

NUMBER ONLY: Conger Yang

PORTFOLIO

Report and Discussion of the Completed Labs

1.week4-week8: completed DB_Lab_03 through practice class explanation and review of 03_Normalisation in courseware, the number of completions :3, the number of attempts :15(the reason for trying is that I did not understand the use method and related concepts of 1,2,3NF in Normalisation, and discussed the documents Repeated changes were made.)

In this assignment, the most troublesome thing is that the information in the topic list needs to be input in the excel file on the computer, which I think is a waste of energy.

week4: Since I didn't learn the whole chapter deeply at that time, the completion of the entire DB_Lab_03 was rather tortuous. During the week, I completed 1,2,3, and 4 normalization problems in BASICTASKS (that is, no normalization problems of type 123NF). The whole process took an hour and a half, with 4 attempts and 1 completion.

week5: This week I have gotten a good grasp of the normalization process, so I start trying to work on the normalization of 123NF. This week, the completed part is all of title 5 (the first attempt to complete 123NF), 6,7 (excluding 123NF). The whole process takes about 2 hours. The number of attempts is 12 (7 for 5, 2 for 6, 3 for 7), and the number of completions is 3

week8: As we continue to work on the normalization process this week, as I have had a normalization understanding, it takes 2.5 hours and takes 14 attempts, with 2 completions

Personal Reflection and Critical Evaluation

3.DB_Lab_03 is a difficult chapter for me. When I completed the tasks in this chapter, I could not extract and apply knowledge points (1DNF,2DNF,3DNF, etc.) correctly and quickly, and the classification of tables was slow and the accuracy was low.

Member Name and student ID (Printed)	Signature
Name:Conger Yang ID:2023020206	

DB_Lab_03

Only member: Conger Yang

BASIC TASK:

1. Define the following terms:
 - a. Candidate key : is composed of two or more attributes, but it must be minimal
 - b. Composite key: a simple or composite key that is unique and minimal. It is minimal because every column is necessary in order to attain uniqueness.
 - c. Foreign key : created to enable an attribute to relate to another entity in a one-to-one or one-to-many relationship
 - d. Functional dependency: describes the relationship between attributes in a relation.
- 2.
3. For the following relational tables where the primary key is underlined identify any violation(s) of the relational integrity rules:

Table 1

Film						Director	
<u>filmNo</u>	title	directorNo	country	year	genre	<u>directorNo</u>	dName
005	Reservoir Dogs	101	US	1992	Crime	101	Tarantino
006	Pulp Fiction	101	US	1994	Crime	322	Boyle
008	Trainspotting	322	UK	1996		166	Wai-Keung
109	Infernal Affairs	166	China	2002	Crime		
111	Snakes on a Plane	753	US	2006	Disaster		

lack Null

lack directorNo:753

Table 2

<u>Supplier</u>	<u>PartNo</u>	Quantity	Price
JKC	1234	750	35.00
JKC	67A	500	20.74
JKC	67B	1000	10.23
Aziz	Cd12	ABC	70.12
Smith	0242	30	54.34
Smith	AB/1	2000	45.67

here should be number not alphabet

Table 3

<u>Song</u>	<u>Artist</u>	<u>Position</u>	<u>Month</u>	<u>Year</u>
Woman	John Lennon	1	02	1981
Make Your Mind Up	Bucks Fizz	2	04	1981
You Can't Hurry Love	Phil Collins	11	02	1983
It's a Hard Life	Queen	9	07	1984
A Kind of Magic		5	04	1985
Toy Boy	Sinitta	6	09	1987
You Got It	Roy Orbison	4	02	1989

lack Null

- 4.
- a.

ProjCode	ProjTitle	ProjManager	ProjBudget	EmpNo	EmpName	DeptNo	DeptNo	HrlyRate
PRC10	Payroll System	M Scott	24500	S10001	J Kirk	L004	IT	£ 22. 00
PRC10	Payroll System	M Scott	24500	S10030	L Jones	L023	Pensions	£ 18. 50
PRC10	Payroll System	M Scott	24500	S21010	P Lewis	L004	IT	£ 21. 00
PRC30	Skills Matrix	M. Uhura	20000	Null	Null	Null	Null	Null
PRC45	Payroll System	L McCoy	17400	S10010	B Jones	L004	IT	£ 21. 75
PRC45	Payroll System	L McCoy	17400	S10001	J Kirk	L004	IT	£ 18. 00
PRC45	Payroll System	L McCoy	17400	S31002	T Gilbert	L028	Database	£ 25. 50
PRC45	Payroll System	L McCoy	17400	S13210	W Richards	L008	Salary	£ 17. 00
PRC64	CRM System	P Chekov	12250	S31002	T Gilbert	L028	Database	£ 23. 25
PRC64	CRM System	P Chekov	12250	S21010	P Lewis	L004	IT	£ 17. 50
PRC64	CRM System	P Chekov	12250	S10034	B James	L009	HR	£ 16. 50

b.

ProjCode	ProjTitle	ProjManager	ProjBudget	EmpNo	EmpName	DeptNo	DeptNo	HrlyRate
PRC30	Skills Matrix	M. Uhura	20000	Null	Null	Null	Null	Null
PRC45	Payroll System	L McCoy	17400	S10010	B Jones	L004	IT	£ 21. 75
PRC45	Payroll System	L McCoy	17400	S10001	J Kirk	L004	IT	£ 18. 00
PRC45	Payroll System	L McCoy	17400	S31002	T Gilbert	L028	Database	£ 25. 50
PRC45	Payroll System	L McCoy	17400	S13210	W Richards	L008	Salary	£ 17. 00
PRC64	CRM System	P Chekov	12250	S31002	T Gilbert	L028	Database	£ 23. 25
PRC64	CRM System	P Chekov	12250	S21010	P Lewis	L004	IT	£ 17. 50
PRC64	CRM System	P Chekov	12250	S10034	B James	L009	HR	£ 16. 50

c.

ProjCode	ProjTitle	ProjManager	ProjBudget	EmpNo	EmpName	DeptNo	DeptNo	HrlyRate
PRC30	Skills Matrix	M. Uhura	20000	Null	Null	Null	Null	Null
PRC45	Payroll System	L McCoy	17400	S10010	B Jones	L004	IT	£ 21. 75
PRC45	Payroll System	L McCoy	17400	S10001	J Kirk	L009	IT	£ 18. 00
PRC45	Payroll System	L McCoy	17400	S31002	T Gilbert	L028	Database	£ 25. 50
PRC45	Payroll System	L McCoy	17400	S13210	W Richards	L008	Salary	£ 17. 00
PRC64	CRM System	P Chekov	12250	S31002	T Gilbert	L028	Database	£ 23. 25
PRC64	CRM System	P Chekov	12250	S21010	P Lewis	L004	IT	£ 17. 50
PRC64	CRM System	P Chekov	12250	S10034	B James	L009	HR	£ 16. 50

d.

1NF

ProjCode	ProjTitle	ProjManager	ProjBudget	ProjCode	EmpNo	EmpName	DeptNo	DeptNo	HrlyRate
PRC30	Skills Matrix	M. Uhura	20000	PRC30	Null	Null	Null	Null	Null
PRC45	Payroll System	L McCoy	17400	PRC45	S10010	B Jones	L004	IT	£ 21. 75
PRC64	CRM System	P Chekov	12250	PRC45	S10001	J Kirk	L009	IT	£ 18. 00
				PRC45	S31002	T Gilbert	L028	Database	£ 25. 50
				PRC45	S13210	W Richards	L008	Salary	£ 17. 00
				PRC64	S31002	T Gilbert	L028	Database	£ 23. 25
				PRC64	S21010	P Lewis	L004	IT	£ 17. 50
				PRC64	S10034	B James	L009	HR	£ 16. 50

e. AND g(i don't know how to continues divide it)

2NF AND 3NF

ProjCode	EmpNo	EmpName	HrlyRate	ProjCode	DeptNo	DeptNo
PRC30	Null	Null	Null	PRC30	Null	Null
PRC45	S10010	B Jones	£ 21. 75	PRC45	L004	IT
PRC45	S10001	J Kirk	£ 18. 00	PRC45	L009	IT
PRC45	S31002	T Gilbert	£ 25. 50	PRC45	L028	Database
PRC45	S13210	W Richards	£ 17. 00	PRC45	L008	Salary
PRC64	S31002	T Gilbert	£ 23. 25	PRC64	L028	Database
PRC64	S21010	P Lewis	£ 17. 50	PRC64	L004	IT
PRC64	S10034	B James	£ 16. 50	PRC64	L009	HR
ProjCode	ProjTitle	ProjManager	ProjBudget	ProjCode	DeptNo	DeptNo
PRC30	Skills Matrix	M. Uhura	20000	PRC64	L004	IT
PRC45	Payroll System	L McCoy	17400	PRC64	L009	HR
PRC64	CRM System	P Chekov	12250			

5.

a. An error occurred in the calculation of the total amount

b. 1NF

Order No.	ACC. NO	Customer	Adress	Date
7823	178	Daisy's Cafe	27 Bay Drive, Cove	16-Jul
2276	167	Sally's Snacks	3High Street, Banchory	17-Jul
1788	32	Tasty Bite	17 Wood Place, Insch	18-Jul
4633	526	Smiths	12 Dee View, Aberdeen	16-Jul
Order No.	item	Qty	Price	Total Cost
7823	Bakewell Tart	20	0.15	£ 1.8
7823	Bakewell Tart	13	0.2	£ 2.6
7823	Bakewell Tart	45	0.15	£ 6.75
2276	Apple Pie	130	0.15	£ 24
2276	Cherry Pie	120	0.18	£ 19.5
2276	Steak Pie	100	0.5	£ 18
2276	Meringue Pie	30	0.2	£ 15
1788	Apple Pie	15	0.15	£ 4
1788	Danish Pastry	50	0.2	£ 2.25
4633	Butteries	120	0.2	£ 10

c. 2NF

Order No.	item	Qty	Order No.	item	Price
7823	Bakewell Tart	20	7823	Bakewell Tart	0.15
7823	Danish Pastry	13	7823	Danish Pastry	0.2
7823	Apple Pie	45	7823	Apple Pie	0.15
4633	Butteries	120	4633	Butteries	0.2
2276	Apple Pie	130	2276	Apple Pie	0.15
2276	Cherry Pie	100	2276	Cherry Pie	0.18
2276	Steak Pie	30	2276	Steak Pie	0.5
2276	Meringue Pie	20	2276	Meringue Pie	0.2
1788	Apple Pie	15	1788	Apple Pie	0.15
1788	Danish Pastry	50	1788	Danish Pastry	0.2

d. 3NF

			Order No.	item	Qty		Order No.	item	Price
			7823	Bakewell Tart	20		7823	Bakewell Tart	0.15
			7823	Danish Pastry	13		7823	Danish Pastry	0.2
			7823	Apple Pie	45		7823	Apple Pie	0.15
			4633	Butteries	120		4633	Butteries	0.2
			2276	Apple Pie	130		2276	Apple Pie	0.15
			2276	Cherry Pie	100		2276	Cherry Pie	0.18
			2276	Steak Pie	30		2276	Steak Pie	0.5
			2276	Meringue Pie	20		2276	Meringue Pie	0.2
			1788	Apple Pie	15		1788	Apple Pie	0.15
			1788	Danish Pastry	50		1788	Danish Pastry	0.2
Order No.	ACC.NO	Customer	Adress		Date		ACC. NO	Total Cost	
7823	178	Daisy's Cafe	27 Bay Drive, Cove		16-Jul		178	£ 11.15	
4633	526	Smiths	12 Dee View, Aberdeen		16-Jul		526	£ 24	
2276	167	Sally's Snacks	3High Street, Banchory		17-Jul		167	£ 56.5	
1788	32	Tasty Bite	Tasty Bite		18-Jul		32	£ 12.25	

TABLE STUDENTS

1NF

Student No	Name	Course	Course Duration	Module No	Module Name	Lecturer
1002	Salif Keita	G701	4	COF104	Java	Asimov
1005	Emma Wilson	G504	3	COF118	Distributed Systems	Patel
1006	Hong Wang	G701	4	COF105	Computer Achitecture	Zidane
1010	Kiri Anahera	G722	2	COF118	Distributed Systems	Patel
				COF120	Operating Systems	Brando
				COF111	Networks	Austin
				COF105	Computer Achitecture	Zidane
				COF111	Networks	Austin
				COF105	Computer Achitecture	Zidane

2NF

Student No	Module No	Module Name	Module No	Module Name	Lecturer
1002	COF104	Java	COF104	Java	Asimov
	COF118	Distributed Systems	COF118	Distributed Systems	Patel
1005	COF105	Computer Achitecture	COF105	Computer Achitecture	Zidane
	COF118	Distributed Systems	COF120	Operating Systems	Brando
	COF120	Operating Systems	COF111	Networks	Austin
1006	COF111	Networks			
	COF105	Computer Achitecture			
1010	COF111	Networks			
	COF105	Computer Achitecture			

3NF

Student No	Module No	Module Name	Module No	Module Name	Lecturer
1002	COF104	Java	COF104	Java	Asimov
	COF118	Distributed Systems	COF118	Distributed Systems	Patel
1005	COF105	Computer Achitecture	COF105	Computer Achitecture	Zidane
	COF118	Distributed Systems	COF120	Operating Systems	Brando
	COF120	Operating Systems	COF111	Networks	Austin
1006	COF111	Networks			
	COF105	Computer Achitecture			
1010	COF111	Networks			
	COF105	Computer Achitecture			

Student No	Name	Course	Course Duration
1002	Salif Keita	G701	4
1005	Emma Wilson	G504	3
1006	Hong Wang	G701	4
1010	Kiri Anahera	G722	2

Student No	Course	Course Duration
1002	G701	4
1005	G504	3
1006	G701	4
1010	G722	2

6. a.

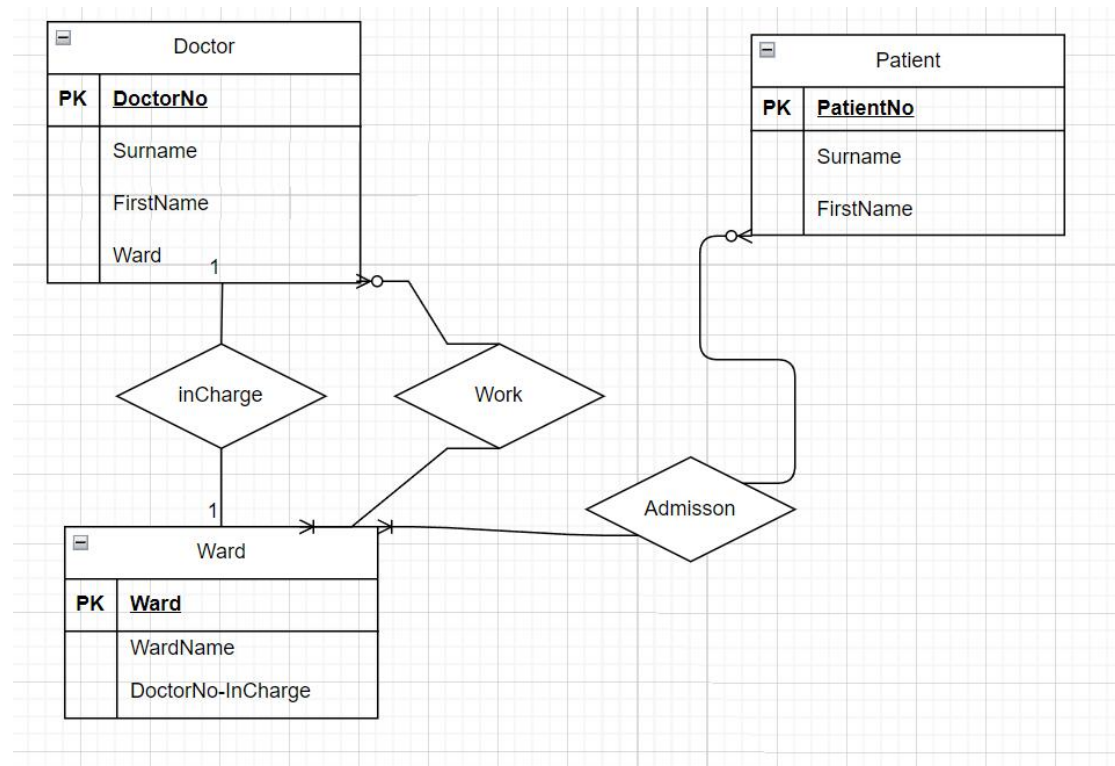
b.

c. Generate the corresponding ER diagram

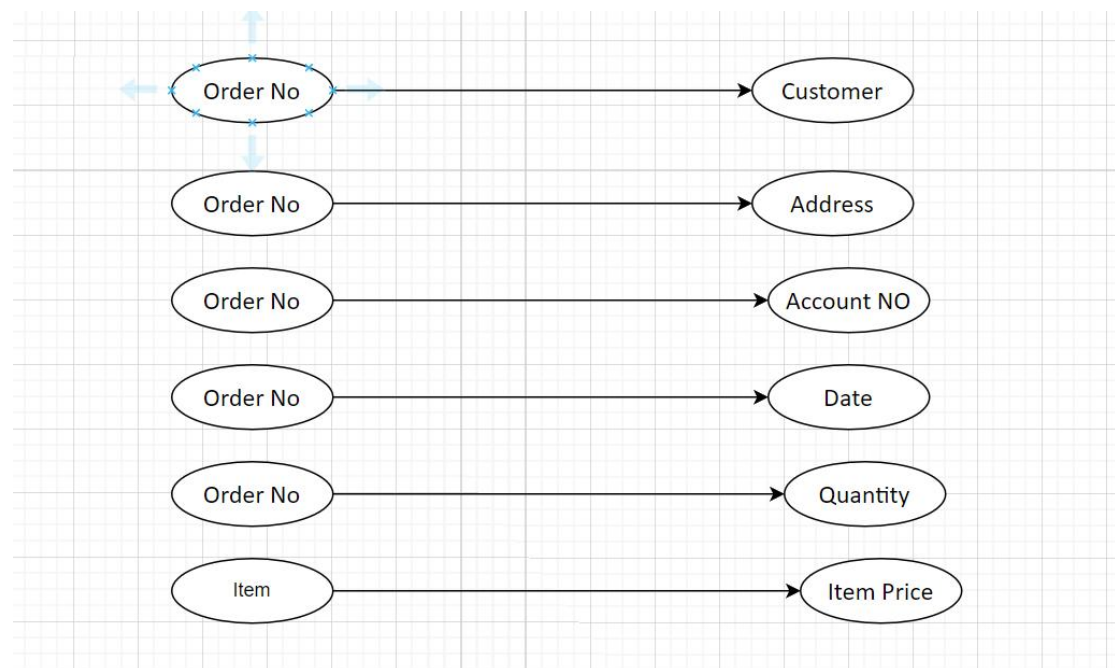
Patient			Admission			
<u>PatientNo</u>	Surname	FirstName	<u>PatientNo</u>	Admitted	Discharged	<u>Ward</u>
A102	Losey	Josef	A102	2/05/2017	9/05/2017	A
B372	Shahine	Youcef	A102	2/12/2016	2/01/2017	A
B543	Kurusawa	Akira	S555	5/10/2017	3/12/2017	B
B444	Ray	Satyajit	B444	1/12/2016	1/01/2017	B
S555	Renoir	Jean	S555	5/07/2017	1/08/2017	A

Doctor				Ward		
<u>DoctorNo</u>	Surname	FirstName	Ward	<u>Ward</u>	WardName	<u>DoctorNo-InCharge</u>
203	Ousmane	Sembene	A	A	Surgical	203
501	Coppola	Sofia	A	B	Paediatric	574
574	Almodovar	Pedro	B	C	Medical	530
461	Kubrik	Stanley	B			
530	Fellini	Federico	C			
405	Boyle	Danny	A			

c.



7.a



b.1NF

Account No.	Customer	Address	Date	
178	Daisy's Cafe	27 Bay Drive, Coventry	7/16	
526	Smiths	12 Dee View,Aberdeen	7/16	
167	Sally's Snacks	3 High Street, Banchory	7/17	
032	Tasty Bite	17 Wood Place, Liverpool	7/18	

Account No.	Item	Quantity	Item Price	
178	Baskwell Tart	20	0.15	
	Danish Pastry	13	0.20	
	Apple pie	45	0.15	
526	Butterires	120	0.20	
167	Apple pie	45	0.15	
	Cherry pie	100	0.18	
	Steak pie	30	0.50	
	Meringue pie	20	0.20	
032	Apple pie	15	0.15	
	Danish Pastry	50	0.20	

c.
2NF

Account No.	Item	Item Price	Account No.	Quantity
178	Baskwell Tart	0.15	178	78
	Danish Pastry	0.20	526	120
	Apple pie	0.15	167	175
526	Butterires	0.20	032	65
167	Apple pie	0.15		
	Cherry pie	0.18		
	Steak pie	0.50		
	Meringue pie	0.20		
032	Apple pie	0.15		
	Danish Pastry	0.20		

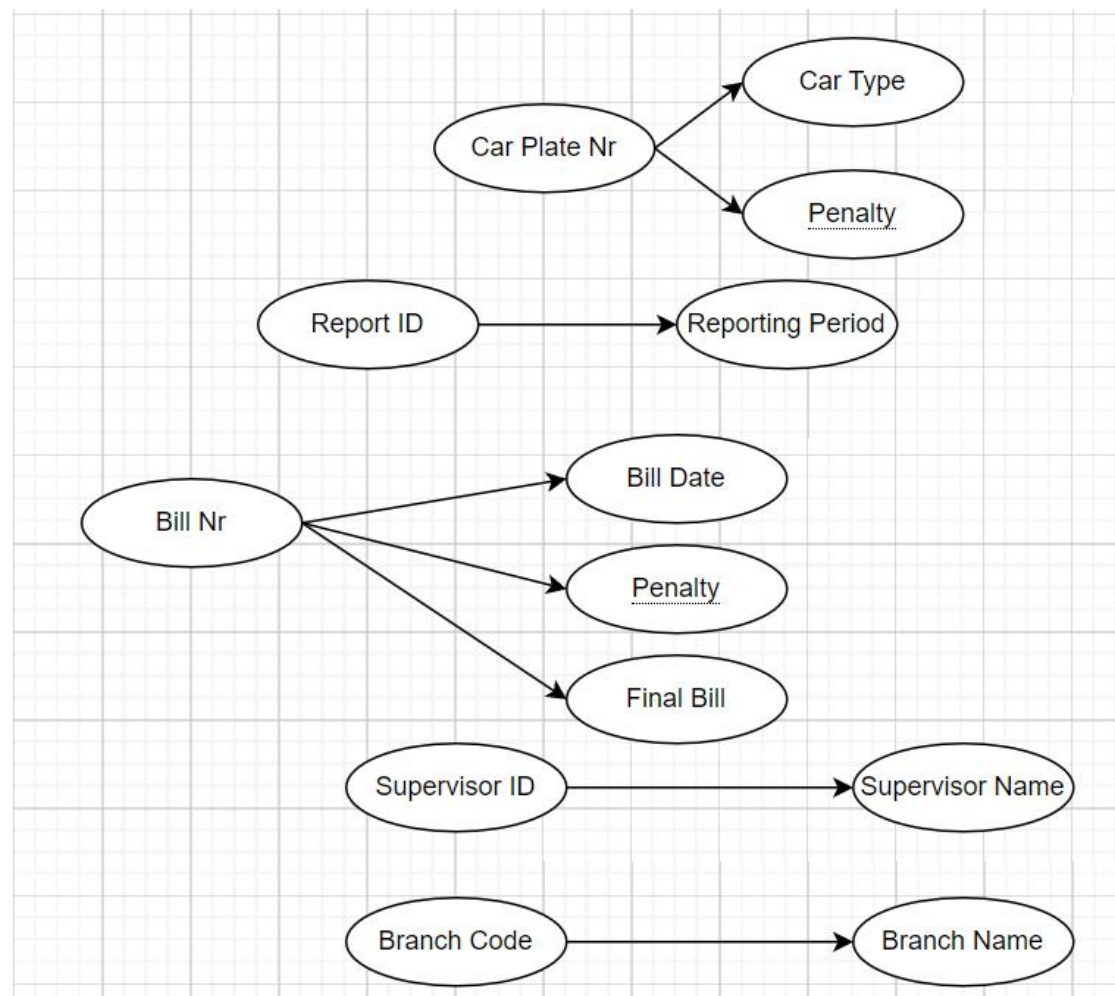
d.3NF

Account No.	Item	Item Price	Account No.	Quantity	Oder No.	Customer	Date
178	Baskwell Tart	0.15	178	78	7823	Daisy's Cafe	7/16
	Danish Pastry	0.20	526	120	4633	Smiths	7/16
	Apple pie	0.15	167	175	2276	Sally's Snacks	7/17
526	Butterires	0.20	032	65	1788	Tasty Bite	7/18
167	Apple pie	0.15					
	Cherry pie	0.18					
	Steak pie	0.50					
	Meringue pie	0.20					
032	Apple pie	0.15					
	Danish Pastry	0.20					

Account No.	Address
178	27 Bay Drive, Conventry
526	12 Dee View, Aberdeen
167	3 High Street, Banchory
032	17 Wood Piace, Liverpool

8.

a.



b.

1NF

Reprot ID	Reporting Period	Branch Code	Branch Name	Supervisor	Supervisor Name
7686	January 2021 to March 2021	876734	Walsall	102	David Brown
1056	October 2021 to December 2021	100023	Coventry	871	Anna Smith
4981	January 2022 to March 2022	456109	Leamington Spa	149	John Cruise
4832	January 2022 to March 2022	981256	Warwick	823	James Doherty
7002	July 2021 to September 2021	981256	Warwick	823	James Doherty
3121	April 2021 to June 2021	555901	Wolverhampton	111	Catherine Johnson

2NF

Reprot ID	Car Plate Nr	Car Type	Reprot ID	Bill Nr	Bill Date	Penalty	Final Bill
7686	DS4049	SUV	7686	166651	18.01.2021	50	1050
7686	DL3434	Sports Car	7686	123111	19.02.2021	0	500
7686	OP9817	SUV	7686	561909	06.03.2021	0	480
7686	SJ7182	Hatchback	7686	565690	29.01.2021	0	680
1056	BN9745	SUV	1056	128976	10.10.2021	0	710
1056	LA5142	Sedan	1056	511899	25.11.2021	20	1500
1056	CB0098	Sports Car	1056	141421	03.12.2021	0	850
1056	ZX7222	Coupe	1056	514879	29.10.2021	0	1250
1056	DL3434	Sports Car	1056	771100	16.11.2021	20	300
4981	PO8123	SUV	4981	675912	06.01.2021	50	350
4981	IU7878	Hatchback	4981	991762	08.02.2021	0	950
4832	NM8787	Sports Car	4832	876234	14.02.2021	0	350
7002	OP9817	SUV	7002	110054	19.07.2021	100	1400
7002	NM8787	Sports Car	7002	378123	12.08.2021	20	450
7002	VC1111	Sedan	7002	808051	18.09.2021	0	670
7002	FG7100	Hatchback	7002	100023	21.07.2021	0	1030
7002	RE6000	Sedan	7002	611554	27.08.2021	50	520
3121	TR6199	SUV	3121	888712	10.04.2021	0	490
3121	DL3434	Sports Car	3121	343412	28.05.2021	20	1230
3121	BP9111	Coupe	3121	222678	04.06.2021	0	1680

3NF

