



Royal Commission for Jubail and Yanbu Jubail Industrial College

Computer Science & Information Technology Department

Database Systems Project

Semester: 441

Course Code	CS350	Course Title	Database Systems	Section	202
Date Given	Week 6	Date of Submission	Week 14		

PART I	TO BE FILLED BY THE STUDENT			
STUDENT'S NAME	FATIMAH IBRAHIM ATTAFI	ID. No.	402200452	
STUDENT'S NAME	HAJAR IBRAHIM ALTHUNAYYAN	ID. No.	392200411	
STUDENT'S NAME	SAMAR SAAD ALMUTAIRI	ID. No.	401200056	

	Max Marks	1'st Student Name: Fatimah Attafi ID: 402200452	2'nd Student Name: Hajar Althunayyan ID: 392200411	3'rd Student Name: Samar Almutairi ID: 401200056
Requirement analysis	2			
Conceptual design	2			
Logical design	4			
DB Implementation	8			
Application	5			
Normalization	2			
Report and presentation	4			
SIS	Total marks*16/27			

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PLAN OF THE PROJECT

1. Choose your group members:-

FATIMAH IBRAHIM ATTAFI	402200452
HAJAR IBRAHIM ALTHUNAYYAN	392200411
SAMAR SAAD ALMUTAIRI	401200056

2. Choose a domain for your database:-

FLOWERS BOUTIQUE

3. Choose the DBMS you prefer (e.g. MySQL):-

MySQL

4. Choose a programming language for the application development (e.g. Java):-

JAVA LANGUAGE

5. Find an API to link your database to the application (e.g. JDBC):-

JDBC

Stage 1: Requirement analysis

Collect the database requirements for your system and state them thoroughly.

A flowers store has branches each branch is described by its name, number and location. Each branch of this store is selling flower bouquets which organized by the name, id and price of the bouquet. Also each branch has its own employees that not work at any other branch and store his details as his name and id.

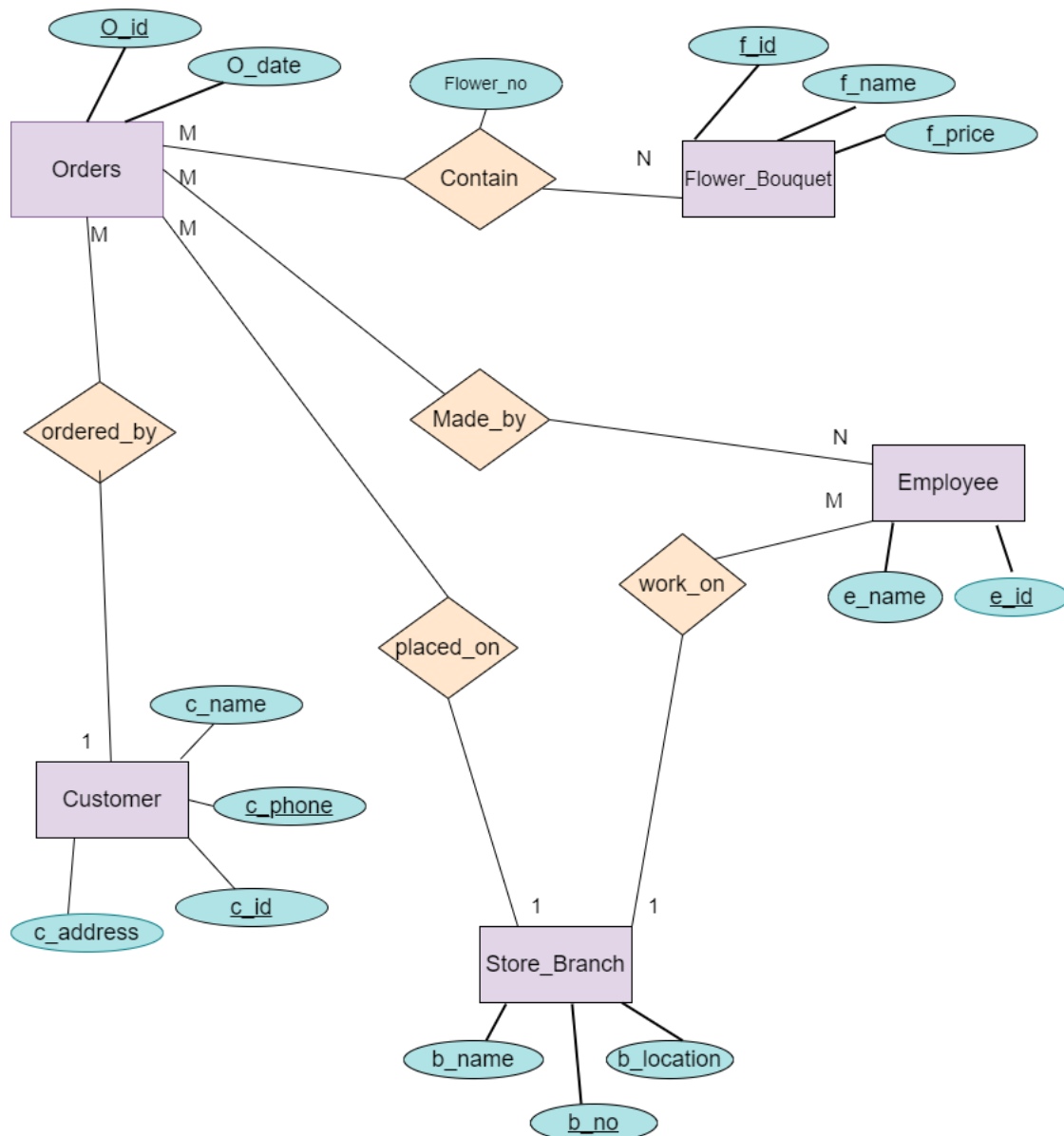
This flowers store is keeping track of the customers and the orders, it organizes the customer's information by storing his name, id, phone number and address to which the orders are delivered.

The customer can place many order so the store will save the information of each order by storing the identity of the bouquets that he requested and the date of the request, and will arrange them by the order's identity, and since the request is made by one customer, the customer's identity will be stored next to each order.

Finally, the number of the branch whose employees are working on the order is stored next to the data of each order.

Stage 2: Conceptual design

Construct an E-R diagram for the chosen database. Document all assumptions relevant to your database and design carefully.



Stage 3: Data model mapping

Apply the 7-rule mapping criteria to create the Relational database diagram. Clarify the relations and the constraints between the tables in terms of PK/FK relationships.

Orders

<u>O_id</u>	O_date	#b_no	#c_id
-------------	--------	-------	-------

Flower_Bouquet

<u>f_id</u>	f_name	f_price
-------------	--------	---------

Employee

<u>e_id</u>	e_name	#b_no
-------------	--------	-------

Store_Branch

<u>b_no</u>	b_name	b_location
-------------	--------	------------

Customer

<u>c_id</u>	c_name	c_phone	c_address
-------------	--------	---------	-----------

Contain

#f_id	#O_id	Flower_no
-------	-------	-----------

Made_by

#e_id	#O_id
-------	-------

Orders [O_id, O_date, #b_no, #c_id]
Flower_Bouquet [f_id, f_name, f_price]
Employee [e_id, e_name, #b_no]
Store_Branch [b_no, b_name, b_location]
Customer [c_id, c_name, c_phone, c_address]
Contain [#f_id, #O_id, Flower_no]
Made_by [#e_id, #O_id]

Stage 4: Implementation phase

8 Marks

1. Use SQL statements to create the appropriate corresponding tables. Use suitable data type and constraints for each attribute.
2. Populate your database with some meaningful data (At least 50 tuples).

In the report, provide the SQL commands and a screen shot of the database population.

```
1 • create schema flowersStore ;
2
3 • use flowersStore ;
4
5 /* -----create the tables-----*/
6 • create table Orders (
7     O_id          INT          PRIMARY KEY,
8     O_date        DATE,
9     b_no          INT,
10    c_id           INT
11
12 );
13
14 • create table Flower_Bouquet(
15     f_id          INT          PRIMARY KEY,
16     f_name        varchar(50) ,
17     f_price       INT
18
19 );
20
```

Figure 1: SQL code.

```

21 • ○ create table Employee(
22     e_id          INT PRIMARY KEY,
23     e_name        varchar(20),
24     b_no          INT
25 );
26
27 • ○ create table Store_Branch(
28     b_no          INT          PRIMARY KEY,
29     b_name        varchar(20) ,
30     b_location    varchar(20)
31 );
32
33 • ○ create table Customer (
34     c_id          INT          PRIMARY KEY,
35     c_name        varchar(20),
36     c_phone       VARCHAR(20) ,
37     c_address     varchar(50)
38 );
39
41 • ○ create table Contain (
42
43     O_id          INT ,
44     f_id          INT,
45     Flower_no     INT
46
47 );
48
49 • ○ create table Made_by (
50     O_id          INT,
51     e_id          INT,
52     FOREIGN KEY (e_id) references Employee(e_id),
53     foreign key(O_id) references Orders(O_id) ON DELETE CASCADE
54 );
55

```

Figure 2: SQL code.

```

56      /* -----alter the tables----- */
57  •   Alter table Orders add constraint b_no_FK foreign key(b_no)
58      references Store_Branch(b_no);
59
60  •   Alter table Orders add constraint c_id_FK foreign key(c_id)
61      references Customer(c_id);
62
63  •   Alter table Employee add constraint eb_no_FK foreign key(b_no)
64      references Store_Branch(b_no);
65
66  •   Alter table Contain add constraint f_id_FK foreign key(f_id)
67      references Flower_Bouquet(f_id);
68
69  •   Alter table Contain add constraint O_id_FK foreign key(O_id)
70      references Orders(O_id) ON DELETE CASCADE;
71
72  /* -----describe the tables----- */
73
74
75  •   describe Orders;
76  •   describe Flower_Bouquet;
77  •   describe Employee;
78  •   describe Store_Branch;
79  •   describe Customer;
80  •   describe Contain;
81  •   describe Made_by;
82

```

Figure 3: SQL code.

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	Field	Type	Null	Key	Default	Extra
▶	O_id	int	NO	PRI	NULL	
	O_date	date	YES		NULL	
	b_no	int	YES	MUL	NULL	
	c_id	int	YES	MUL	NULL	

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	Field	Type	Null	Key	Default	Extra
▶	f_id	int	NO	PRI	NULL	
	f_name	varchar(50)	YES		NULL	
	f_price	int	YES		NULL	

Result Grid

Filter Rows:

Export:

Wrap Cell Content:

	Field	Type	Null	Key	Default	Extra
▶	e_id	int	NO	PRI	NULL	
	e_name	varchar(20)	YES		NULL	
	b_no	int	YES	MUL	NULL	

Result Grid

Filter Rows:

Export:


Wrap Cell Content:


	Field	Type	Null	Key	Default	Extra
▶	b_no	int	NO	PRI	NULL	
	b_name	varchar(20)	YES		NULL	
	b_location	varchar(20)	YES		NULL	

Figure 4: tables describe.

Result Grid

Filter Rows:


Export: 


Wrap Cell Content: 

	Field	Type	Null	Key	Default	Extra
▶	c_id	int	NO	PRI	NULL	
	c_name	varchar(20)	YES		NULL	
	c_phone	varchar(20)	YES		NULL	
	c_address	varchar(50)	YES		NULL	

Result Grid

Filter Rows:


Export: 


Wrap Cell Content: 

	Field	Type	Null	Key	Default	Extra
▶	O_id	int	YES	MUL	NULL	
	f_id	int	YES	MUL	NULL	
	Flower_no	int	YES		NULL	

Result Grid

Filter Rows:

Export: 

Wrap Cell Content: 

	Field	Type	Null	Key	Default	Extra
▶	O_id	int	YES	MUL	NULL	
	e_id	int	YES	MUL	NULL	

Figure 5: tables describe.

```

83      /* -----fill the tables----- */
84      •   INSERT INTO Customer (c_id, c_name, c_phone, c_address)
85      values
86      (1, 'Abdullah Saleh', '053 648 2542', '76422 Jalumdah'),
87      (2, 'Faisal Ali ', '057 495 3745', '42 Jalumdah'),
88      (3, 'Sarah Saud ', '054 475 5937', '07 Al wahah'),
89      (4, 'Noor Majed', '058 243 6493', '45547 Al ahamra' ),
90      (5, 'Dana Faisal ', '051 874 5231', '5 Al faiha'),
91      (6, 'Ali Saud ', '054 684 4246', '458 Al lulu'),
92      (7, 'Ameer Mohammed', '057 566 8452', '0547 Al huwaylat'),
93      (8, 'Kalid Fahad ', '057 764 2958', '1435 Jalumdah' ),
94      (9, 'Abeer Nasser', '053 357 6683', '360 Al faiha' ),
95      (10, 'Luluh Sultan', '056 358 6399', '1792 Al Khalidiyah' ),
96      (11, 'Yoshiko Bautiste', '052 326 3154', '3 Sydayr' ),
97      (12, 'Feras Saad ', '053 738 6296', '33722 Al faiha' ),
98      (13, 'Buthaina Ahmed ', '056 993 5367', '161 Al ahamra' ),
99      (14, 'Yara Abdulaziz', '052 973 7858', '93 Darin' ),
100     (15, 'Noor Saleh', '055 743 1377', '17078 Al huwaylat' ),
101     (16, 'Noel Sedman', '053 886 8357', '78 Al wahah' ),
102     (17, 'Asma Omar', '055 254 7554', '26 Al ahamra' ),
103     (18, 'Rawan Hussein ', '056 572 9953', '24 Al Khalidiyah' ),
104     (19, 'Mansour Fahad ', '055 152 6924', '19723 Al Khalidiyah' ),
105     (20, 'Aisha Ahmed', '052 746 4228', '329 Sydayr' ),
106     (21, 'Zaynab Basil', '054 328 1577', '87 Al lulu' ),
107     (22, 'Liliane Clemmey', '054 213 1837', '64444 Darin' ),
108     (23, 'Saud Saad ', '055 676 1315', '69 Darin' ),
109     (24, 'Maryam Musa', '051 675 9256', '2 Al ahamra' ),
110     (25, 'Archer Ruperto', '054 674 2541', '07 Al wahah' ),
111     (26, 'Stacee Ghion', '054 168 6444', '16883 Al lulu' ),

```

Figure 6: SQL code.

```

112 (27, 'Shatha Ahmed ', '053 875 7868', '53 Al huwaylat' ),
113 (28, 'Rana Fahad', '051 564 5689', '86 Al lulu' ),
114 (29, 'Hamza Bender', '052 162 7724', '71 Darin' ),
115 (30, 'Pearce Tooher', '057 133 9573', '1387 Sydayr' ),
116 (31, 'Ali Faisal', '056 758 7626', '19467 Al wahah' ),
117 (32, 'Adulmalek Musa ', '057 667 3136', '23 Al huwaylat' ),
118 (33, 'Martainn Haddleton', '054 622 4672', '6 Al lulu' ),
119 (34, 'Majed Fuad', '055 798 3775', '725 Al Khalidiyah' ),
120 (35, 'Tahani Fahad', '054 478 7428', '29833 Al Khalidiyah' ),
121 (36, 'Lujain aljuaid', '055 469 8476', '6 Al Khalidiyah' ),
122 (37, 'Fatimah Saeed', '058 853 6699', '07927 Darin' ),
123 (38, 'Ameerah Ahmed', '059 865 3772', '21 Sydayr' ),
124 (39, 'Marwa Alsufyani', '056 731 8468', '99 Al huwaylat' ),
125 (40, 'Samar Saad', '051 678 1258', '273 Darin' ),
126 (41, 'Mishaal Sultan', '057 613 4649', '441 Al Khalidiyah' ),
127 (42, 'Noorah Hamad', '058 266 9714', '85 Al lulu' ),
128 (43, 'Sarah Fahad', '051 218 2668', '762 Al huwaylat' ),
129 (44, 'Yasmine Hossam', '054 969 4827', '66420 Sydayr' ),
130 (45, 'Jamal Kahlid', '055 271 7937', '2499 Al wahah' ),
131 (46, 'Ulises Presidey', '056 824 1878', '9 Al ahamra' ),
132 (47, 'Sultan Rakan', '052 437 8534', '1271 Al faiha' ),
133 (48, 'Hissah Alotaibi', '051 957 7784', '15 Jalumdah' ),
134 (49, 'Areej Hani', '054 977 6135', '44246 Darin' ),
135 (50, 'Mohammed Faisal', '057 454 8188', '0647 Jalumdah' );
139 • INSERT INTO Store_Branch (b_no, b_name, b_location)
140 values
141 (1, 'Flower Story', 'ALhamra'),
142 (2, 'Lavender Bouquets', 'ALfaiha'),
143 (3, ' Pink Garden', 'jalmudah'),
144 (4, ' Secret Garden', 'Darin'),
145 (5, 'Bloom Flowers', 'ALwahah');
146
147

```

Figure 7: SQL code.

```

148 • INSERT INTO Flower_Bouquet (f_id, f_name, f_price)
149 values
150 (001,'1 white rose',5),
151 (002,'1 red roses',5),
152 (003,'1 Pink rose',5),
153 (004,'1 yellow rose',5),
154 (005,'roses Bouquet',45),
155 (006,'1 white lily',6),
156 (007,'1 pink lily',6),
157 (008,' lily Bouquet',40),
158 (009,'1 Sunflower',5),
159 (010,'Sunflower Bouquet',40),
160 (011,'1 White Tulip',4),
161 (012,'1 Pink Tulip',4),
162 (013,'1 Yellow Tulip',4),
163 (014,'1 Red Tulip',4),
164 (015,'Tulip Bouquet',32),
165 (016,'Lavender Bouquet',40),
166 (017,'White Lilac',8),
167 (018,'Purple Lilac',8),
168 (019,'Lilac Bouquet',60),
169 (020,'1 Pink Carnation',4),
170 (021,'1 Red Carantion',4),
171 (022,'1 white Carantion',4),
172 (023,'Carantion Bouquet',4),
173 (024,'Bluebell Bouquet',30),
174 (025,'cotton flower Bouquet ',33),
175 (026,'White Gypsopila Bouquet',15),
176 (027,'Pink Gypsopila Bouquet',15),
177 (028,'Purple Gypsopila Bouquet',15),
178 (029,'Blue Gypsopila Bouquet',15);
179
180
181 • INSERT INTO Employee (e_id,e_name,b_no)
182 values
183 (20665,'Mustafa',2),
184 (30885,'Mikel',3),
185 (10984,'Waleed',1),
186 (50222,'Malik',5),
187 (40955,'Morad',4),

```

Figure 8: SQL code.

```

188      (30158, 'Hateem', 3),
189      (10933, 'Hanan', 1),
190      (20995, 'Jone', 2),
191      (40321, 'Tomas', 4),
192      (50444, 'Ruaa', 5),
193      (50977, 'Smith', 5),
194      (10345, 'Fadi', 1),
195      (30223, 'jana', 3),
196      (20452, 'Kholod', 2),
197      (40446, 'Jalal', 4),
198      (11097, 'Lora', 1),
199      (51323, 'Nada', 5),
200      (31454, 'Ramy', 3),
201      (21333, 'Talal', 2),
202      (51887, 'Jassim', 5),
203      (41443, 'Emad', 4),
204      (11009, 'Rashed', 1),
205      (31002, 'Nancy', 3),
206      (21090, 'Ebrahim', 2),
207      (74930, 'Aseel', 5),
208      (41020, 'Karim', 4),
209      (11000, 'Adnan', 1),
210      (21343, 'Fares', 2),
211      (31088, 'Salem', 3),
212      (51632, 'Salah', 5),
213      (41962, 'Nawaf', 4),
214      (31023, 'Zayed', 3),
215      (11111, 'Majeed', 1),
216      (21232, 'Perri', 2),
217      (51555, 'Maha', 5),
218      (41999, 'Yomna', 4),
219      (12334, 'Huda', 1),
220      (22000, 'Hind', 2),
221      (42090, 'Adeel', 4),
222      (32332, 'Tariq', 3),
223      (52334, 'Yahya', 5),
224      (52998, 'Marwan', 5),
225      (32567, 'Hamdan', 3),
226      (12330, 'Julie', 1),
227      (96666, 'Azzam', 2),
228      (42300, 'Othman', 4);

```

Figure 9: SQL code.


```

230 • INSERT INTO Orders (O_id,O_date,b_no,c_id)
231     values
232     (100,'2022-02-02',1,1),
233     (101,'2022-02-02',1,2),
234     (102,'2022-02-02',1,3),
235     (103,'2022-02-03',1,4),
236     (104,'2022-02-03',1,5),
237     (105,'2022-02-04',1,6),
238     (106,'2022-02-08',1,7),
239     (107,'2022-02-08',1,8),
240     (108,'2022-02-09',1,9),
241     (109,'2022-02-09',1,10),
242     (200,'2022-02-10',2,11),
243     (201,'2022-02-10',2,12),
244     (202,'2022-02-14',2,13),
245     (203,'2022-02-15',2,14),
246     (204,'2022-02-25',2,15),
247     (205,'2022-02-25',2,16),
248     (206,'2022-02-25',2,17),
249     (207,'2022-02-27',2,18),
250     (208,'2022-03-01',2,19),
251     (209,'2022-03-02',2,20),
252     (300,'2022-03-07',3,21),
253     (301,'2022-03-07',3,22),
254     (302,'2022-03-07',3,23),
255     (303,'2022-03-12',3,24),
256     (304,'2022-03-13',3,25),
257     (305,'2022-03-17',3,26),
258     (306,'2022-03-17',3,27),
259     (307,'2022-03-18',3,28),
260     (308,'2022-03-28',3,29),
261     (309,'2022-04-07',3,30),
262     (400,'2022-04-08',4,31),
263     (401,'2022-04-09',4,32),
264     (402,'2022-04-09',4,33),
265     (403,'2022-04-09',4,34),
266     (404,'2022-04-10',4,35),
267     (405,'2022-04-10',4,36),
268     (406,'2022-04-11',4,37),
269     (407,'2022-04-21',4,38),
270     (408,'2022-04-22',4,39),
271     (409,'2022-04-24',4,40),
272     (500,'2022-05-12',5,41),

```

Figure 10: SQL code.

```

273      (501, '2022-05-15', 5, 42),
274      (502, '2022-05-17', 5, 43),
275      (503, '2022-05-17', 5, 44),
276      (504, '2022-05-23', 5, 45),
277      (505, '2022-05-24', 5, 46),
278      (506, '2022-05-24', 5, 47),
279      (507, '2022-05-25', 5, 48),
280      (508, '2022-05-25', 5, 49),
281      (509, '2022-05-25', 5, 50);

293
294 •   INSERT INTO Contain (O_id,f_id, Flower_no)
295     values
296     (100,010,2),
297     (100,017,5),
298     (101,004,10),
299     (102,029,4),
300     (103,023,1),
301     (103,002,1),
302     (104,006,13),
303     (105,001,1),
304     (105,024,2),
305     (106,014,4),
306     (107,025,15),
307     (108,002,11),
308     (109,007,2),
309     (109,010,1),
310     (200,016,2),
311     (201,017,5),
312     (202,009,1),
313     (203,005,5),
314     (203,027,2),
315     (204,016,3),
316     (205,019,1),
317     (206,013,3),

```

Figure 11: SQL code.

```
318      (207,001,4),
319      (208,008,2),
320      (209,023,4),
321      (300,028,10),
322      (301,025,1),
323      (302,014,4),
324      (303,007,6),
325      (303,028,3),
326      (304,009,6),
327      (305,008,1),
328      (306,019,1),
329      (307,026,3),
330      (308,017,2),
331      (308,029,3),
332      (309,002,31),
333      (400,003,32),
334      (401,002,33),
335      (402,013,4),
336      (403,015,15),
337      (404,012,36),
338      (405,021,37),
339      (406,003,4),
340      (407,008,9),
341      (408,003,40),
342      (409,004,1),
343      (500,001,42),
344      (501,012,43),
345      (501,022,3),
346      (502,014,4),
347      (503,024,5),
348      (504,015,6),
349      (505,016,7),
350      (505,006,47),
351      (506,007,48),
352      (507,018,9),
353      (508,009,50),
354      (509,010,1);
```

Figure 12: SQL code.

```
371 • INSERT INTO Made_by (O_id,e_id)
372     values
373     (100,10984),
374     (101,10933),
375     (101,11111),
376     (102,10345),
377     (103,11097),
378     (104,11009),
379     (105,10984),
380     (105,11000),
381     (106,11111),
382     (107,12334),
383     (108,12330),
384     (109,10984);
388     (200,20665),
389     (200,21343),
390     (201,20995),
391     (202,20452),
392     (203,21333),
393     (204,21090),
394     (204,22000),
395     (205,21343),
396     (206,21232),
397     (207,22000),
398     (208,96666),
399     (209,20665),
400     (209,21232),
401     (300,30885),
402     (300,30223),
403     (301,30158),
404     (302,30885),
405     (302,30223),
406     (303,31454),
407     (303,31023),
408     (304,31002),
409     (305,31088),
410     (306,31023),
```

Figure 13: SQL code.


```

411      (307,32332),
412      (308,32567),
413      (309,30885),
414      (400,41962),
415      (401,40321),
416      (402,40955),
417      (403,40446),
418      (404,41443),
419      (405,40446),
420      (405,41443),
421      (406,41020),
422      (406,42090),
423      (407,41962),
424      (408,42090),
425      (409,41999),
426      (409,42300),
427      (500,52334),
428      (501,52998),
429      (502,51555),
430      (503,52334),
431      (503,51632),
432      (504,74930),
433      (504,52998),
434      (505,50222),
435      (506,50444),
436      (507,50977),
437      (508,51887),
438      (509,51887),
439      (509,50977);
454      /* -----select the tables-----*/
455 •      select * from Made_by;
456 •      select * from Contain;
457 •      select * from Orders;
458 •      select * from Employee;
459 •      select * from Flower_Bouquet;
460 •      select * from Store_Branch;
461 •      select * from Customer;

```

Figure 14: SQL code.

Made_by

	O_id	e_id	O_id	e_id	O_id	e_id
►	100	10984	209	20665	406	42090
	101	10933	209	21232	407	41962
	101	11111	300	30885	408	42090
	102	10345	300	30223	409	41999
	103	11097	301	30158	409	42300
	104	11009	302	30885	500	52334
	105	10984	302	30223	501	52998
	105	11000	303	31454	502	51555
	106	11111	303	31023	503	52334
	107	12334	304	31002	503	51632
	108	12330	305	31088	504	74930
	109	10984	306	31023	504	52998
	200	20665	307	32332	505	50222
	200	21343	308	32567	506	50444
	201	20995	309	30885	507	50977
	202	20452	400	41962	508	51887
	203	21333	401	40321	509	51887
	204	21090	402	40955	509	50977
	204	22000	403	40446		
	205	21343	404	41443		
	206	21232	405	40446		
	207	22000	405	41443		
	208	96666	406	41020		

Figure 15: Mady_by population.

Contain

	O_id	f_id	Flower_no	O_id	f_id	Flower_no	O_id	f_id	Flower_no
►	100	10	2	300	28	10	502	14	4
	100	17	5	301	25	1	503	24	5
	101	4	10	302	14	4	504	15	6
	102	29	4	303	7	6	505	16	7
	103	23	1	303	28	3	505	6	47
	103	2	1	304	9	6	506	7	48
	104	6	13	305	8	1	507	18	9
	105	1	1	306	19	1	508	9	50
	105	24	2	307	26	3	509	10	1
	106	14	4	308	17	2			
	107	25	15	308	29	3			
	108	2	11	309	2	31			
	109	7	2	400	3	32			
	109	10	1	401	2	33			
	200	16	2	402	13	4			
	201	17	5	403	15	15			
	202	9	1	404	12	36			
	203	5	5	405	21	37			
	203	27	2	406	3	4			
	204	16	3	407	8	9			
	205	19	1	408	3	40			
	206	13	3	409	4	1			
	207	1	4	500	1	42			
	208	8	2	501	12	43			
	209	23	4	501	22	3			

Figure 16: contain population.

Orders

	O_id	O_date	b_no	c_id		O_id	O_date	b_no	c_id
▶	100	2022-02-02	1	1		303	2022-03-12	3	24
	101	2022-02-02	1	2		304	2022-03-13	3	25
	102	2022-02-02	1	3		305	2022-03-17	3	26
	103	2022-02-03	1	4		306	2022-03-17	3	27
	104	2022-02-03	1	5		307	2022-03-18	3	28
	105	2022-02-04	1	6		308	2022-03-28	3	29
	106	2022-02-08	1	7		309	2022-04-07	3	30
	107	2022-02-08	1	8		400	2022-04-08	4	31
	108	2022-02-09	1	9		401	2022-04-09	4	32
	109	2022-02-09	1	10		402	2022-04-09	4	33
	110	2022-11-26	1	55		403	2022-04-09	4	34
	130	2022-11-26	1	57		404	2022-04-10	4	35
	200	2022-02-10	2	11		405	2022-04-10	4	36
	201	2022-02-10	2	12		406	2022-04-11	4	37
	202	2022-02-14	2	13		407	2022-04-21	4	38
	203	2022-02-15	2	14		408	2022-04-22	4	39
	204	2022-02-25	2	15		409	2022-04-24	4	40
	205	2022-02-25	2	16		500	2022-05-12	5	41
	206	2022-02-25	2	17		501	2022-05-15	5	42
	207	2022-02-27	2	18		502	2022-05-17	5	43
	208	2022-03-01	2	19		503	2022-05-17	5	44
	209	2022-03-02	2	20		504	2022-05-23	5	45
	300	2022-03-07	3	21		505	2022-05-24	5	46
	301	2022-03-07	3	22		506	2022-05-24	5	47
	302	2022-03-07	3	23		507	2022-05-25	5	48
						508	2022-05-25	5	49
						509	2022-05-25	5	50

Figure 17: orders population.

Employee

	e_id	e_name	b_no			
▶	10345	Fadi	1		32567	Hamdan 3
	10933	Hanan	1		40321	Tomas 4
	10984	Waleed	1		40446	Jalal 4
	11000	Adnan	1		40955	Morad 4
	11009	Rashed	1		41020	Karim 4
	11097	Lora	1		41443	Emad 4
	11111	Majeed	1		41962	Nawaf 4
	12330	Julie	1		41999	Yomna 4
	12334	Huda	1		42090	Adeel 4
	20452	Kholod	2		42300	Othman 4
	20665	Mustafa	2		50222	Malik 5
	20995	Jone	2		50444	Ruaa 5
	21090	Ebrahim	2		50977	Smith 5
	21232	Perri	2		51323	Nada 5
	21333	Talal	2		51555	Maha 5
	21343	Fares	2		51632	Salah 5
	22000	Hind	2		51887	Jassim 5
	30158	Hateem	3		52334	Yahya 5
	30223	jana	3		52998	Marwan 5
	30885	Mikel	3		74930	Aseel 5
	31002	Nancy	3		96666	Azzam 2
	31023	Zayed	3			
	31088	Salem	3			
	31454	Ramy	3			
	32332	Tariq	3			

Figure 18: employee population.

Flower_Bouquet

	f_id	f_name	f_price			
▶	1	1 white rose	5			
	2	1 red roses	5			
	3	1 Pink rose	5			
	4	1 yellow rose	5			
	5	roses Bouquet	45			
	6	1 white lily	6			
	7	1 pink lily	6			
	8	lily Bouquet	40	21	1 Red Carantion	4
	9	1 Sunflower	5	22	1 white Carantion	4
	10	Sunflower Bouquet	40	23	Carantion Bouquet	4
	11	1 White Tulip	4	24	Bluebell Bouquet	30
	12	1 Pink Tulip	4	25	cotton flower Bou...	33
	13	1 Yellow Tulip	4	26	White Gypsopila B...	15
	14	1 Red Tulip	4	27	Pink Gypsopila Bo...	15
	15	Tulip Bouquet	32	28	Purple Gypsopila B...	15
	16	Lavender Bouquet	40	29	Blue Gypsopila Bo...	15
	17	White Lilac	8			
	18	Purple Lilac	8			
	19	Lilac Bouquet	60			
	20	1 Pink Carnation	4			

Figure 19: Flower_Bouquet population.

Store_Branch

	b_no	b_name	b_location
▶	1	Flower Story	ALhamra
	2	Lavender Bouquets	ALfaiha
	3	Pink Garden	jalmudah
	4	Secret Garden	Darin
	5	Bloom Flowers	ALwahah

Figure 20: Store_Branch population.

Customer

	c_id	c_name	c_phone	c_address		c_id	c_name	c_phone	c_address
▶	1	Abdullah Saleh	053 648 2542	76422 Jalumdah		26	Stacee Ghion	054 168 6444	16883 Al lulu
	2	Faisal Ali	057 495 3745	42 Jalumdah		27	Shatha Ahmed	053 875 7868	53 Al huwaylat
	3	Sarah Saud	054 475 5937	07 Al wahah		28	Rana Fahad	051 564 5689	86 Al lulu
	4	Noor Majed	058 243 6493	45547 Al ahamra		29	Hamza Bender	052 162 7724	71 Darin
	5	Dana Faisal	051 874 5231	5 Al faiha		30	Pearce Tooher	057 133 9573	1387 Sydayr
	6	Ali Saud	054 684 4246	458 Al lulu		31	Ali Faisal	056 758 7626	19467 Al wahah
	7	Ameer Mohammed	057 566 8452	0547 Al huwaylat		32	Adulmalek Musa	057 667 3136	23 Al huwaylat
	8	Kalid Fahad	057 764 2958	1435 Jalumdah		33	Martainn Haddleton	054 622 4672	6 Al lulu
	9	Abeer Nasser	053 357 6683	360 Al faiha		34	Majed Fuad	055 798 3775	725 Al Khalidiyah
	10	Luluh Sultan	056 358 6399	1792 Al Khalidiyah		35	Tahani Fahad	054 478 7428	29833 Al Khalidiyah
	11	Yoshiko Bautiste	052 326 3154	3 Sydayr		36	Lujain aljuaid	055 469 8476	6 Al Khalidiyah
	12	Feras Saad	053 738 6296	33722 Al faiha		37	Fatimah Saeed	058 853 6699	07927 Darin
	13	Buthaina Ahmed	056 993 5367	161 Al ahamra		38	Ameerah Ahmed	059 865 3772	21 Sydayr
	14	Yara Abdulaziz	052 973 7858	93 Darin		39	Marwa Alsufyani	056 731 8468	99 Al huwaylat
	15	Noor Saleh	055 743 1377	17078 Al huwaylat		40	Samar Saad	051 678 1258	273 Darin
	16	Noel Sedman	053 886 8357	78 Al wahah		41	Mishaal Sultan	057 613 4649	441 Al Khalidiyah
	17	Asma Omar	055 254 7554	26 Al ahamra		42	Noorah Hamad	058 266 9714	85 Al lulu
	18	Rawan Hussein	056 572 9953	24 Al Khalidiyah		43	Sarah Fahad	051 218 2668	762 Al huwaylat
	19	Mansour Fahad	055 152 6924	19723 Al Khalidiyah		44	Yasmine Hossam	054 969 4827	66420 Sydayr
	20	Aisha Ahmed	052 746 4228	329 Sydayr		45	Jamal Kahlid	055 271 7937	2499 Al wahah
	21	Zaynab Basil	054 328 1577	87 Al lulu		46	Ulises Presidey	056 824 1878	9 Al ahamra
	22	Liliane Clemmey	054 213 1837	64444 Darin		47	Sultan Rakan	052 437 8534	1271 Al faiha
	23	Saud Saad	055 676 1315	69 Darin		48	Hissah Alotaibi	051 957 7784	15 Jalumdah
	24	Maryam Musa	051 675 9256	2 Al ahamra		49	Areej Hani	054 977 6135	44246 Darin
	25	Archer Ruperto	054 674 2541	07 Al wahah		50	Mohammed Faisal	057 454 8188	0647 Jalumdah

Figure 21: Customer population.

Stage 5: Application development phase:

5 marks

- Create a simple application with a friendly user interface.
- Use an API to access your database. More provided in this [LINK](#).
- The application should be used to both insert and display data from the database. More is provided in this [LINK](#).
- The application should be able to retrieve records from the database.

Note, this step will consume time so allow a couple weeks for you to get it completed. In the report, describe all the user interfaces of your application. Also, add a soft copy of the application code in the report (in the Appendix section).

- WINDOWS SCREENSHOTS:

1. Main Window

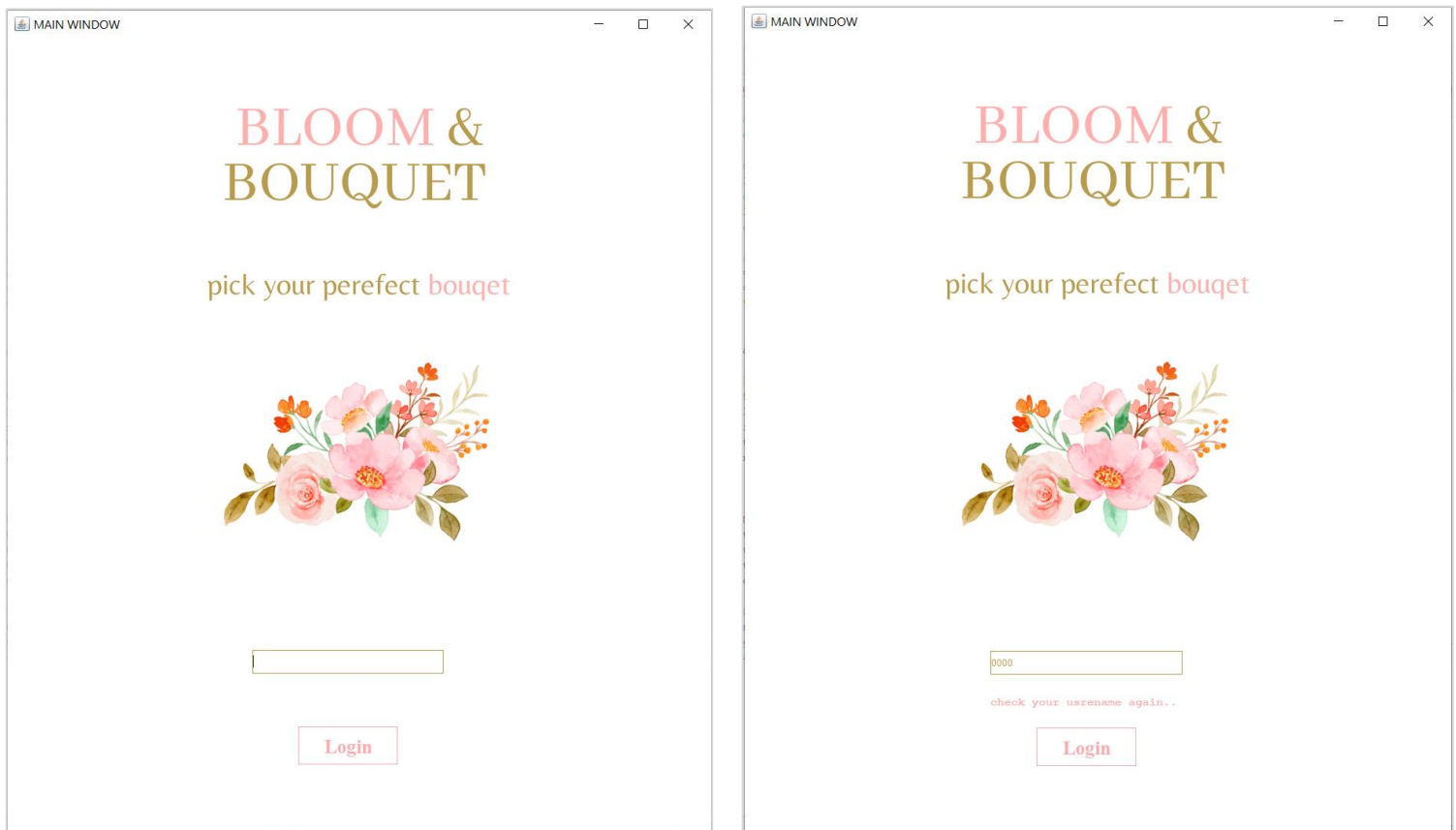


Figure 22: Main Window.

2. Choose A Service Window

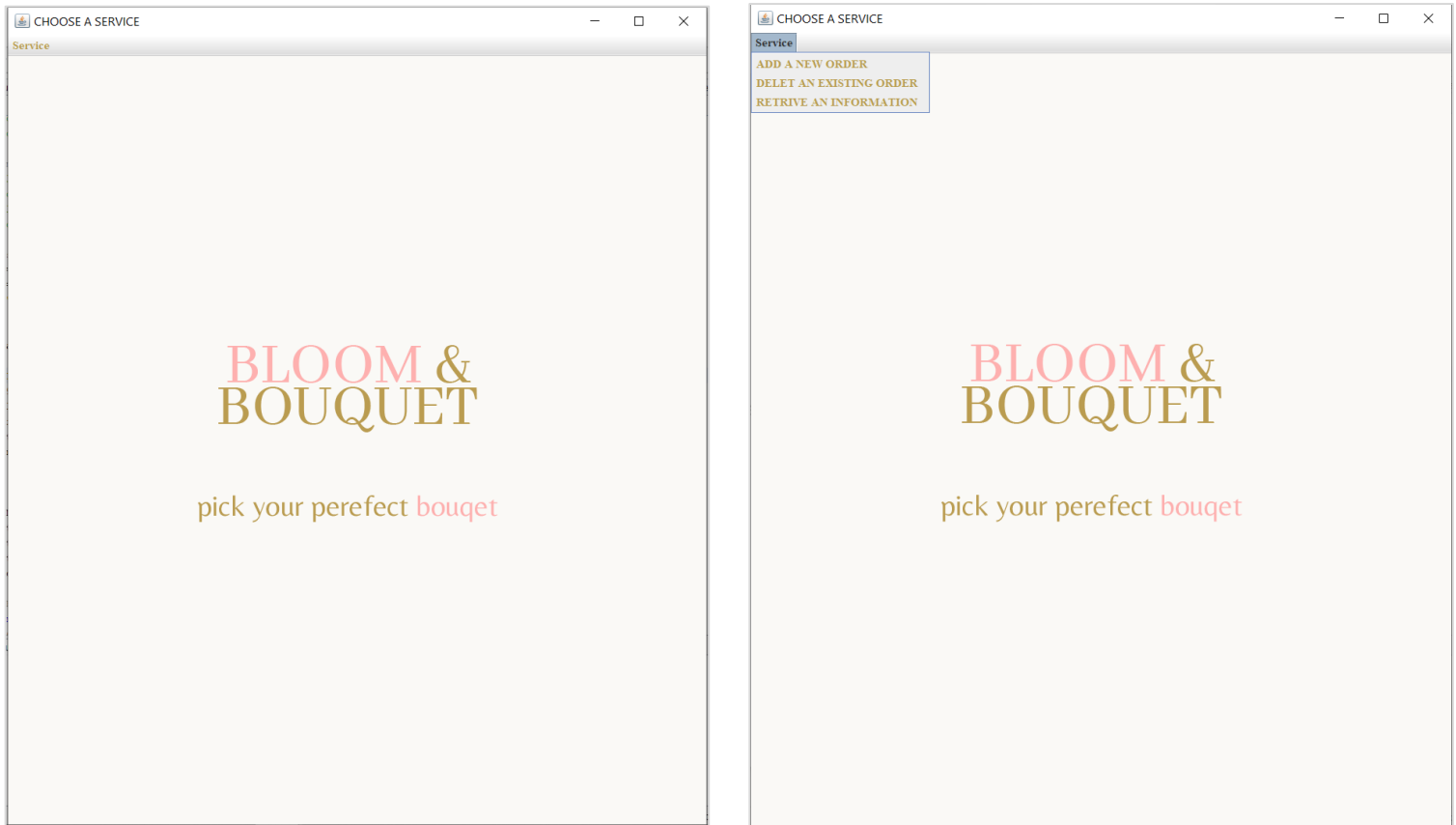


Figure 23: Choose A Service Window.

3. Add A New Order Window

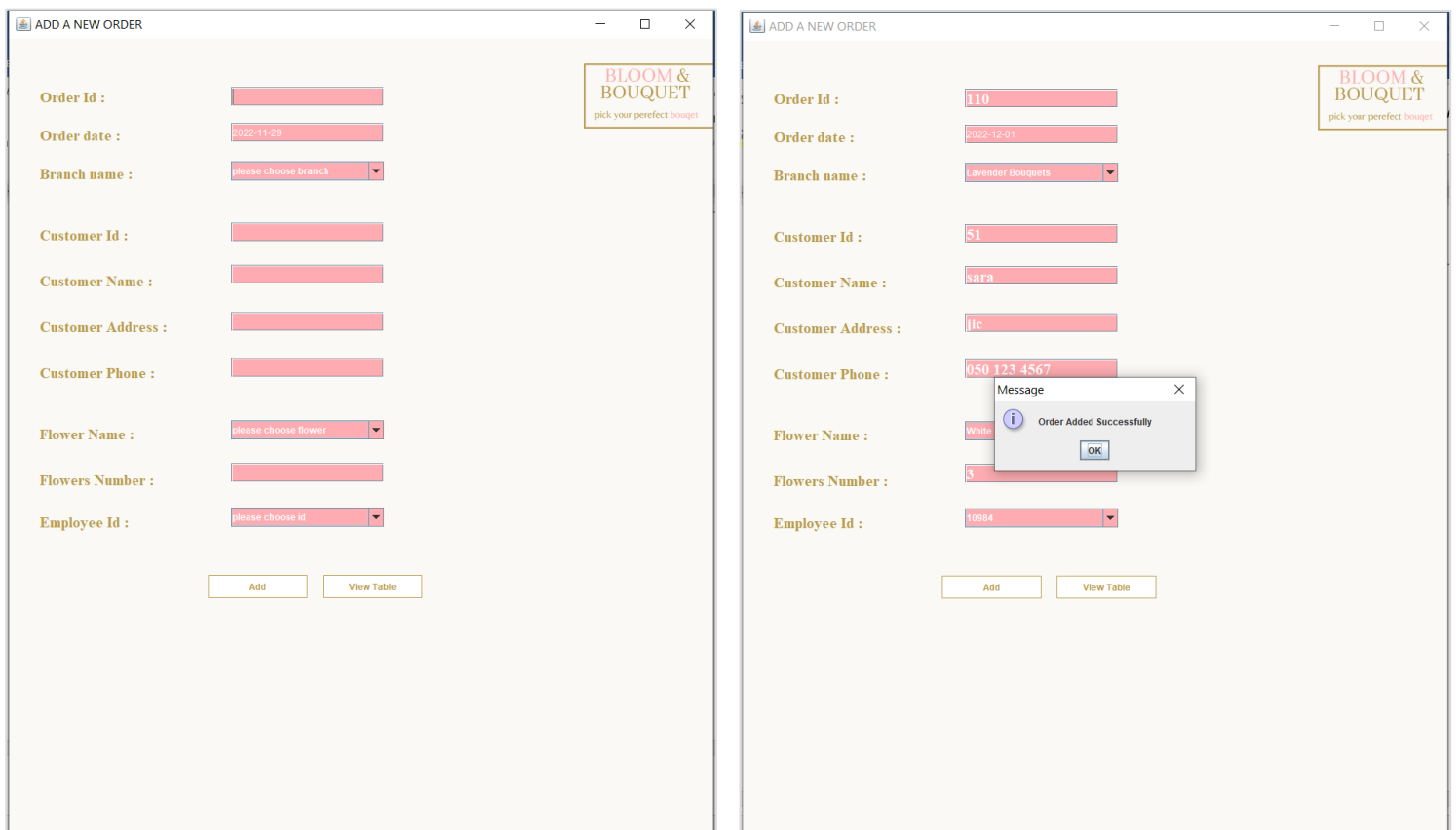


Figure 24: Add A New Order Window.

4. Delete An Existing Order Window

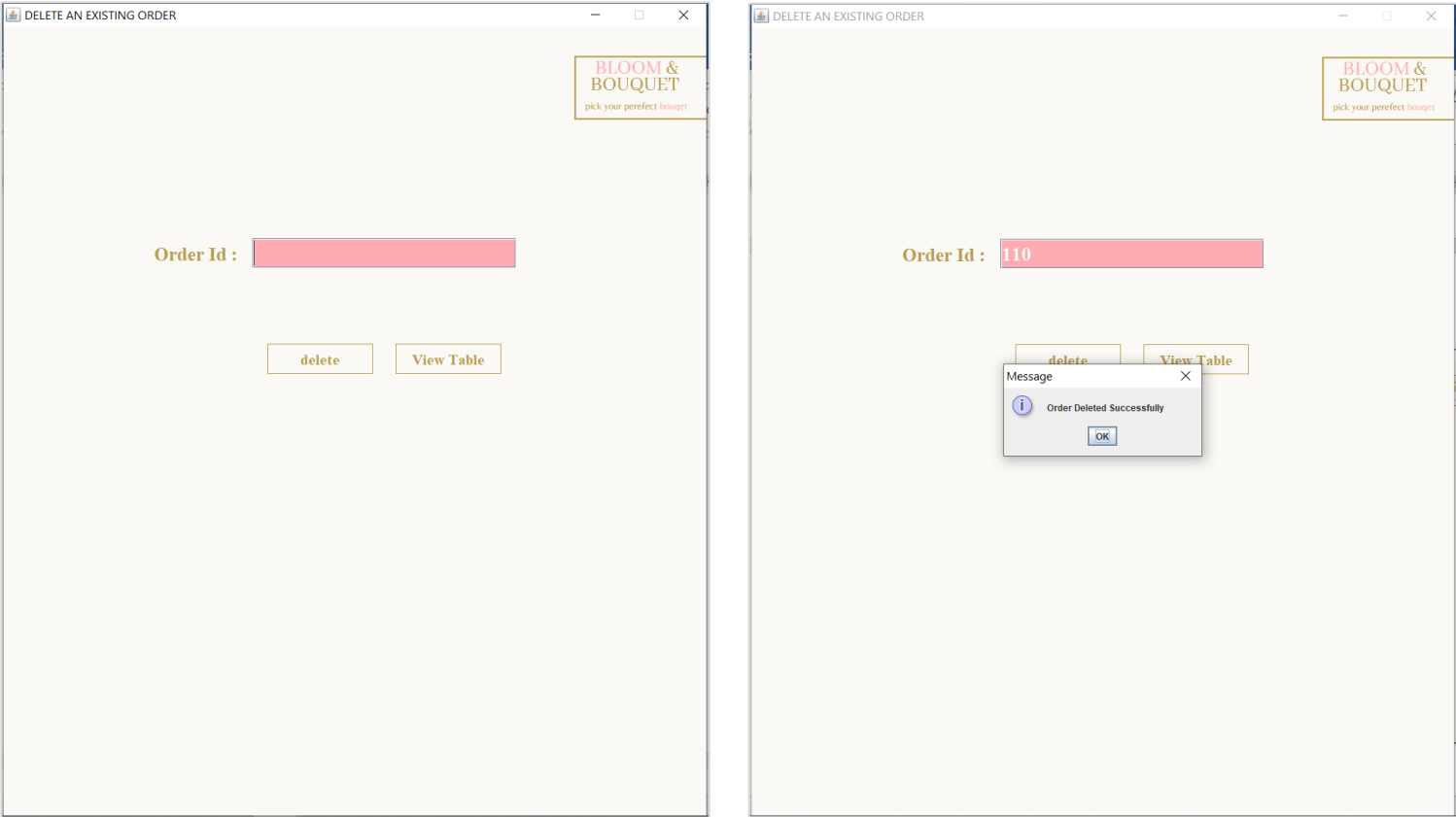


Figure 25: Delete An Existing Order Window.

5. Retrieve An Information Of Order Window

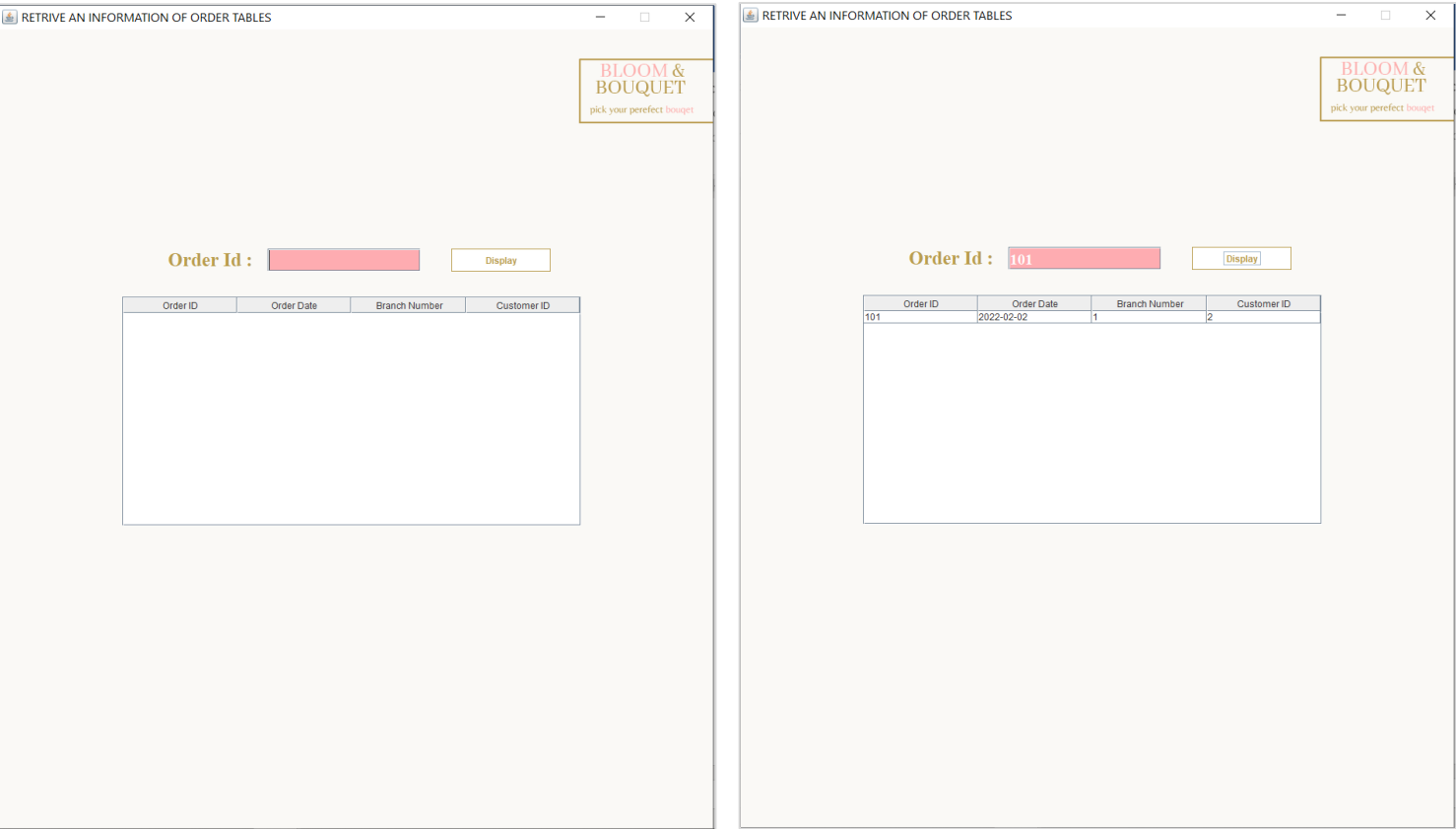


Figure 26: Retrieve An Information Of Order Window.

6. Display Tables' Information Window

DISPLAY TABLES'S INFORMATION

BLOOM & BOUQUET

pick your perfect bouquet

Table Name :

Orders

Display Table

DISPLAY TABLES'S INFORMATION

BLOOM & BOUQUET

pick your perfect bouquet

Table Name :

Orders

Display Table

Order ID	Order Date	Branch Number	Customer ID
100	2022-02-02	1	1
101	2022-02-02	1	2
102	2022-02-02	1	3
103	2022-02-03	1	4
104	2022-02-03	1	5
105	2022-02-04	1	6
106	2022-02-08	1	7
107	2022-02-08	1	8
108	2022-02-09	1	9
109	2022-02-09	1	10
200	2022-02-10	2	11
201	2022-02-10	2	12
202	2022-02-14	2	13
203	2022-02-15	2	14
204	2022-02-25	2	15
205	2022-02-25	2	16
206	2022-02-25	2	17
207	2022-02-27	2	18
208	2022-03-01	2	19
209	2022-03-02	2	20
300	2022-03-07	3	21
301	2022-03-07	3	22
302	2022-03-07	3	23
303	2022-03-12	3	24
304	2022-03-13	3	25
305	2022-03-17	3	26
306	2022-03-17	3	27
307	2022-03-18	3	28
308	2022-03-28	3	29
309	2022-04-07	3	30
400	2022-04-08	4	31
401	2022-04-09	4	32
402	2022-04-09	4	33
403	2022-04-09	4	34
404	2022-04-10	4	35
405	2022-04-10	4	36
406	2022-04-11	4	37
407	2022-04-21	4	38
408	2022-04-22	4	39
409	2022-04-24	4	40
500	2022-05-12	5	41
501	2022-05-15	5	42
502	2022-05-17	5	43
503	2022-05-17	5	44
504	2022-05-23	5	45
505	2022-05-24	5	46

DISPLAY TABLES'S INFORMATION

BLOOM & BOUQUET

pick your perfect bouquet

Table Name :

Customer

Display Table

Customer ID	Customer Name	Customer Phone	Customer Address
1	Abdullah Saleh	053 648 2542	76422 Jalumdah
2	Faisal Ali	057 495 3745	42 Jalumdah
3	Sarah Saad	054 475 5037	87 Al wahah
4	Noor Majed	058 243 6493	45547 Al ahamra
5	Dana Faisal	051 874 5231	5 Al falha
6	Ali Saad	054 684 4246	458 Al lulu
7	Ameer Mohammed	057 566 8452	0547 Al huwaylat
8	Kalid Fahad	057 764 2858	1435 Jalumdah
9	Abeer Nasser	053 357 6683	360 Al falha
10	Luluh Sultan	056 358 6399	1792 Al Khalidiyah
11	Yoshiko Baufiste	052 326 3154	3 Sydayr
12	Feras Saad	053 739 6296	33722 Al falha
13	Buthaina Ahmed	056 993 5367	161 Al ahamra
14	Yara Abdulaziz	052 973 7858	93 Darin
15	Noor Saleh	055 743 1377	17078 Al huwaylat
16	Noel Sedman	053 886 6357	78 Al wahah
17	Asma Omar	055 254 7554	26 Al ahamra
18	Rawan Hussein	056 572 9953	24 Al Khalidiyah
19	Mansour Fahad	055 152 6924	19723 Al Khalidiyah
20	Aisha Ahmed	052 746 4228	329 Sydayr
21	Zaynab Basil	054 328 1577	87 Al lulu
22	Liliane Clemmey	054 213 1837	64444 Darin
23	Saad Saad	056 676 1315	69 Darin
24	Maryam Musa	051 675 9256	2 Al ahamra
25	Archer Rupert	054 674 2541	87 Al wahah
26	Stacey Ghon	054 168 6444	16883 Al lulu
27	Shatha Ahmed	053 875 7888	53 Al huwaylat
28	Rana Fahad	051 564 5689	86 Al lulu
29	Hamza Bender	052 162 7724	71 Darin
30	Pearce Toohar	051 133 8973	1387 Sydayr
31	Ali Faisal	056 758 7626	19467 Al wahah
32	Adumalek Musa	057 667 3136	23 Al huwaylat
33	Martann Haddleton	054 622 4672	6 Al lulu
34	Majed Fouad	055 798 3775	725 Al Khalidiyah
35	Tahani Fahad	054 478 7428	29833 Al Khalidiyah
36	Lujain aljuaid	055 469 8476	6 Al Khalidiyah
37	Fatimah Saeed	058 853 6699	07927 Darin
38	Amerah Ahmed	058 865 3772	21 Sydayr
39	Maria Aloufani	055 731 8468	89 Al huwaylat
40	Samar Saad	051 678 1258	273 Darin
41	Mishaal Sultan	057 613 4649	441 Al Khalidiyah
42	Noorah Hamad	056 266 9714	85 Al lulu
43	Sarah Fahad	051 219 2668	762 Al huwaylat
44	Yasmine Hossam	054 969 4827	66420 Sydayr
45	Jamal Kahid	055 271 7937	2499 Al wahah
46

DISPLAY TABLES'S INFORMATION

BLOOM & BOUQUET

pick your perfect bouquet

Table Name :

Contain

Display Table

Order ID	Flower ID	Flower Number
100	10	2
100	17	5
101	14	10
102	29	4
103	23	1
103	2	1
104	6	13
105	1	1
105	24	2
106	14	4
107	25	15
108	2	11
109	7	2
109	10	1
200	16	2
201	17	5
202	9	1
203	5	5
203	27	2
204	16	3
205	19	1
206	13	3
207	1	4
208	9	2
209	23	4
300	28	10
301	25	1
302	14	4
303	7	6
303	28	3
304	9	6
305	8	1
306	19	1
307	28	3
308	17	2
308	29	3
309	2	31
400	3	32
401	2	33
402	13	4
403	15	15
404	12	36
405	21	37
406	3	4
407	8	9
408	15	46

Figure 27: Display Tables' Information Window.

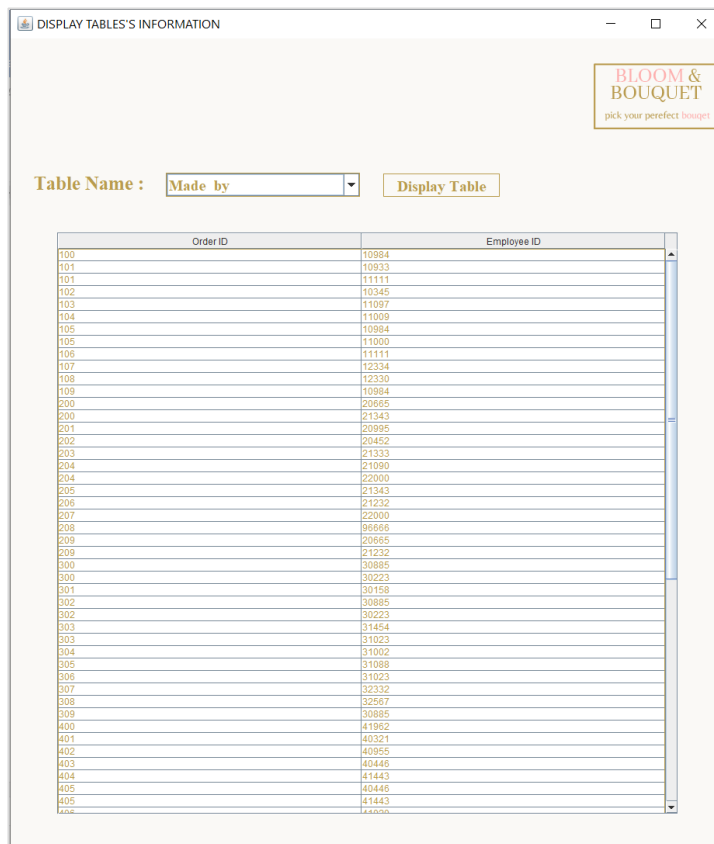


Figure 28: Display Tables' Information Window.

Stage 6: Refine your database:

2 Marks

In the report, specify how would you normalize your schema to the first, second and third normal form.

First Normal Form (no composite attributes, multivalued attributes and nested relations already in the third normal form):

Orders

<u>O_id</u>	O_date	#b_no	#c_id
-------------	--------	-------	-------

Flower_Bouquet

<u>f_id</u>	f_name	f_price
-------------	--------	---------

Employee

<u>e_id</u>	e_name	#b_no
-------------	--------	-------

Store_Branch

<u>b_no</u>	b_name	b_location
-------------	--------	------------

Customer

<u>c_id</u>	c_name	c_phone	c_address
-------------	--------	---------	-----------

Contain

<u>#f_id</u>	<u>#O_id</u>	Flower_no
--------------	--------------	-----------

Made_by

#e_id	#O_id
-------	-------

Second Normal Form (All the non-prime attributes should be fully functionally dependent):


Orders

<u>O_id</u>	O_date	#b_no	#c_id
-------------	--------	-------	-------




Flower_Bouquet

<u>f_id</u>	f_name	f_price
-------------	--------	---------




Employee

<u>e_id</u>	e_name	#b_no
-------------	--------	-------




Store_Branch

<u>b_no</u>	b_name	b_location
-------------	--------	------------




Customer

<u>c_id</u>	c_name	c_phone	c_address
-------------	--------	---------	-----------



Contain

<u>#f_id</u>	<u>#O_id</u>	Flower_no
--------------	--------------	-----------



Made_by

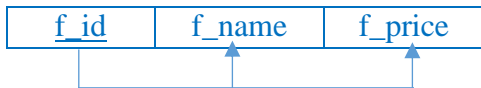
#e_id	#O_id
-------	-------

Third Normal Form (already in the third normal form):

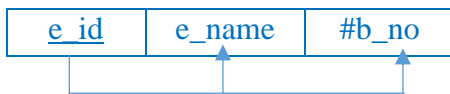
Orders



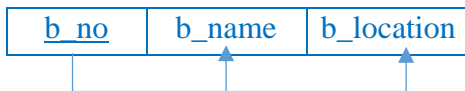
Flower_Bouquet



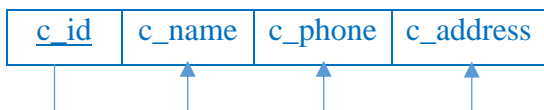
Employee



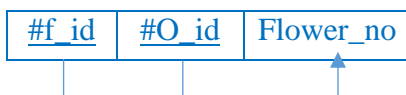
Store_Branch



Customer



Contain



Made_by



Stage 7: Documentation and presentation:

4 marks

In the report, include a description of the project for all the stages.

Prepare a presentation of your project with a demo of your application. This will be presented in your following practical class after the submission date (in Week 14). Note, if you used any sources, don't forget to cite them where relevant or it will be considered plagiarism.

References lists

- 1- Oracle. (n.d.). *Connector/J 8.0.31*. MySQL. Retrieved November 26, 2022, from <https://dev.mysql.com/downloads/connector/j/>
- 2- Computer Clicks (2020, December 5). *Download JDBC driver for mysql / java connector jar file / setting class_path variable*. YouTube. Retrieved November 26, 2022, from https://www.youtube.com/watch?app=desktop&v=8aTpDfsYTNQ&t=0s&ab_channel=ComputerClicks
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- 6- javatpoint. (n.d.). *Purpose of normalization - javatpoint*. www.javatpoint.com. Retrieved December 3, 2022, from <https://www.javatpoint.com/dbms-purpose-of-normalization>