  ⊞ ×
    INSERT INTO SalesOrderDetails
    VALUES
    ('SO00001','O00001','B00001',2,454),
    ('SO00002','O00001','B00002',1,386),
    ('SO00003','O00001','B00003',4,620),
    ('SO00004','O00002','B00002',3,1158),
    ('SO00005','O00002','B00004',2,876),
    ('SO00006','O00003','B00001',2,454),
    ('SO00007','O00003','B00005',5,610),
    ('SO00008','O00004','B00002',1,386),
    ('SO00009','O00004','B00005',4,488),
    ('SO00010','O00005','B00001',1,227)

    SELECT * FROM SalesOrderDetails;
100 %  ▼ ◀
```

⊞ Results ▤ Messages

	SOrderID	OrderID	BookID	OrderQuantity	Amount
1	SO00001	O00001	B00001	2	454.00
2	SO00002	O00001	B00002	1	386.00
3	SO00003	O00001	B00003	4	620.00
4	SO00004	O00002	B00002	3	1158.00
5	SO00005	O00002	B00004	2	876.00
6	SO00006	O00003	B00001	2	454.00
7	SO00007	O00003	B00005	5	610.00
8	SO00008	O00004	B00002	1	386.00
9	SO00009	O00004	B00005	4	488.00
10	SO00010	O00005	B00001	1	227.00

1.2.8 Shopping Cart

```
SQLQuery2.sql - KE...UYI-MSI\cloet (59))*  ⊞ ×
    INSERT INTO ShoppingCart
    VALUES
    ('C00001','M00001','B00004',3,1314,2086),
    ('C00002','M00003','B00003',2,310,310),
    ('C00003','M00002','B00001',1,227,227),
    ('C00004','M00005','B00005',1,122,122),
    ('C00005','M00001','B00002',2,772,2086),
    ('C00006','M00004','B00004',1,438,438)

    SELECT * FROM ShoppingCart;
100 %  ▼ ◀
```

⊞ Results ▤ Messages

	CartID	MemberID	BookID	CartQuantity	CartAmount	CartTotalAmount
1	C00001	M00001	B00004	3	1314.00	2086.00
2	C00002	M00003	B00003	2	310.00	310.00
3	C00003	M00002	B00001	1	227.00	227.00
4	C00004	M00005	B00005	1	122.00	122.00
5	C00005	M00001	B00002	2	772.00	2086.00
6	C00006	M00004	B00004	1	438.00	438.00

1.2.9 Supply Order

```
SQLQuery2.sql - KE...UYI-MSI\cloet (59))*  ⊟ ✕
  ⊟INSERT INTO SupplyOrder
   VALUES
   ('S00001','2 Dec 2019','P00001'),
   ('S00002','6 Jan 2020','P00002'),
   ('S00003','18 Apr 2020','P00003'),
   ('S00004','21 Apr 2020','P00004'),
   ('S00005','31 Aug 2020','P00002')

   SELECT * FROM SupplyOrder;
```

	POrderID	POrderDate	PublisherID
1	S00001	2019-12-02	P00001
2	S00002	2020-01-06	P00002
3	S00003	2020-04-18	P00003
4	S00004	2020-04-21	P00004
5	S00005	2020-08-31	P00002

1.2.10 Supply Order Details

```
SQLQuery2.sql - KE...UYI-MSI\cloet (59))*  ⊟ ✕
  ⊟INSERT INTO SupplyOrderDetails
   VALUES
   ('SP00001','S00001','9781292231204','B00001',50),
   ('SP00002','S00002','9780128092842','B00002',50),
   ('SP00003','S00003','9781780239835','B00003',50),
   ('SP00004','S00004','9780128166536','B00004',50),
   ('SP00005','S00005','9781352010688','B00005',50)

   SELECT * FROM SupplyOrderDetails;
```

	SPOrderID	POrderID	ISBN	BookID	Quantity
1	SP00001	S00001	9781292231204	B00001	50
2	SP00002	S00002	9780128092842	B00002	50
3	SP00003	S00003	9781780239835	B00003	50
4	SP00004	S00004	9780128166536	B00004	50
5	SP00005	S00005	9781352010688	B00005	50

2.0 SQL-Data Manipulation Language (DML)

i.

```sql
SELECT Book.BookID, BookTitle, AVG(Rating) AS AverageRating FROM Rating
INNER JOIN Book ON Rating.BookID = Book.BookID
GROUP BY Book.BookID,BookTitle
HAVING AVG(Rating) =
(SELECT MAX(average) FROM
(SELECT BookID, AVG(Rating) AS average FROM Rating
GROUP BY BookID)
AS HighestRating);
```

Results

	BookID	BookTitle	AverageRating
1	B00005	Be well, learn well: improve your wellbeing and academic performance	9

ii.

```sql
SELECT Member.MemberID, Member.MemberName,COUNT(Member.MemberID) AS TotalFeedbacks FROM Member,Rating
WHERE Rating.MemberID = Member.MemberID
GROUP BY Member.MemberID,MemberName;
```

Results

	MemberID	MemberName	TotalFeedbacks
1	M00001	Edward	3
2	M00002	Bella	1
3	M00004	Justin	1

iii.

```sql
SELECT Publisher.PublisherID,PublisherName, COUNT(Book.BookID) AS TotalBooksPublished FROM Publisher
INNER JOIN Book ON Book.PublisherID = Publisher.PublisherID
GROUP BY Publisher.PublisherID,PublisherName;
```

Results

	PublisherID	PublisherName	TotalBooksPublished
1	P00001	Pearson	1
2	P00002	Academic Press	2
3	P00003	Reaktion Books Ltd	1
4	P00004	Red Globe Press	1

iv.

```sql
SELECT Publisher.PublisherID, PublisherName,SUM(Quantity) AS TotalBooksOrdered
FROM ((SupplyOrder
INNER JOIN Publisher ON Publisher.PublisherID=SupplyOrder.PublisherID)
INNER JOIN SupplyOrderDetails ON SupplyOrder.POrderID = SupplyOrderDetails.POrderID)
GROUP BY Publisher.PublisherID,PublisherName;
```

	PublisherID	PublisherName	TotalBooksOrdered
1	P00001	Pearson	50
2	P00002	Academic Press	100
3	P00003	Reaktion Books Ltd	50
4	P00004	Red Globe Press	50

v.

```sql
SELECT * FROM Book
WHERE Quantity > (SELECT AVG(Quantity) FROM Book);
```

	BookID	BookTitle	PublisherID	Price	PublishedDate	Author	Quantity	TotalSold
1	B00003	Dessert: A Tale of Happy Endings	P00003	155.00	2018-08-13	Jeri Quinzio	46	4
2	B00004	Predicting Cyberbullying	P00002	438.00	2019-04-24	Christopher Paul Barett	48	2

vi.

```sql
SELECT * FROM Book
WHERE TotalSold = (SELECT MAX(TotalSold) FROM Book);
```

	BookID	BookTitle	PublisherID	Price	PublishedDate	Author	Quantity	TotalSold
1	B00005	Be well, learn well: improve your wellbeing and academic performance	P00004	122.00	2020-08-29	Gareth Hughes	41	9

vii.

```sql
SELECT Member.MemberID, MemberName, IC, ContactNumber, Email, Address, SUM(TotalAmount) AS TotalSpent FROM Member
INNER JOIN SalesOrder ON Member.MemberID= SalesOrder.MemberID
GROUP BY Member.MemberID, MemberName, IC, ContactNumber, Email, Address
HAVING SUM(TotalAmount) =
(SELECT MAX(total) FROM
(SELECT MemberID,SUM(TotalAmount) AS total FROM SalesOrder
GROUP BY MemberID)
AS HighestSpent);
```

	MemberID	MemberName	IC	ContactNumber	Email	Address	TotalSpent
1	M00001	Edward	001008145503	+601181646969	edward123@gmail.com	8, Jalan Permas 8/5, Bandar Baru Permas Jaya, 81750 Masai, Johor	2751.00

10

viii.

```
SQLQuery4(DML).sql...YI-MSI\cloet (59))  + X
SELECT * FROM Member
  WHERE NOT EXISTS
      (SELECT * FROM SalesOrder
      WHERE Member.MemberID = SalesOrder.MemberID);
```

100 %

Results | Messages

	MemberID	MemberName	IC	ContactNumber	Email	Address
1	M00003	Elena	981124145608	+60185222783	elena1124@yahoo.com	34, Jalan Selama, Taman Continental, 11600 George Town, Pulau Pinang
2	M00005	Monica	010123140454	+60174022898	cutemonica@gmail.com	2372, Jalan E 5/14, Taman Ehsan, 52100, Kuala Lumpur, Selangor

ix.

```
SQLQuery4(DML).sql...YI-MSI\cloet (59))  + X
SELECT IC, Address, ContactNumber, Book.BookID, BookTitle, OrderQuantity, OrderDate, DeliveryStatus
  FROM (((SalesOrder
  INNER JOIN Member ON SalesOrder.MemberID = Member.MemberID)
  INNER JOIN SalesOrderDetails ON SalesOrder.OrderID = SalesOrderDetails.OrderID)
  INNER JOIN Book ON SalesOrderDetails.BookID = Book.BookID)
  WHERE SalesOrder.DeliveryStatus = 'Incomplete';
```

100 %

Results | Messages

	IC	Address	ContactNumber	BookID	BookTitle	OrderQuantity	OrderDate	DeliveryStatus
1	020818040605	6, Jalan Kemacahaya 2, Taman Kemacahaya, 43200, ...	+60126653826	B00002	Computer Vision: Principles, Algorithms, Application, Learning	1	2020-09-09	Incomplete
2	020818040605	6, Jalan Kemacahaya 2, Taman Kemacahaya, 43200, ...	+60126653826	B00005	Be well, learn well: improve your wellbeing and academic performance	4	2020-09-09	Incomplete
3	001008145503	8, Jalan Permas 8/5, Bandar Baru Permas Jaya, 81750 ...	+601181646969	B00001	MATLAB For Engineers	1	2020-09-20	Incomplete

x.

```
SQLQuery4(DML).sql...YI-MSI\cloet (57))  + X
SELECT Member.MemberID, MemberName, IC, ContactNumber, Email, Address , COUNT(SalesOrder.MemberID) AS TotalOrder FROM Member
  INNER JOIN SalesOrder ON Member.MemberID = SalesOrder.MemberID
  GROUP BY Member.MemberID, MemberName, IC,ContactNumber, Email, Address
  HAVING COUNT(SalesOrder.MemberID) >2;
```

100 %

Results | Messages

	MemberID	MemberName	IC	ContactNumber	Email	Address	TotalOrder
1	M00001	Edward	001008145503	+601181646969	edward123@gmail.com	8, Jalan Permas 8/5, Bandar Baru Permas Jaya, 81750 Masai, Johor	3