FIRST SEMESTER SESSION 2020/2021

SCSD2523 DATABASE

FINAL REPORT PROJECT DATABASE

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(SECTION 08)

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1.0 Database Planning and System Definition

1.1 Overview of the Current System

Thesis Binding UTM is a shop that provides Thesis Formatting, Printing, Binding and many more services, it is located in Kolej Tun Canselor, Universiti Teknologi Malaysia. The printing shop has had good development in the past few years and the number of customers increases day by day. There are also some customers who came from other areas such as Hospital Sultanah Aminah at Johor Bahru. Besides that, the shop owner decides to provide stationary sales. The shop also provides delivery services for students in UTM. For example, the shop helps students to meet their SV for signature and submit the students' assignment or project to any faculty. It is located in Block S01, Kolej Tun Canselor, Universiti Teknologi Malaysia. People can find a page for this shop on Facebook.

1.2 Database Planning

1.2.1 Mission Statement

Major aim for this database application is to design an application that allows customers, especially students for printing, binding and using other services for their documents online and runners will deliver the documents to students in order to save the students' time from queuing and use the services at printing shops. This application also can help admin to easily know how many students need for the services of their document on time and they can easily manage the services of documents because this system is connected between students and the shop.

The purpose of this database project is this system can also make the process of services of documents easier and save time and energy between staff and customers. This system will collect information of students, runners and even admins who will interact with this system. Where the customer will sign up then will upload the document as well as the features they want before sending it to the admin. While the admin in the store will collect information and start preparing documents by dividing the work to other staff. When the document is ready, the admin will notify the runner to send the document to the student and the runner will go to the store, pick up the documents and send it to the student, then the admin needs to notify the student about the delivery that will be done. Upon completion of the delivery, the runner needs to notify the admin through the system that the delivery has been successful. Students also can pay it using cash or via transfer.

1.2.2 Mission Objective

The mission of our database planning are:

a) To maintain (enter, update and delete) data on customer, document, order, admin, runner and payment

b) To perform upload on customer, document and order

c) To track the status of process order and the status of payment

1.3 System Definition
1.3.1 System Boundary

The figure below shows the system of our project. The entity insides in the black line box should be included in our system planning. Our focus for the project is to create the database system for an online printing shop.
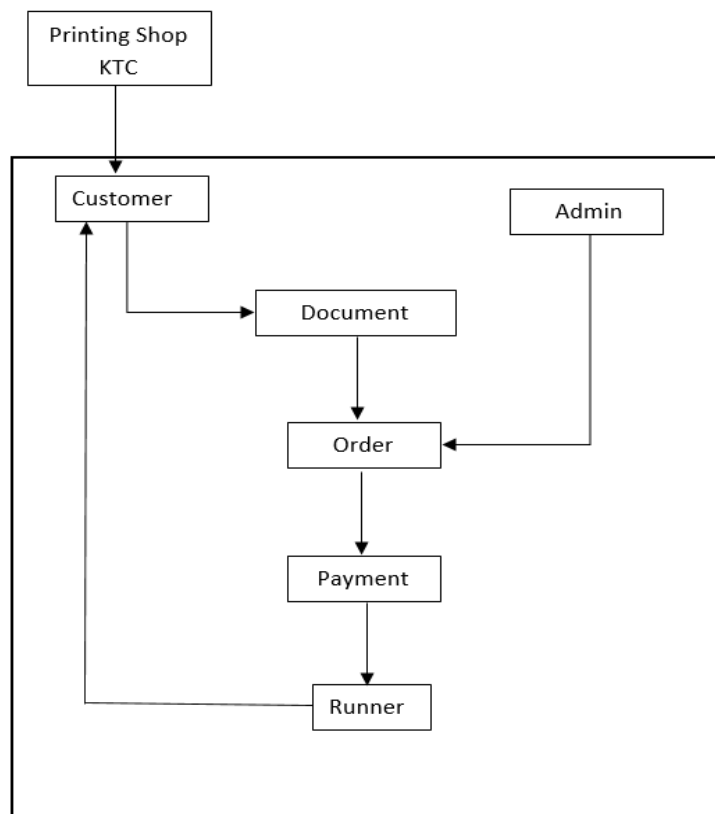
1.3.2 Major User View

The users are admin, customer and runner. The view for the user are shown below:

Data	Access Type	Admin	Customer	Runner
Customer	Maintain		x	
	Query	x		
	Report	x		
Document	Maintain	x		
	Query	x	x	
	Report	x		
Order	Maintain		x	
	Query	x	x	
	Report	x		
Runner	Maintain			x
	Query	x		
	Report	x		
Payment	Maintain	x	x	
	Query	x		
	Report	x		x
Notification	Maintain	x		
	Query	x		
	Report	x	x	x

1.4 Gantt Chart

Below is the Gant chart produced for the whole database system project

GANTT CHART

PROJECT PLANNER

Plan duration | Actual start | % Complete

PERIODS(DAYS)

WBS NUMBER	TASK TITLE	START DATE	DUE DATE	DURATION	Plan Start
1	**Planning**				
	Overview existing system	11/15/20	11/16/20	2	1
	Identify mission statement	11/15/20	11/16/20	2	1
	Identify objective	11/15/20	11/16/20	2	1
	Define system boundary	11/15/20	11/16/20	2	1
	Proposal	11/17/20	11/27/20	12	3
2	**Information Requirement**				
	Prepare question	11/28/20	11/29/20	2	14
	Interview users	11/30/20	12/1/20	2	16
	Administer questionnaires	12/2/20	12/4/20	3	18
3	**Analysis and Design(Conceptual Design)**				
	Generate ERD Diagram	12/5/20	12/9/20	5	21
	Generate DFD Diagram	12/10/20	12/15/20	6	26
4	**Analysis and Design(Logical Design)**				
	Generate final ERD Diagram	12/16/20	12/22/30	7	32
	Design Interface(GUI)	12/23/20	1/2/21	11	39
5	**Implementation**				
	Build database on MYSQL	1/3/21	1/23/21	21	50
	Present system prototype	1/24/21	1/26/21	3	71
	Final report	1/27/21	1/30/21	4	74

2.0 User's Requirement Specification

2.1 Data Requirement

Based on the interview with the shop owner, the data requirements are determined as below:

Entity	Data to be stored	Requirements of Data
Customer	1. Username 2. User ID 3. Password 4. Phone number 5. Shipping address	
Document	1. Document ID 2. Document name 3. Price 4. Stock quantity 5. Type of document 6. Characteristic of document	[3] Price shown should be included with tax GST. No further add on after that. [6] Characteristic document such as pages, color, set

Order	1. Order number 2. Order time 3. Order status 4. Quantity 5. Subtotal 6. Shipping Fee 7. Grand price 8. Delivery Time 9. Delivery ID	[1] Order number should be automatically generated by system. [5] Subtotal = (price*quantity) whereas the price refers to the Document entity [7] Grand price = subtotal + delivery fee [8] Delivery time is the time which the product id delivered [9] Delivery ID should be automatically generated by system.
Runner	1. Runner name 2. Runner ID 3. Runner'sphone number 4. Runner payment 5. Order picked up 6. Order delivered	[2] Every Runner have their own and different ID [3] Runner payment follow how many trips they make to deliver document
Payment	1. Transaction number 2. Payment method 3. Payment time 4. Total payment	[3] Payment time is the time which the order delivered
Notification	1. Notification number 2. Notification contains 3. Notification time 4. Target notification	[2] Notification is the type of message sent to the customer.
Admin	1. Admin name 2. Admin ID 3. Admin'sphone number 4. Username 5. Password	[2] Admin has his/her own ID

2.2 Transaction Requirements

The transaction requirements are identified based on four types of transaction (Data entry, Data update, Data deletion, Data queries.

Entity	Data	Data Entry	Data Update	Data Deletion	Data Queries
Customer	Username User ID Password Phone number Shipping address	Sign up by customer	Update profile info by customer	Delete account by customer	Query on customer data by admin
Document	Document ID Document name Price Stock quantity Type of document Characteristic of document	Enter document information by customer/student	Update document information by customer/student	Delete document information by customer/ student	Search for document by customer, student, admin
Order	Order number Order time Order status Quantity Subtotal Shipping Fee Grand price Delivery time Delivery ID	Confirm order information by customer/student	Update order status by admin	Cancel order by admin	Query on order by admin
Runner	Runner name Runner ID Runner's phone number Runner payment Order picked up Order delivered	Enter order ID by admin	Update order pickup and delivered by admin	Delete order status by admin	Query on runner by admin
Payment	Transaction number Payment method Payment time Total payment	Enter bank, transaction number & payment date by customer/student	Confirm payment by admin	Delete payment by admin	Query payment by admin
Notification	Notification number Notification contains Notification time Target notification	Enter notification order status by admin	Update the notification status order by admin	Delete the notification status order by admin	

	Admin name Admin ID Admin's phone number Username Password	Enter order ID to runner. Enter notification order status to the customer.	Update order, payment and notification by admin	Delete document, order, payment and notification	Query on admin by admin
Admin					

2.3 Cross-Reference Analysis

The table below shows cross-references of the admin, customer and runner user views with the main types of data used by each user view.

	Admin	**Customer**	**Runner**
Customer	X	X	
Document	X	X	
Order	X	X	X
Runner	X		X
Payment	X	X	
Notification	X	X	
Admin	X		

3.0 Conceptual Database Design

3.1 Entity Relationship Design
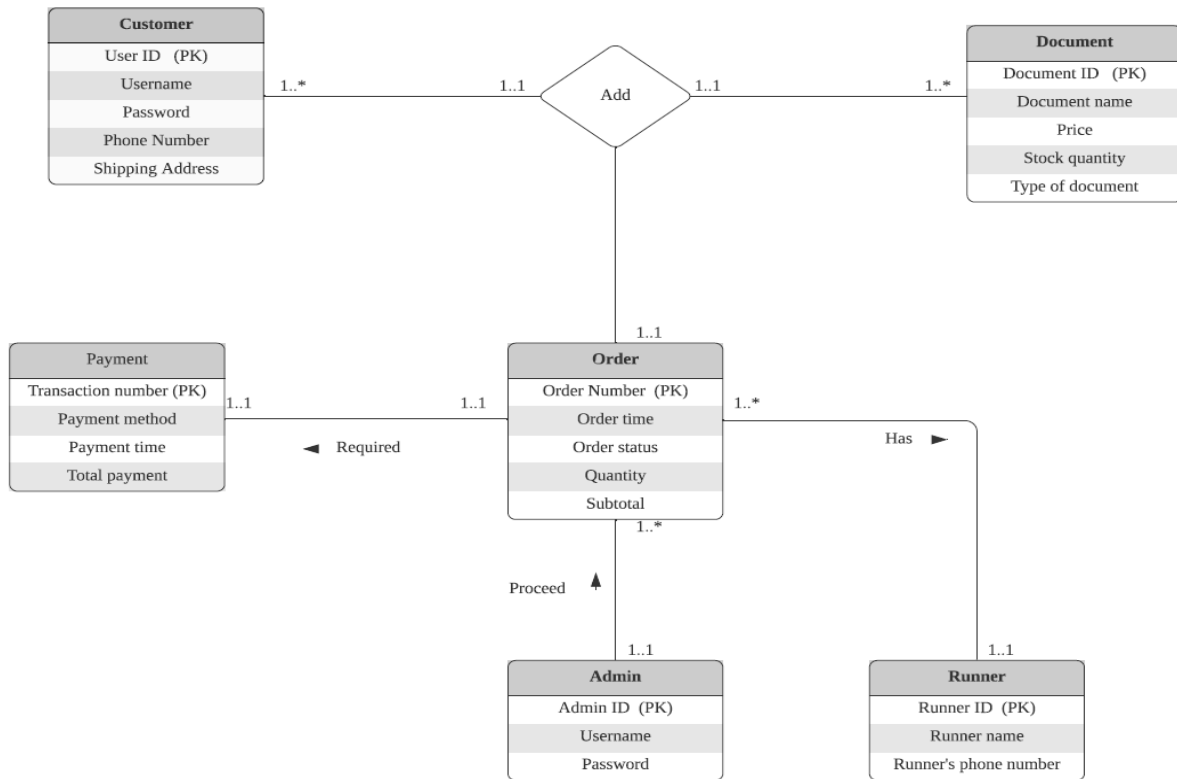
3.2 Data Dictionary for Conceptual Design

Entity Name	Attributes	Description	Data Type & Length	Nulls	Multivalued
Customer	Username	Username for customer	30 variable character	No	No
	User ID	Uniquely identify a customer	Number	No	No
	Password	Password for the username	20 variable character	No	No
	Phone number	Phone number of customer	Number	No	No
	Shipping address	Address of customer	50 variable character	No	No
Document	Document ID	Uniquely identify document	Number	No	No
	Document name	Name of document	30 variable character		
	Price	Price of document	Decimal	No	No
	Stock quantity	Quantity of document customer purchase	Number	No	No
	Type of document	Type of document customer purchase	10 variable character	No	No
Order	Order number	Uniquely identify order	20 variable character	No	No
	Order time	Time of order will deliver	Timestamp	No	No
	Order status	Status of order	30 variable character	No	No
	Quantity	Quantity of document in an order	Number	No	No
	Subtotal	Total price of document in an order	Decimal	No	No
Admin	Admin ID	Uniquely identify id	Number	No	No
	Username	Name to log into the application	30 variable character	No	No
	Password	Key to login with the id successfully	20 variable character	No	No

Runner	Runner ID	Uniquely identify id	Number	No	No
Payment	Transaction number	A reference for the customer and the shop	Number	No	No
	Payment method	Types of method to make payment	30 variable character	No	No
	Payment time	Time of making the payment	Timestamp	No	No
	Total payment	Total payment pay by the customer	Decimal	No	No

4.0 Logical Database Design

4.1 Logical ERD (Global Data Model)
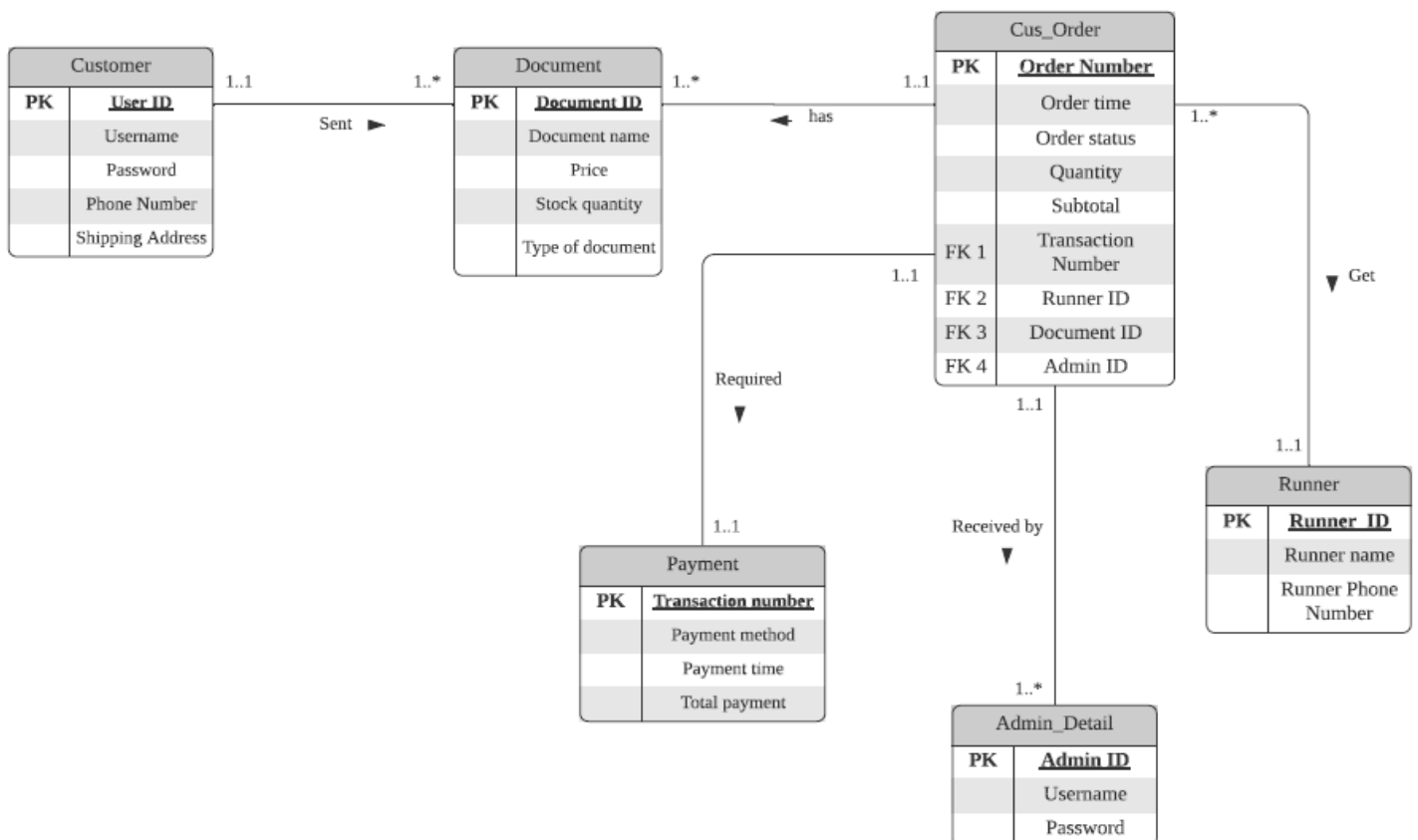
4.2 Relational Database Schema

Since there is no partial dependency (PD) and transitive dependency (TD) in all relations, therefore the relations CUSTOMER, DOCUMENT, ORDER, ADMIN, PAYMENT and RUNNER are already in BCNF relation.

i. Customer(UserID(PK), Username, Password, Phone Number, Shipping Address)

CUSTOMER

UserID	Username	Password	Phone Number	Shipping Address
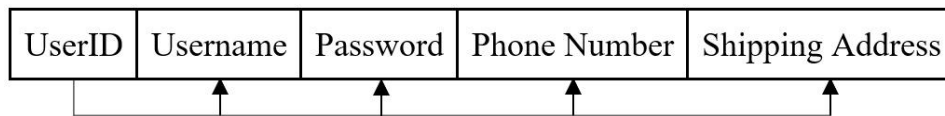
FD1: UserID ➜ Username, Password, Phone Number, Shipping Address

FD1 is full functional dependency. Relation CUSTOMER is in BCNF.

ii. Document(DocumentID(PK), Document name, UserID(FK), Price, Stock quantity, Document Type)

DOCUMENT

DocumentID	Document name	UserID	Price	Stock quantity	Document Type
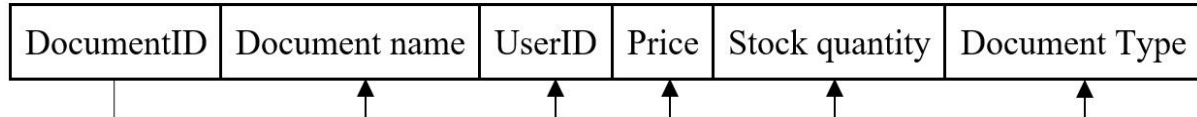
FD1: DocumentID ➜ Document name, UserID, Price, Stock quantity, Document Type

FD1 is full functional dependency. Relation DOCUMENT is in BCNF.

iii. Order(OrderID(PK), Order time, Order status, Quantity, Subtotal, DocumentID(FK), Transaction number(FK), RunnerID(FK), AdminID(FK))

ORDER

OrderID	Order time	Order status	Quantity	Subtotal	DocumentID	Transaction no	RunnerID	AdminID
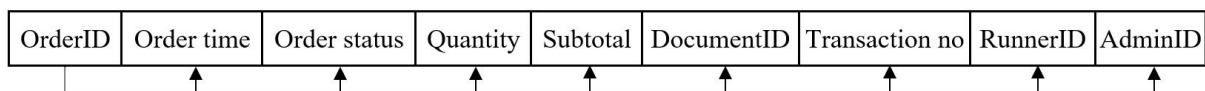
FD1: OrderID ➜ Order time, Order status, Quantity, Subtotal, DocumentID, Transaction number, RunnerID, AdminID

FD1 is full functional dependency. Relation ORDER is in BCNF.

ADMIN

AdminID	Username	Password	Admin's Phone Number	OrderID
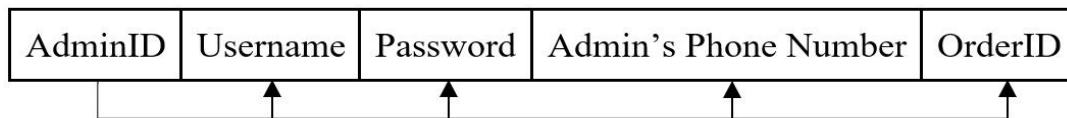
FD1: AdminID ➜ Username, Password, Admin's phone number, OrderID

FD1 is full functional dependency. Relation ADMIN is in BCNF.

v. Payment(Transaction number(PK), OrderID(FK), Payment method, Payment time, Total payment)

PAYMENT

Transaction number	OrderID	Payment method	Payment time	Total payment
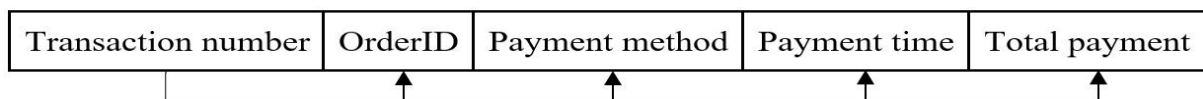
FD1: Transaction number ➜ OrderID, Payment method, Payment time, Total payment

FD1 is full functional dependency. Relation PAYMENT is in BCNF.

vi. Runner(RunnerID(PK), Runner name, Runner's phone number, OrderID(FK))

RUNNER

RunnerID	Runner name	Runner's phone number	OrderID
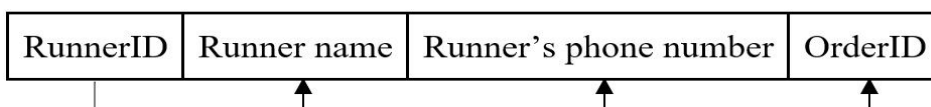
FD1: RunnerID ➜ Runner name, Runner's phone number, OrderID

FD1 is full functional dependency. Relation RUNNER is in BCNF.

4.3 Data dictionary for normalized logical design

Entity Name	Attribute	Description	Data Type & Length	Nulls	Multivalued
CUSTOMER	UserID	Uniquely identify a customer	Number	No	No
	Username	Username for customer	30 variable character	No	No
	Password	Password for the username	20 variable character	No	No
	Phone number	Phone number of customer	Number	No	No
	Shipping address	Address of customer	50 variable character	No	No
DOCUMENT	DocumentID	Uniquely identify document	Number	No	No
	Document name	Name of document	30 variable character	No	No
	UserID	Foreign key references CUSTOMER (UserID)	Number	No	No
	Price	Price of document	Decimal	No	No
	Stock quantity	Quantity of document customer purchase	Number	No	No
	Document Type	Type of document customer purchase	10 variable character	No	No
ORDER	Order ID	Uniquely identify order	Number	No	No
	Order time	Time of order will deliver	Timestamp	No	No
	Order status	Status of order	30 variable character	No	No
	Quantity	Quantity of document in an order	Number	No	No
	Subtotal	Total price of document in an order	Decimal	No	No
	Document ID	Foreign key references DOCUMENT (DocumentID)	Number	No	No
	Transaction no	Foreign key references PAYMENT (Transaction no)	Number	No	No
	Runner ID	Foreign key references RUNNER (runnerID)	Number	No	No
	Admin ID	Foreign key references ADMIN (AdminID)	Number	No	No
ADMIN	Admin ID	Uniquely identify admin id	Number	No	No
	Username	Name to log into the application	30 variable character	No	No
	Password	Key to login with the id successfully	20 variable character	No	No
	Admin's Phone Number	Phone number of admin.	Number	No	No
	Order ID	Foreign key references ORDER (OrderID)	20 variable character	No	No

PAYMENT	Transaction no	A reference for the customer and the shop	Number	No	No
	Order ID	Foreign key references ORDER (OrderID)	20 variable character	No	No
	Payment method	Types of method to make payment	30 variable character	No	No
	Payment time	Time of making the payment	Timestamp	No	No
	Total payment	Total payment pay by the customer	Decimal	No	No
RUNNER	Runner ID	Uniquely identify runner id	Number	No	No
	Runner name	Name of runner that deliver document	30 variable character	No	No
	Runner's Phone Number	Phone number of runner	Number	No	No
	Order ID	Foreign key references ORDER (OrderID)	20 variable character	No	No

5.0 Project Implementation

5.1 Structured Query Language

----- CREATE TABLE -----

```sql
CREATE TABLE CUSTOMER
(USER_ID NUMBER  PRIMARY KEY ,
USERNAME VARCHAR(30) NOT NULL,
USER_PASSWORD VARCHAR (20) NOT NULL,
PHONE_NUM NUMBER NOT NULL,
SHIPPING_ADDRESS VARCHAR(50) NOT NULL);

CREATE TABLE DOCUMENT
(DOCUMENT_ID NUMBER  PRIMARY KEY,
DOCUMENT_NAME VARCHAR(30) NOT NULL,
USER_ID NUMBER NOT NULL,
FOREIGN KEY(USER_ID) REFERENCES CUSTOMER(USER_ID),
PRICE DECIMAL NOT NULL,
STOCK_QUANTITY NUMBER NOT NULL,
TYPE_DOCUMENT VARCHAR(10) NOT NULL);

CREATE TABLE ADMIN_DETAIL
( ADMIN_ID NUMBER  PRIMARY KEY,
ADMIN_USERNAME VARCHAR(30) NOT NULL,
ADMIN_PASSWORD VARCHAR(20) NOT NULL,
ADMIN_PHONE_NUM NUMBER NOT NULL);

CREATE TABLE PAYMENT
( TRANSACTION_NUMBER NUMBER  PRIMARY KEY,
PAYMENT_METHOD VARCHAR(30) NOT NULL,
PAYMENT_TIME TIMESTAMP NOT NULL,
TOTAL_PAYMENT DECIMAL NOT NULL);

CREATE TABLE RUNNER
( RUNNER_ID NUMBER  PRIMARY KEY,
RUNNER_NAME VARCHAR(30) NOT NULL,
RUNNER_PHONE_NUM NUMBER NOT NULL);

CREATE TABLE CUS_ORDER
(ORDER_ID VARCHAR(20)  PRIMARY KEY,
ORDER_TIME TIMESTAMP NOT NULL,
ORDER_STATUS VARCHAR(30) NOT NULL,
QUANTITY NUMBER NOT NULL,
SUBTOTAL DECIMAL NOT NULL,
DOCUMENT_ID NUMBER NOT NULL,
FOREIGN KEY(DOCUMENT_ID) REFERENCES DOCUMENT(DOCUMENT_ID),
TRANSACTION_NUMBER NUMBER NOT NULL,
FOREIGN KEY(TRANSACTION_NUMBER) REFERENCES PAYMENT(TRANSACTION_NUMBER),
RUNNER_ID NUMBER NOT NULL,
FOREIGN KEY(RUNNER_ID) REFERENCES RUNNER(RUNNER_ID),
ADMIN_ID NUMBER NOT NULL,
FOREIGN KEY(ADMIN_ID) REFERENCES ADMIN_DETAIL(ADMIN_ID));
```

----- MODIFY THE TABLE -----

```sql
ALTER TABLE CUSTOMER
ADD EMAIL VARCHAR(50);

ALTER TABLE CUSTOMER
DROP COLUMN EMAIL;

ALTER TABLE DOCUMENT
MODIFY TYPE_DOCUMENT VARCHAR(20);
```

----- ADD DOCUMENT (CUSTOMER) -----

```sql
CREATE TABLE COPY_DOCUMENT
AS (SELECT * FROM DOCUMENT   );
INSERT INTO COPY_DOCUMENT
VALUES (18690,'Syafrina',1670,2.00,3,'PDF');
INSERT INTO COPY_DOCUMENT
VALUES (17745,'XinYi',1580,6.00,2,'WORD');
INSERT INTO COPY_DOCUMENT
VALUES (16580,'YinRen',1400,5.00,1,'WORD');
INSERT INTO COPY_DOCUMENT
VALUES (15000,'Hidayah',1300,1.00,4,'PDF');
INSERT INTO COPY_DOCUMENT
VALUES (14500,'TAN HUA',1000,4.00,5,'PDF');
```

----- MODIFY DOCUMENT (CUSTOMER)-----

```sql
UPDATE COPY_DOCUMENT
SET STOCK_QUANTITY=8
WHERE DOCUMENT_ID=18690;
```

----- DELETE DOCUMENT (CUSTOMER) -----

```sql
DELETE FROM COPY_DOCUMENT
WHERE DOCUMENT_ID=14500;
```

-----SIGN UP CUSTOMER(CUSTOMER) -----

```sql
CREATE TABLE COPY_CUSTOMER
AS (SELECT * FROM CUSTOMER   );
INSERT INTO COPY_CUSTOMER
VALUES (1670,'NUR SYAFRINA','SYAF123',601223456,'SKUDAI,JOHOR');
INSERT INTO COPY_CUSTOMER
VALUES (1580,'KOH XIN YI','KOH123',60122345678,'KTDI,UTM');
INSERT INTO COPY_CUSTOMER
VALUES (1400,'ONG YIN REN','ONG123',6017123456,'TAMAN UNIVERSITI,JOHOR');
INSERT INTO COPY_CUSTOMER
VALUES (1300,'NUR HIDAYAH','DAYAH123',6016123456,'KRP,UTM');
INSERT INTO COPY_CUSTOMER
VALUES (1000,'TTAN HHUA','TAN123',6013123456,'KTHO,UTM');
```

-----UPDATE PROFILE(CUSTOMER)-----

```sql
UPDATE COPY_CUSTOMER
SET PHONE_NUM=014123456
WHERE USER_ID=1580;

UPDATE COPY_CUSTOMER
SET PHONE_NUM=010123456
WHERE USER_ID=1670;
```

-----DELETE ACCOUNT (CUSTOMER)-----

```sql
DELETE FROM COPY_CUSTOMER
WHERE USER_ID=1000;
```

-----QUERY DATA (CUSTOMER)-----

```sql
SELECT USER_ID,USERNAME,SHIPPING_ADDRESS
FROM COPY_CUSTOMER;

SELECT USER_ID,USERNAME,SHIPPING_ADDRESS
FROM COPY_CUSTOMER
WHERE USER_ID=1580;
```

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----- ADD ORDER INFORMATION (CUSTOMER)-----

```sql
CREATE TABLE COPY_CUS_ORDER
AS (SELECT * FROM CUS_ORDER  );
INSERT INTO COPY_CUS_ORDER

INSERT INTO COPY_CUS_ORDER
VALUES ('A001',TO_TIMESTAMP('01-JAN-20 , 11.30.31.000000 AM','
DD-MON-RR HH.MI.SSXFF AM'),'YES',2,2.00,18690,18523,165498,789);
INSERT INTO COPY_CUS_ORDER
VALUES ('A230',TO_TIMESTAMP('01-JAN-20 , 05.30.31.000000 PM','
DD-MON-RR HH.MI.SSXFF PM'),'NO',6,6.00,17745,18596,165500,789);
INSERT INTO COPY_CUS_ORDER
VALUES ('A485',TO_TIMESTAMP('02-JAN-20 , 06.00.31.000000 PM','
DD-MON-RR HH.MI.SSXFF PM'),'YES',5,5.00,16580,18790,166700,789);
INSERT INTO COPY_CUS_ORDER
VALUES ('A500',TO_TIMESTAMP('02-JAN-20 , 10.00.31.000000 AM','
DD-MON-RR HH.MI.SSXFF AM'),'NO',1,1.00,15000,19780,17600,789);
INSERT INTO COPY_CUS_ORDER
VALUES ('A003',TO_TIMESTAMP('02-JAN-20 , 04.00.31.000000 PM','
DD-MON-RR HH.MI.SSXFF PM'),'NO',4,4.00,14500,17000,18690,789);
```

-----CONFIRM ORDER(CUSTOMER)-----

```sql
SELECT *
FROM COPY_DOCUMENT DOC LEFT OUTER JOIN COPY_CUS_ORDER O
ON(DOC.DOCUMENT_ID=O.DOCUMENT_ID);
```

-----UPDATE ORDER STATUS (ADMIN)-----

```sql
UPDATE COPY_CUS_ORDER
SET ORDER_STATUS='YES'
WHERE ORDER_ID='A230';
```

-----CANCEL ORDER (ADMIN) -----

```sql
DELETE FROM COPY_CUS_ORDER
WHERE ORDER_ID='A003';
```

-----INSERT RUNNER (ADMIN)-----

```sql
CREATE TABLE COPY_RUNNER
AS (SELECT * FROM RUNNER );
INSERT INTO COPY_RUNNER VALUES (165498,'TAN',60102223333);
INSERT INTO COPY_RUNNER VALUES (165500,'KOH',60112224444);
INSERT INTO COPY_RUNNER VALUES (166700,'FATIMAH',60145556666);
INSERT INTO COPY_RUNNER VALUES (17600,'NURUL',60174448888);
INSERT INTO COPY_RUNNER VALUES (18690,'ONG',60195557777);
INSERT INTO COPY_RUNNER VALUES (18600,'GOH',60132221111);
```

-----PAYMENT (ADMIN)-----

```sql
CREATE TABLE COPY_PAYMENT
AS (SELECT * FROM PAYMENT );
INSERT INTO COPY_PAYMENT
VALUES (18523,'ONLINE (MAYBANK)',TO_TIMESTAMP('01-JAN-20 , 11.30.31.000000 AM','DD-MON-RR HH.MI.SSXFF AM'),2);
INSERT INTO COPY_PAYMENT
VALUES (18596,'CASH ON DELIVERY',TO_TIMESTAMP('01-JAN-20 , 06.20.31.000000 PM','DD-MON-RR HH.MI.SSXFF PM'),6);
INSERT INTO COPY_PAYMENT
VALUES (18790,'CASH ON DELIVERY',TO_TIMESTAMP('02-JAN-20 , 06.30.31.000000 PM','DD-MON-RR HH.MI.SSXFF PM'),5);
INSERT INTO COPY_PAYMENT
VALUES (19780,'ONLINE(CIMB)',TO_TIMESTAMP('02-JAN-20 , 06.00.31.000000 PM','DD-MON-RR HH.MI.SSXFF PM'),1);
INSERT INTO COPY_PAYMENT
VALUES (16000,'TNG',TO_TIMESTAMP('02-JAN-20 , 04.30.31.000000 PM','DD-MON-RR HH.MI.SSXFF PM'),4);
```

-----ADD ADMIN DETAIL (ADMIN)-----

```sql
CREATE TABLE COPY_ADMIN_DETAIL
AS (SELECT * FROM ADMIN_DETAIL  );
INSERT INTO COPY_ADMIN_DETAIL
VALUES(789,'JIAKO','JK123',6017889666);
```

-----QUERY ORDER (ADMIN) -----

```sql
SELECT *
FROM COPY_CUS_ORDER
ORDER BY DOCUMENT_ID;

SELECT ORDER_ID,TRANSACTION_NUMBER,RUNNER_ID
FROM COPY_CUS_ORDER
WHERE ORDER_STATUS='YES'
AND DOCUMENT_ID=18690;

SELECT ORDER_ID,TRANSACTION_NUMBER,RUNNER_ID
FROM COPY_CUS_ORDER
WHERE ORDER_STATUS='YES'
OR QUANTITY=2;
```

----- CONFIRM PAYMENT (ADMIN) -----

```sql
SELECT PAY.PAYMENT_METHOD,O.ORDER_ID
FROM COPY_PAYMENT PAY JOIN COPY_CUS_ORDER O
USING (TRANSACTION_NUMBER);
```

-----DELETE PAYMENT (ADMIN) -----

```sql
DELETE FROM COPY_PAYMENT
WHERE PAYMENT_METHOD='TNG';
```

----- QUERY PAYMENT (ADMIN) -----

```sql
SELECT PAY.PAYMENT_METHOD, PAY.PAYMENT_TIME,PAY.TOTAL_PAYMENT,O.DOCUMENT_ID,O.ADMIN_ID,O.RUNNER_ID
FROM COPY_PAYMENT PAY JOIN COPY_CUS_ORDER O
ON PAY.TRANSACTION_NUMBER=O.TRANSACTION_NUMBER
JOIN COPY_DOCUMENT DOC
ON O.DOCUMENT_ID=DOC.DOCUMENT_ID
WHERE O.TRANSACTION_NUMBER=18523;
```

-----UPDATE PAYMENT (ADMIN) -----

```
UPDATE COPY_PAYMENT
SET PAYMENT_METHOD='ONLINE(CIMB)'
WHERE TRANSACTION_NUMBER=18790;
```

-----QUERY RUNNER(ADMIN)-----

```
SELECT RUNNER_ID,RUNNER_NAME,RUNNER_PHONE_NUM
FROM COPY_RUNNER
ORDER BY RUNNER_PHONE_NUM;

SELECT R.RUNNER_NAME,R.RUNNER_PHONE_NUM,O.ADMIN_ID
FROM COPY_RUNNER R JOIN COPY_CUS_ORDER O
USING (RUNNER_ID)
WHERE RUNNER_ID=166700;
```

-----QUERY ADMIN(ADMIN)-----

```
SELECT AD.ADMIN_USERNAME,AD.ADMIN_PASSWORD,AD.ADMIN_PHONE_NUM,O.ORDER_ID
FROM COPY_ADMIN_DETAIL AD JOIN COPY_CUS_ORDER O
ON AD.ADMIN_ID=O.ADMIN_ID
JOIN COPY_RUNNER R
ON O.RUNNER_ID=R.RUNNER_ID
WHERE O.ADMIN_ID=789;
```

-----DELETE DOCUMENT (ADMIN)-----

```
DELETE
FROM COPY_DOCUMENT;
```

-----DELETE ORDER (ADMIN) -----

```
DELETE
FROM COPY_CUS_ORDER;
```

-----DELETE PAYMENT (ADMIN) -----

```
DELETE
FROM COPY_PAYMENT;
```

5.2 System Prototype Interface

REGISTRATION

Username:
NURSYAFRINA

Email address:
syaf@gmail.com

Password:
****

Confirm Password:
****

Back   Register

CREATE TABLE COPY_CUSTOMER
AS (SELECT * FROM CUSTOMER);
INSERT INTO COPY_CUSTOMER
VALUES (1670,'NUR
SYAFRINA','SYAF123',601223456,
'SKUDAI, JOHOR');

PROFILE

Name	Nur Syafrina
Username	Nur Syafrina
Phone	*****56
Email	syaf@gmail.com
Address	Jalan Bakti 1, Skudai, JB

Update

UPDATE COPY_CUSTOMER
SET PHONE_NUM=014123456
WHERE USER ID=1580;

Upload document

Printing

Upload your doc here

Format accept: pdf, ppt, doc, xls
Number of copy: 3
Total price: RM6

Clear   Submit

INSERT INTO COPY_DOCUMENT
VALUES
(18690,'Syafrina',1670,2.00,3,'PDF');

Order/Cart

QTY	DESCRIPTION	AMOUNT
3	Syafrina - PDF	RM 6

ORDER DATE
2021-1-8

ADDRESS
Jalan Bakti 1, Skudai,Johor

Back   Check Out

INSERT INTO COPY_CUS_ORDER
VALUES ('A001', TO_TIMESTAMP ('01-JAN-20,
11.30.31.000000 AM','DD-MON-RR HH.MI.
SSXFF AM'),
'YES',2,2.00,18690,18523,165498,789);

Payment

Your Total is RM 11

mastercard   VISA

Card Number
**** **** **** 1234

Cardholder's Name
NURSYAFRINA

Name on Card
CIMB

Back   Confirm and Proceed

SELECT *
FROM COPY_DOCUMENT DOC LEFT OUTER
JOIN COPY_CUS_ORDER O
ON(DOC.DOCUMENT_ID=O.DOCUMENT_ID);

CUSTOMER ORDER

Order ID	Order Time	Order Status	Quantity	Subtotal	Document ID	Transaction Number	Runner
A001	01-JAN-20 11.30.31.000000 AM	YES	2	2.00	18690	18523	165498
A230	01-JAN-20 05.30.31.000000 PM	NO	6	6.00	17745	18596	165500
A485	02-JAN-20 06.00.31.000000 PM	YES	5	5.00	16580	18790	166700
A500	02-JAN-20 10.00.31.000000 AM	NO	1	1.00	15000	19780	17600
A003	02-JAN-20 04.00.31.000000 PM	NO	4	4.00	14500	17000	18690

Delete   Edit   Notify Runner

DOCUMENT

User ID	Document ID	Document Name	Document Type	Quantity	Subtotal	Order Status	Runner	Order Time
1670	18690	Syafrina	PDF	2	2.00	YES	165498	01-JAN-20 11.30.31.000000 AM

Back

CUSTOMER ORDER

Order ID	Order Time	Order Status	Quantity	Subtotal	Document ID	Transaction Number	Runner
A001	01-JAN-20 11.30.31.000000 AM	YES	2	2.00	18690	18523	165498
A230	01-JAN-20 05.30.31.000000 PM	NO	6	6.00	17745	18596	165500
A485	02-JAN-20 06.00.31.000000 PM	YES	5	5.00	16580		
A500	02-JAN-20 10.00.31.000000 AM	NO	1	1.00	15000		
A003	02-JAN-20 04.00.31.000000 PM	NO	4	4.00	14500		

Delete   Edit   Notify

DELETE ORDER

Order ID	A003
Quantity	2
Document ID	14500
Subtotal	RM 2.00
Runner	18690

Delete

```
DELETE FROM
COPY_CUS_ORDER

WHERE ORDER_ID='A003';
```

CUSTOMER ORDER

Order ID	Order Time	Order Status	Quantity	Subtotal	Document ID	Transaction Number	
A001	01-JAN-20 11.30.31.000000 AM	YES	2	2.00	18690	1	
A230	01-JAN-20 05.30.31.000000 PM	NO	6	6.00	17745	18	
A485	02-JAN-20 06.00.31.000000 PM	YES	5	5.00	16580	18	
A500	02-JAN-20 10.00.31.000000 AM	NO	1	1.00	15000	19	

Delete   Edit   Notify Runner

EDIT ORDER

Order ID	A230
Quantity	2
Document ID	14500
Subtotal	RM 2.00
Order Status	Yes
Runner	18690

Update

```
UPDATE COPY_CUS_ORDER

SET ORDER_STATUS='YES'

WHERE ORDER_ID='A230';
```

5.3 Set of Queries

-----QUERIES------

1) DISPLAY ALL THE INFORMATION FOR EACH TABLE

```
SELECT *
FROM COPY_CUSTOMER
```

USER_ID	USERNAME	USER_PASSWORD	PHONE_NUM	SHIPPING_ADDRESS
1670	NUR SYAFRINA	SYAF123	601223456	SKUDAI,JOHOR
1580	KOH XIN YI	KOH123	60122345678	KTDI,UTM
1400	ONG YIN REN	ONG123	6017123456	TAMAN UNIVERSITI,JOHOR
1300	NUR HIDAYAH	DAYAH123	6016123456	KRP,UTM
1000	TTAN HHUA	TAN123	6013123456	KTHO,UTM

```
SELECT *
FROM COPY_DOCUMENT
```

DOCUMENT_ID	DOCUMENT_NAME	USER_ID	PRICE	STOCK_QUANTITY	TYPE_DOCUMENT
18690	Syafrina	1670	2	3	PDF
17745	XinYi	1580	6	2	WORD
16580	YinRen	1400	5	1	WORD
15000	Hidayah	1300	1	4	PDF
14500	TAN HUA	1000	4	5	PDF

```
SELECT *
FROM COPY_PAYMENT
```

TRANSACTION_NUMBER	PAYMENT_METHOD	PAYMENT_TIME	TOTAL_PAYMENT
18523	ONLINE (MAYBANK)	01-JAN-20 11.30.31.000000 AM	2
18596	CASH ON DELIVERY	01-JAN-20 06.20.31.000000 PM	6
18790	CASH ON DELIVERY	02-JAN-20 06.30.31.000000 PM	5
19780	ONLINE(CIMB)	02-JAN-20 06.00.31.000000 PM	1
16000	TNG	02-JAN-20 04.30.31.000000 PM	4

```
SELECT *
FROM COPY_ADMIN_DETAIL
```

ADMIN_ID	ADMIN_USERNAME	ADMIN_PASSWORD	ADMIN_PHONE_NUM
789	JIAKO	JK123	6017889666

23

```
SELECT *

FROM COPY_RUNNER
```

RUNNER_ID	RUNNER_NAME	RUNNER_PHONE_NUM
165498	TAN	60102223333
165500	KOH	60112224444
166700	FATIMAH	60145556666
17600	NURUL	60174448888
18690	ONG	60195557777
18600	GOH	60132221111

```
SELECT *

FROM COPY_CUS_ORDER
```

ORDER_ID	ORDER_TIME	ORDER_STATUS	QUANTITY	SUBTOTAL	DOCUMENT_ID	TRANSACTION_NUMBER	RUNNER_ID	ADMIN_ID
A001	01-JAN-20 11.30.31.000000 AM	YES	2	2	18690	18523	165498	789
A230	01-JAN-20 05.30.31.000000 PM	NO	6	6	17745	18596	165500	789
A485	02-JAN-20 06.00.31.000000 PM	YES	5	5	16580	18790	166700	789
A500	02-JAN-20 10.00.31.000000 AM	NO	1	1	15000	19780	17600	789
A003	02-JAN-20 04.00.31.000000 PM	NO	4	4	14500	17000	18690	789

2) DISPLAY USER ID, USERNAME,SHIPPING ADDRESS ONLY FOR USER ID=1580

```
SELECT USER_ID,USERNAME,SHIPPING_ADDRESS

FROM COPY_CUSTOMER

WHERE USER_ID=1580
```

USER_ID	USERNAME	SHIPPING_ADDRESS
1580	KOH XIN YI	KTDI,UTM

3) DISPLAY THE RUNNER,PAYMENT BY ASCENDING

```
SELECT *
FROM COPY_PAYMENT
ORDER BY TOTAL_PAYMENT
```

TRANSACTION_NUMBER	PAYMENT_METHOD	PAYMENT_TIME	TOTAL_PAYMENT
19780	ONLINE(CIMB)	02-JAN-20 06.00.31.000000 PM	1
18523	ONLINE (MAYBANK)	01-JAN-20 11.30.31.000000 AM	2
16000	TNG	02-JAN-20 04.30.31.000000 PM	4
18790	CASH ON DELIVERY	02-JAN-20 06.30.31.000000 PM	5
18596	CASH ON DELIVERY	01-JAN-20 06.20.31.000000 PM	6

```
SELECT *
FROM COPY_RUNNER
ORDER BY RUNNER_ID
```

RUNNER_ID	RUNNER_NAME	RUNNER_PHONE_NUM
17600	NURUL	60174448888
18600	GOH	60132221111
18690	ONG	60195557777
165498	TAN	60102223333
165500	KOH	60112224444
166700	FATIMAH	60145556666

4) DISPLAY DOCUMENT BY DESCENDING

```
SELECT *
FROM COPY_DOCUMENT
ORDER BY DOCUMENT_ID DESC
```

DOCUMENT_ID	DOCUMENT_NAME	USER_ID	PRICE	STOCK_QUANTITY	TYPE_DOCUMENT
18690	Syafrina	1670	2	3	PDF
17745	XinYi	1580	6	2	WORD
16580	YinRen	1400	5	1	WORD
15000	Hidayah	1300	1	4	PDF
14500	TAN HUA	1000	4	5	PDF

5) DISPLAY THE UPDATED ORDER STATUS OF ORDER ID A230

```
UPDATE COPY_CUS_ORDER

SET ORDER_STATUS='YES'

WHERE ORDER_ID='A230'

SELECT*

FROM COPY_CUS_ORDER

WHERE ORDER_ID='A230'
```

ORDER_ID	ORDER_TIME	ORDER_STATUS	QUANTITY	SUBTOTAL	DOCUMENT_ID	TRANSACTION_NUMBER	RUNNER_ID	ADMIN_ID
A230	01-JAN-20 05.30.31.000000 PM	YES	6	6	17745	18596	165500	789

6) DISPLAY THE CUSTOMER DETAILS

```
SELECT *

FROM COPY_DOCUMENT DOC LEFT OUTER JOIN COPY_CUS_ORDER O

ON(DOC.DOCUMENT_ID=O.DOCUMENT_ID)
```

DOCUMENT_ID	DOCUMENT_NAME	USER_ID	PRICE	STOCK_QUANTITY	TYPE_DOCUMENT	ORDER_ID	ORDER_TIME	ORDER_STATUS	QUANTITY	SUBTOTAL	DOCUMENT_ID	TRANSACTION_NUMBER	RUNNER_ID	ADMIN_ID
18690	Syafrina	1670	2	3	PDF	A001	01-JAN-20 11.30.31.000000 AM	YES	2	2	18690	18523	165498	789
17745	XinYi	1580	6	2	WORD	A230	01-JAN-20 05.30.31.000000 PM	NO	6	6	17745	18596	165500	789
16580	YinRen	1400	5	1	WORD	A485	02-JAN-20 06.00.31.000000 PM	YES	5	5	16580	18790	166700	789
15000	Hidayah	1300	1	4	PDF	A500	02-JAN-20 10.00.31.000000 AM	NO	1	1	15000	19780	17600	789
14500	TAN HUA	1000	4	5	PDF	A003	02-JAN-20 04.00.31.000000 PM	NO	4	4	14500	17000	18690	789

7) DISPLAY THE ORDER , RUNNER ID AND TRANSACTION NUMBER WITH AND AND OR CONDITION

```
SELECT ORDER_ID,TRANSACTION_NUMBER,RUNNER_ID

FROM COPY_CUS_ORDER

WHERE ORDER_STATUS='YES'

OR QUANTITY=2
```

ORDER_ID	TRANSACTION_NUMBER	RUNNER_ID
A001	18523	165498
A230	18596	165500
A485	18790	166700

```sql
SELECT ORDER_ID,TRANSACTION_NUMBER,RUNNER_ID

FROM COPY_CUS_ORDER

WHERE ORDER_STATUS='YES'

AND DOCUMENT_ID=18690
```

ORDER_ID	TRANSACTION_NUMBER	RUNNER_ID
A001	18523	165498

8) DISPLAY THE CONFIRMATION ORDER BY ADMIN

```sql
SELECT PAY.PAYMENT_METHOD,O.ORDER_ID

FROM COPY_PAYMENT PAY JOIN COPY_CUS_ORDER O

USING (TRANSACTION_NUMBER)
```

PAYMENT_METHOD	ORDER_ID
ONLINE (MAYBANK)	A001
CASH ON DELIVERY	A230
CASH ON DELIVERY	A485
ONLINE(CIMB)	A500

9) DISPLAY PAYMENT DETAIL

```sql
SELECT PAY.PAYMENT_METHOD,
PAY.PAYMENT_TIME,PAY.TOTAL_PAYMENT,O.DOCUMENT_ID,O.ADMIN_ID,O.RUNNER_ID

FROM COPY_PAYMENT PAY JOIN COPY_CUS_ORDER O

ON PAY.TRANSACTION_NUMBER=O.TRANSACTION_NUMBER

JOIN COPY_DOCUMENT DOC

ON O.DOCUMENT_ID=DOC.DOCUMENT_ID
```

PAYMENT_METHOD	PAYMENT_TIME	TOTAL_PAYMENT	DOCUMENT_ID	ADMIN_ID	RUNNER_ID
ONLINE (MAYBANK)	01-JAN-20 11.30.31.000000 AM	2	18690	789	165498
CASH ON DELIVERY	01-JAN-20 06.20.31.000000 PM	6	17745	789	165500
CASH ON DELIVERY	02-JAN-20 06.30.31.000000 PM	5	16580	789	166700
ONLINE(CIMB)	02-JAN-20 06.00.31.000000 PM	1	15000	789	17600

10) DISPLAY RUNNER DETAIL WITH ADMIN

```
SELECT R.RUNNER_NAME,R.RUNNER_PHONE_NUM,O.ADMIN_ID

FROM COPY_RUNNER R JOIN COPY_CUS_ORDER O

USING (RUNNER_ID)
```

RUNNER_NAME	RUNNER_PHONE_NUM	ADMIN_ID
TAN	60102223333	789
KOH	60112224444	789
FATIMAH	60145556666	789
NURUL	60174448888	789
ONG	60195557777	789

11) DISPLAY RUNNER DETAIL WITH ADMIN ONLY FOR THE RUNNER ID = 166700

SELECT R.RUNNER_NAME,R.RUNNER_PHONE_NUM,O.ADMIN_ID

FROM COPY_RUNNER R JOIN COPY_CUS_ORDER O

USING (RUNNER_ID)

WHERE RUNNER_ID=166700

RUNNER_NAME	RUNNER_PHONE_NUM	ADMIN_ID
FATIMAH	60145556666	789

12)DISPLAY ALL THE ADMIN DETAIL FOR THE ORDER

```
SELECT AD.ADMIN_USERNAME,AD.ADMIN_PASSWORD,AD.ADMIN_PHONE_NUM,O.ORDER_ID

FROM COPY_ADMIN_DETAIL AD JOIN COPY_CUS_ORDER O

ON AD.ADMIN_ID=O.ADMIN_ID

JOIN COPY_RUNNER R

ON O.RUNNER_ID=R.RUNNER_ID
```

ADMIN_USERNAME	ADMIN_PASSWORD	ADMIN_PHONE_NUM	ORDER_ID
JIAKO	JK123	6017889666	A001
JIAKO	JK123	6017889666	A230
JIAKO	JK123	6017889666	A485
JIAKO	JK123	6017889666	A500
JIAKO	JK123	6017889666	A003

13) DISPLAY ALL THE ADMIN DETAIL ONLY FOR THE ADMIN ID=789

```
SELECT AD.ADMIN_USERNAME,AD.ADMIN_PASSWORD,AD.ADMIN_PHONE_NUM,O.ORDER_ID

FROM COPY_ADMIN_DETAIL AD JOIN COPY_CUS_ORDER O

ON AD.ADMIN_ID=O.ADMIN_ID

JOIN COPY_RUNNER R

ON O.RUNNER_ID=R.RUNNER_ID

WHERE O.ADMIN_ID=789
```

ADMIN_USERNAME	ADMIN_PASSWORD	ADMIN_PHONE_NUM	ORDER_ID
JIAKO	JK123	6017889666	A001
JIAKO	JK123	6017889666	A230
JIAKO	JK123	6017889666	A485
JIAKO	JK123	6017889666	A500
JIAKO	JK123	6017889666	A003

14)DISPLAY ORDER DETAILS OF THE USER, DOCUMENT AND ADMIN

```
SELECT CUS.USERNAME,CUS.USER_PASSWORD,CUS.PHONE_NUM,DOC.DOCUMENT_NAME,

ORD.ORDER_TIME,AD.ADMIN_USERNAME

FROM COPY_CUSTOMER CUS FULL JOIN COPY_DOCUMENT DOC

ON CUS.USER_ID=DOC.USER_ID

FULL JOIN COPY_CUS_ORDER ORD

ON DOC.DOCUMENT_ID=ORD.DOCUMENT_ID

FULL JOIN COPY_ADMIN_DETAIL AD

ON ORD.ADMIN_ID=AD.ADMIN_ID
```

| USERNAME	USER_PASSWORD	PHONE_NUM	DOCUMENT_NAME	ORDER_TIME	ADMIN_USERNAME
NUR SYAFRINA	SYAF123	601223456	Syafrina	01-JAN-20 11.30.31.000000 AM	JIAKO
KOH XIN YI	KOH123	60122345678	XinYi	01-JAN-20 05.30.31.000000 PM	JIAKO
ONG YIN REN	ONG123	6017123456	YinRen	02-JAN-20 06.00.31.000000 PM	JIAKO
NUR HIDAYAH	DAYAH123	6016123456	Hidayah	02-JAN-20 10.00.31.000000 AM	JIAKO
TTAN HHUA	TAN123	6013123456	TAN HUA	02-JAN-20 04.00.31.000000 PM	JIAKO

15) DISPLAY THE STOCK OF THE DOCUMENT TYPE WHICH TOTAL THE USER PAY WITH THE TRANSACTION NUMBER=18523

```sql
SELECT CUS.USERNAME,DOC.STOCK_QUANTITY,DOC.TYPE_DOCUMENT,ORD.QUANTITY,PAY.
TOTAL_PAYMENT
FROM COPY_CUSTOMER CUS JOIN COPY_DOCUMENT DOC
ON CUS.USER_ID=DOC.USER_ID
JOIN COPY_CUS_ORDER ORD
ON DOC.DOCUMENT_ID=ORD.DOCUMENT_ID
JOIN COPY_PAYMENT PAY
ON ORD.TRANSACTION_NUMBER=PAY.TRANSACTION_NUMBER
WHERE PAY.TRANSACTION_NUMBER=18523
```
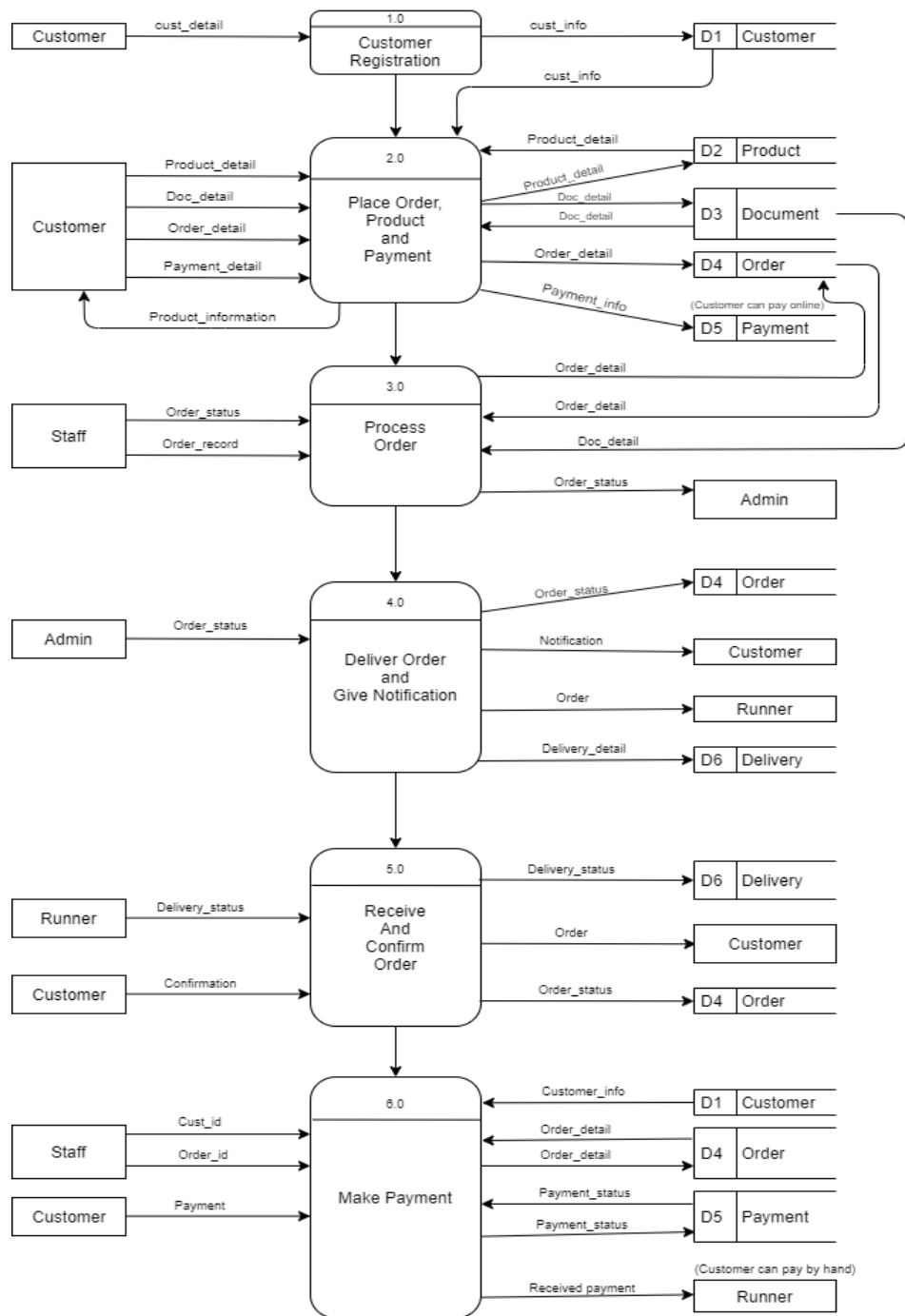
USERNAME	STOCK_QUANTITY	TYPE_DOCUMENT	QUANTITY	TOTAL_PAYMENT
NUR SYAFRINA	3	PDF	2	2

5.4 Data Flow Diagram (DFD)

5.4.1 Context Diagram

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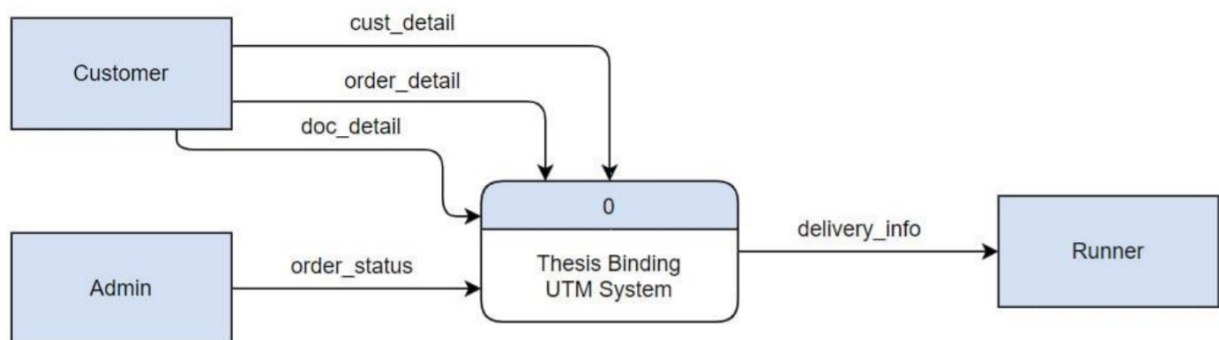
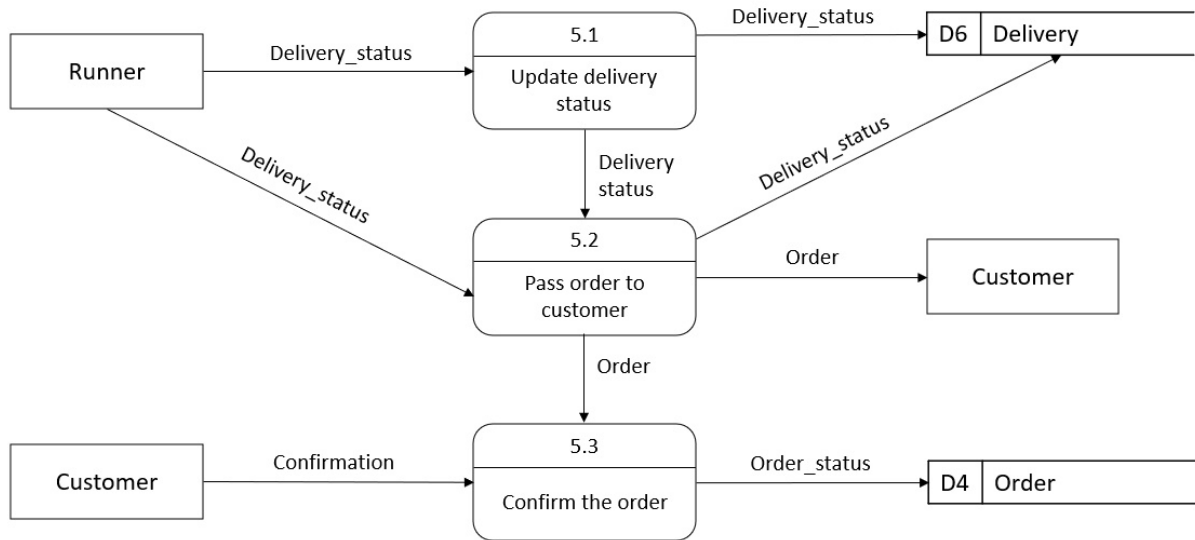## 5.4.2 DFD Level 0

5.4.3 Child Diagram for Process 2
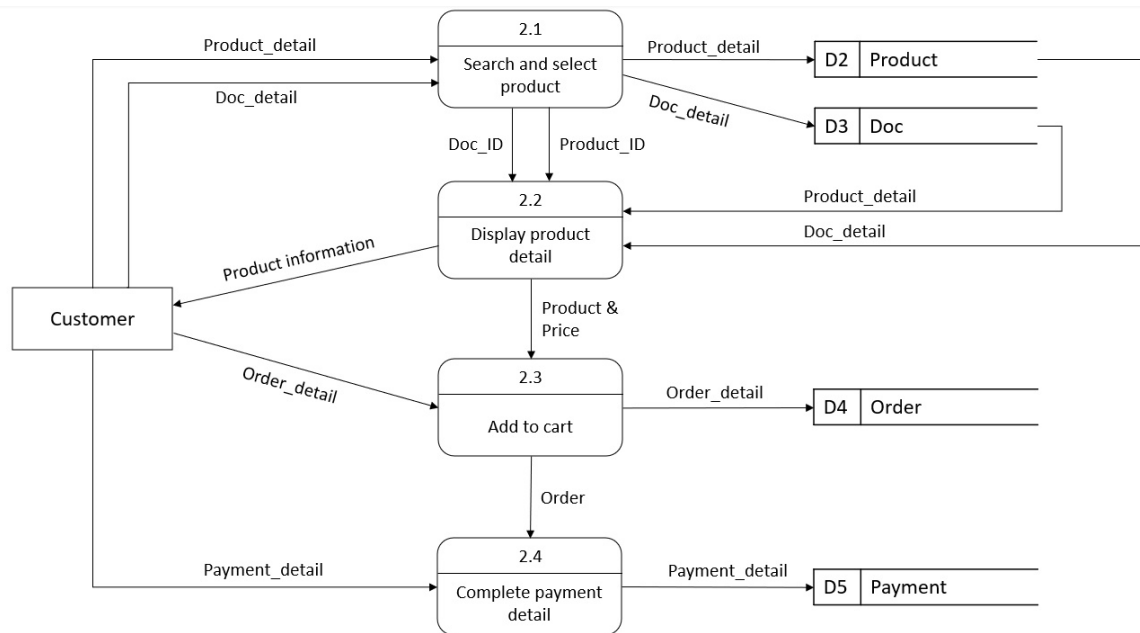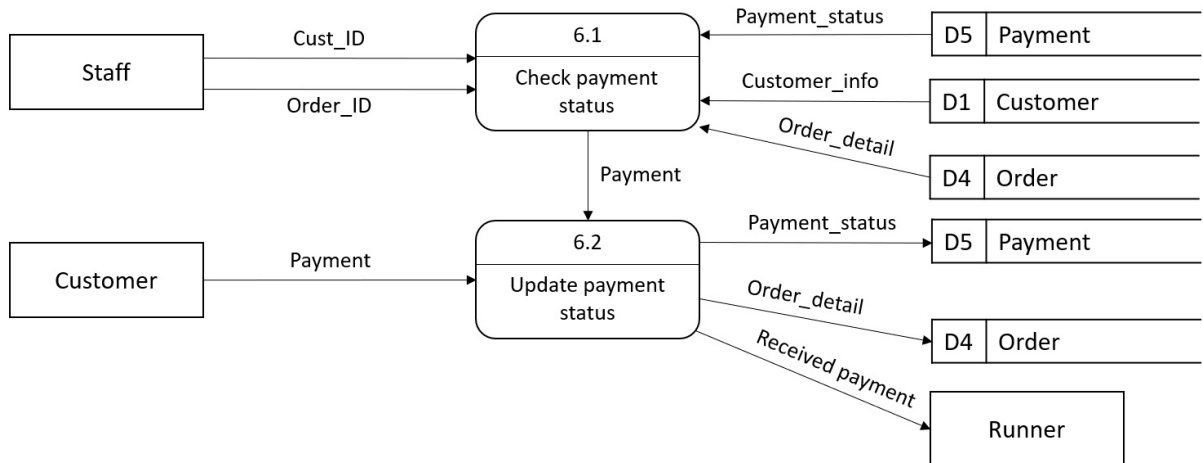

5.4.4 Child Diagram for Process 3
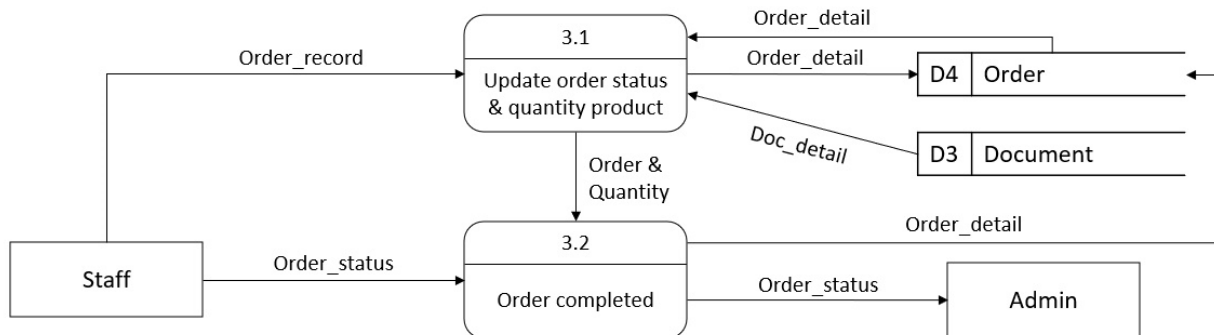
5.4.5 Child Diagram for Process 4
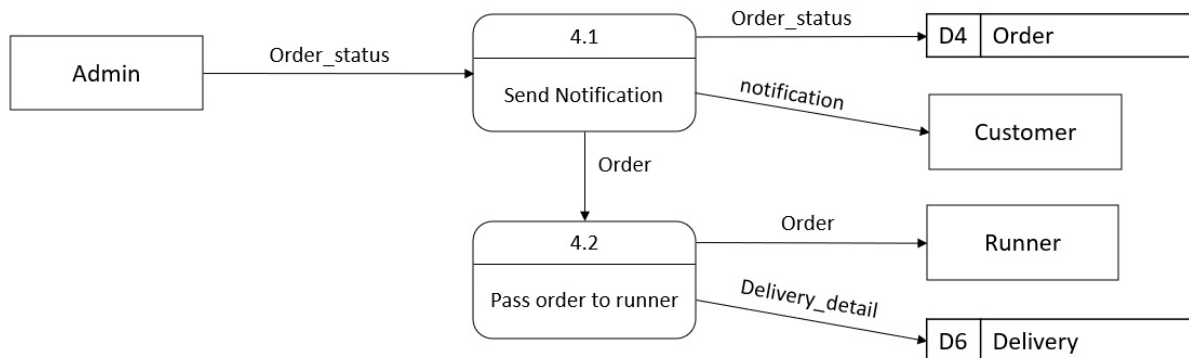
5.4.6 Child Diagram for Process 5

5.4.7 Child Diagram for Process 6

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Appendix

Interview Output

Interviewer:	Good evening, Pn Alia. I am Koh Xin Yi, a second-year student from the Faculty of Engineering. My friends, Nur Hidayah, NurSyafrina, Ong Yin Ren and I currently carry out a project of course SAD and Database. We need to analyze problems of a system and design solutions to improve the current system. We decided to choose your Thesis Binding UTM shop as our case study. So, I am now representing my group members to have an interview with you. Are you free to answer some questions for me now?
Interviewee:	Good evening, Xin Yi. Yes, sure.
Interviewer:	Thank you for spending your time to answer my questions. Without wasting your time, let's start the interview. The first question, **do you face any problem with your current system?**
Interviewee:	No problem so far, everything is in good condition. Even if there is a problem that happened, it is not a big deal.
Interviewer:	**Have your sales increased in the past few years?**
Interviewee:	Yes, my sales increased in the last few years.
Interviewer:	**Which group of people are your majority customers?**
Interviewee:	My customers are mostly students from university.
Interviewer:	I see. **Do you think your current system is efficient and safe?**
Interviewee:	I think my system is not efficient enough and safe yet. However, I will find a more proper and safe system. I hope there is a proper system for me.
Interviewer:	If we propose a new online system for you, **what feature do you wish to have in the new online system?**

Interviewee:	I hope there is a system where the students can place their order through the system and complete the payment together. Our behalf can clearly understand the customers' request, and no problem exists until the order is completed.
Interviewer:	**How did you think a new online system helps to reduce your cost?**
Interviewee:	If I have that system, I think the working procedure will be smoother and more efficient. I believe it can ease my working burden.
Interviewer:	Alright. Now I get your thoughts. It has come to the end of this interview. Once again, I would like to say thank you for allowing us to carry this interview with you. Thank you for your precious time.
Interviewee:	Alright. You are most welcome.