

# **LAPORAN PRAKTIKUM BASIS DATA**

## **JOB SHEET 2**

### **Tugas Normalisasi N1-N3**

**Oleh:**

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**PROGRAM STUDI TEKNIK INFORMATIKA  
JURUSAN TEKNOLOGI INFORMASI  
POLITEKNIK NEGERI MALANG  
FEBRUARI 2019**

## TUGAS

No

Soal

1. Soal :

Jawablah <SOAL> dengan terlebih dahulu melakukan langkah-langkah kegiatan diatas!

Jawab :

num_project	name_project	num_employee	name_employee	street_address	city	postal_code	num_jobclass	name_jobclass	chr_per_hour	hours_billed
15	Evergreen	103	June E. Arbough	Pazmaniteng 24-9	Vienna	A-1020	E01	Elec. Engineering	€ 84.50	23.8
		101	John G. News	Weihburgasse 26	Vienna	A-1020	E02	Database Designer	€ 105.00	19.4
		105	Alice K. Johnson	Pazmaniteng 25-19	Vienna	A-1020	E02	Database Designer	€ 105.00	35.7
		106	William Smithfield	Gartenweg 8	Rafing	A-1010	E03	Programmer	€ 35.75	12.6
		102	David H. Senior	Wiener Hauptstraße 10/A/4/15	Wien	A-1014	E04	System Analyst	€ 96.75	23.8
18	Amber Wave	114	Annelise Jones	Pazmaniteng 1-1	Vienna	A-1020	E05	Application Designer	€ 48.10	24.6
		118	James J. Frommer	Gartenweg 20	Rafing	A-1010	E06	General Support	€ 18.36	45.3
		104	Anne K. Ramoras	Sterzinger Straße 1	Innsbruck	A-6020	E04	System Analyst	€ 96.75	32.4
		112	Darlene M. Smithson	Liebigasse 5/1/5	Wien	A-1014	E07	DSS Analyst	€ 45.95	44
22	Einsten	105	Alice K. Johnson	Pazmaniteng 25-19	Vienna	A-1020	E02	Database Designer	€ 105.00	64.7
		104	Anne K. Ramoras	Sterzinger Straße 1	Innsbruck	A-6020	E04	System Analyst	€ 96.75	48.4
		113	Delbert K. Joenbrood	Liebigasse 3/1/10	Wien	A-1014	E05	Application Designer	€ 48.10	23.6
		111	Geoff B. Wabash	Krakaudorf 32	Krakaudorf	A-8854	E08	Clerical Support	€ 26.87	22
		106	William Smithfield	Gartenweg 8	Rafing	A-1010	E03	Programmer	€ 35.75	12.8
25	Phoenix	107	Maria D. Alonzo	Krakaudorf 11	Krakaudorf	A-8854	E03	Programmer	€ 35.75	24.6
		115	Travis B. Bawangi	Liebigasse 3/1/10	Wien	A-1014	E04	System Analyst	€ 96.75	45.8
		101	John G. News	Weihburgasse 26	Vienna	A-1020	E02	Database Designer	€ 105.00	56.3
		114	Annelise Jones	Pazmaniteng 1-1	Vienna	A-1020	E05	Application Designer	€ 48.10	33.1
		108	Ralph B. Washington	Krakaudorf 22	Krakaudorf	A-8854	E04	System Analyst	€ 96.75	23.6
		118	James J. Frommer	Gartenweg 20	Rafing	A-1010	E06	General Support	€ 18.36	30.5
		112	Darlene M. Smithson	Liebigasse 5/1/5	Wien	A-1014	E07	DSS Analyst	€ 45.95	41.4

1NF

Project	
num_project	name_project
15	Evergreen
18	Amber Wave
22	Einsten
25	Phoenix

2NF

Project		Jobclass		
num_project	name_project	num_jobclass	name_jobclass	chr_per_hour
15	Evergreen	E01	Elec. Engineering	€ 84.50
18	Amber Wave	E02	Database Designer	€ 105.00
22	Einsten	E03	Programmer	€ 35.75
25	Phoenix	E04	System Analyst	€ 96.75
		E05	Application Designer	€ 48.10
		E06	General Support	€ 18.36
		E07	DSS Analyst	€ 45.95
		E08	Clerical Support	€ 26.87

Hours			
num_project	num_employee	num_jobclass	hours_billed
15	101	E02	19.4
15	102	E04	23.8
15	103	E01	23.8
22	104	E04	48.4
22	105	E02	64.7
22	106	E03	12.8
25	107	E03	24.6
25	108	E04	23.6
22	111	E08	22
25	112	E07	41.4
22	113	E05	23.6
25	114	E05	33.1
25	115	E04	45.8
25	118	E06	30.5

Jobclass		
num_jobclass	name_jobclass	chr_per_hour
E01	Elec. Engineering	€ 84.50
E02	Database Designer	€ 105.00
E03	Programmer	€ 35.75
E04	System Analyst	€ 96.75
E05	Application Designer	€ 48.10
E06	General Support	€ 18.36
E07	DSS Analyst	€ 45.95
E08	Clerical Support	€ 26.87

### 3NF

Project		Employee				
num_project	name_project	num_employee	name_employee	street_address	city	postal_code
15	Evergreen	101	John G. News	Weihburggasse 26	Vienna	A-1020
18	Amber Wave	102	David H. Senior	Wiener Hauptstraße 10/A/4/15	Wien	A-1014
22	Einsten	103	June E. Arbough	Pazmaniteng 24-9	Vienna	A-1020
25	Phoenix	104	Anne K. Ramoras	Sterzinger Straße 1	Innsbruck	A-6020
		105	Alice K. Johnson	Pazmaniteng 25-19	Vienna	A-1020
		106	William Smithfield	Gartenweg 8	Rafing	A-1010
		107	Maria D. Alonzo	Krakaudorf 11	Krakaudorf	A-8854
		108	Ralph B. Washington	Krakaudorf 22	Krakaudorf	A-8854
		111	Geoff B. Wabash	Krakaudorf 32	Krakaudorf	A-8854
		112	Darlene M. Smithson	Liebiggasse 5/1/5	Wien	A-1014
		113	Delbert K. Joenbrood	Liebiggasse 3/1/10	Wien	A-1014
		114	Annelise Jones	Pazmaniteng 1-1	Vienna	A-1020
		115	Travis B. Bawangi	Liebiggasse 3/1/10	Wien	A-1014
		118	James J. Frommer	Gartenweg 20	Rafing	A-1010

Jobclass		
num_jobclass	name_jobclass	chr_per_hour
E01	Elec. Engineering	€ 84.50
E02	Database Designer	€ 105.00
E03	Programmer	€ 35.75
E04	System Analyst	€ 96.75
E05	Application Desiger	€ 48.10
E06	General Support	€ 18.36
E07	DSS Analyst	€ 45.95
E08	Clerical Support	€ 26.87

Hours			
num_project	num_employee	num_jobclass	hours_billed
15	101	E02	19.4
15	102	E04	23.8
15	103	E01	23.8
22	104	E04	48.4
22	105	E02	64.7
22	106	E03	12.8
25	107	E03	24.6
25	108	E04	23.6
22	111	E08	22
25	112	E07	41.4
22	113	E05	23.6
25	114	E05	33.1
25	115	E04	45.8
25	118	E06	30.5

Address 1	
Street_address	Postal_code
Gartenweg 8	A-1010
Gartenweg 20	
Wiener Hauptstraße 10/A/4/15	A-1014
Liebiggasse 5/1/5	
Liebiggasse 3/1/10	
Liebiggasse 3/1/10	A-1020
Weihburggasse 26	
Pazmaniteng 24-9	
Pazmaniteng 25-19	
Pazmaniteng 1-1	A-6020
Sterzinger Straße 1	
Krakaudorf 11	A-8854
Krakaudorf 22	
Krakaudorf 32	

Tabel Charge		
name_employee	name_jobclass	chr_per_hour
June E. Arbough	Elec. Engineering	€ 84.50
John G. News	Database Designer	€ 105.00
Alice K. Johnson	Database Designer	€ 105.00
William Smithfield	Programmer	€ 35.75
David H. Senior	System Analyst	€ 96.75
Annelise Jones	Application Desiger	€ 48.10
James J. Frommer	General Support	€ 18.36
Anne K. Ramoras	System Analyst	€ 96.75
Darlene M. Smithson	DSS Analyst	€ 45.95
Alice K. Johnson	Database Designer	€ 105.00
Anne K. Ramoras	System Analyst	€ 96.75
Delbert K. Joenbrood	Application Desiger	€ 48.10
Geoff B. Wabash	Clerical Support	€ 26.87
William Smithfield	Programmer	€ 35.75
Maria D. Alonzo	Programmer	€ 35.75
Travis B. Bawangi	System Analyst	€ 96.75
John G. News	Database Designer	€ 105.00
Annelise Jones	Application Desiger	€ 48.10
Ralph B. Washington	System Analyst	€ 96.75
James J. Frommer	General Support	€ 18.36
Darlene M. Smithson	DSS Analyst	€ 45.95

Address 2	
Postal_code	City
A-1010	Rafing
A-1014	Wien
A-1020	Vienna
A-6020	Innsbruck
A-8854	Krakaudorf

2. Soal :

Lakukan normalisasi sesuai dengan langkah-langkah percobaan diatas sekaligus lakukan pengecekan mulai bentuk 1NF sampai dengan 3NF yang

sesuai dengan 3 kriteria bentuk normal yang baik pada studi kasus di bawah ini!

Sebuah data peminjaman perpustakaan di Politeknik Negeri Balikpapan berikut memiliki keistimewaan pada jumlah hari peminjaman buku. Semakin lama jumlah hari peminjaman diartikan semakin banyak jumlah halaman buku yang dipinjam.

**Jawab :**

No. Transaksi	No. Anggota	Nama	Status	Kode Buku	Judul	Pengarang	Penerbit	ISBN	Jml	Tgl Pinjam	Tgl Kembali	Jml Hari
12001	A-001	Budi	Tetap	B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2	1	10/12/2016	15/12/2016	5
12001	A-001	Budi	Tetap	B-002	Visual Basic	Joni	Erlangga	978-979-518-852-0	1	10/12/2016	15/12/2017	5
12001	A-001	Budi	Tetap	B-003	Foxpro	Andrea	Andi	978-979-8340-17-8	1	10/12/2016	15/12/2018	5
12002	A-002	Aulia	Tidak Tetap	B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2	1	11/12/2016	14/12/2016	3
12002	A-002	Aulia	Tidak Tetap	B-002	Visual Basic	Joni	Erlangga	978-979-518-852-0	1	11/12/2016	14/12/2017	3
12003	A-003	Susan	Tetap	B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2	1	12/12/2016	17/12/2016	5
12003	A-003	Susan	Tetap	B-004	Pascal	Abdul	Modula	978-979-692-046-4	1	12/12/2016	17/12/2017	5

**1NF**

TABLE ANGGOTA												
No. Transaksi	No. Anggota	Nama										
12001	A-001	Budi										
12002	A-002	Aulia										
12003	A-003	Susan										

  

TABLE TRANSAKSI												
No. Transaksi	No. Anggota	Status	Kode Buku	Judul	Pengarang	Penerbit	ISBN	Jml	Tgl Pinjam	Tgl Kembali	Jml Hari	
12001	A-001	Tetap	B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2	1	10/12/2016	15/12/2016	5	
12001	A-001	Tetap	B-002	Visual Basic	Joni	Erlangga	978-979-518-852-0	1	10/12/2016	15/12/2017	5	
12001	A-001	Tetap	B-003	Foxpro	Andrea	Andi	978-979-8340-17-8	1	10/12/2016	15/12/2018	5	
12002	A-002	Tidak Tetap	B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2	1	11/12/2016	14/12/2016	3	
12002	A-002	Tidak Tetap	B-002	Visual Basic	Joni	Erlangga	978-979-518-852-0	1	11/12/2016	14/12/2017	3	
12003	A-003	Tetap	B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2	1	12/12/2016	17/12/2016	5	
12003	A-003	Tetap	B-004	Pascal	Abdul	Modula	978-979-692-046-4	1	12/12/2016	17/12/2017	5	

**2NF**

TABLE ANGGOTA												
No. Transaksi	No. Anggota	Nama										
12001	A-001	Budi										
12002	A-002	Aulia										
12003	A-003	Susan										

  

TABLE TRANSAKSI												
No. Transaksi	No. Anggota	Status	Jml	Tgl Pinjam	Tgl Kembali	Jml Hari						
12001	A-001	Tetap	1	10/12/2016	15/12/2016	5						
12002	A-002	Tidak Tetap	1	11/12/2016	14/12/2016	3						
12003	A-003	Tetap	1	12/12/2016	17/12/2016	5						

  

TABLE BUKU												
Kode Buku	Judul	Pengarang	Penerbit	ISBN								
B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2								
B-002	Visual Basic	Joni	Erlangga	978-979-518-852-0								
B-003	Foxpro	Andrea	Andi	978-979-8340-17-8								
B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2								
B-002	Visual Basic	Joni	Erlangga	978-979-518-852-0								
B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2								
B-004	Pascal	Abdul	Modula	978-979-692-046-4								



## 3NF

TABLE ANGGOTA			TABLE TRANSAKSI						
No. Transaksi	No. Anggota	Nama	No. Transaksi	No. Anggota	Status	Jml	Tgl Pinjam	Tgl Kembali	Jml Hari
12001	A-001	Budi	12001	A-001	Tetap	1	10/12/2016	15/12/2016	5
12002	A-002	Aulia	12002	A-002	Tidak Tetap	1	11/12/2016	14/12/2016	3
12003	A-003	Susan	12003	A-003	Tetap	1	12/12/2016	17/12/2016	5

  

TABLE KODE BUKU		TABLE BUKU				
No. Anggota	Kode Buku	Kode Buku	Judul	Pengarang	Penerbit	ISBN
A-001	B-001	B-001	Delphi	Antoni	Informatika Bandung	978-979-769-513-2
A-001	B-002	B-002	Visual Basic	Joni	Erlangga	978-979-518-852-0
A-001	B-003	B-003	Foxpro	Andrea	Andi	978-979-8340-17-8
A-002	B-001	B-004	Pascal	Abdul	Modula	978-979-692-046-4
A-002	B-002					
A-003	B-001					
A-003	B-004					

## 3 Soal :

Lakukan normalisasi pada studi kasus di bawah ini mulai bentuk 1NF sampai dengan 3NF, sekaligus lakukan pengecekan yang sesuai dengan 3 kriteria bentuk normal yang baik! (Bentuk normalisasi tidak dibatasi, silahkan disesuaikan dengan kondisi studi kasus)

Indonesia Air memiliki data penerbangan domestik yang rutin dilaksanakan dalam periode tertentu.

## Jawab :

No	FROM	TO	FLIGHT NO	ETA	ETD	DAY OF SERVICES	FLEET	REMARKS
1	BANDUNG	PADANG	18 6420	06:00:00	07:40:00	DAILY	A320	DIRECT
		PALEMBANG	18 6440	10:10:00	11:20:00	DAILY	A320	DIRECT
		MEDAN	18 6440	10:10:00	13:20:00	DAILY	A320	VIA PALEMBANG
		PEKANBARU	18 6450	17:30:00	19:10:00	DAILY	A320	DIRECT
2	MEDAN	PALEMBANG	18 6441	13:50:00	15:30:00	DAILY	A320	DIRECT
		BANDUNG	18 6441	13:50:00	17:05:00	DAILY	A320	VIA PALEMBANG
3	PADANG	BANDUNG	18 6251	08:05:00	09:45:00	DAILY	A320	DIRECT
4	PEKAN BARU	BANDUNG	18 6451	19:35:00	21:15:00	DAILY	A320	DIRECT
5	PALEMBANG	BANDUNG	18 6441	15:55:00	17:05:00	DAILY	A320	DIRECT
		MEDAN	18 6440	11:45:00	13:02:00	DAILY	A320	DIRECT
6	PONTIANAK	SINTANG	18 200	08:00:00	08:45:00	FRIDAY & SUNDAY	ATR42	DIRECT
		PANGKALANBUN	18 206	10:15:00	11:15:00	MON, FRI, SAT, SUN	ATR42	DIRECT
		KETAPANG	18 202	08:10:00	08:45:00	MONDAY & SUNDAY	ATR42	DIRECT
7	SINTANG	PONTIANAK	18 201	09:00:00	09:45:00	FRIDAY & SUNDAY	ATR42	DIRECT
8	PANGKALAN BUN	PONTIANAK	18 207	15:30:00	16:30:00	MON, FRI, SAT, SUN	ATR42	DIRECT
9	KEETAPANG	PONTIANAK	18 203	09:00:00	09:35:00	MONDAY & SATURDAY	ATR42	DIRECT

## 1NF

TABLE SERVICES				TABLE OF FLIGHT						
No	FROM	DAY OF SERVICES	FLEET	No	TO	FLIGHT NO	ETA	ETD	FLEET	REMARKS
1	BANDUNG	DAILY	A320	1	PADANG	18 6420	06:00:00	07:40:00	A320	DIRECT
					PALEMBANG	18 6440	10:10:00	11:20:00	A320	DIRECT
					MEDAN	18 6440	10:10:00	13:20:00	A320	VIA PALEMBANG
					PEKANBARU	18 6450	17:30:00	19:10:00	A320	DIRECT
2	MEDAN	DAILY	A320	2	PALEMBANG	18 6441	13:50:00	15:30:00	A320	DIRECT
					BANDUNG	18 6441	13:50:00	17:05:00	A320	VIA PALEMBANG
3	PADANG	DAILY	A320	3	BANDUNG	18 6251	08:05:00	09:45:00	A320	DIRECT
4	PEKAN BARU	DAILY	A320	4	BANDUNG	18 6451	19:35:00	21:15:00	A320	DIRECT
5	PALEMBANG	DAILY	A320	5	BANDUNG	18 6441	15:55:00	17:05:00	A320	DIRECT
					MEDAN	18 6440	11:45:00	13:02:00	A320	DIRECT
6	PONTIANAK	FRIDAY & SUNDAY	ATR42	6	SINTANG	18 200	08:00:00	08:45:00	ATR42	DIRECT
		MON, FRI, SAT, SUN			PANGKALANBUN	18 206	10:15:00	11:15:00	ATR42	DIRECT
		MONDAY & SUNDAY			KETAPANG	18 202	08:10:00	08:45:00	ATR42	DIRECT
7	SINTANG	FRIDAY & SUNDAY	ATR42	7	PONTIANAK	18 201	09:00:00	09:45:00	ATR42	DIRECT
8	PANGKALAN BUN	MON, FRI, SAT, SUN	ATR42	8	PONTIANAK	18 207	15:30:00	16:30:00	ATR42	DIRECT
9	KEETAPANG	MONDAY & SATURDAY	ATR42	9	PONTIANAK	18 203	09:00:00	09:35:00	ATR42	DIRECT

## 2NF

TABLE SERVICES			TABLE NO FLIGHT					TABLE OF FLIGHT		
No	FROM	DAY OF SERVICES	No	FLIGHT NO	ETA	ETD	FLEET	No	TO	REMARKS
1	BANDUNG	DAILY	1	I8 6420	06:00:00	07:40:00	A320	1	PADANG	DIRECT
				I8 6440	10:10:00	11:20:00			PALEMBANG	
				I8 6440	10:10:00	13:20:00			MEDAN	VIA PALEMBANG
				I8 6450	17:30:00	19:10:00			PEKANBARU	DIRECT
2	MEDAN	DAILY	2	I8 6441	13:50:00	15:30:00	A320	2	PALEMBANG	DIRECT
				I8 6441	13:50:00	17:05:00			BANDUNG	VIA PALEMBANG
3	PADANG	DAILY	3	I8 6251	08:05:00	09:45:00	A320	3	BANDUNG	DIRECT
4	PEKAN BARU	DAILY	4	I8 6451	19:35:00	21:15:00	A320	4	BANDUNG	DIRECT
5	PALEMBANG	DAILY	5	I8 6441	15:55:00	17:05:00	A320	5	BANDUNG	DIRECT
				I8 6440	11:45:00	13:02:00			MEDAN	
6	PONTIANAK	FRIDAY & SUNDAY	6	I8 200	08:00:00	08:45:00	ATR42	6	SINTANG	DIRECT
		MON, FRI, SAT, SUN		I8 206	10:15:00	11:15:00			PANGKALANBUN	
		MONDAY & SUNDAY		I8 202	08:10:00	08:45:00			KETAPANG	
7	SINTANG	FRIDAY & SUNDAY	7	I8 201	09:00:00	09:45:00	ATR42	7	PONTIANAK	DIRECT
8	PANGKALAN BUN	MON, FRI, SAT, SUN	8	I8 207	15:30:00	16:30:00	ATR42	8	PONTIANAK	DIRECT
9	KEETAPANG	MONDAY & SATURDAY	9	I8 203	09:00:00	09:35:00	ATR42	9	PONTIANAK	DIRECT

## 3NF

			TABLE NO FLIGHT		
No	FROM	DAY OF SERVICES	No	FLIGHT NO	FLEET
1	BANDUNG	DAILY	1	I8 6420	A320
				I8 6440	
				I8 6440	
				I8 6450	
2	MEDAN	DAILY	2	I8 6441	A320
				I8 6441	
3	PADANG	DAILY	3	I8 6251	A320
4	PEKAN BARU	DAILY	4	I8 6451	A320
5	PALEMBANG	DAILY	5	I8 6441	A320
				I8 6440	
6	PONTIANAK	FRIDAY & SUNDAY	6	I8 200	ATR42
		MON, FRI, SAT, SUN		I8 206	
		MONDAY & SUNDAY		I8 202	
7	SINTANG	FRIDAY & SUNDAY	7	I8 201	ATR42
8	PANGKALAN BUN	MON, FRI, SAT, SUN	8	I8 207	ATR42
9	KEETAPANG	MONDAY & SATURDAY	9	I8 203	ATR42

TABLE OF FLIGHT				TABLE HOURS		
No	FROM	TO	REMARKS	No	ETA	ETD
1	BANDUNG	PADANG	DIRECT	1	06:00:00	07:40:00
		PALEMBANG			10:10:00	11:20:00
		MEDAN	VIA PALEMBANG		10:10:00	13:20:00
		PEKANBARU	DIRECT		17:30:00	19:10:00
2	MEDAN	PALEMBANG	DIRECT	2	13:50:00	15:30:00
		BANDUNG	VIA PALEMBANG		13:50:00	17:05:00
3	PADANG	BANDUNG	DIRECT	3	08:05:00	09:45:00
4	PEKAN BARU	BANDUNG	DIRECT	4	19:35:00	21:15:00
5	PALEMBANG	BANDUNG	DIRECT	5	15:55:00	17:05:00
		MEDAN			11:45:00	13:02:00
6	PONTIANAK	SINTANG	DIRECT	6	08:00:00	08:45:00
		PANGKALANBUN			10:15:00	11:15:00
		KETAPANG			08:10:00	08:45:00
7	SINTANG	PONTIANAK	DIRECT	7	09:00:00	09:45:00
8	PANGKALAN BUN	PONTIANAK	DIRECT	8	15:30:00	16:30:00
9	KEETAPANG	PONTIANAK	DIRECT	9	09:00:00	09:35:00