USER PREFERENCES OF AIRBNB ACCOMMODATION SPATIALLY IN THE SPECIAL REGION OF YOGYAKARTA, INDONESIA

PREFERENSI PENGGUNA AKOMODASI AIRBNB SECARA SPASIAL DI DAERAH ISTIMEWA YOGYAKARTA, INDONESIA

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ABSTRACT

The rise of sharing economy platforms has created a competition between hotels and Airbnb accommodations in filling the city space. Airbnb's accommodation concept is highly efficient in utilizing unused assets, aligning with SDG Goal 11. A large number of tourist visitors causes the development of Airbnb in The Special Region of Yogyakarta. An exploration of the preferences of Airbnb accommodation users will show the characteristics of tourists in terms of tourism demand. Airbnb data is sourced from Airdna, an analytics platform of Airbnb. Airbnb data consist of spatial and non-spatial data. For non-spatial Airbnb data, content analysis was used to explain the preferences of Airbnb accommodation users through reviews. Content analysis was carried out by categorized information units for each review and grouped it in form of positive (satisfied) or negative (dissatisfied). For Airbnb spatial data, spatial analysis was performed based on distribution patterns, proximity to road access and tourist sites, and the associations between accommodations and surrounding objects. Airbnb accommodations in Yogyakarta City and its surrounding areas are distributed across the region, with higher concentrations in tourist zones. Content analysis findings indicate that host hospitality receives the highest proportion of positive feedback from Airbnb users. Spatially, it shows that Airbnb accommodations in the Jetis and Kraton sub-districts achieve the most favorable ratings for amenities, location, hygiene, host and staff performance, as well as room and toilet conditions. In contrast, factors such as price, calmness, and building remain relatively uniform across all surveyed areas.

Keywords: Airbnb, Sharing Economy, Tourism, Accomodation, Review, Content Analysis

ABSTRAK

Perkembangan platform ekonomi berbagi telah menimbulkan kompetisi antara hotel dan akomodasi Airbnb dalam mengisi ruang perkotaan. Konsep akomodasi Airbnb adalah pemanfaatan aset yang tak terpakai secara efisien, sejalan dengan Tujuan Pembangunan Berkelanjutan Nomor 11. Tingginya kunjungan wisatawan menyebabkan perkembangan Airbnb di Daerah Istimewa Yogyakarta. Sebuah eksplorasi terhadap preferensi pengguna akomodasi Airbnb akan menunjukkan karakteristik wisatawan dari sisi permintaan pariwisata. Data Airbnb berasal dari Airdna, platform penyedia data Airbnb. Data Airbnb terdiri dari data non-spasial dan data spasial. Pada data non-spasial Airbnb, analisis isi digunakan untuk menjelaskan preferensi pengguna Airbnb melalui ulasan. Analisis isi dilakukan dengan mengkategorikan unit informasi setiap ulasan dan mengelompokkannya menjadi positif (puas) dan negatif (tidak puas). Pada data spasial Airbnb, analisis spasial dilakukan berdasarkan pola sebaran, jarak terhadap akses jalan dan lokasi wisata, dan asosiasi antara akomodasi dan objek sekitar. Akomodasi Airbnb tersebar di Kota Yogyakarta dan sekitarnya, dengan konsentrasi tinggi berada di kawasan wisata. Hasil analisis isi menunjukkan bahwa keramahan pemilik mendapat proporsi ulasan positif yang lebih besar dari pengguna Airbnb. Secara spasial, akomodasi Airbnb di Kemantren Jetis dan Kraton memperoleh penilaian tertinggi dalam hal amenitas, lokasi, kebersihan, pelayanan staf dan pemilik, serta kondisi toilet dan kamar. Sebaliknya, faktor seperti harga, ketenangan, dan bangunan cenderung seragam.

Kata Kunci : Airbnb, Ekonomi Berbagi, Pariwisata, Akomodasi, Ulasan, Analisis Isi

1. INTRODUCTION

The concept of sharing economy has emerged as an impact of ICT transformation. This concept is an economic system that allows a person or group of people to make money from exploited property resources to provide services to other people or groups of people through online platform intermediaries (Turino, 2016). The sharing economy is changing consumption patterns worldwide (Zervas et al., 2017). The sharing economy is also often referred to by various terms such as the collaborative economy, collaborative consumption, on-demand economy, or peer-to-peer economy. These concepts explain habits in conventional market behavior (renting, sharing, exchanging) in ways and scales that were not possible before the internet (Botsman & Roger, 2011).

Airbnb is a sharing economy company that specializes in accommodation services. Airbnb is a platform that can disrupt the hospitality industry in various countries. Airbnb was founded in 2008. Today, it provides more than 6 million accommodations in more than 100,000 cities and 191 countries. This platform can bring together anyone with unused home assets (partially or completely) with those in need. The concept of a house is the main attraction for users of this accommodation. The house owner will be the host who provides services for its users while staying in the house (Gallagher, 2018). Benefits derived from sharing platforms such as smart environmental resource management; social bonds strengthened by cooperation; and economic value in making goods more advanced (Light & Miskelly, 2015). The motivation to participate in the sharing economy platform is influenced by the type of goods to be shared (Böcker & Meelen, 2017). Sharing cars and rides is motivated by the environment. Personal interaction will be the social motivation for sharing food and the expensive property of sharing accommodation; Airbnb, for example, is motivated by economic aspects.

As the mainstay feature of Yogyakarta's economic sector, tourism has always affected both the supply and the demand for accommodation services within Yogyakarta. Hence, Airbnb grew at an excessive speed. As of 2017, they acquired up to 1162 accommodation partners in Yogyakarta. The hotel industry is one affected platform by this home-sharing activity. The rise of the sharing economy platforms has created a competition between hotels and Airbnb accommodations, one of which is the competition in filling the city space. At its initial emergence, the government was not entirely prepared to regulate this accommodation business. Its rapid development significantly impacted the pre-existing hotel industry. From a sustainable development perspective, Airbnb's accommodation concept is highly efficient in utilizing unused assets, aligning with SDG Goal 11 (Make cities and human settlements inclusive, safe, resilient, and sustainable) (Midgett et al, 2017). Additionally, Airbnb's business model relates to the circular economy, which is currently being implemented across various sectors.

A large number of tourist visitors causes the development of Airbnb in The Special Region of Yogyakarta. However, tourism is not the only cause of the growing number of Airbnb development in Yogyakarta since the tourist's amount does not only see this as the only demand (Musthofa, 2019; Musthofa & Rijanta, 2023). The accommodation availability aspect can be seen from the availability and supply of houses rented out. The number of tourist visitors that continues to grow from year to year requires an increase in the number of accommodations. Thus, the existence of accommodation will affect the Hotel industry, urban activities, and of course in terms of accommodation availability. Airbnb is one of the various phenomena too late in its regulation determination that makes the hotel industry condemn its existence. Nevertheless, each region has its appeal for Airbnb users. Besides tourism attractions, work visits and educational visits have sued the visitors to come to certain areas; thus, they need the existence of the accommodation services. Each accommodation offered has its characteristics, which are strongly influenced by local cultures. Like Yogyakarta, which is very rich in culture, both in physical terms like the type of the houses and the hospitality of the locals become its appeal and attractions of the assets. Up to now, there are no specific set regulations governing the home-sharing-based accommodation business. The development of Airbnb accommodation in The Special Region of Yogyakarta appeared to emerge simultaneously with the enactment of the Yogyakarta Mayor's Regulation regarding the moratorium on the

issuance of hotel building permission, which would be expired at the end of 2017. The number of tourist visitors that continues to grow from year to year requires an increase in accommodations availability. The existence of accommodation will affect urban activities both in tourism supporting services and tourism attraction objects and, of course, accommodation availability.

Airbnb has become a multi-dwelling platform that has received negative feedback from its competitors. Airbnb still has its own customers, and the hospitality industry has thrived before. The preferences of Airbnb Accommodation users in this study are attempted to be explained by outlining reviews on the website. An exploration of the preferences of Airbnb accommodation users will show the characteristics of tourists in terms of tourism demand in the Special Region of Yogyakarta. This study attempts to explain the preferences of Airbnb users in the Special Region of Yogyakarta based on user reviews. Preferences are explained through review content analysis.

Content analysis according to Eriyanto (2011) is used to systematically identify the contents of visible communication (manifest), and is carried out objectively, validly, reliably, and can be replicated. Content analysis is carried out in the review column or reviews available for each accommodation on the Airbnb web. Content analysis is carried out on accommodations that already have reviews from users, so it is very possible that some accommodations do not have data for variables obtained from the results of content analysis. The advantage of the content analysis method is that it is versatile (Camprubi & Coromina, 2016). However, the limitations of this method according to Hall & Valentin (2005) in Ritchie et al (2005) are that it depends on expertise and a clear conceptual definition in determining the variables, so to minimize the reliability issues, Kassarjian (1977) give recommendation that at least two independent judges should be introduced to the subject and decode the information obtained.

Geospatial big data of Airbnb, which is included in big data sourced from operations (Li et al., 2018), can be used as a data source for spatial analysis. Geospatial big data analysis is a framework for data acquisition, processing, and data analysis to find hidden patterns and gain knowledge from the visualization of these hidden patterns (Thelwall, 2018). An understanding of spatial patterns is needed in policy making (Perumal et al., 2015). The role of big data is not as an alternative to traditional surveys, but as complementary and comparative data (Ghermandi & Sinclair, 2019). Apart from being a medium for booking travel accommodation, the Airbnb website can be used to share experiences during the tourist stay, as well as provide reviews of facilities enjoyed (Conrady, 2007). The development of Web 2.0 gave rise to the term Traveller 2.0, which is characterized by tourists sharing their travel experiences (through text and multimedia) and disseminating them via the internet (Parra-Lopez et al., 2012). As with tourist attractions, photos and comments circulating in cyberspace can affect the image/view of the location of the accommodation in the community (Alonso-Almeida et al., 2019). This study employs a visual-geographic spatial approach to examine the distribution of Airbnb accommodations in Yogyakarta, Indonesia, by overlaying their locations and review ratings onto a roadmap and urban infrastructure layer. Unlike quantitative spatial statistics (e.g., hotspot analysis), this method prioritizes qualitative pattern recognition through direct map observation, aligning with foundational GIS techniques (Goodchild, 2007).

Adamiak (2019) explored Airbnb's data in 167 countries from 2018-2019 with a total of 5.7 million data and categorized them by property type and number of offers. This research provides an overview of the geographical variation of the offering and use of Airbnb accommodations, which are mostly rental homes. The locations offered in each country depend on the distribution of the main tourist attractions. Dudas et al. (2017) mapped and analyzed Airbnb's distribution patterns using 3 indicators, namely the price of the Airbnb, the distance between Airbnb and the city center, and the distance between Airbnb and points of interest (travel, complete facilities). The results of this study indicate a positive correlation between attractive locations and Airbnb accommodations, while for the price and location of Airbnb accommodations there is no correlation. Floris & Campagna (2014) utilize big data from travel rating sites Tripadvisor.com and Booking.com (a source of big data from operations, such as Airbnb) to study traveler preferences for a tourist destination and tourism industry services in Sardinia, Italy. By using regional and local hot spot

analysis, as well as visualization with Tag cloud, the most popular tourist destinations and the reasons people choose these tourist destinations can be known.

2. DATA AND METHODS

This research was conducted using secondary data analysis methods. Airbnb data is sourced from Airdna, an analytics platform of Airbnb. Airbnb data consist of spatial and non-spatial data. For non-spatial Airbnb data, content analysis was used to explain the preferences of Airbnb accommodation users through reviews. The reviews carried out by the analysis are reviews that use Indonesian and English. Reviews in languages other than those languages were excluded and no analysis was conducted. The analyzed reviews were determined through sampling. The determination of the sampling was carried out using the stratified random sampling technique. The Slovin formula was used to determine the number of samples. Based on the data analysis results, there were 530 accommodations –with the smallest number of reviews was 1 and the most reviews was 125 reviews. By using Slovin formula, there were 192 accommodations with an error rate of 5%. There were 1684 analyzed reviews.

Content analysis was carried out by taking units of information for each review. Units of information are presented quantitatively. The tabulation is presented by grouping units of information based on the generalization results of units in the form of positive (satisfied) or negative (dissatisfied) information units and the continent of origin of accommodation users who review Airbnb accommodations. Retrieval of the review information unit is the thematic information unit. The thematic information unit allows for more in-depth analysis by considering whether the review describes satisfaction (positive) or dissatisfaction (negative) with the accommodation that has been used and what information is described (Eriyanto, 2011). The Thematic Information Unit considers the idea or ideas of a text in its recording aspect. The thematic information unit when compared with other information retrieval techniques such as physical, referential, syntactic and proportional units is to have high productivity and efficiency. The accommodations that were still active and having reviews became the population.

For Airbnb spatial data, analysis was conducted by mapping the data using Geographic Information Systems to explain the spatial distribution Airbnb Accommodation. A spatial approach was conducted by mapping the categorized differences in accommodation review scores based on their geographic positions. By overlaying the accommodation sample maps (categorized by reviews) with road network maps and tourist attractions, a spatial analysis was performed based on distribution patterns, proximity to road access and tourist sites, and the associations between accommodations and surrounding objects (Wicaksono et al., 2021). This differs from several previous studies that relied solely on reviews (Fadillah & Hermawan, 2025; Alhamdi, 2023; Sarudin & Ismail, 2021). Coordinate sample size is 149 out of 1,162 populations. The value used as input for symbolization is the number of positive reviews minus the number of negative reviews on a single Airbnb accommodation (Equation 1). By dividing into 5 classes based on equal intervals, the class interval is 14.6 or simplified to 14. The minimum value of the difference between the number of positive and negative reviews is -5 and the maximum score is 68 (Table 1).

$$D = P - N$$ (Equation 1)

D: difference P: number of positive review N: number of negative review.

Table 1. Category of Difference between Positive and Negative Review (D)

| Class	D
1	-5 to 9
2	10 to 24
3	25 to 38
4	39 to 53
5	54 to 68

3. RESULT AND DISCUSSION

3.1. Airbnb Accomodation in Yogyakarta

Yogyakarta is an area with great tourism potential, many tourists, and various tourist attractions. Many tourists make the hotel industry grow a lot in Yogyakarta. In addition to star and non-star hotels, there are also various tourist lodges/homestays and villas widely used by tourists. The number of star hotels in Yogyakarta at the end of 2017 reached 143 hotels, while the number of non-star hotels reached 1475 hotels. All of these hotels are spread throughout the city districts in Yogyakarta. Sleman and Yogyakarta City have the highest number of hotels, both star, and non-star. The urban area and the location of attractions in the area are factors why hotel accommodation is concentrated in that area.

Airbnb started to enter Yogyakarta in 2012. Based on data from Airdna, by the end of 2017, there were 1164 registered accommodations. This number is relatively very large. Within six years, the number of accommodations has grown from 8 accommodations in 2012. In 2017 there was a very large growth in accommodation. A total of 558 accommodations were added. This shows that the benefits offered are quite large by renting out houses to tourists from Yogyakarta. The uniqueness of the house and culture in Yogyakarta is one of the attractions for tourists to rent a house. Apart from interacting with hosts or homeowners, the new experience of living in a tourist destination is one of the reasons users choose Airbnb. Unlike hotels, Airbnb offers a variety of accommodation types with various options. Consumers can choose according to their needs because this platform can provide various houses that have been recorded (Zervas et al., 2017). In contrast, the hotel must be built according to the zoning and provisions that have been set.

There are three types of rentals through the Airbnb platform (Figure 1). In this case, the accommodation for rent consists of 3 types, namely the entire house (entire homes), private rooms (private rooms), and shared rooms (shared rooms). Based on the name, the whole house means that the owner of the house or host is not in the same house when the user stays; private room means that the user will use a private bedroom and share another room with the owner of the house. Sharing a room means that users will share a room with other users. When referring to the sharing economy concept, the type of entire homes does not match that concept. This type makes homeowners change the function of their homes into short-term rentals. This type of rental can be targeted by regulations in some countries, such as New York State, which will impose taxes on those who rent their entire home for more than three days. The types of rooms rented out in Yogyakarta are mostly private rooms, while shared rooms have a smaller number than the other two types. When compared to previous research, the distribution of room types in 30 countries (Ke, 2017), the highest number of Airbnb rental types in Indonesia is the private room type compared to the private room type. However, in Yogyakarta, it is different. The number of private room types is higher than the other two types.
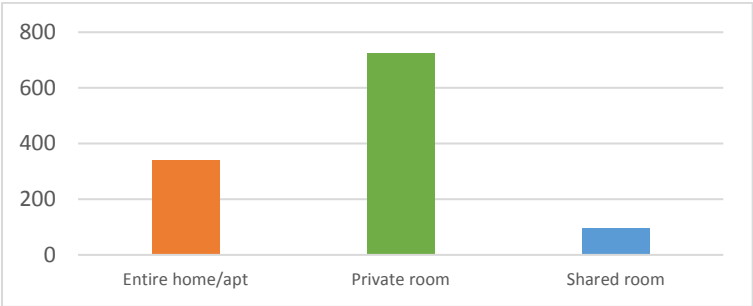
Source: AirDNA, 2018

Figure 1. The Number of Airbnb Accommodation Categorized by Accommodation Type in Yogyakarta
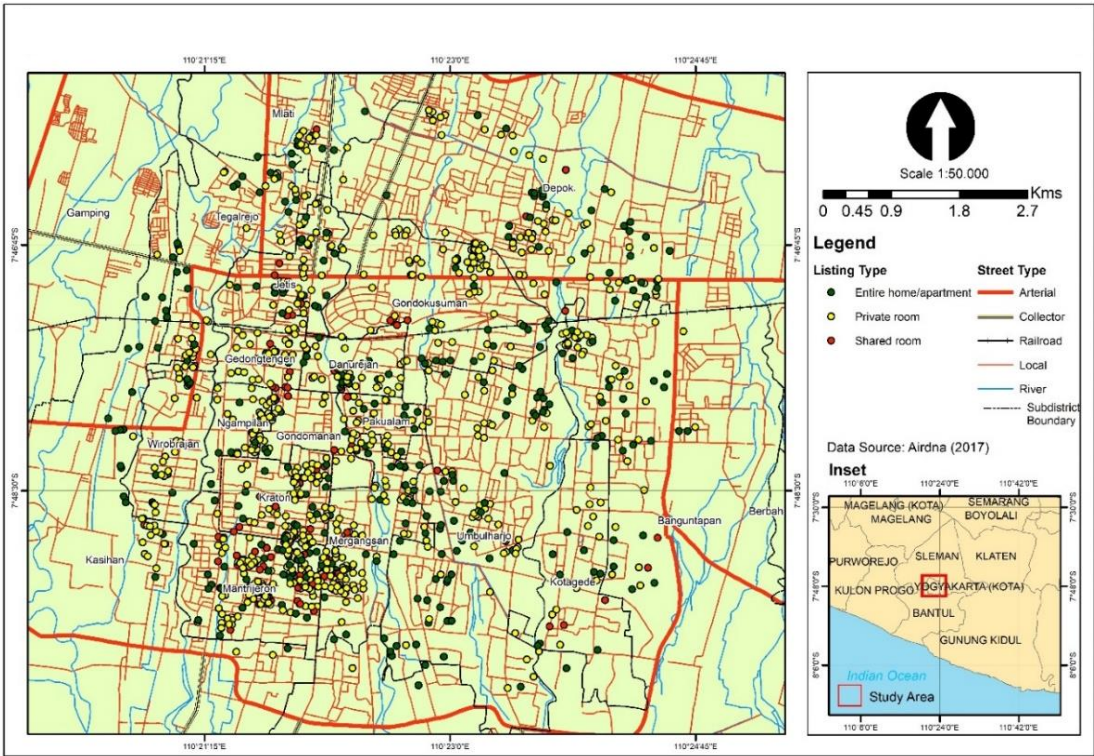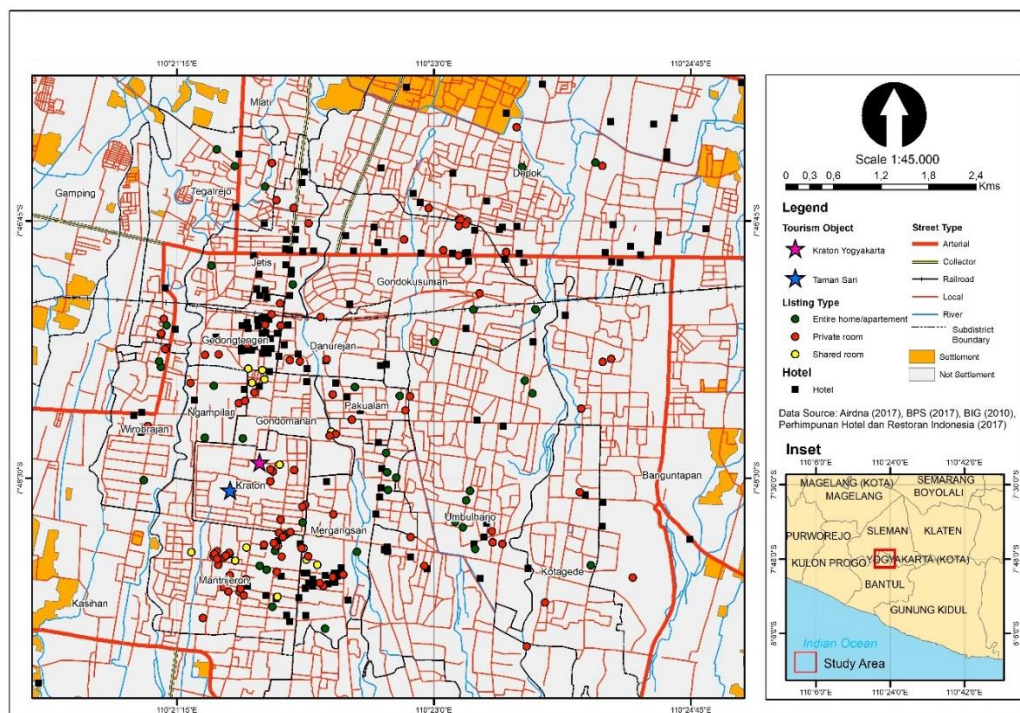

Figure 2. Airbnb Accommodation Types in Yogyakarta City and Its Surroundings

The spatial distribution of Airbnb accommodation types in the city of Yogyakarta and its surroundings can be seen in Figure 2. Entire home/apartment and private rooms are scattered in almost all sub-districts in Yogyakarta City, while shared rooms tend to be clustered around the Kraton, Mantijeron, and Gedongtengen Sub-districts. We suspect that one of the main reasons why Yogyakarta was dominated by private room rental type instead of entire home/apartment is the experiences gained while living there, include the experiences of living with local people, living in local settlements with genuine environments, and experiences of exchanging information directly with the owner. From the customer perspective, private room type indirectly forces the guest to use the communal facility like kitchen, toilet, and living room. While doing so, the guest will interact with the hosts. Most of the Airbnb hosts in Yogyakarta are local people. These Yogyakarta people are renowned for their excellent hospitality toward tourists and their deep Javanese culture in their live aspect as well. Meanwhile, the hotel industry does not provide this kind of accommodation that is rich with local cultures and services like the homestay does, since it does not enable a space for interaction between the hosts and the accommodation customers. Airbnb has various types of properties and rental types. This social phenomenon will automatically bring the best out of Yogyakarta

tourism. Airbnb accommodations are primarily located in residential areas (Musthofa & Rijanta, 2020) since they are essentially rented houses. Thus, in terms of spatial distribution, Airbnb accommodations are predominantly spread not along main (arterial) roads but within residential areas with access to local roads. This contrasts sharply with hotels, which are typically situated in commercial and service zones with direct access to main roads. This also explains why Airbnb accommodation can offer culturally diverse lodging styles, as they are fundamentally privately owned homes for rent.


Figure 3. Airbnb Accommodation (Sample) and Traditional Hotel in Yogyakarta City and Its Surroundings

Related to the comparison between hotel and Airbnb accommodation locations, Figure 3 shows their distribution in the study area. Traditional hotels are scattered in the Malioboro area, along arterial roads, and in the south of the Kraton, while Airbnb accommodations tend to be clustered south of the Kraton. Airbnb accommodations are closest to attractions compared to traditional hotels. Settlements are located far from Airbnb and there are hotels in settlements area. Li & Biljecki (2019) examines how the presence of Airbnb activities affects housing prices in surrounding neighborhoods in Beijing City. His research gave mixed results, there are neighborhoods that are more expensive because of Airbnb activities, but there are also neighborhoods where the price is fixed.

3.2. User Preferences of Airbnb Accomodation based on Content Analysis

A review could describe one satisfaction or disappointment in something. In this context, an Airbnb review becomes important for one could describe whether the guest needs is well fulfilled when using a certain selected accommodation. To investigate that aspect, this research perform a content analysis. Content analysis of Airbnb user review was done by taking analytical unit from each host. The scheme of stratified random sampling determines 192 hosts upon 1684 reviews all over Yogyakarta to be examined. Those review was already separated from the non-English and non-Indonesian. Figure 4 illustrates how Airbnb accommodations with review scores of 55–81 are clustered in the Kraton and Mantrijeron sub-districts, with some scattered in other areas. A high number of visitors correlates with high review scores, and in this case, Kraton and Mantrijeron are cultural tourism hubs. Several tourist attractions are located here, including the Kraton (palace), Tamansari, Malioboro Street, Vredenburg Fort, the town square, and

other iconic landmarks. Spatially, accessibility to tourist attractions is associated with the concentration patterns of Airbnb accommodations.
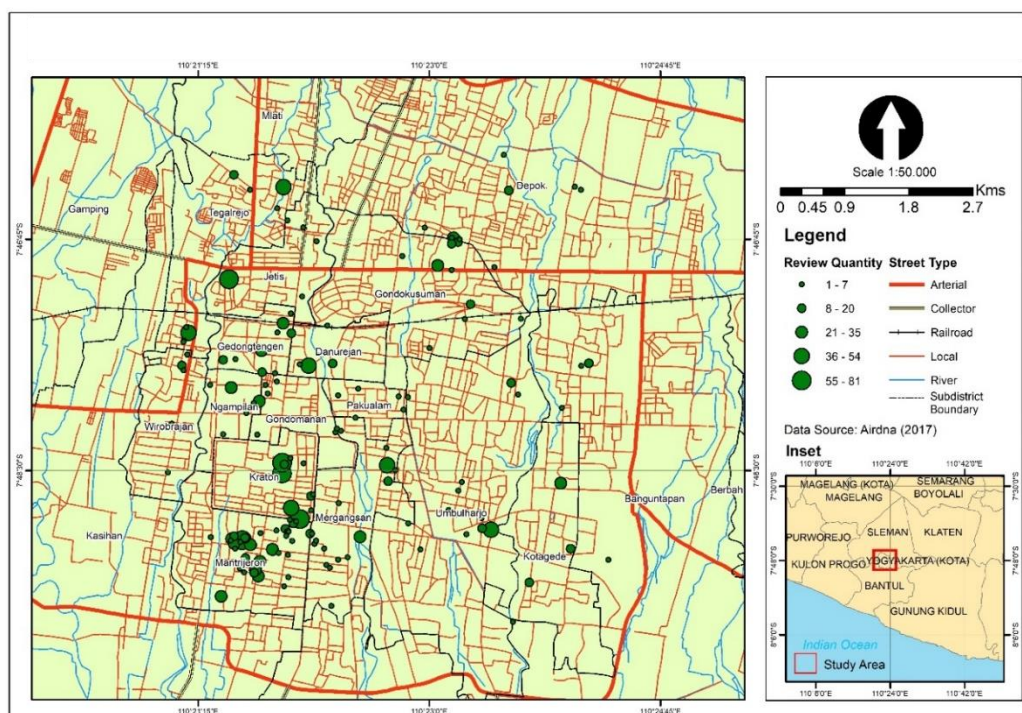
Figure 4. Review Quantity of Airbnb Accommodation in Yogyakarta City and Its Surroundings

  Airbnb website provides a lot of easy features which enable the user to choose the suitable accommodation. They also provided query to filter reservation dates, rental type, pricing, traveling type, room type, offered facility, age specification, house rule, and even the host's speaking language. Ert et al (2016) states that the selection process of accommodation by the user is strongly correlated to the host profile provided in Airbnb website. The related profile should include both visual and non-visual attributes. The visual attribute consist of photograph of the house, room, and/or facilities provided by the host while the non-visual attribute consist of rating and reviews by previous guests.

  Reputation has an important role that could affect user trust and credibility toward a certain host. Resnick & Zeckhauser (2002) found that an eBay seller who has good reputation tends to have more transaction than the other low-reputation seller even though they had better pricing. A user review could describe the house along with the host condition and how well they provide the service. The quality of a host's service could be analyzed from the review through the content analysis, whether they possess positive or negative vibe. The result of content analysis was clustered into several topic shown in Table 2. Similar to this study, Sutherland & Kiatkawsin (2020) examine several topics discussed by Airbnb guests, such as overall evaluations of residence, location, buildings, host management. Discussions of cost, distance of accommodation and transportation, cleanliness of rooms, hospitality, and views of accommodation are the same topics discussed as traditional accommodation. As for location security and safety is a specific topic not discussed by traditional accommodation guests.

Table 2. Topics Derived from User Reviews Content Analysis

Information Unit	Keywords
Hygiene	Clean room, tidy, clean house, very clean
Location	Close to airport, few minutes from public transport, close to the airport, good location, not too far from jogja city center
Host and staff	His (host) family super nice and helpful, Communication with Vega (host) was good, great hospitality
Calmness	Quiet, quiet street, no noise, noise
Amenity	Bread, coffee, tea, water, snack, airconditioning, wifi, kitchen utensils, mineral water, amenities
Buliding	Nice, cozy, nice little outdoor space, interior style
Room and toilet	spacious rooms, the room was very comfortable, room were simple but nice
Price	A very good value for money, Great value for money overal, Affordable

Table 3. Examples of Content Analysis

Review	Keywords	Information Units	Preference (+/-)
Close to airport, clean room. Only a bit inconvenience with lack of warm water in shower and absence of vanity.	Close to airport, clean,	Location, hygiene	Positive review
Great stay. Clean and tidy rooms and a well-kept public kitchen. Alya provided good information and organized a tour to the temples for us at a great price. The staff on site was also very helpful.	Clean, tidy, good information, great price, helpful	Hygiene, host and staff, price	Positive review
Good location, excellent communication, spacious with 3 bedrooms. Front bedroom was very noisy with traffic at night. Overall pretty good.	Excellent communication, noisy	Host and staff, calmness	Positive review for host and staff
The house and room was clean and tidy. Bread, coffee/tea/water, and snack available for guest. Available parking lot for motorcycle and car. Mbak alya the host was reachable and responsive. A very good value for money.	Clean, tidy, bread, coffee, tea, water, snack, parking lot, host was reachable, responsive, a very good value for money	Hygiene, amenities, building, host and staff, price	Positive review
Bayu is very quick to respond. Provide precise directions for check in. Issues to consider: There is no attached toilet. Toilets don't have any washing basin.	Quick to respond, provide precise directions to check in, there is no attached toilet, toilets don't have any washing basin	Host and staff, room and toilet	Positive review for host and staff

The examples of content analysis shows in Table 3. The result of content analysis shows that the positive feedback has bigger proportion than the negative one. Host and Staff topic that has the highest number of positive feedback followed by location, amenity, hygiene, building, room, toilet, and price (Table 4). This information indicates that hospitality from the host becomes the main excellence of Yogyakarta accommodation service indeed. According to Guttentag & Smith (2017), Airbnb invent a unique feature that can't be provided by any other regular hotel industry i.e. host hospitality. This hospitality isn't just about the

manner nor the attitude within the property. Instead, the host of Airbnb accommodation would go as far as picking the guest in train station or bus stop, midnight checks-in, giving vacancy advice or recommendation, and even hanging out together with the guest.

Table 4. Positive Feedback Based on Topic (%)

Information Unit (Positive)	America (204)	Asia (except: Indonesia) (367)	Australia (71)	Europe (537)	Indonesia (458)	Total (1683)
Hygiene	10,4	21,4	3,9	34,5	29,7	100
Location	12,9	22,9	5,2	33,2	25,7	100
Host and Staff	14,6	22,4	4,4	36,6	22,0	100
Calmness	8,4	21,1	3,4	36,9	30,2	100
Amenity	16,2	22,4	5,3	38,7	17,4	100
Buliding	11,3	19,4	4,7	31,4	33,1	100
Room and toilet	12,8	18,3	5,0	37,8	26,1	100
Price	15,5	22,7	3,1	23,7	35,1	100

The negative feedback mainly consist of amenity topic (Table 5). The user frequently complain the amenity that doesn't match the description and way below the proper standard. The related amenity could be the unavailability of towel, sink, hot water bath, and broken AC. Unlike a regular hotel that most definitely provide a full round of amenity, Airbnb still struggling in doing so. Even though good amenity is the basic needs an accommodation should provide, somehow it still becomes a major problem in Airbnb accommodation.

Table 5. Negative Feedback Based on Topic (%)

Information Unit (Positive)	America (204)	Asia (except: Indonesia) (367)	Australia (71)	Europe (537)	Indonesia (458)	Total (1683)
Hygiene	22,0	17,1	9,8	34,1	17,1	100
Location	12,0	26,0	8,0	30,0	24,0	100
Host and Staff	11,1	22,2	5,6	30,6	30,6	100
Calmness	13,6	13,6	11,4	45,5	15,9	100
Amenity	13,0	30,0	6,0	28,0	23,0	100
Buliding	4,2	29,2	0,0	12,5	54,2	100
Room and toilet	15,9	22,7	2,3	27,3	31,8	100
Price	0,0	0,0	0,0	0,0	100,0	100

3.3. Spatial Distribution of Airbnb Accomodation User Preferences

Table 6 shows distribution map of difference between positive and negative reviews on each Airbnb accommodation. The results are as follows. For amenity, the highest positive reviews were in Jetis Sub-district, with 39 reviews. For location, the highest positive reviews were in Kraton Sub-district, with 39 to 45 reviews. For hygiene, the highest positive reviews were in Jetis Sub-district, with 25 to 38 reviews. For host and staff, the highest positive reviews were in Jetis, Tegalrejo, and Kraton Sub-districts, with 54 to 68 reviews. This is the most discussed topic and there are many more accommodations in other Sub-districts with a high number of positive reviews. For price, the number of reviews is relatively the same, ranging from -1 to 5 reviews, and the topic is rarely discussed. For calmness, the highest positive reviews were in Mergangsan and Mantijeron Sub-districts, with 10 to 13 reviews. For room and toilet, the highest positive reviews were in the Jetis and Mantijeron Sub-districts, with 39 to 44 reviews, while for buildings, the highest positive reviews were in the Mantijeron Sub-district, with 10 reviews. Meanwhile, other accommodations tend to have the same number of reviews. Topics such as price, calmness, and building features do not

exhibit a specific distribution pattern, whereas topics like amenities, location, host and staff, and room and toilet show clustering in the Tegalrejo, Gedongtengan, Danurejan, Kraton, Mantrijeron, and Umbulharjo sub-districts. Some topics discussed by accommodation users are not directly related to spatial distribution. However, the number of positive reviews is associated with accommodations located in tourist areas.

Table 6. Spatial Distribution of Difference between Positive and Negative (D) Reviews According to Information Unit

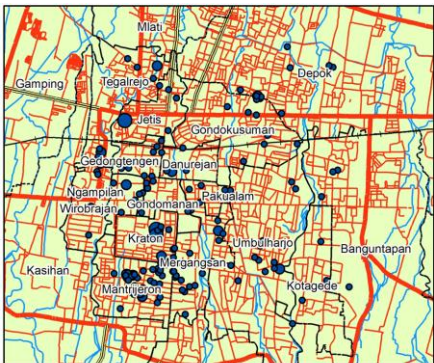| Map	Analysis
	User reviews regarding accommodation amenities have scores ranging from -5 to 39. The distribution of accommodations with amenity-related reviews is relatively even but concentrated in certain areas, such as Tegalrejo, Jetis, Gondokusuman, Danurejan, Kraton, Umbulharjo, Mantrijeron, and Kotagede. These locations are indeed tourism hubs, home to several key attractions.
	User reviews concerning hosts and staff have scores ranging from -1 to 68. The distribution of accommodations with host and staff-related reviews shows clustering, with higher-rated accommodations concentrated in the Kraton area and its surroundings. The hospitality of hosts or staff is crucial for Airbnb users, as the host-guest interaction is one of the platform's key advantages.
	User reviews on rooms and toilets have scores ranging from -1 to 44. Accommodations with reviews discussing rooms and toilets are clustered in areas such as Mantrijeron, Kraton, and Gondomanan.
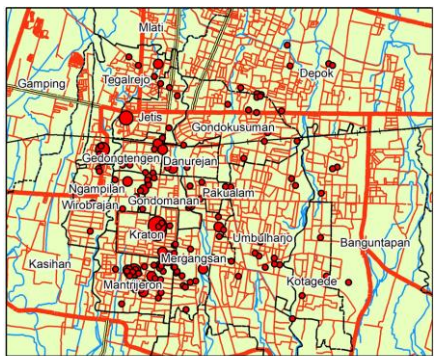
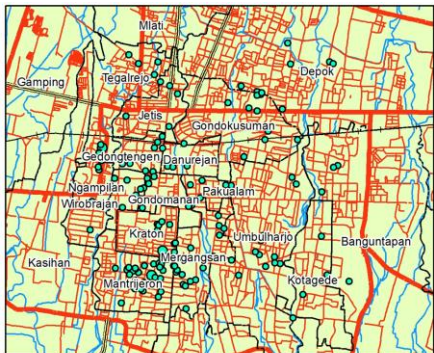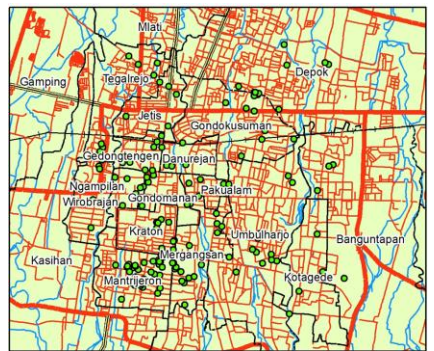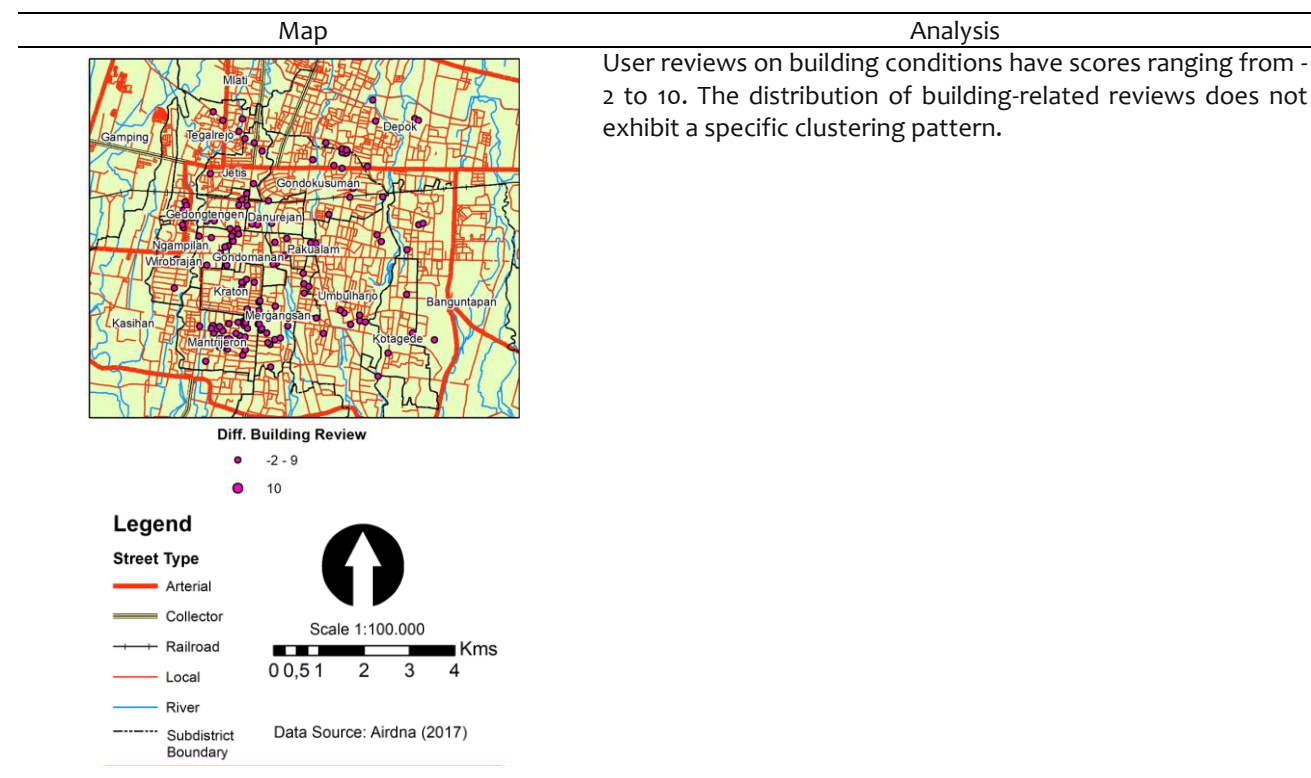| Map	Analysis
Diff. Location Review • -1 - 9 ● 10 - 24 ● 25 - 38 ● 39 - 45	User reviews on accommodation location have scores ranging from -1 to 45. The distribution of location-related reviews is concentrated in areas like Mantrijeron, Kraton, and Gondomanan. Positive reviews about location are consistently associated with proximity to tourist attractions, transportation facilities, and shopping centers.
Diff. Hygiene Review • -1 - 9 ● 10 - 24 ● 25 - 38	User reviews on cleanliness have scores ranging from -1 to 38. The distribution of cleanliness-related reviews is relatively uniform across nearly all Airbnb accommodation locations.
Diff. Calmness Review ○ -1 - 9 ○ 10 - 13	User reviews on calmness have scores ranging from -1 to 13. The distribution of accommodations with calmness-related reviews does not show a specific pattern, as discussions on calmness are scattered across nearly all locations.
Diff. Price Review ○ -1 - 5	User reviews on rental prices have scores ranging from -1 to 5. The distribution of price-related reviews does not follow a distinct pattern, indicating that rental costs are not a frequently discussed topic among Airbnb users.

Map	Analysis
	User reviews on building conditions have scores ranging from -2 to 10. The distribution of building-related reviews does not exhibit a specific clustering pattern.

4. CONCLUSION

Airbnb accommodations in the city of Yogyakarta and its surrounding areas are distributed across the region, with higher concentrations in tourist zones. Additionally, many listings are located in residential neighborhoods, as Airbnb primarily involves the rental of privately owned properties—catering predominantly to tourists in Yogyakarta's case. This phenomenon also explains why private rooms are the most frequently rented accommodation type, as opposed to entire homes or shared rooms.

Content analysis findings indicate that host hospitality receives the highest proportion of positive feedback from Airbnb users. This observation aligns with Airbnb's distinctive value proposition: a personalized hospitality experience that conventional hotels generally cannot replicate. Conversely, negative feedback predominantly concerns inadequate amenities provided by certain hosts.

Spatial analysis of reviews shows that Airbnb accommodations in the Jetis and Kraton sub-districts achieve the most favorable ratings for amenities, location, hygiene, host and staff performance, as well as room and toilet conditions. In contrast, factors such as price, calmness, and building remain relatively uniform across all surveyed areas. Properties in the Kraton sub-district benefit from proximity to several tourist attractions, whereas Jetis is advantaged by its accessibility, owing to its location near major arterial roads. Sub-districts with both a high density of Airbnb accommodations and a substantial volume of positive reviews are typically tourism-centric zones with convenient access to diverse attractions. The sub-districts with high concentrations of Airbnb accommodations and large numbers of positive reviews are tourism-centric areas with various accessible tourist attractions.

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