BACHELOR OF COMPUTER SCIENCE
FACULTY/SCHOOL OF COMPUTER SCIENCE
BINA NUSANTARA UNIVERSITY
JAKARTA

ASSESSMENT FORM

Course: COMP67990016 – Database Technology

Method of Assessment: Group Project

Semester/Academic Year: 3/2023 - 2024

Name of Lecturer **: EKO SETYO PURWANTO, S.Pd., M.Kom. (D6669)**

Date **: 17th November 2023**

Class **: LF01**

Topic **:**

- **The Relational Model**
- **Schema Refinement And Normal Forms**

Group Members :	1. 2602236501 - Clarence Mylordick 2. 2602136713 - Kevin Petersen 3. 2602054764 - Bryan Mulia 4. 2602135793 - Filbert

Student Outcomes:
SO 2 - Mampu merancang, mengimplementasikan, dan mengevaluasi solusi berbasis komputasi untuk memenuhi serangkaian persyaratan komputasi dalam konteks ilmu computer
Able to design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of computer science

Learning Objectives:
LObj 2.2 - Mampu mengimplementasikan solusi berbasis komputasi untuk memenuhi serangkaian persyaratan komputasi tertentu dalam konteks ilmu komputer
Able to implement a computing-based solution to meet a given set of computing requirements in the context of computer science

Learning Outcomes:

LO 1: Define model data and information in the form of concept diagrams and physical diagrams and apply them to the database in a DBMS, both individually and in teamwork

LO 2: Explain the concepts of relational algebra, DDL, DML, transaction management on database and concurrency control

No	Related LO-LOBJ -SO	Assessment criteria	Weight	Excellent (85 - 100)	Good (75-84)	Average (65-74)	Poor (0 - 64)	Score	(Score x Weight)
1.	LO1– LObj 2.2 – SO2	Identification of performance problem	20%	The ability to identify several performance problems correctly with one final proposed solution	The ability to identify several performance problems correctly with some unfinished proposed solutions	The ability to identify 1 performance problem correctly with some unfinished proposed solutions	The ability to identify 1 performance problem correctly without a proposed solution		
2.	LO1– LObj 2.2 – SO2	Preparation for the sample data	20%	The ability to apply ≥ 4 entities for the sample data correctly and completely	The ability to apply 3 entities for the sample data correctly and completely	The ability to apply 2 entities for the sample data correctly and completely	The ability to apply 1 entity for the sample data stage incorrectly		
3.	LO2– LObj 2.2 – SO2	Overcoming and recognizing data anomalies and functional dependencies	20%	The ability to resolve and identify data anomalies and functional dependencies with a detailed plan to address increasing data complexity and data inconsistency completely	The ability to resolve and identify data anomalies and functional dependencies with a basic plan to address increasing data complexity and data inconsistency completely	The ability to resolve and identify data anomalies and functional dependencies with a basic plan to address increasing data complexity or data inconsistency completely	The ability to resolve and identify data anomalies and functional dependencies with a basic plan to address increasing data complexity or data inconsistency incompletely		

No	Related LO-LOBJ-SO	Assessment criteria	Weight	Excellent (85 - 100)	Good (75-84)	Average (65-74)	Poor (0 - 64)	Score	(Score x Weight)
4.	LO2–LObj 2.2 – SO2	Implementing normal form techniques	**20%**	The ability to implement a detailed plan and implementation for BCNF or 3NF techniques correctly and completely	The ability to implement with a basic plan and implementation for 2NF techniques correctly and completely	The ability to implement with a basic plan and implementation for 1NF techniques correctly and completely	The ability to implement a basic plan for 1NF techniques incorrectly.		
5.	LO1–LObj 2.2 – SO2	Refining an ER Diagram	**20%**	The ability to refine an ER diagram from the normalization technique with detailed plans to solve problems correctly and completely.	The ability to refine an ER diagram from the normalization technique with basic plans to solve problems correctly and completely.	The ability to refine an ER diagram from the normalization technique with basic plans to solve problems correctly or completely.	The ability to refine an ER diagram from the normalization technique with basic plans to solve problems incorrectly.		
		Total Score: ∑(Score x Weight)							

Remarks:

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ASSESSMENT METHOD

<u>Instructions</u>

1. Students will be divided into groups with max members of 4 people.

2. **[Identification of performance problem]** Your group is free to choose the case that will be used to solve the problem.

3. **[Identification of performance problem]** The case must be related to one of these industry sectors:

   a. Health

   b. Energy

   c. Communication

   d. Insurance

   e. Tourism

4. **[Preparation for the sample data]** Determine the sample data that you will use to apply to the application to be built.

5. **[Preparation for the sample data]** Each group should not use the same case (especially about your sample data).

6. **[Preparation for the sample data]** The collected sample data must be in Un-normal form.

7. **[Overcoming and recognizing data anomalies and functional dependencies]** After collecting the sample data, it is necessary to check for anomalies and functional dependencies in the sample data.

8. **[Implementing normal form techniques]** The system that you build must apply the stages in the design of normalization techniques, from unnormal until 3NF.

9. **[Implementing normal form techniques]** After the sample data is applied to 3NF, consider is it necessary to apply BCNF on the current 3NF sample data and explain the reason for your decision.

10. **[Refining an ER Diagram]** After the sample data is applied to 3NF/ BCNF, it must be refined into an ERD (Crow`s foot or Chen method)

11. For submissions, each group must submit a report and presentation.

The report contains:

a. **[Identification of performance problem]** Chapter 1 The description of the case used

b. **[Identification of performance problem]** Chapter 2 The problem you identified (this chapter should describe why the case needs a database).

c. **[Overcoming and recognizing data anomalies and functional dependencies]** Chapter 3 The sample data description and list of anomalies may occur.

d. **[Implementing normal form techniques]** Chapter 4 Implementation of normalization (detail step by step of normalization from un-normal form).

e. **[Implementing normal form techniques]** Chapter 5 Conclusions.

12. For the presentation, each group only takes 5-10 minutes.
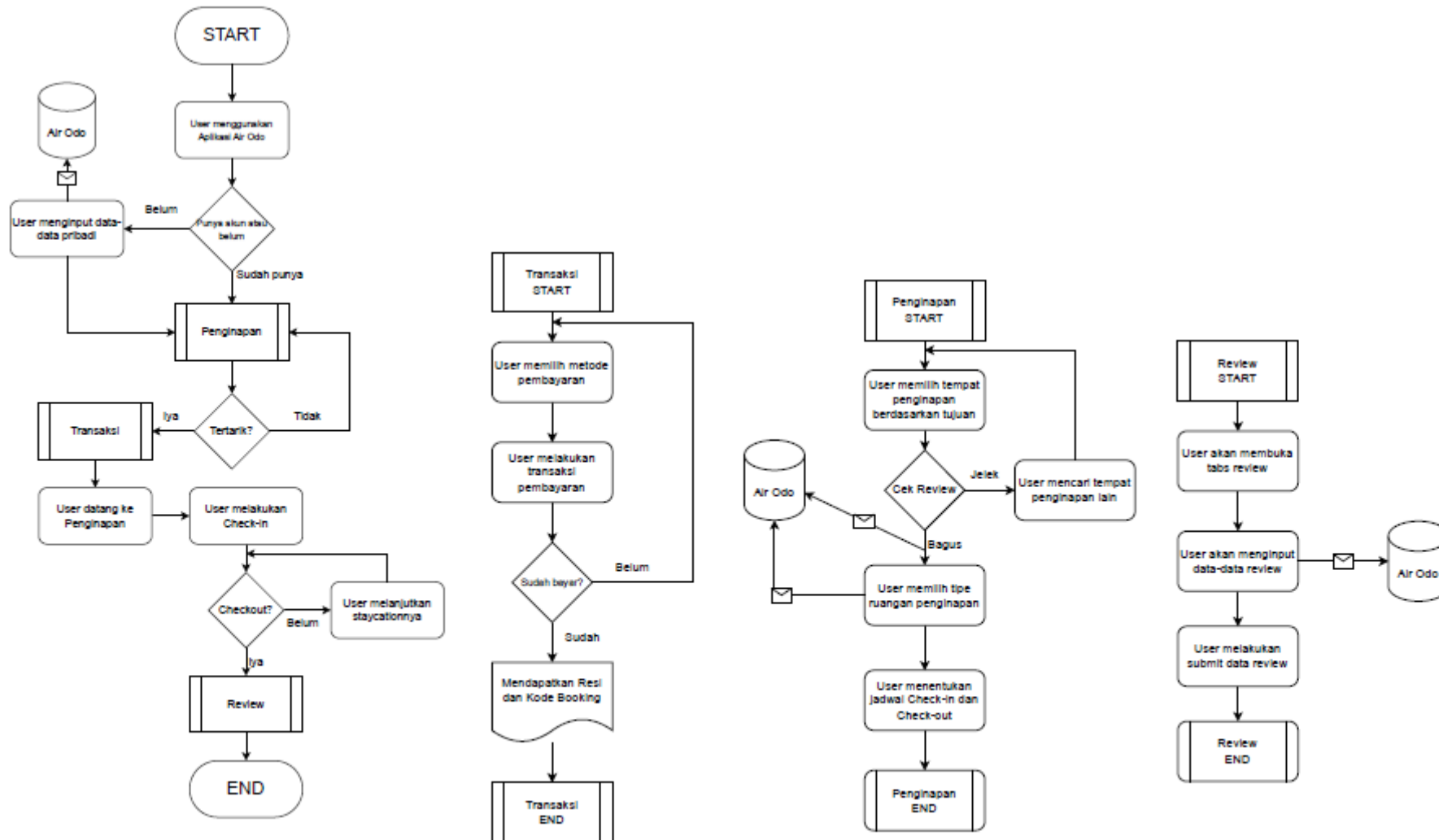
Note for Lecturers:

Please inform the assessment of the students from Week 1.
Please ask the students to submit the assessment maximum in Week 8.
The presentation will start in week 9.

Chapter 1 Description of the Case

- Air Odo adalah sebuah aplikasi yang memberikan layanan yang menyajikan berbagai jenis dan bentuk penginapan bagi user dengan tipe dan harga yang bervariasi sesuai dengan kebutuhan user
- Air Odo telah berkecimpung di dunia penginapan utamanya berorientasi pada tourism
- Data dari Air Odo telah terjamin keamanannya dengan melibatkan API dari Google sehingga dapat dikelola dengan baik setelah data diterima oleh staff untuk mendukung pengelolaan transaksi dari pengguna
- Air Odo menyimpan berbagai jenis informasi seperti riwayat tempat penginapan yang pernah ditempati, rating, harga, lokasi, hingga tipe kamar yang mendukung preferensi penyediaan pilihan tempat penginapan untuk pengguna

START

User menggunakan Aplikasi Air Odo

Air Odo

Belum

Punya akun atau belum

User menginput data-data pribadi

Sudah punya

Penginapan

Iya

Tertarik?

Tidak

Transaksi

User datang ke Penginapan

User melakukan Check-in

Checkout?

Belum

User melanjutkan staycationnya

Iya

Review

END

Transaksi START

User memilih metode pembayaran

User melakukan transaksi pembayaran

Sudah bayar?

Belum

Sudah

Mendapatkan Resi dan Kode Booking

Transaksi END

Penginapan START

User memilih tempat penginapan berdasarkan tujuan

Air Odo

Cek Review

Jelek

User mencari tempat penginapan lain

Bagus

User memilih tipe ruangan penginapan

User menentukan jadwal Check-in dan Check-out

Penginapan END

Review START

User akan membuka tabs review

User akan menginput data-data review

Air Odo

User melakukan submit data review

Review END

Scenario

Sebagai permulaan, user diharuskan untuk memiliki akun utama, jadi kalau user sudah punya dia bisa melanjutkan melakukan reservasi, tapi kalau belum punya maka user diharuskan untuk membuat akun tersebut. Setelah itu baru si user bisa melakukan reservasi dengan memilih terlebih dahulu tempat penginapan yang sekiranya menarik bagi user melalui review-review orang sebelumnya yang sudah pernah tinggal di penginapan tersebut. Setelah menentukan penginapan mana yang ingin ditempati, maka user harus melakukan booking dan hasil bookingnya akan disesuaikan dengan

data serta pembayaran / transaksi yang dilakukan oleh user. Dari transaksi yang dilakukan, user akan mendapatkan resi serta kode booking untuk tempat penginapan tersebut lalu si user hanya tinggal mendatangi tempat penginapannya lalu menunjukkan kode bookingnya nanti karyawan penginapan akan mengarahkan user menuju kamarnya. Setelah user selesai dan melakukan checkout ke penginapan tersebut, user kemudian akan mengisi tabs review guna untuk memberikan nilai ke penginapan tersebut dan akan menjadi gambaran user-user berikutnya untuk mempertimbangkan penginapan tersebut

Filbert ingin pergi berlibur ke kawasan Pantai Ubud Bali, ia sudah memiliki tiket pesawat tetapi belum memiliki tempat penginapan, ia segera mencari tempat penginapan di aplikasi Air Odo tetapi karena ia belum pernah mendaftarkan dirinya, ia pun meregister data dirinya agar dapat mengakses aplikasi. Setelah register, data Filbert pun disimpan ke database sehingga ia dapat login ke aplikasi Air Odo, Air Odo pun menyajikan berbagai macam jenis penginapan dengan preferensi pengguna secara umum yang pernah menggunakan aplikasi Air Odo dengan mengakses lokasi dari Filbert berdasarkan rating dan komentar yang positif. Kemudian, Filbert pun memilih salah satu penginapan yang ia tertarik. Ia akan memilih tanggal menginap dan melakukan reservasi kemudian ia akan melakukan pembayaran dengan pilihan pembayaran yang tersedia. Database akan menyimpan sementara dalam waktu tertentu yang dimana pengecekan pembayaran dilakukan jika pembayaran terverifikasi terbayar maka data akan disimpan secara permanen ke database dengan diberikan resi dan kode booking untuk menginap di tempat penginapan yang dipilih. Filbert pun mengunjungi tempat penginapan tersebut dan menginap untuk periode waktu tertentu, setelah periode terlewat dan Filbert memilih untuk check out maka informasi tersebut akan diterima oleh aplikasi Air Odo yang dimana nantinya user dapat memberikan review, rating, dan komentar yang dikelola menjadi sebuah data yang digunakan sebagai preferensi bagi Filbert dengan kriteria tempat penginapan yang ia sukai dan pengguna baru lainnya yang belum pernah memesan tempat penginapan.

Chapter 2 The problem you identified

Masalah yang diangkat dari tema kami sehingga membutuhkan database adalah suatu perusahaan tentunya membutuhkan suatu target pasar untuk menyasar customernya secara akurat dan tepat sasaran, dengan adanya review dan riwayat maka perusahaan bisa menemukan preferensi dari user, selain itu, database digunakan untuk sebagai identifikasi suatu tempat penginapan dan user menjadi suatu entitas yang unik tanpa adanya hal tersebut maka perusahaan akan kesulitan mengelompokkan siapa yang telah menjadi customer dan pihak yang bekerjasama dan tidak. Masalah lainnya adalah untuk mempertahankan kualitas terhadap penginapan dengan kualitas yang terjaga, Air Odo menawarkan suatu sistem review agar user dapat menikmati penginapan dengan kualitas terbaik dan penginapan pun menjaga kualitasnya. Secara transaksi, database menawarkan suatu solusi terhadap masalah pembuktian transaksi dengan pengecekan secara berkala melalui database sehingga dengan adanya database maka kedua belah pihak dapat terjaga dari penipuan akibat transaksi palsu.

Chapter 3 The sample data description and list of anomalies may occur
Description
- ID merupakan sebuah identitas yang dimiliki oleh suatu tempat penginapan
- Name merupakan nama dari tempat penginapan untuk ditinggali user
- Lat dan Long merupakan Longtitude dan Latitude coordinate letak tempat penginapan
- City merupakan Kota letak tempat penginapan
- Country Code merupakan kode negara dimana tempat penginapan berada
- Country merupakan nama negara

- UserID merupakan tanda pengenal sebuah user/pelanggan
- UserOrigin City merupakan kota lahir pengguna
- UserName merupakan nama pengguna
- UserDOB merupakan tanggal, bulan, tahun kelahiran user
- Review ID merupakan sebuah tanda pengenal apabila sebuah review dari sebuah tempat, dibuat setelah user selesai menginap
- Number of Review merupakan angka review yang dimiliki oleh suatu tempat penginapan
- Rating merupakan penilaian yang diberikan setelah user meninggalkan penginapan
- Comments merupakan kesan pengguna setelah selesai tinggal di penginapan
- Last review merupakan tanggal review terbaru sebuah review dibuat
- Reviews per month merupakan berapa review dibuat dalam rata" perbulan
- Review rate number merupakan rata-rata rating dari seluruh reviews sebuah tempat penginapan
- Calculated UserListing Count merupakan angka berapa user yang sudah pernah tinggal di tempat penginapan tersebut
- Cancellation policy merupakan syarat sebuah transaksi dapat dibatalkan (dalam sebuah tulisan)
- Service fee merupakan biaya tambahan untuk pelayanan yang diberikan
- Price merupakan harga tinggal suatu tempat
- MinimumNights merupakan jumlah nights yang user tinggal
- InstantBookable merupakan boolean yang menunjukan apakah suatu tempat penginapan bisa langsung di book atau harus ada konfirmasi dari tempat penginapan tersebut
- Roomtype merupakan jenis ruangan yang ditinggali
- TransactionID merupakan suatu identitas apabila satu transaksi sudah dibuat/laksanakan

Anomalies

Insertion Normalization terjadi apabila admin tidak dapat menginput data kedalam database karena data tidak sesuai dengan format yang diberikan atau data tidak komplit. Hal ini dapat terjadi pada unnormal form apabila kita ingin menginput suatu data baru, tetapi hanya satu kategori saja yang diisi, maka data tersebut tidak dapat dimasukan.

Deletion Anomaly terjadi apabila ketika menghapus data dari tabel dapat menyebabkan masalah dalam basis data, seperti kehilangan data yang tidak seharusnya hilang. Anomaly dapat terjadi apabila di 2NF, kita menghapus satu UserID dari transactiontable, maka semua tuple dari user id seperti user_name, user_origin_city, dan user_dob langsung terdelete.

Update Anomaly terjadi apabila kita ingin mengubah sebuah data di satu tabel, maka tabel lain yang berkaitan tidak dapat diubah dan terjadi inkonsistensi. Contohnya apabila di unnormal form, user_dob diubah dari 6/22/2000 menjadi 22 Juni, 2000, maka data menjadi inkonsisten

Partial Dependencies terjadi saat suatu atribut Non-Primary Key terhubung dengan satu Primary Key(PK). Dalam sampel data unnormal form,
- calculated_user listing count, review rate number, reviews per month, last review, number of reviews, city, country code, country, long, lat, name hanya bergantung pada PK ID, maka harus dipisah.
- user_name, user origin city, user_dob partial dependent kepada user id(PK)

- Description, rating partial dependent dengan review id(PK)

Transitive Dependencies terjadi saat A->C relasi lebih kuat dari A->B. maka A transitive dependency kepada C melalui C (A->B->C)
- lat, long, city, country, country code transitive dependency kepada name, melalui ID
- country, country code, transitive dependency terhadap city melalui name
- country transitive dependency terhadap country code melalui city.

Chapter 4 Implementation of normalization (detail step by step of normalization from un-normal form)

calculated user listings count	Review ID	Transaction ID	Rating	Description
0	16878	1	4	Very Comfortable
0	15824	2	2	Very Disgusting
0	18803	3	1	Not Recommended, Service is Worst
1	78384	4	5	Absolutely Amazing! the service was outstanding
0	87384	5	3	Not a bad idea to stay here, everything was fine
1	73438	6	2	Disappointing in Service but View is good
1	84738	7	1	i had a horrible time, the service was disaster
1	83828	8	4	Incredible! very good service
1	68432	9	3	Plan nice experience! The staff was attentive
1	68434	10	5	Very good
4	58784	11	1	Avoid at all costs. Unfriendly staff and mediocre food.
1	67384	12	2	Disappointing. The place was dirty, and the service was slow.
1	7283	13	5	Lovely experience! Great food, cozy atmosphere, and excellent service
3	23575	14	3	Neutral you can decide to stay
1	67283	15	4	Perfect evening! The staff went above and beyond to make it special
0	68374	16	2	Not worth the money.
1	83833	17	1	Horrible experience. I'll never come back
1	33673	18	4	Hidden gem alert! The ambiance and flavors were a delightful surprise
1	8238	19	5	Fantastic find! The menu is diverse
1	68874	20	3	Good View and Service
0	74638	21	2	Horrible.
0	76438	22	1	Not recommended. The quality has gone downhill
6	47774	23	4	The Review wasn't lying the service were perfect
6	74634	24	5	Excellent all around! Great food, friendly service
6	68328	25	3	Nice Place and Service
2	38483	26	2	Kinda hate the service
2	74668	27	1	Regrettable choice. The service was slow
0	83418	28	4	Impressive!
1	78234	29	5	Incredible! The chef's specials are a must try
3	74883	30	3	No Comment
1	47838	31	3	
3	73838	32	1	Overrated. The hype doesn't match the disappointing reality
1	68283	33	5	Fantastic Place to stay
3	83667	34	2	Hey is this a Place to stay?? very horrible
3	74867	35	4	What a nice view and service
2	84738	36	1	Bad interior also bad service and bad rooms
3	83648	37	2	Not a big recommended place to stay for me
0	73634	38	3	In line with service since the view was beautiful
2	88438	39	5	A culinary delight! Every dish was a masterpiece, and the service was superb
1	67384	12	2	Disappointing. The place was dirty, and the service was slow.
3	23575	14	3	Neutral you can decide to stay
3	83667	34	2	Hey is this a Place to stay?? very horrible

UnNormal Form

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1 NF

Pada tahapan 1NF normalisasi terjadi untuk menghilangkan kesalahan-kesalahan yang terjadi pada unnormal form pada kasus dari data yang dimiliki oleh Air Odo yaitu pengulangan data yang ada di baris 41-43 mengulangi data baris ke 14, 15, 35. Selain itu terdapat beberapa data yang masih menyatu sehingga perlu untuk dipisahkan seperti pada baris ke 4 dan 5 pada bagian name THE VILLAGE OF HARLEM....NEW YORK !, di kolom City dan user_origin_city juga masih ada kota yang menyatu sehingga perlu dipisah. Terdapat data yang tidak valid pada kolom last review berisi nilai NULL padahal pada number of reviews terdapat lebih dari satu review yang menyatakan user pernah mereview sehingga perlu untuk dicarikan data yang sebenarnya terjadi di dunia nyata. Juga terdapat data dengan format yang berbeda sehingga perlu untuk diubah pada kolom reviews per month. Hal ini sendiri dilakukan untuk mengatasi anomali yang bisa terjadi akibat data yang tidak valid dan ruwet sehingga pada saat kita ingin mengubah data yang ada kita lebih mudah mengaksesnya

PlaceID	NAME	user id	user name	city	user_origin_city	User_DOB	lat	long	country	country code	instant_bookable	cancellation_policy	room type	price	service fee	minimum nights	number of reviews	last review	reviews per month
1001254	Clean & quiet apt home by the park	H60010	Madeline	Brooklyn	Kensington	15/03/2013	4.064.749	-739.724	United States	US	FALSE	strict	Private room	$966	$193	10	9	11/25/2018	0.21
1002102	Skylit Midtown Castle	H52310	Jenna	Manhattan	Midtown	3/16/1962	4.075.362	-739.836	United States	US	FALSE	moderate	Entire home/apt	$143	$28	30	45	5/21/2022	0.38
1002403	THE VILLAGE OF HARLEM...NEW YORK !#0	H78910	Elise	Manhattan	Harlem	6/16/2006	4.080.902	-739.419	United States	US	TRUE	flexible	Private room	$920	$134	3	0	NULL	0
1002755	THE VILLAGE OF HARLEM...NEW YORK !	H85010	Garry	Brooklyn	Clinton Hill	8/28/2007	4.008.514	-739.596	United States	US	TRUE	moderate	Entire home/apt	$368	$74	30	270	7/5/2019	4.64
1003689	Entire Apt: Spacious Studio/Loft by central park	H60010	Lyndon	Manhattan	East Harlem	8/16/1988	4.079.851	-73.944	United States	US	FALSE	moderate	Entire home/apt	$204	$41	10	9	25/12/2021	0.1
1004098	Large Cozy 1 BR Apartment In Midtown East	H45510	Michelle	Manhattan	Murray Hill	2/26/2002	4.074.767	-73.975	United States	US	TRUE	flexible	Entire home/apt	$577	$115	3	74	6/22/2019	0.59
1004650	BlissArtsSpace!	H46130	Alberta	Brooklyn	Bedford-Stuyvesant	2/9/2013	4.008.680	-73.956	United States	US	FALSE	moderate	Private room	$71	$14	45	49	10/5/2017	0.4
1005202	BlissArtsSpace!	H60010	Emma	Brooklyn	Bedford-Stuyvesant	11/6/2004	4.008.680	-73.956	United States	US	FALSE	moderate	Private room	$1,060	$213	45	49	10/5/2017	0.4
1005754	Large Furnished Room Near B'way	H79410	Evelyn	Manhattan	Hell's Kitchen	3/8/1977	4.076.489	-739.849	United States	US	TRUE	strict	Private room	$1,018	$204	3	430	6/24/2019	3.47
1006307	Cozy Clean Guest Room - Family Apt	H75510	Carl	Manhattan	Upper West Side	3/5/1987	4.080.170	-739.672	United States	US	FALSE	strict	Private room	$291	$58	3	118	7/21/2017	0.99
1006859	Cute & Cozy Lower East Side 1 bdrm	H12809	Miranda	Manhattan	Chinatown	11/7/1980	4.071.344	-739.904	United States	US	FALSE	flexible	Entire home/apt	$319	$64	1	160	6/9/2019	1.33
1007411	Beautiful 1br on Upper West Side	H18910	Alan	Manhattan	Upper West Side	11/18/2013	4.080.316	-739.055	United States	US	TRUE	flexible	Entire home/apt	$606	$121	5	53	6/22/2019	0.43
1007964	Central Manhattan/near Broadway	H60010	Messi	Manhattan	Hell's Kitchen	8/10/2019	4.076.076	-739.987	United States	US	FALSE	strict	Private room	$714	$143	2	188	6/23/2019	1.5
1008516	Lovely Room 1, Garden, Best Area, Legal rental	H26910	Darcy	Brooklyn	South Slope	3/10/1978	4.008.829	-739.876	United States	US	TRUE	moderate	Private room	$560	$116	4	167	6/24/2019	1.34
1009068	Wonderful Guest Bedroom in Manhattan for SINGLES	H68910	Leonardo	Manhattan	Upper West Side	2/6/1985	4.079.826	-739.811	United States	US	FALSE	flexible	Private room	$149	$30	2	113	7/5/2019	0.91
1009621	West Village Nest - Superhost	H46010	Daniel	Manhattan	West Village	3/30/1991	407.353	-740.053	United States	US	TRUE	flexible	Entire home/apt	$578	$86	90	27	10/7/2020	0.22
1010173	Only 2 stops to Manhattan studio	H62010	Heather	Brooklyn	Williamsburg	11/18/2008	4.070.837	-739.535	United States	US	FALSE	moderate	Entire home/apt	$778	$106	3	148	6/29/2019	1.2
1010725	Perfect for Your Parents + Garden	H68010	Ryan	Brooklyn	Fort Greene	1/18/2031	4.069.169	-739.719	United States	US	TRUE	flexible	Entire home/apt	$858	$54	2	198	6/26/2019	1.72
1011277	Chelsea Perfect	H73910	Alberta	manhattan	Chelsea	2/26/1980	4.074.192	-73.965	United States	US	TRUE	moderate	Private room	$468	$88	1	260	7/1/2019	2.12
1011838	Hip Historic Brownstone Apartment with Backyard	H72110	Martin	Brooklyn	Crown Heights	4/28/1995	4.067.592	-739.409	United States	US	TRUE	moderate	Entire home/apt	$1,095	$79	3	53	6/22/2019	4.44
1012362	Huge 2 BR Upper East Central Park	H79810	Audrey	Manhattan	East Harlem	2/18/1994	4.079.685	-739.407	United States	US	FALSE	moderate	Entire home/apt	$261	$55	7	0	NULL	0
1012934	Sweet and Spacious Brooklyn Loft	H60010	Alissa	Brooklyn	Williamsburg	4/27/2001	4.071.842	-739.572	United States	US	FALSE	flexible	Entire home/apt	$477	$95	3	9	7/1/2019	0.07
1013097	CBG CtyBGd HelpsHaiti rm#1:1~4	H53910	Mary	Brooklyn	Park Slope	7/18/1997	4.008.069	-739.771	United States	US	TRUE	moderate	Private room	$130	$27	2	130	7/1/2019	1.09
1014039	CBG Helps Haiti Room#2.5	H67710	William	Brooklyn	Park Slope	7/31/2003	4.067.989	-73.978	United States	US	FALSE	moderate	Private room	$1,058	$210	1	39	1/1/2019	0.37
1014591	CBG Helps Haiti Rm #2	H67910	Charlotte	Brooklyn	Park Slope	6/28/2008	4.008.801	-739.767	United States	US	TRUE	strict	Private room	$916	$163	2	71	7/2/2019	0.61
1015144	MAISON DES SIRENES1,bohemian apartment	H48410	Miranda	Brooklyn	Bedford-Stuyvesant	2/1/2017	4.008.371	-739.403	United States	US	FALSE	strict	Entire home/apt	$1,175	$235	3	88	6/19/2019	0.73
1015690	Sunny Bedroom Across Prospect Park	H61710	Carlos	Brooklyn	Windsor Terrace	7/30/1996	4.065.599	-739.752	United States	US	TRUE	moderate	Private room	$530	$106	1	19	6/23/2019	1.37
1016248	Magnifique Suite au N de Manhattan - vue Cloitres	H38910	Adrianna	Manhattan	Inwood	6/22/2008	4.086.754	-739.264	United States	US	TRUE	strict	Private room	$274	$55	4	0	NULL	0
1016800	Midtown Pied-a-terre	H19910	Andrea	Manhattan	Hell's Kitchen	12/16/2013	4.076.715	-739.953	United States	US	FALSE	moderate	Entire home/apt	$209	$42	10	58	6/13/2017	0.49
1017353	SPACIOUS, LOVELY FURNISHED MANHATTAN BEDROOM	H51410	Daryl	Manhattan	Inwood	1/22/1997	4.086.482	-739.211	United States	US	FALSE	strict	Private room	$430	$86	3	109	6/15/2019	1.11
1017905	Modern 1 BR / NYC / EAST VILLAGE	H66410	Tyler	Manhattan	East Village	8/28/2008	407.292	-739.954	United States	US	TRUE	flexible	Entire home/apt	$666	$130	14	29	4/19/2019	0.24
1018457	front room/double bed	H69410	Bryan	Manhattan	Harlem	6/28/2017	4.082.345	-73.951	United States	US	TRUE	flexible	Private room	$770	$154	3	242	6/1/2019	2.04
1019010	Spacious 1 bedroom in luxe building	H60010	Mary	Manhattan	Harlem	6/28/2001	4.061.305	-739.547	United States	US	FALSE	flexible	Private room	$513	$102	3	88	6/14/2019	1.42
1019562	Loft in Williamsburg Area w/ Roof	H51210	John	Brooklyn	Greenpoint	11/23/2020	4.072.219	-739.376	United States	US	FALSE	moderate	Private room	$858	$173	4	197	6/15/2019	1.65
1020114	back room/bunk beds	H25010	Alfred	Manhattan	Inwood	9/14/1989	408.213	-739.532	United States	US	TRUE	strict	Private room	$545	$109	3	273	7/1/2019	2.37
1020667	Large B&B Style rooms	H57910	Jared	Brooklyn	Bedford-Stuyvesant	2/23/2013	406.831	-739.547	United States	US	TRUE	strict	Private room	$191	$38	1	74	5/12/2019	0.66
1021219	Lovely room 2 & garden; Best area, Legal rental	H53310	Brad	Brooklyn	South Slope	4/23/1993	4.008.869	-739.876	United States	US	TRUE	moderate	Private room	$1,911	$220	4	168	6/21/2019	1.41
1021771	Clean and Quiet in Brooklyn	H06210	Arthur	Brooklyn	Bedford-Stuyvesant	3/30/1988	4.008.876	-739.431	United States	US	FALSE	moderate	Private room	$203	$41	60	0	NULL	0
1022323	Cute apt in artist's home	H68710	Joyce	Brooklyn	Bushwick	2/28/2008	4.078.190	-739.275	United States	US	TRUE	moderate	Entire home/apt	$1,097	$219	2	231	6/22/2019	1.96

review rate number	calculated user listings count	Review ID	Transaction ID	Rating	Description
4	6	16879	1	4	Very Comfortable
4	2	15824	2	2	Very Disgusting
0	1	18903	3	1	Not Recommended, Service is Worst
4	1	76384	4	5	Absolutely Amazing! the service was outstanding
3	1	87394	5	3	Not a bad idea to stay here, everything was fine
3	1	73435	6	2	Dissapointing in Service but View is good
5	1	54736	7	1	i had a horrible time, the service was disaster
5	1	83628	8	4	Incredible! very good service
3	1	68452	9	5	Five-star experience! The staff was attentive
5	1	68434	10	3	Very good
3	4	58784	11	1	Avoid at all costs. Unfriendly staff and mediocre food.
4	1	67384	12	2	Disappointing. The place was dirty, and the service was slow.
4	1	7283	13	5	Lovely experience! Great food, cozy atmosphere, and excellent service
4	3	23575	14	3	Neutral you can decide to stay
3	1	67283	15	4	Perfect evening! The staff went above and beyond to make it special
3	1	68374	16	2	Not worth the money.
3	1	85633	17	1	Horrible experience. I'll never come back
5	1	33675	18	4	Hidden gem alert! The ambiance and flavors were a delightful surprise
3	1	6235	19	5	Fantastic find! The menu is diverse
5	1	65574	20	3	Good View and Service
0	2	74638	21	2	Horrible.
3	1	76435	22	1	Not recommended. The quality has gone downhill
4	6	47774	23	4	The Review wasn't lying the service were perfect
3	6	74634	24	5	Excellent all around! Great food, friendly service
4	6	46226	25	3	Nice Place and Service
4	2	36453	26	2	Kinda hate the service
5	2	74665	27	1	Regrettable choice. The service was slow
0	0	52415	28	4	Impressive!
2	1	78234	29	5	Incredible! The chef's specials are a must-try
8	3	74983	30	3	No Comment
6	1	47535	31	3	No Comment
4	3	75935	32	1	Overrated. The hype doesn't match the disappointing reality
3	1	46283	33	5	Fantastic Place to stay
9	3	83647	34	2	Hey is this a Place to stay?? very horrible
1	3	74567	35	4	What a nice view and service
2	2	84758	36	1	Bad interior also bad service and bad rooms
8	3	53645	37	2	Not a big recommended place to stay for me
0	0	72654	38	3	Im fine with service since the view was beautiful
3	2	85456	39	5	A culinary delight! Every dish was a masterpiece, and the service was superb

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2NF

- calculated_user listing count, review rate number, reviews per month, last review, number of reviews, city, country code, country, long, lat, name hanya bergantung pada PK ID, maka dibuat tabel baru dengan ID sebagai PK.
- user_name, user origin city, user_dob partial dependent kepada user id(PK), dibuat tabel baru usertable dan user id sebagai PK
- Description, rating partial dependent dengan review id(PK), dibuat tabel baru reviewtable dengan review ID sebagai PK
- Dibuat tabel header dengan nama transactiontable dengan id, userid, reviewid dan transaction id sebagai composite key dan transaction id sebagai PK, diisi juga dengan cancellation policy price, service fee, minimum nights, dan instant_bookable

Place Profile											
PlaceID	Name	Lat	Long	Country	Country Code	City	number of reviews	last review	reviews per month	review rate number	calculated user listing count
1001254	Clean & quiet apt home by the park	4.064.749	-739.724	United States	US	Brooklyn	9	11/25/2018	0.21	4	6
1002102	Skylit Midtown Castle	4.075.362	-739.838	United States	US	Manhattan	45	5/21/2022	0.38	4	2
1002403	THE VILLAGE OF HARLEM....NEW YORK ! #2	4.080.902	-739.419	United States	US	Manhattan	0	NULL	0	0	0
1002755	THE VILLAGE OF HARLEM....NEW YORK !	4.068.514	-739.598	United States	US	Brooklyn	270	7/5/2019	4.64	4	1
1003689	Entire Apt: Spacious Studio/Loft by central park	4.079.851	-73.944	United States	US	Manhattan	9	25/12/2021	0.1	3	1
1004098	Large Cozy 1 BR Apartment In Midtown East	4.074.767	-73.975	United States	US	Manhattan	74	6/22/2019	0.59	3	1
1004650	BlistArtsSpace!	4.068.688	-73.956	United States	US	Brooklyn	49	10/5/2017	0.4	5	1
1005202	BlissArtsSpace!	4.068.688	-73.956	United States	US	Brooklyn	49	10/5/2017	0.4	5	1
1005754	Large Furnished Room Near B'way	4.076.489	-739.849	United States	US	Manhattan	430	6/24/2019	3.47	3	1
1006307	Cozy Clean Guest Room - Family Apt	4.080.178	-739.672	United States	US	Manhattan	118	7/21/2017	0.99	5	1
1006859	Cute & Cozy Lower East Side 1 bdrm	4.071.344	-739.904	United States	US	Manhattan	160	6/9/2019	1.33	3	4
1007411	Beautiful 1br on Upper West Side	4.080.316	-739.655	United States	US	Manhattan	53	6/22/2019	0.43	4	1
1007964	Central Manhattan/near Broadway	4.076.076	-739.887	United States	US	Manhattan	188	6/23/2019	1.5	4	1
1008516	Lovely Room 1, Garden, Best Area, Legal rental	4.066.829	-739.878	United States	US	Brooklyn	167	6/24/2019	1.34	4	3
1009068	Wonderful Guest Bedroom in Manhattan for SINGLES	4.079.826	-739.611	United States	US	Manhattan	113	7/5/2019	0.91	3	1
1009621	West Village Nest - Superhost	407.353	-740.053	United States	US	Manhattan	27	10/7/2020	0.22	3	1
1010173	Only 2 stops to Manhattan studio	4.070.837	-739.535	United States	US	Brooklyn	148	6/29/2019	1.2	3	1
1010725	Perfect for Your Parents + Garden	4.069.169	-739.719	United States	US	Brooklyn	198	6/28/2019	1.72	5	1
1011277	Chelsea Perfect	4.074.192	-73.995	United States	US	manhattan	260	7/1/2019	2.12	3	1
1011830	Hip Historic Brownstone Apartment with Backyard	4.067.592	-739.469	United States	US	Brooklyn	53	6/22/2019	4.44	5	1
1012382	Huge 2 BR Upper East Cental Park	4.079.685	-739.487	United States	US	Manhattan	0	NULL	0	0	0
1012934	Sweet and Spacious Brooklyn Loft	4.071.842	-739.572	United States	US	Brooklyn	9	7/1/2019	0.07	3	1
1013487	CBG CtyBGd HelpsHaiti rm#1:1-4	4.068.069	-739.771	United States	US	Brooklyn	130	7/1/2019	1.09	4	6
1014039	CBG Helps Haiti Room#2.5	4.067.989	-73.978	United States	US	Brooklyn	39	1/1/2019	0.37	3	6
1014591	CBG Helps Haiti Rm #2	4.068.001	-739.787	United States	US	Brooklyn	71	7/2/2019	0.61	4	6
1015144	MAISON DES SIRENES1,bohemian apartment	4.068.371	-739.403	United States	US	Brooklyn	88	6/19/2019	0.73	4	2
1015696	Sunny Bedroom Across Prospect Park	4.065.599	-739.752	United States	US	Brooklyn	19	6/23/2019	1.37	5	2
1016248	Magnifique Suite au N de Manhattan - vue Cloitres	4.086.754	-739.264	United States	US	Manhattan	0	NULL	0	0	0
1016800	Midtown Pied-a-terre	4.076.715	-739.853	United States	US	Manhattan	58	8/13/2017	0.49	2	1
1017353	SPACIOUS, LOVELY FURNISHED MANHATTAN BEDROOM	4.086.482	-739.211	United States	US	Manhattan	108	6/15/2019	1.11	8	3
1017905	Modern 1 BR / NYC / EAST VILLAGE	407.292	-739.854	United States	US	Manhattan	29	4/19/2019	0.24	6	1
1018457	front room/double bed	4.082.245	-73.951	United States	US	Manhattan	242	6/1/2019	2.04	4	3
1019010	Spacious 1 bedroom in luxe building	4.081.305	-739.547	United States	US	Manhattan	88	6/14/2019	1.42	3	1
1019562	Loft in Williamsburg Area w/ Roof	4.072.219	-739.376	United States	US	Brooklyn	197	6/15/2019	1.65	9	3
1020114	back room/bunk beds	408.213	-739.532	United States	US	Manhattan	273	7/1/2019	2.37	1	3
1020667	Large B&B Style rooms	406.831	-739.547	United States	US	Brooklyn	74	5/12/2019	0.66	2	2
1021219	Lovely room 2 & garden; Best area, Legal rental	4.066.869	-739.878	United States	US	Brooklyn	168	6/21/2019	1.41	8	3
1021771	Clean and Quiet in Brooklyn	4.068.876	-739.431	United States	US	Brooklyn	0	NULL	0	0	0
1022323	Cute apt in artist's home	4.070.186	-739.275	United States	US	Brooklyn	231	6/22/2019	1.96	3	2

User

user id	user_name	user_origin_city	user_dob
H80010	Madaline	Kensington	10/2/2013
H52310	Jenna	Midtown	5/16/1982
H78810	Elise	Harlem	4/16/2006
H85010	Garry	Clinton Hill	5/25/2007
H92010	Lyndon	East Harlem	8/16/1985
H45610	Michelle	Murray Hill	2/26/2002
H46130	Alberta	Bedford-Stuyvesant	3/9/2013
H90810	Emma	Bedford-Stuyvesant	11/6/2004
H79410	Evelyn	Hell's Kitchen	5/9/1977
H75610	Carl	Upper West Side	3/5/1987
H12809	Miranda	Chinatown	11/7/1990
H18810	Alan	Upper West Side	1/18/2013
H88110	Messi	Hell's Kitchen	5/10/2019
H26810	Darcy	South Slope	3/10/1975
H88910	Leonardo	Upper West Side	2/4/1993
H46610	Daniel	West Village	3/30/1991
H62610	Heather	Williamsburg	11/18/2006
H80410	Ryan	Fort Greene	1/18/2001
H73910	Alberta	Chelsea	2/29/1992
H72110	Martin	Crown Heights	4/25/1990
H79810	Audrey	East Harlem	2/18/1994
H86610	Alissa	Williamsburg	4/27/2001
H53810	Mary	Park Slope	7/18/1997
H87710	William	Park Slope	7/31/2003
H57810	Charlotte	Park Slope	6/25/2008
H48410	Miranda	Bedford-Stuyvesant	2/1/2017
H81710	Carlos	Windsor Terrace	7/30/1996
H38810	Adrianna	Inwood	6/22/2000
H19410	Andrew	Hell's Kitchen	12/16/2013
H51410	Daryl	Inwood	1/22/1997
H86410	Tyler	East Village	8/29/2009
H69410	Bryan	Harlem	6/28/2017
H80410	Mary	Harlem	4/25/2001
H51210	John	Greenpoint	11/22/2020
H25010	Alfred	Harlem	9/14/1989
H57910	Jared	Bedford-Stuyvesant	2/23/2012
H53310	Brad	South Slope	4/23/1993
H26210	Arthur	Bedford-Stuyvesant	3/30/1995
H88710	Joyce	Bushwick	2/25/2000

Review

review id	Rating	Description
16879	4	Very Comfortable
15824	2	Very Disgusting
18903	1	Not Recommended, Service is Worst
76384	5	Absolutely Amazing! the service was outstanding
87394	3	Not a bad idea to stay here, everything was fine
73435	2	Disappointing in Service but View is good
54736	1	i had a horrible time, the service was disaster
83628	4	Incredible! very good service
68452	5	Five-star experience! The staff was attentive
68434	3	Very good
58784	1	Avoid at all costs. Unfriendly staff and mediocre food.
67384	2	Disappointing. The place was dirty, and the service was slow.
7283	5	Lovely experience! Great food, cozy atmosphere, and excellent service
23575	3	Neutral you can decide to stay
67283	4	Perfect evening! The staff went above and beyond to make it special
68374	2	Not worth the money.
85633	1	Horrible experience. I'll never come back
33675	4	Hidden gem alert! The ambiance and flavors were a delightful surprise
6235	5	Fantastic find! The menu is diverse
65574	3	Good View and Service
74638	2	Horrible.
76435	1	Not recommended. The quality has gone downhill
47774	4	The Review wasn't lying the service were perfect
74634	5	Excellent all around! Great food, friendly service
46226	3	Nice Place and Service
36453	2	Kinda hate the service
74665	1	Regrettable choice. The service was slow
52415	4	Impressive!
78234	5	Incredible! The chef's specials are a must-try
74983	3	No Comment
47535	3	No Comment
75935	1	Overrated. The hype doesn't match the disappointing reality
46283	5	Fantastic Place to stay
83647	2	Hey is this a Place to stay?? very horrible
74567	4	What a nice view and service
84758	1	Bad interior also bad service and bad rooms
53645	2	Not a big recommended place to stay for me
72654	3	Im fine with service since the view was beautiful
85456	5	A culinary delight! Every dish was a masterpiece, and the service was superb

Transaction id	user id	review id	cancellation policy	price	service fee	minimum nights	instant_bookable	room type	Transaction ID
1001254	H80010	16879	strict	$966	$193	10	FALSE	Private room	1
1002102	H52310	15824	moderate	$142	$28	30	FALSE	Entire home/apt	2
1002403	H78810	18903	flexible	$620	$124	3	TRUE	Private room	3
1002755	H85010	76384	moderate	$368	$74	30	TRUE	Entire home/apt	4
1003689	H92010	87394	moderate	$204	$41	10	FALSE	Entire home/apt	5
1004098	H45610	73435	flexible	$577	$115	3	TRUE	Entire home/apt	6
1004650	H46130	54736	moderate	$71	$14	45	FALSE	Private room	7
1005202	H90810	83628	moderate	$1,060	$212	45	FALSE	Private room	8
1005754	H79410	68452	strict	$1,018	$204	2	TRUE	Private room	9
1006307	H75610	68434	strict	$291	$58	2	FALSE	Private room	10
1006859	H12809	58784	flexible	$319	$64	1	FALSE	Entire home/apt	11
1007411	H18810	67384	flexible	$606	$121	5	TRUE	Entire home/apt	12
1007964	H88110	7283	strict	$714	$143	2	FALSE	Private room	13
1008516	H26810	23575	moderate	$580	$116	4	TRUE	Private room	14
1009068	H88910	67283	flexible	$149	$30	2	FALSE	Private room	15
1009621	H46610	68374	flexible	$578	$66	90	TRUE	Entire home/apt	16
1010173	H62610	85633	moderate	$778	$106	2	FALSE	Entire home/apt	17
1010725	H80410	33675	flexible	$656	$54	2	TRUE	Entire home/apt	18
1011277	H73910	6235	moderate	$460	$98	1	TRUE	Private room	19
1011830	H72110	65574	moderate	$1,095	$78	3	TRUE	Entire home/apt	20
1012382	H79810	74638	moderate	$281	$56	7	FALSE	Entire home/apt	21
1012934	H86610	76435	flexible	$477	$95	3	FALSE	Entire home/apt	22
1013487	H53810	47774	moderate	$133	$27	2	TRUE	Private room	23
1014039	H87710	74634	moderate	$1,050	$210	1	FALSE	Private room	24
1014591	H57810	46226	strict	$816	$163	2	TRUE	Private room	25
1015144	H48410	36453	strict	$1,175	$235	2	FALSE	Entire home/apt	26
1015696	H81710	74655	moderate	$530	$106	1	TRUE	Private room	27
1016248	H38810	52415	strict	$274	$55	4	TRUE	Private room	28
1016800	H19410	78234	moderate	$209	$42	10	FALSE	Entire home/apt	29
1017353	H51410	74983	strict	$432	$86	3	FALSE	Private room	30
1017905	H86410	47535	flexible	$666	$133	14	TRUE	Entire home/apt	31
1018457	H69410	75935	flexible	$770	$154	3	TRUE	Private room	32
1019010	H80410	46283	flexible	$512	$102	2	FALSE	Private room	33
1019562	H51210	83647	moderate	$858	$172	4	FALSE	Private room	34
1020114	H25010	74567	strict	$545	$109	3	TRUE	Private room	35
1020667	H57910	84758	strict	$191	$38	1	TRUE	Private room	36
1021219	H53310	53645	moderate	$1,111	$222	4	TRUE	Private room	37
1021771	H26210	72654	moderate	$203	$41	60	FALSE	Private room	38
1022323	H88710	85456	moderate	$1,097	$219	2	TRUE	Entire home/apt	39

3NF

Pada tahapan 3NF normalisasi dilakukan oleh menghilangkan transitif dependencies yaitu hubungan a yang dipengaruhi pembentukan b yang dipengaruhi oleh c di dalam tabel yang telah terbentuk oleh normalisasi 2NF, perubahan yang dapat terjadi dilihat dari terbentuknya tabel Place Detail hal ini dikarenakan kolom lat, long, city, numbers of reviews, last review, reviews per month, review rate number, dan calculated user listing count bergantung oleh name dalam pembentukannya yang mana dapat bergantung juga dengan ID sehingga perlu untuk dipisahkan. Selain itu, terbentuknya tabel city code dikarenakan city code bergantung dengan city yang mana bergantung juga dengan nama yang kemudian bergantung

pada ID. Hal ini serupa dengan tabel country code yang mana pada kolom country code bergantung pada country yang dimana bergantung dengan city sehingga perlu untuk dipisahkan agar tidak terjadi transitif dependencies.

Place Profile						
PlaceID	Name	number of reviews	last review	reviews per month	review rate number	calculated user listing count
1001254	Clean & quiet apt home by the park	9	11/25/2018	0.21	4	6
1002102	Skylit Midtown Castle	45	5/21/2022	0.38	4	2
1002403	THE VILLAGE OF HARLEM....NEW YORK ! #2	0	NULL	0	0	0
1002755	THE VILLAGE OF HARLEM....NEW YORK !	270	7/5/2019	4.64	4	1
1003689	Entire Apt: Spacious Studio/Loft by central park	9	25/12/2021	0.1	3	1
1004098	Large Cozy 1 BR Apartment In Midtown East	74	6/22/2019	0.59	3	1
1004650	BlistArtsSpace!	49	10/5/2017	0.4	5	1
1005202	BlissArtsSpace!	49	10/5/2017	0.4	5	1
1005754	Large Furnished Room Near B'way	430	6/24/2019	3.47	3	1
1006307	Cozy Clean Guest Room - Family Apt	118	7/21/2017	0.99	5	1
1006859	Cute & Cozy Lower East Side 1 bdrm	160	6/9/2019	1.33	3	4
1007411	Beautiful 1br on Upper West Side	53	6/22/2019	0.43	4	1
1007964	Central Manhattan/near Broadway	188	6/23/2019	1.5	4	1
1008516	Lovely Room 1, Garden, Best Area, Legal rental	167	6/24/2019	1.34	4	3
1009068	Wonderful Guest Bedroom in Manhattan for SINGLES	113	7/5/2019	0.91	3	1
1009621	West Village Nest - Superhost	27	10/7/2020	0.22	3	1
1010173	Only 2 stops to Manhattan studio	148	6/29/2019	1.2	3	1
1010725	Perfect for Your Parents + Garden	198	6/28/2019	1.72	5	1
1011277	Chelsea Perfect	260	7/1/2019	2.12	3	1
1011830	Hip Historic Brownstone Apartment with Backyard	53	6/22/2019	4.44	5	1
1012382	Huge 2 BR Upper East Cental Park	0	NULL	0	0	0
1012934	Sweet and Spacious Brooklyn Loft	9	7/1/2019	0.07	3	1
1013487	CBG CtyBGd HelpsHaiti rm#1:1-4	130	7/1/2019	1.09	4	6
1014039	CBG Helps Haiti Room#2.5	39	1/1/2019	0.37	3	6
1014591	CBG Helps Haiti Rm #2	71	7/2/2019	0.61	4	6
1015144	MAISON DES SIRENES1,bohemian apartment	88	6/19/2019	0.73	4	2
1015696	Sunny Bedroom Across Prospect Park	19	6/23/2019	1.37	5	2
1016248	Magnifique Suite au N de Manhattan - vue Cloitres	0	NULL	0	2	1
1016800	Midtown Pied-a-terre	58	8/13/2017	0.49	2	1
1017353	SPACIOUS, LOVELY FURNISHED MANHATTAN BEDROOM	108	6/15/2019	1.11	8	3
1017905	Modern 1 BR / NYC / EAST VILLAGE	29	4/19/2019	0.24	6	1
1018457	front room/double bed	242	6/1/2019	2.04	4	3
1019010	Spacious 1 bedroom in luxe building	88	6/14/2019	1.42	3	1
1019562	Loft in Williamsburg Area w/ Roof	197	6/15/2019	1.65	9	3
1020114	back room/bunk beds	273	7/1/2019	2.37	1	3
1020667	Large B&B Style rooms	74	5/12/2019	0.66	2	2
1021219	Lovely room 2 & garden; Best area, Legal rental	168	6/21/2019	1.41	8	3
1021771	Clean and Quiet in Brooklyn	0	NULL	0	0	0
1022323	Cute apt in artist's home	231	6/22/2019	1.96	3	2

User			
User id	user name	user_origin_city	user_dob
H80010	Madaline	Kensington	10/2/2013
H52310	Jenna	Midtown	5/16/1982
H78810	Elise	Harlem	4/16/2006
H85010	Garry	Clinton Hill	5/25/2007
H92010	Lyndon	East Harlem	8/16/1985
H45510	Michelle	Murray Hill	2/26/2002
H46130	Alberta	Bedford-Stuyvesant	3/9/2013
H90810	Emma	Bedford-Stuyvesant	11/6/2004
H79410	Evelyn	Hell's Kitchen	5/9/1977
H75510	Carl	Upper West Side	3/5/1987
H12809	Miranda	Chinatown	11/7/1990
H18810	Alan	Upper West Side	1/18/2013
H88110	Messi	Hell's Kitchen	5/10/2019
H26810	Darcy	South Slope	3/10/1975
H88910	Leonardo	Upper West Side	2/4/1993
H46610	Daniel	West Village	3/30/1991
H62610	Heather	Williamsburg	11/18/2006
H80410	Ryan	Fort Greene	1/18/2001
H73910	Alberta	Chelsea	2/29/1992
H72110	Martin	Crown Heights	4/25/1990
H79810	Audrey	East Harlem	2/18/1994
H86610	Alissa	Williamsburg	4/27/2001
H53810	Mary	Park Slope	7/18/1997
H87710	William	Park Slope	7/31/2003
H57810	Charlotte	Park Slope	6/25/2008
H48410	Miranda	Bedford-Stuyvesant	2/1/2017
H81710	Carlos	Windsor Terrace	7/30/1996
H38810	Adrianna	Inwood	6/22/2000
H19410	Andrew	Hell's Kitchen	12/16/2013
H51410	Daryl	Inwood	1/22/1997
H86410	Tyler	East Village	8/29/2009
H69410	Bryan	Harlem	6/28/2017
H80410	Mary	Harlem	4/25/2001
H51210	John	Greenpoint	11/22/2020
H25010	Alfred	Harlem	9/14/1989
H57910	Jared	Bedford-Stuyvesant	2/23/2012
H53310	Brad	South Slope	4/23/1993
H26210	Arthur	Bedford-Stuyvesant	3/30/1995
H88710	Joyce	Bushwick	2/25/2000

Review		
review Id	Rating	Description
16879	4	Very Comfortable
15824	2	Very Disgusting
18903	1	Not Recommended, Service is Worst
76384	5	Absolutely Amazing! the service was outstanding
87394	3	Not a bad idea to stay here, everything was fine
73435	2	Disappointing in Service but View is good
54736	1	i had a horrible time, the service was disaster
83628	4	Incredible! very good service
68452	5	Five-star experience! The staff was attentive
68434	3	Very good
58784	1	Avoid at all costs. Unfriendly staff and mediocre food.
67384	2	Disappointing. The place was dirty, and the service was slow.
7283	5	Lovely experience! Great food, cozy atmosphere, and excellent service
23575	3	Neutral you can decide to stay
67283	4	Perfect evening! The staff went above and beyond to make it special
68374	2	Not worth the money.
85633	1	Horrible experience. I'll never come back
33675	4	Hidden gem alert! The ambiance and flavors were a delightful surprise
6235	5	Fantastic find! The menu is diverse
65574	3	Good View and Service
74638	2	Horrible.
76435	1	Not recommended. The quality has gone downhill
47774	4	The Review wasn't lying the service were perfect
74634	5	Excellent all around! Great food, friendly service
46226	3	Nice Place and Service
36453	2	Kinda hate the service
74665	1	Regrettable choice. The service was slow
52415	4	Impressive!
78234	5	Incredible! The chef's specials are a must-try
74983	3	No Comment
47535	3	No Comment
75935	1	Overrated. The hype doesn't match the disappointing reality
46283	5	Fantastic Place to stay
83647	2	Hey is this a Place to stay?? very horrible
74567	4	What a nice view and service
84758	1	Bad interior also bad service and bad rooms
53645	2	Not a big recommended place to stay for me
72654	3	Im fine with service since the view was beautiful
85456	5	A culinary delight! Every dish was a masterpiece, and the service was superb

Transaction Trancation ID	Id	User id	review Id	cancellation policy	price	service fee	minimum nights	instant_bookable	room type
1	1001254	H80010	16879	strict	$966	$193	10	FALSE	Private room
2	1002102	H52310	15824	moderate	$142	$28	30	FALSE	Entire home/apt
3	1002403	H78810	18903	flexible	$620	$124	3	TRUE	Private room
4	1002755	H85010	76384	moderate	$368	$74	30	TRUE	Entire home/apt
5	1003689	H92010	87394	moderate	$204	$41	10	FALSE	Entire home/apt
6	1004098	H45510	73435	flexible	$577	$115	3	TRUE	Entire home/apt
7	1004650	H46130	54736	moderate	$71	$14	45	FALSE	Private room
8	1005202	H90810	83628	moderate	$1,060	$212	45	FALSE	Private room
9	1005754	H79410	68452	strict	$1,018	$204	2	TRUE	Private room
10	1006307	H75510	68434	strict	$291	$58	2	FALSE	Private room
11	1006859	H12809	58784	flexible	$319	$64	1	FALSE	Entire home/apt
12	1007411	H18810	67384	flexible	$606	$121	5	TRUE	Entire home/apt
13	1007964	H88110	7283	strict	$714	$143	2	FALSE	Private room
14	1008516	H26810	23575	moderate	$580	$116	4	TRUE	Private room
15	1009068	H88910	67283	flexible	$149	$30	2	FALSE	Private room
16	1009621	H46610	68374	flexible	$578	$66	90	TRUE	Entire home/apt
17	1010173	H62610	85633	moderate	$778	$106	2	FALSE	Entire home/apt
18	1010725	H80410	33675	flexible	$656	$54	2	TRUE	Entire home/apt
19	1011277	H73910	6235	moderate	$460	$98	1	TRUE	Private room
20	1011830	H72110	65574	moderate	$1,095	$78	3	TRUE	Entire home/apt
21	1012382	H79810	74638	moderate	$281	$56	7	FALSE	Entire home/apt
22	1012934	H86610	76435	flexible	$477	$95	3	FALSE	Entire home/apt
23	1013487	H53810	47774	moderate	$133	$27	2	TRUE	Private room
24	1014039	H87710	74634	moderate	$1,050	$210	1	FALSE	Private room
25	1014591	H57810	46226	strict	$816	$163	2	TRUE	Private room
26	1015144	H48410	36453	strict	$1,175	$235	2	FALSE	Entire home/apt
27	1015696	H81710	74665	moderate	$530	$106	1	TRUE	Private room
28	1016248	H38810	52415	strict	$274	$55	4	TRUE	Private room
29	1016800	H19410	78234	moderate	$209	$42	10	FALSE	Entire home/apt
30	1017353	H51410	74983	strict	$432	$86	3	FALSE	Private room
31	1017905	H86410	47535	flexible	$666	$133	14	TRUE	Entire home/apt
32	1018457	H69410	75935	flexible	$770	$154	3	TRUE	Private room
33	1019010	H80410	46283	flexible	$512	$102	2	FALSE	Private room
34	1019562	H51210	83647	moderate	$858	$172	4	FALSE	Private room
35	1020114	H25010	74567	strict	$545	$109	3	TRUE	Private room
36	1020667	H57910	84758	strict	$191	$38	1	TRUE	Private room
37	1021219	H53310	53645	moderate	$1,111	$222	4	TRUE	Private room
38	1021771	H26210	72654	moderate	$203	$41	60	FALSE	Private room
39	1022323	H88710	85456	moderate	$1,097	$219	2	TRUE	Entire home/apt

Place Detail

Name	Lat	Long	City
Clean & quiet apt home by the park	4.064.749	-739.724	Brooklyn
Skylit Midtown Castle	4.075.362	-739.838	Manhattan
THE VILLAGE OF HARLEM....NEW YORK ! #2	4.080.902	-739.419	Manhattan
THE VILLAGE OF HARLEM....NEW YORK !	4.068.514	-739.598	Brooklyn
Entire Apt: Spacious Studio/Loft by central park	4.079.851	-73.944	Manhattan
Large Cozy 1 BR Apartment In Midtown East	4.074.767	-73.975	Manhattan
BlistArtsSpace!	4.068.688	-73.956	Brooklyn
BlissArtsSpace!	4.068.688	-73.956	Brooklyn
Large Furnished Room Near B'way	4.076.489	-739.849	Manhattan
Cozy Clean Guest Room - Family Apt	4.080.178	-739.672	Manhattan
Cute & Cozy Lower East Side 1 bdrm	4.071.344	-739.904	Manhattan
Beautiful 1br on Upper West Side	4.080.316	-739.655	Manhattan
Central Manhattan/near Broadway	4.076.076	-739.887	Manhattan
Lovely Room 1, Garden, Best Area, Legal rental	4.066.829	-739.878	Brooklyn
Wonderful Guest Bedroom in Manhattan for SINGLES	4.079.826	-739.611	Manhattan
West Village Nest - Superhost	407.353	-740.053	Manhattan
Only 2 stops to Manhattan studio	4.070.837	-739.535	Brooklyn
Perfect for Your Parents + Garden	4.069.169	-739.719	Brooklyn
Chelsea Perfect	4.074.192	-73.995	manhattan
Hip Historic Brownstone Apartment with Backyard	4.067.592	-739.469	Brooklyn
Huge 2 BR Upper East Cental Park	4.079.685	-739.487	Manhattan
Sweet and Spacious Brooklyn Loft	4.071.842	-739.572	Brooklyn
CBG CtyBGd HelpsHaiti rm#1:1-4	4.068.069	-739.771	Brooklyn
CBG Helps Haiti Room#2.5	4.067.989	-73.978	Brooklyn
CBG Helps Haiti Rm #2	4.068.001	-739.787	Brooklyn
MAISON DES SIRENES1,bohemian apartment	4.068.371	-739.403	Brooklyn
Sunny Bedroom Across Prospect Park	4.065.599	-739.752	Brooklyn
Magnifique Suite au N de Manhattan - vue Cloitres	4.086.754	-739.264	Manhattan
Midtown Pied-a-terre	4.076.715	-739.853	Manhattan
SPACIOUS, LOVELY FURNISHED MANHATTAN BEDROOM	4.086.482	-739.211	Manhattan
Modern 1 BR / NYC / EAST VILLAGE	407.292	-739.854	Manhattan
front room/double bed	4.082.245	-73.951	Manhattan
Spacious 1 bedroom in luxe building	4.081.305	-739.547	Manhattan
Loft in Williamsburg Area w/ Roof	4.072.219	-739.376	Brooklyn
back room/bunk beds	408.213	-739.532	Manhattan
Large B&B Style rooms	406.831	-739.547	Brooklyn
Lovely room 2 & garden; Best area, Legal rental	4.066.869	-739.878	Brooklyn
Clean and Quiet in Brooklyn	4.068.876	-739.431	Brooklyn
Cute apt in artist's home	4.070.186	-739.275	Brooklyn

City Code

City	Country Code
Brooklyn	US
Manhattan	US

Country Code

Country	Country Code
United States	US

BCNF

BCNF merupakan suatu tabel yang berisi candidate key. Dari tabel 3 NF tadi, ada beberapa candidate key dari primary key (TransactionID) dan foreign key(ID, User ID, review ID). Maka dapat dibuatkan tabel BCNF berisi candidate key dari tabel utama (TransactionTable)

Tabel Utama			
PlaceID	User id	review id	Transaction ID
1001254	H80010	16879	1
1002102	H52310	15824	2
1002403	H78810	18903	3
1002755	H85010	76384	4
1003689	H92010	87394	5
1004098	H45510	73435	6
1004650	H46130	54736	7
1005202	H90810	83628	8
1005754	H79410	68452	9
1006307	H75510	68434	10
1006859	H12809	58784	11
1007411	H18810	67384	12
1007964	H88110	7283	13
1008516	H26810	23575	14
1009068	H88910	67283	15
1009621	H46610	68374	16
1010173	H62610	85633	17
1010725	H80410	33675	18
1011277	H73910	6235	19
1011830	H72110	65574	20
1012382	H79810	74638	21
1012934	H86610	76435	22
1013487	H53810	47774	23
1014039	H87710	74634	24
1014591	H57810	46226	25
1015144	H48410	36453	26
1015696	H81710	74665	27
1016248	H38810	52415	28
1016800	H19410	78234	29
1017353	H51410	74983	30
1017905	H86410	47535	31
1018457	H69410	75935	32
1019010	H80410	46283	33
1019562	H51210	83647	34
1020114	H25010	74567	35
1020667	H57910	84758	36
1021219	H53310	53645	37
1021771	H26210	72654	38
1022323	H88710	85456	39

Chapter 5 Conclusions

Dari hasil normalisasi yang sudah dilakukan baik dari bentuk unnormal form hingga sampai 3NF atau BCNF dapat kita lihat dan rasakan perbedaannya secara signifikan, yang mana dari yang awalnya tabelnya masih dalam satu kesatuan tanpa terorganisir (Unnormal) menjadi sebuah bentuk tabel yang terorganisir dimana setiap tabel mempunyai nilai ID uniknya masing-masing yang menjadi acuan penentuan suatu attribute seperti contoh ada Tabel user yang mana berisikan user_id sebagai ID unik dengan attribute User_name, user_origin_city beserta user_DOB yang mana kalau suatu perusahaan mau ngetrack suatu user maka cukup dengan mencari ID si user maka perusahaan bisa mencari seluruh transaksi beserta review yang user lakukan jadi tidak perlu mencari satu-satu dari tabel yang besar.

Hal tersebut tentu menjadi sebuah kesimpulan bahwa tabel data yang terorganisir akan memudahkan kita dalam melakukan tracking terhadap sesuatu dan apalagi mengingat perusahaan itu mempunyai database yang besar, tentu mempunyai tabel data yang terorganisir akan sangat membantu suatu perusahaan dari segi efisiensi waktu