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Exploring spatially enabled web for student housing accessibility in Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria

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Abstract

This study focuses on optimizing student accommodation decisions. It analyzed the geospatial distribution of off-campus student hostels near Obafemi Awolowo University (OAU) to assist potential tenants in selecting suitable and budget-friendly accommodations. The study involves mapping hostel locations, constructing a comprehensive database, and creating an accessible platform for sharing spatial insights. Methodologically, it combines interviews with hostel residents and administrators with the integration of ArcGIS and Google My Maps to synthesize spatial and non-spatial data. Findings revealed students' hostels were clustered near the campus; the study also offered diverse housing selection options influenced by rental costs, electricity availability, security, amenities, and proximity to school. This study enriches off-campus housing selection through spatially enabled web technology, contributes to geospatial-based real estate practices and serves as a foundational resource for improving student housing accessibility in academic settings. The study recommends a continuous database update to maintain relevance.

Keywords: Student Housing; Geospatial Analysis; Accessibility; Accommodation Database; Spatially Enabled Web; Sustainable Urban Development

1. Introduction

In the world over, every person has a fundamental right to housing, which is a basic human requirement in those societies. According to Yusuff (2011), a student residence is a type of housing where students reside during their enrolment in school. During school period, many young people (students) move away from home and from their parents to live in dorms, free from parental oversight and authority. In order to adjust to a new environment and a different way of life, the students are forced to be self-reliant, make compromises with others, develop civic virtues, make use of public spaces and amenities, and go through this stage of becoming an adult (Rodger and Johnson, 2005). Hence, the necessity for students housing.

In addition, student housing can be said to have a significant impact on students' general political and social lives, including leadership development, social conduct, academic success, citizenship and a sense of community development (Khozaei et al., 2010), thus necessitating appropriate choice of housing. In Nigeria, on-campus housing and off-campus housing are the common two categories of students' accommodation. Whereas, on-campus students are those who live on campus in residence halls provided and managed by the university, off-campus students are those who live outside the campus halls of the residence, being rental homes or private hostels (Ghani and Suleiman, 2016), In alignment with the Sustainable Development Goals (SDGs), particularly focusing on SDGs 4, 9, and 11; this study advocates for sustainable cities and communities by assisting students in accessing suitable accommodations considering the criteria

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that affect students' hostel choices; this was achieved by utilizing geospatial techniques for visualizing the developed comprehensive hostel database.

According to Kolawole and Boluwatife (2016), tertiary institutions are responsible for offering suitable housing to students admitted into the institutions' various programs. However, poor funding, especially for public universities as well as the rising rate of university enrolment have resulted to insufficient on-campus housing in Nigerian tertiary institutions (Samson et al, 2022). This forces many of the students to choose off-campus housing as the only alternative. Some students however, have high preference for off-campus housing for various reasons ranging from the desire for personal freedom, penchant for personal comfort, privacy and other conveniences that are not subject to the rules and regulations established by the university's administration (Mafumbate and Dlamini, 2021). Securing off-campus housing can be associated with issues relating to limited information, safety concerns, accessibility issues, lack of amenities, and affordability.

In the rapidly evolving landscape of education, the majority of students admitted into the Universities like OAU, located within Ile Ife, Osun State Nigeria (Figure 1) which admits about 7000 students each year, the demand for housing will always outweigh the available on-campus housing. Moreover, with a total students' population of over 26,000 students, 18,928 (72.2%) of them live off-campus without the benefits of a safe and more affordable on-campus dormitory. These students are youthful, with an average age of 18, and a significant portion of them have limited prior exposure to independent life away from home (Adeleye, 2014). The experience of residing in students housing for extended periods, far from the familiar comforts of home, emerges as an opportunity to acquire invaluable life skills. These include mastering the art of independent living, negotiating with diverse roommates and peers who are not family members, and sharing common spaces, such as bathrooms, kitchens, and other utilities.

These, altogether, pose a challenge of appropriate choice of accommodation for them, especially new students who might not be familiar with the new environment they find themselves in the course of their quest for university education. Access to conducive off-campus housing could be a major challenge faced by students in tertiary institutions, about 90% of undergraduates experience significant difficulties in selecting private accommodation (Weerakoon and Deepamala, 2021). With the absence of suitable standards or database for accessing accommodation (Ghani and Suleiman, 2016)), students are frequently constrained to rent houses with inadequate infrastructure, utilities, and services. Not only are the possibilities of students being exposed to untold vices due to inability to access decent and convenient accommodation, studies have established a positive correlation between students' accommodation and their performance (Weerakoon and Deepamala, 2021; Arroyo, 2023). The current means of information gathering is largely through estate agents, third party information, bill board. These channels are fraught with imperfect knowledge of available accommodation, prospective tenants and hostel owners. Information is not widely and promptly circulated and this is not congruent with the information age where information is needed in real time for quick decision making. As such, manual search for accommodation by students can be cumbersome and time wasting. It can be a reason for poor performance of some students, especially when they are newly admitted into the Universities. This could be due to lack of data and information as to the way and manner of accessing available accommodation for them to choose from; hence the need for accessibility based on information technology.

Davis (2003) and Zamiri and Esmaeili (2024) assert that the exchange of knowledge and data is the cornerstone of success across various pursuits. The universal integration of Information and Communication Technology (ICT) including personal computers and mobile phones, web technology and the internet underscores the indispensability of digital information sharing in everyday endeavours (Adebanjo et al., 2024). Whether it's seeking employment, exploring new housing options, delving into property markets, or gathering project-related information, digital information exchange has evolved into an integral aspect of modern living. Mostly, information is disseminated through social media: WhatsApp, Telegram, Instagram etc. Unfortunately, sometimes, information from those avenues can be misleading due to inaccuracies arising from the source or redistribution.

This study strategically bridges these insights by examining the spatial distribution of off-campus students' hostels around OAU campus with the aim of providing information regarding off- campus students' housing to both newcomers and regular students (freshers and stalites). This study, using an interactive software, is focused on providing students with real time and relevant information required for selecting the most suitable hostel accommodation while preparing for a multifaceted experience that independent living entails. By leveraging on geospatial analysis and ICT, this research offers students a powerful tool to navigate the dynamic landscape of off-campus accommodations and enabling students to make informed decisions that will equip them with essential life skills, aligning seamlessly with their academic journey and personal growth.

This study attempted to address these challenges by developing a geospatial database of students' hostels and making students' housing accessible. The database provided students with comprehensive information about available hostels, including their locations, facilities, pricing, and safety considerations. This study is significant for students, parents, university administrators, hostel owners, researchers, and the government. It will empower students to make informed decisions about housing, improve their overall student experience, and help the government develop policies that address the housing needs of students. Geospatial technologies, such as GIS, Google Earth, Google Maps, and Google My Maps, can be used to improve student housing accessibility. GIS can be used to analyze spatial data, identify patterns, assess trends, and make informed decisions about student housing. Google Earth, Google Maps, and Google My Maps can be used to create and share customized maps of

student hostels, making it easier for students to find suitable housing. The integration of geospatial technologies can optimize student housing by enabling data analysis, visualization, real-time updates, and community engagement.

2. Literature review

Adequate housing is a fundamental pillar of human well-being and economic development (Harris-Brandts, 2024; Kenna and Simón-Moreno, 2019). For students, housing serves as a crucial transitional space, bridging familial dependence and the independence of adulthood. Whether in dormitories or private apartments, student housing is essential for those pursuing higher education away from home (Yusuff, 2011; Chiguvi and Ndoma, 2018). These environments foster social integration, personal growth, and academic engagement (Rodger and Johnson, 2005; Khozael et al., 2010; Septanti et al., 2024). On-campus and off-campus housing offer distinct experiences, each with unique advantages and challenges (Ghani and Suleiman, 2016; Li et al., 2005; Muslim et al., 2012; Nimako and Bondinuba, 2013; Garg et al., 2014; Gbadegesin et al., 2021; Gu and Smith, 2020). Understanding these differences is critical for comprehending the impact of student housing on student life.

Off-campus living, however, often presents students with significant challenges. Studies suggest a potential inverse correlation between off-campus residence and academic engagement (Nelson et al., 2016). Mafumbate and Dlamini (2021) revealed that off-campus living in Eswatini, driven by on-campus scarcity, leads to issues like meal availability, substandard housing, restrictive rules, affordability, and accessibility. Poor housing conditions can diminish concentration, hinder academic performance, and increase course failure risks. The demand for luxury amenities has further inflated off-campus rental prices (Donaldson et al., 2014; Sage et al., 2013; Gopal and Van Niekerk, 2018). Students prioritize location, affordability, security, and safety (Chiguvi and Ndoma, 2018; Ghani and Suleiman, 2016). Safety concerns are paramount due to vulnerability to crime (Donaldson et al., 2014; Alaka et al., 2012). Limited access to reliable information and complex rental markets exacerbate these challenges (Weerakoon and Deepamala, 2021; Ghani and Suleiman, 2016).

Geospatial technologies, particularly GIS, offer promising solutions to student housing challenges. Martinez et al. (2022) demonstrated GIS's potential for creating geo-referenced databases for spatial distribution analysis. Yunus and Ilah (2018) identified key factors influencing hostel choices using GIS, emphasizing proximity and amenities. Obuku (2020) developed a location-based routing application for hostel selection. Weerakoon and Deepamala (2021) highlighted GIS's role in enhancing housing market accessibility and transparency. However, many studies lack real-time data integration and comprehensive information. This research addresses this gap by integrating spatial and non-spatial data using ArcGIS and Google My Maps.

Statistical methods are essential for assessing student housing. Adebisi et al. (2015) and Okorie (2015) examined rental values and infrastructure quality. Akingbohungbe et al. (2012), Mohammadreza and Tohid (2020), and Azeez et al. (2016) assessed student satisfaction, highlighting the importance of student perspectives. However, studies like Azeez et al. (2016) often lack spatial components, limiting location-specific recommendations. This research integrates statistical analysis with GIS for enhanced housing assessments. The methodology adopted here, using GPS coordinates and ArcGIS, mirrored foundational spatial data management principles. Google My Maps integration built upon accessible tools for data dissemination. Proximity analysis and detailed attribute data provided actionable insights, bridging spatial data and practical decision-making. Integrating qualitative data, as seen in Gbadegesin et al. (2021), from interviews captured student experiences, offering a holistic analysis.

Despite the progress made in leveraging GIS for student housing, a need exists for integrated, real-time, GIS-based platforms to address information gaps and market inefficiencies. This research develops a dynamic web application using social surveys and GIS to provide comprehensive housing information. By integrating spatial and non-spatial data, this application facilitates informed housing decisions and enhances property visibility. This study developed a geospatial database and interactive web map for OAU student hostels, addressing identified gaps in previous research.

The developed geospatial database and web map demonstrated practical application. Clustered hostel distribution and detailed information in Google My Maps addressed student needs. The platform's capabilities for data integration and interactive features facilitated informed decisions. Accessibility via a shareable link enhanced practical impact.

However, while this study successfully addressed several gaps, future research should explore advanced analytical techniques, such as spatial regression modeling, to examine relationships between housing characteristics and student preferences. Expanding the scope to include on-campus housing and exploring the interplay between on- and off-campus accommodation is also recommended. Additionally, future work could develop a more dynamic web application, integrating the strengths of Spatial Decision Support Systems (SDSS) and fuzzy logic

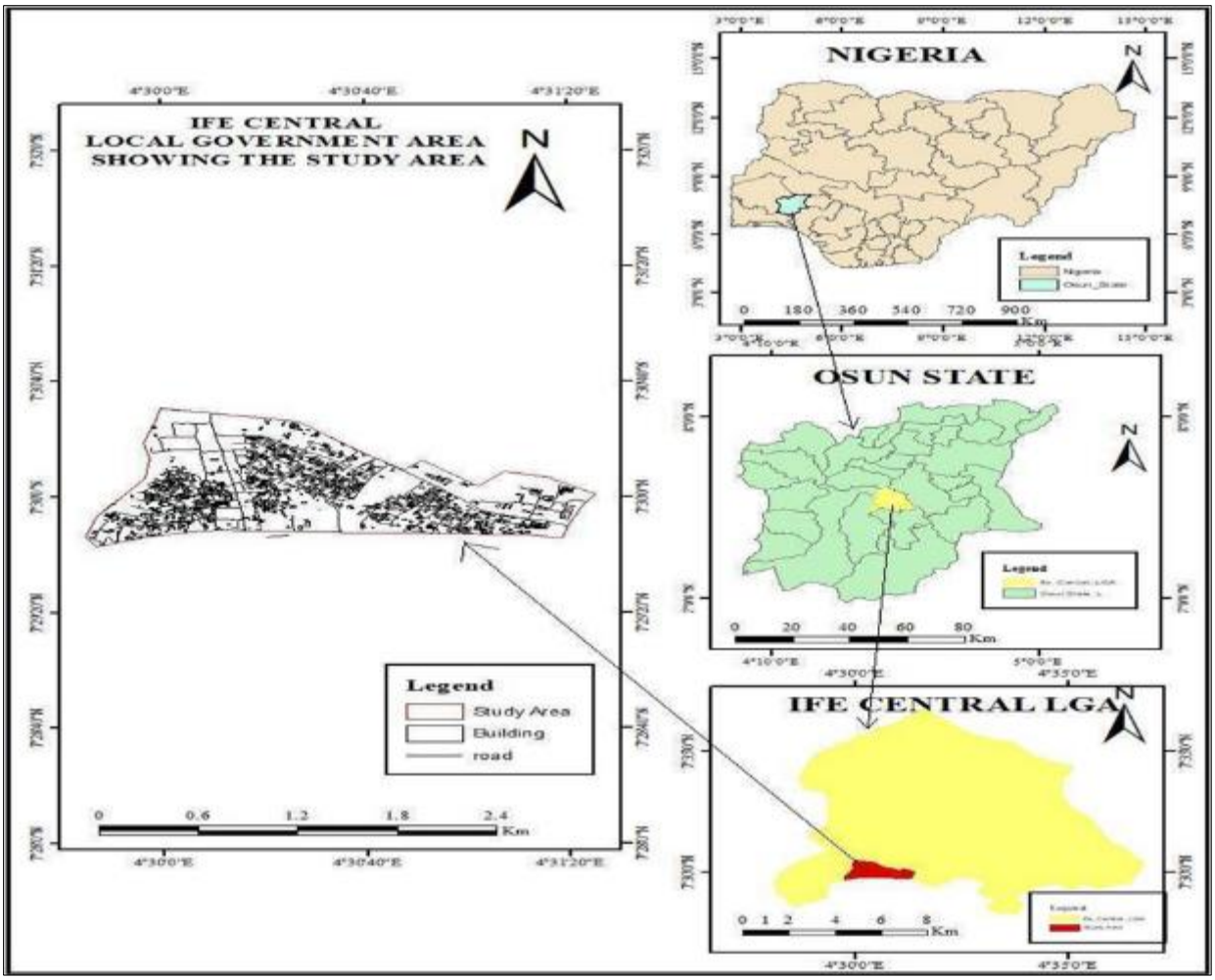
recommendation systems for personalized housing recommendations with real-time data. Exploring the applicability of this methodology to other university campuses in Nigeria and beyond will contribute to a broader understanding of student housing challenges and the potential of geospatial technologies for addressing them.

3. Material and method

3.1. Study area

The study area, the Obafemi Awolowo University (OAU) Student Residential Area, presents a viable environment for studying student housing accessibility. OAU, the second most populous public university in southwestern Nigeria with approximately 37,000 students across thirteen faculties and postgraduate college, faces a significant housing deficit. Initially, in 1962, the university accommodated all 244 students on campus. However, with the current student population, on-campus housing can only accommodate less than 11,000 students (Students Affairs Division, OAU, 2024). This leaves roughly 70% of the student body reliant on off-campus accommodation, creating a robust market for estate agents. Unfortunately, this market is plagued by unscrupulous agents who exploit students' urgent housing needs, leading to market inefficiencies and information asymmetry. Furthermore, the closest off-campus hostels are situated 2-3km from the main campus, resulting in transportation challenges, particularly during peak hours and public unrest when transportation services are disrupted. The Study Area of the map is depicted in figure 1.

The spatial distribution of off-campus student housing is characterized by a mix of random and clustered patterns, contrasting with the structured on-campus housing. While some landlords provide adequate amenities at premium rates, others neglect basic maintenance, prioritizing profit over student well-being. Poor road networks hinder accessibility, forcing students to rely heavily on motorbikes for daily commutes. Unequal and unpredictable electricity supply further compounds the issue, potentially affecting students' academic performance. The tropical savanna climate, with distinct dry and rainy seasons, underscores the need for energy-efficient and sustainable building designs that support student well-being. Located within Ife Central LGA, with a population of 102,348 and a predominantly Yoruba population, the area's economy is driven by farming, trading, and the university itself. This complex situation of factors highlights the critical need for a spatially enabled web application to improve student housing accessibility in this challenging environment.



Source: Authors (2025)

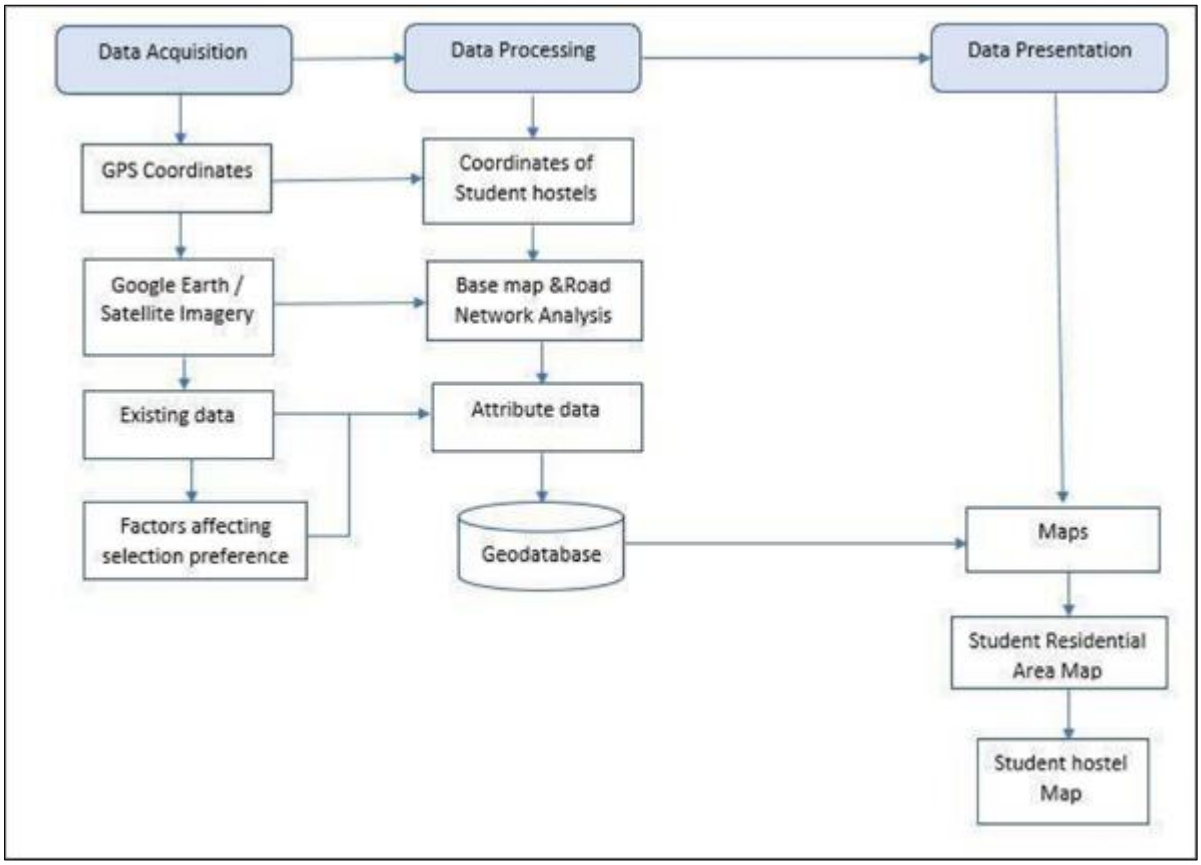
Figure 1 Map of the Study Area

4. Research methodology

The methodology of this study included the data collection methods, data processing and analysis techniques (See figure 2). It also involves the use of variety of hardware and software tools for data collection and processing, including mobile phones, computers, GPS Formatter, Notepad, Arc Map 10.7, Google Docs, Google Sheets, Google Earth Pro, and Google My Maps. Data collection methods included reconnaissance survey, acquisition of GPS coordinates and road network information, and interviews with hostel residents and caretakers. Data processing involved data storage, editing, updating, retrieval, and analysis, using ArcMap 10.7 and Google Sheets. Specific data processing steps included GPS coordinates processing, hostel information compilation, data verification and validation, data integration, and data preparation.

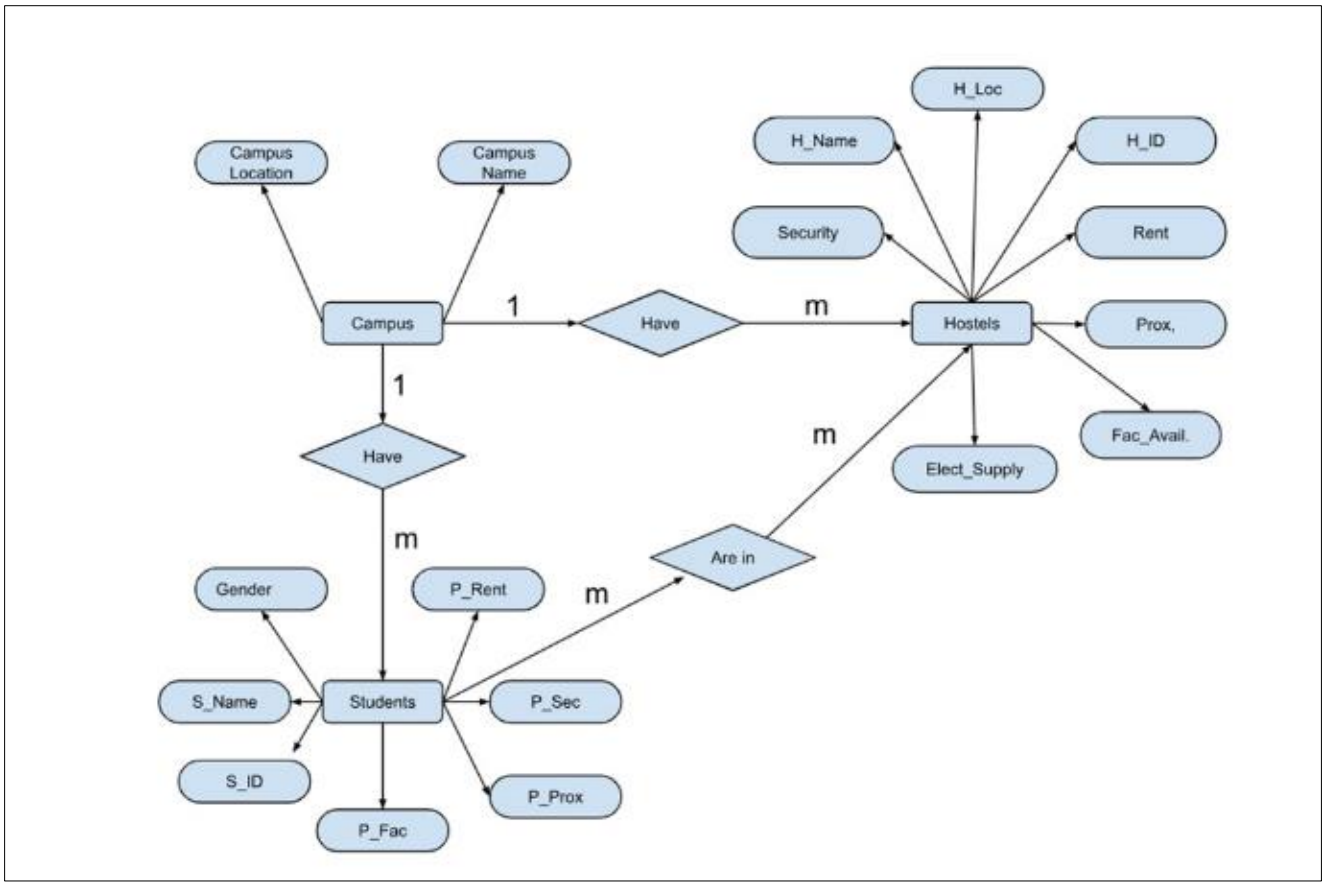
The data collection and preprocessing phase laid the foundation for subsequent geospatial analysis and examination of factors influencing students' choice of hostels. The location of the hostels was represented using point data (Northings and Eastings coordinates) collected through handheld GNSS receivers and were mapped in ArcGIS while the study area boundary was defined using polygon. Google My Map was used to create a custom map displaying student hostels and attribute data. The research utilized both primary and secondary data sources. Primary data were collected through GPS receiver, questionnaires and interviews with hostel residents and caretakers. Secondary data were derived from existing information, such as Google Earth and satellite imagery (See table 1). Geospatial database of student hostels in the student residential area was then developed. To develop a geospatial database of student hostels in the student residential area, the study followed a three-level approach of GIS database creation which includes the conceptual design, logical design, and physical design (See Tables 2, 3 and 4 and Figure 3). The conceptual design identified the relevant entities and their attributes, establishing relationships between them. The logical design translated the conceptual model into a detailed and implementable database schema, defining the data types and constraints for each

attribute while the physical design outlined the physical database structure that corresponded to the relational data structure.



Source: Authors (2025)

Figure 2 Methodology Schema



Source: Authors (2025); Key: P- Preferred, Fac- Facility , S- Student, Sec- Security, Prox- Proximity, H- Hostel, Loc- Location, Elec- Electricity, Avail- Available, W – Wardrobe, PS - Private security, PK - Private kitchen, PT - Private toilet, SK - Shared kitchen, ST - Shared toilet, BandF- Bed and Frame, TandC - Table and Chair, GCL - General campus light (24 hours), GGS - General gate security, Nil - No private security but there is general estate security, Gen – Generator, Good - 24 hours light, Fair - 6-15 hours/day, Bad - Low current, T-fair - Transportation fare. Note: Time spent is from the hostel to OAU campus gate.

Figure 3 Conceptual database design (Entity-Relationship Diagram)

Table 1 Relevant Data Requirements

S/N	Name	Type	Source	Relevance
1	Google Earth Imagery	Secondary	Google Earth Pro	i. For digitizing the road network. ii. For Geolocation of the student hostels.
2	GPS Coordinates of the existing student hostels in the study area	Primary data	Field Survey	For mapping the existing student hostel locations and routes to the campus
3	Existing base map of the study area	Secondary	Google Earth Pro	Already digitized map for mapping the student hostels
4	Student hostel Attribute Data	Primary	Questionnaires and interviews	Basic information about the student hostels such as the name, rent, no. of rooms, maintenance etc. for creating the GIS database.

Table 2 Logical Model (Campus)

S/N	Attribute	Key
1	Campus Name	Primary Key
2	Campus Location	Foreign Key

Table 3 Logical model (Hostels)

S/N	Attribute	Key
1	Hostel ID	Primary Key
2	Hostel Name	Foreign Key
3	Hostel Location	Foreign key
4	Rent	Foreign Key
5	Security	Foreign Key
6	Facility Available	Foreign Key
7	Electricity Supply	Foreign Key
8	Proximity	Foreign Key

The database encompasses factors that influence students' choice of hostels, such as rent, electricity supply, security, facilities available, and proximity to campus. Data were collected using a mobile app, GPS formatter and interviews with hostel residents and caretakers. Proximity analysis was performed using Google My Maps to determine the distance of each hostel to the campus gate (Figure 7). The geospatial database was created in ArcGIS by importing the CSV file containing the hostel names and their corresponding GPS coordinates. The study area boundary, digitized roads and buildings, and additional buildings and hostels were also integrated into the database to provide a spatial context for the hostel data. The CSV file containing the hostel data was imported into Google My Maps, creating a custom map that could be easily accessed and utilized through various computer devices. The map was customized to include the student hostels, with relevant titles, colors, and symbols used to distinguish different hostels and represent their locations accurately. Information regarding the hostels, such as their names,

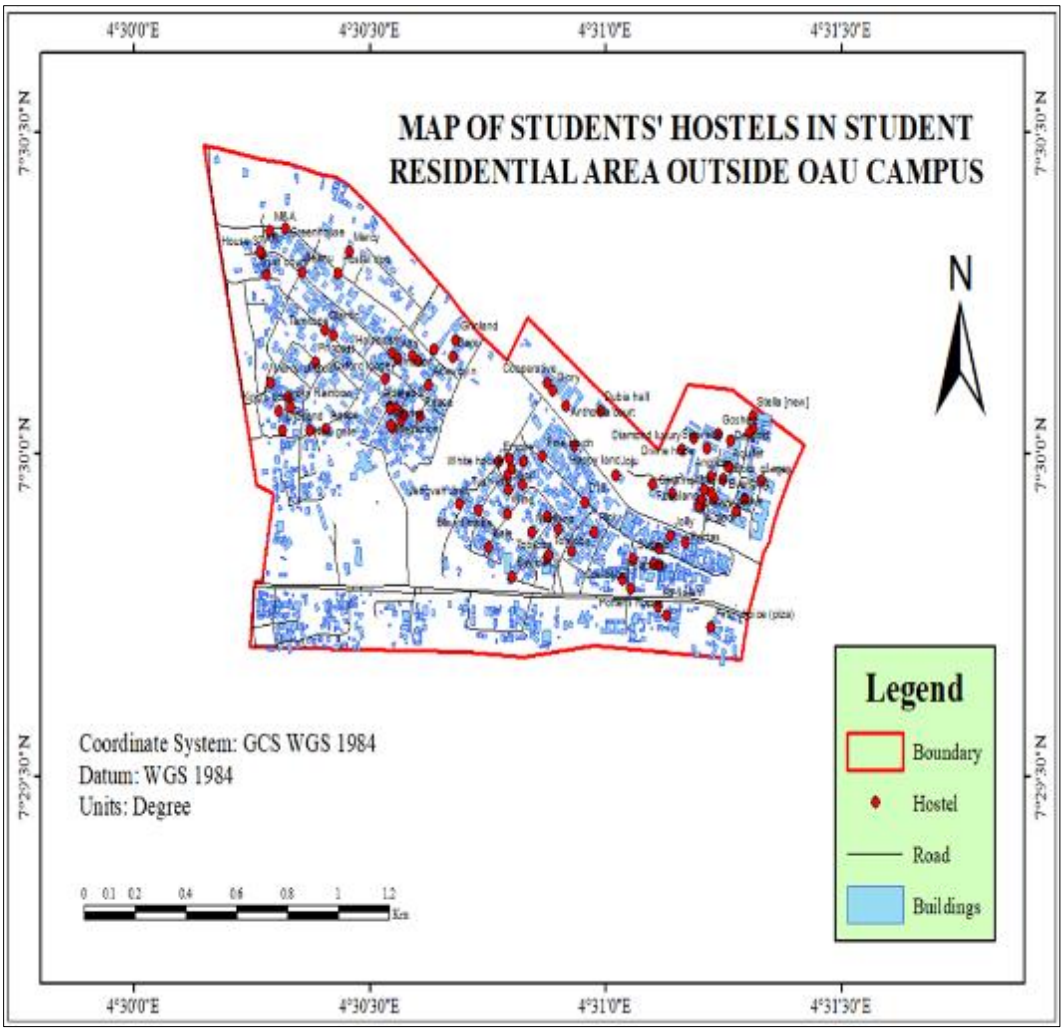
coordinates, and additional details like facilities available, rent, and proximity to campus, was also integrated into the map. The map is useful for real-time collaboration among researchers and stakeholders, and is seamlessly integrated with other Google apps, such as Google Photos, Google Sheets, and Google Drive.

5. Results

The result of the study revealed a detailed spatial location and distribution of student hostels in the student residential areas surrounding the university (See figures 4 and 5). The spatial distribution of hostels is considered to be clustered in nature having a p-value that is 0.0000 from the result of the Average Nearest Neighborhood Analysis (ANNA). The visualization of the spatial distribution is as presented in Figure 5. This implied that the location of the students' hostels is seen to be closely concentrated within available geographical space. By implication, this result suggest that the students' hostel may be strategically located with the view of close proximity to the OAU campus.

Table 4 Logical model (Students)

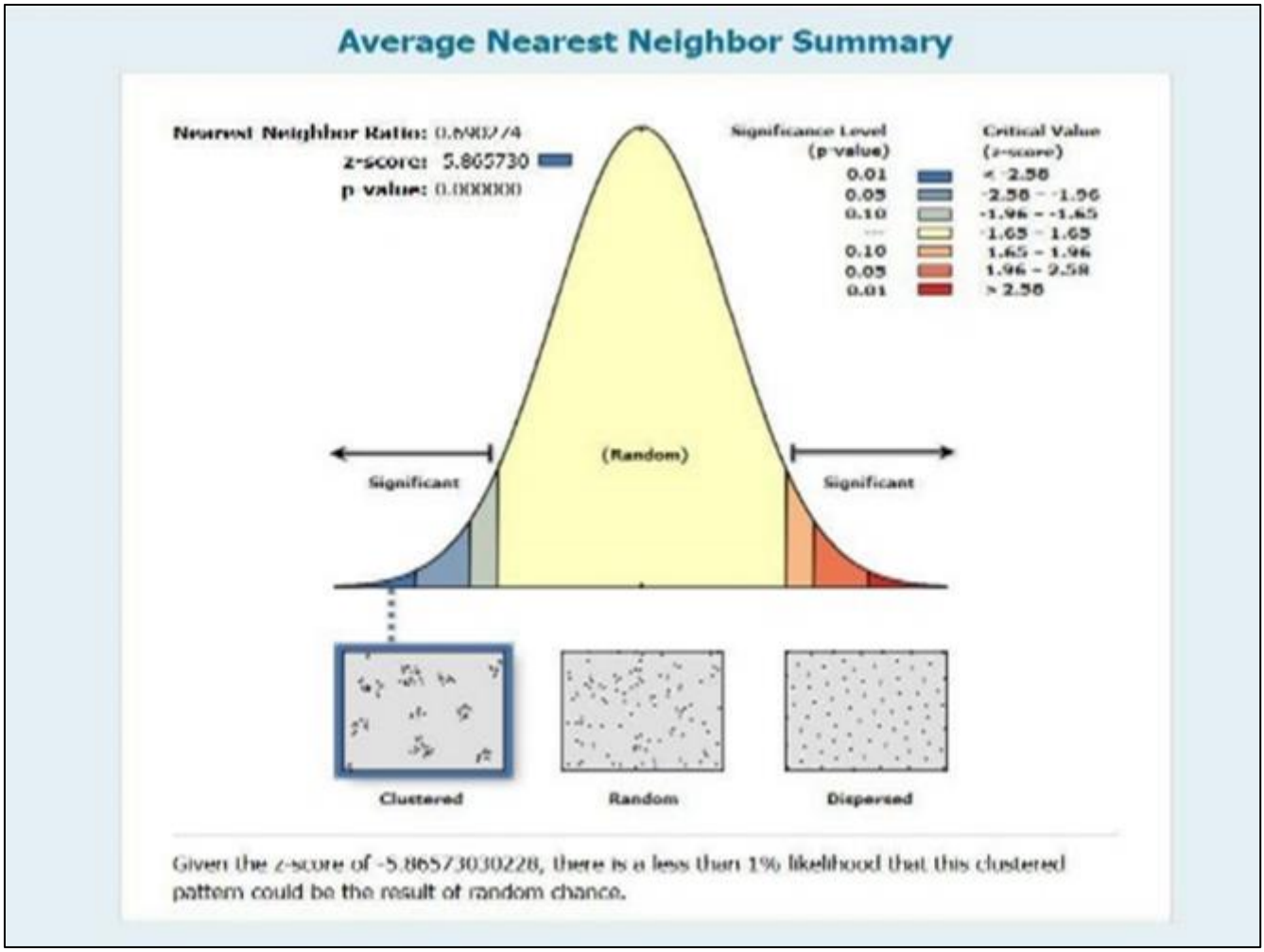
S/N	Attribute	Key
1	Student ID	Primary Key
2	Student Name	Foreign Key
3	Gender	Foreign Key
4	Preferred Facility	Foreign Key
5	Preferred Proximity	Foreign Key
6	Preferred Security	Foreign Key
7	Preferred rent	Foreign Key



Source: Authors (2025)

Figure 4 Map showing location of students' hostels in the study area

The database includes detailed information about each hostel, such as its name, coordinates, facilities available, rent, number of occupants per room, electricity supply, security measures, transportation cost, and time required to reach the campus gate. The database was queried to categorize the hostels based on the factors influencing the choice of hostel, such as rent pricing, electricity supply status, security measures, and available facilities. The query revealed that 7% of the 98 available student houses had a rent of ₦200,000.00, while 62% (59 houses) had a rent within a different range (See figure 6 A to D). The result of this study is similar to that of Martinez et al., (2022) on geo-data collection strategy to assess housing in its social, environmental, and spatial aspects as well as the study of Weerakoon and Deepamala (2021) on the spatial mapping and distribution of off-campus student housing using geo-data collection of GIS techniques.



Source: Authors (2025)

Figure 5 Average nearest neighbourhood summary

In this study, Google My Maps was utilized as the platform for geo-visualization of the mapped hostels in the study area. It also provides information for proximity analysis by measuring the distances between hostels and the University's campus gate. This information is valuable for students, parents, university administrators, hostel owners, researchers, government and students catering for diverse financial constraints. The study also created a process to share the map of student hostels using Google tools. This map is readily accessible to students, university administrators, and other stakeholders through the web link listed below

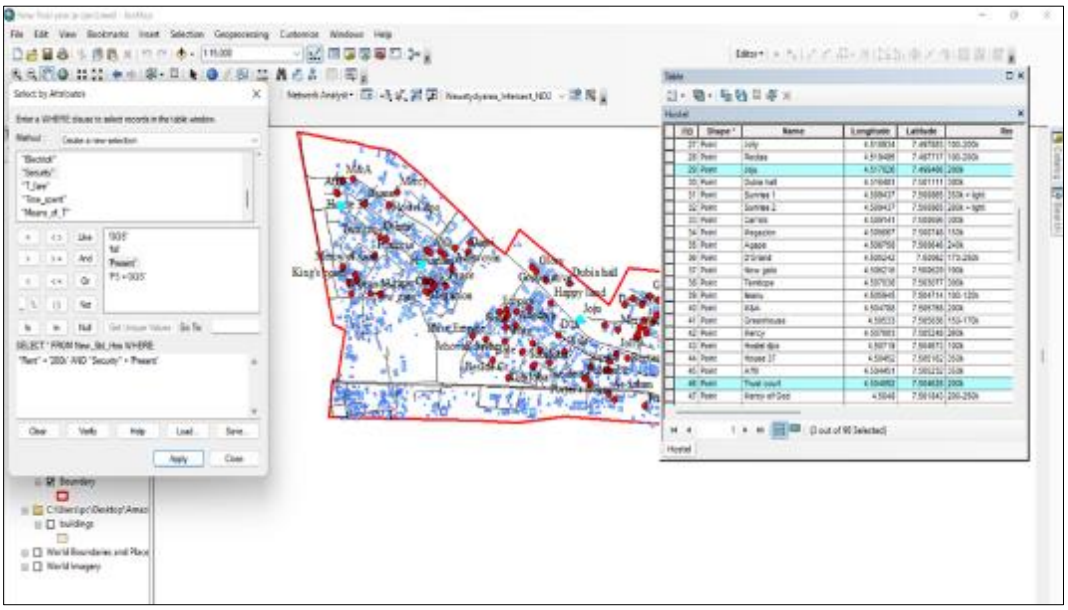
https://www.google.com/maps/d/edit?mid=1cLDlv859TdyhtENKHcOJyJ8RK6y4aMYandusp=sharing.

The spatially enable web map that was produced possesses an interactive graphic system with features such as the ability to calculate distance, time, and directions, facilitate seamless navigation for users. By clicking on individual map markers, students can access detailed information about each hostel, including factors such as rent pricing, electricity supply status, security measures, and available facilities. This interactive feature empowers students to explore, compare, and assess various accommodation options in an intuitive manner. The locations of the students' hostel as captured by GPS which is the required spatial information were sorted, edited, analyzed and reviewed geographically using Google My Map. Other relevant non-spatial information that would aid in decision making and selection choices of the students were presented in Table 5 and figures 6a to 6d.

Table 5 Sample of information accessible on Google My Map

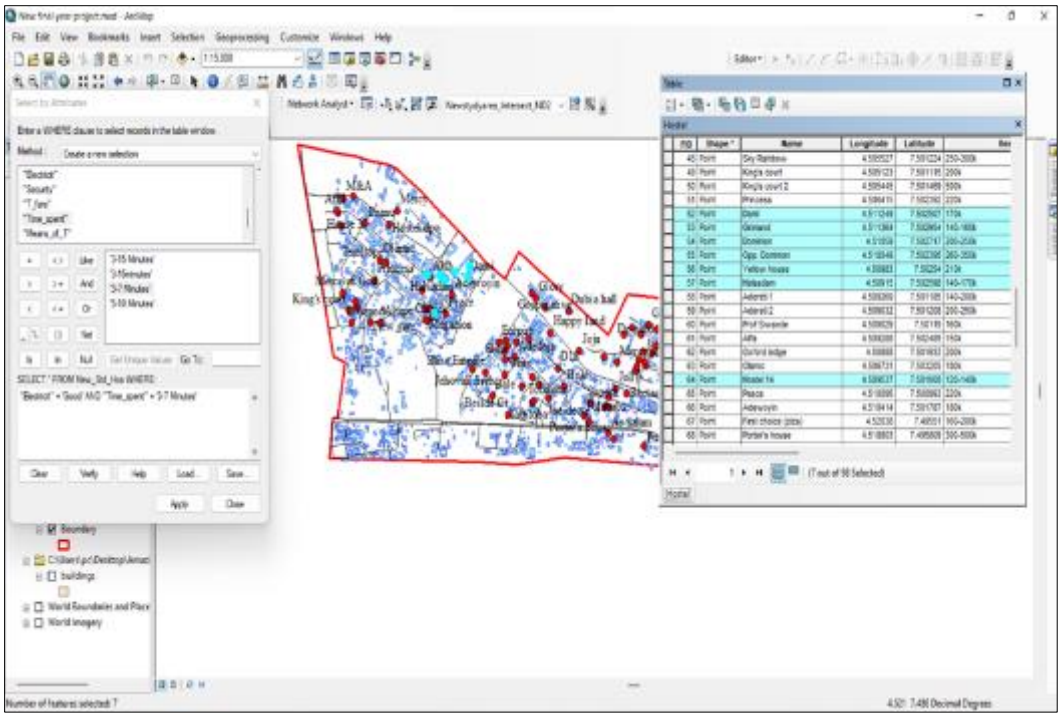
Hostel Name	Annual Rent (₦)	Occupants Per Room	Included Facilities	Electricity Supply	Security Type	Transportation Fare (₦)	Travel Time (Minutes)	Means of Transportation
Ebenezer	140,000	2	BandF, PK, W, PT, Fan	GCL	GGS	100	3 to 15	foot/bike
Unifex - block2	185,000	2	Fan, BandF, TandC, W, SK, ST	GCL	GGS	100	3 to 15	foot/bike
Shekinah	170,000	2	B and F, TandC, Fan, W, PT, PK	GCL	GGS	100	3 to 15	foot/bike
Divine hope	160,000	2	B and F, Fan, W, TandC, PK, PT	GCL	GGS	100	3 to 15	foot/bike
Eliakim villa	100,000 to140,000	2	PK, PT	Good	PS	150 to 200	3 to 15	foot/bike
Rehoboth	150,000 to 200,000	1 to 2	PK, PT	Fair	PS	150 to 200	3 to 15	foot/bike
Richland	150,000 to 230,000	1 to 3	PK, PT, W	Fair	PS	150 to 200	3 to 15	foot/bike
Joe-deco	200,000	1 to 2	PK, PT, W fan	Fair	PS	150 to 200	3 to 15	foot/bike

Note: Time spent is from the hostel to OAU campus gate; Key (abbreviations): W – Wardrobe, PS - Private Security, PK - Private kitchen, PT - Private toilet, SK - Shared kitchen, ST - Shared toilet, BandF- Bed and Frame, TandC - Table and Chair, GCL - General campus light (24 hours), GES - General Estate security, Gen – Generator, Good - 24 hours light, Fair - 6-15 hours/day, Bad - Low current, T-fair - Transportation fare.



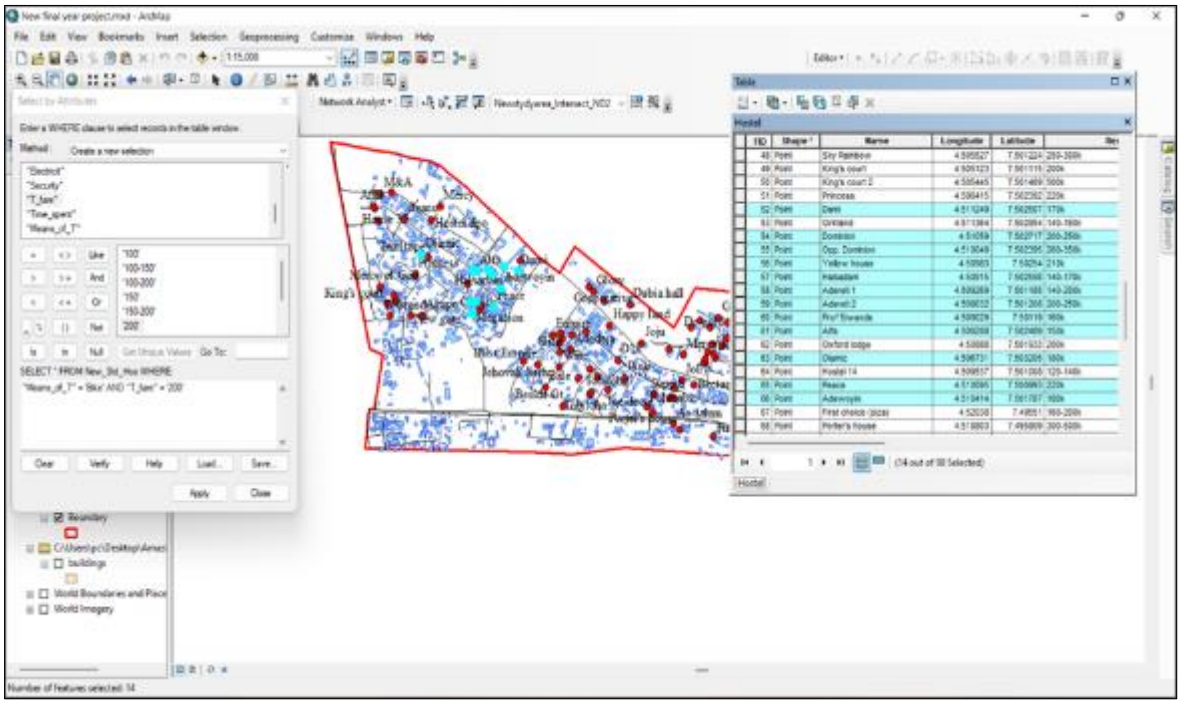
Source: Authors (2025)

Figure 6a Multi attribute Query showing the rent and security status



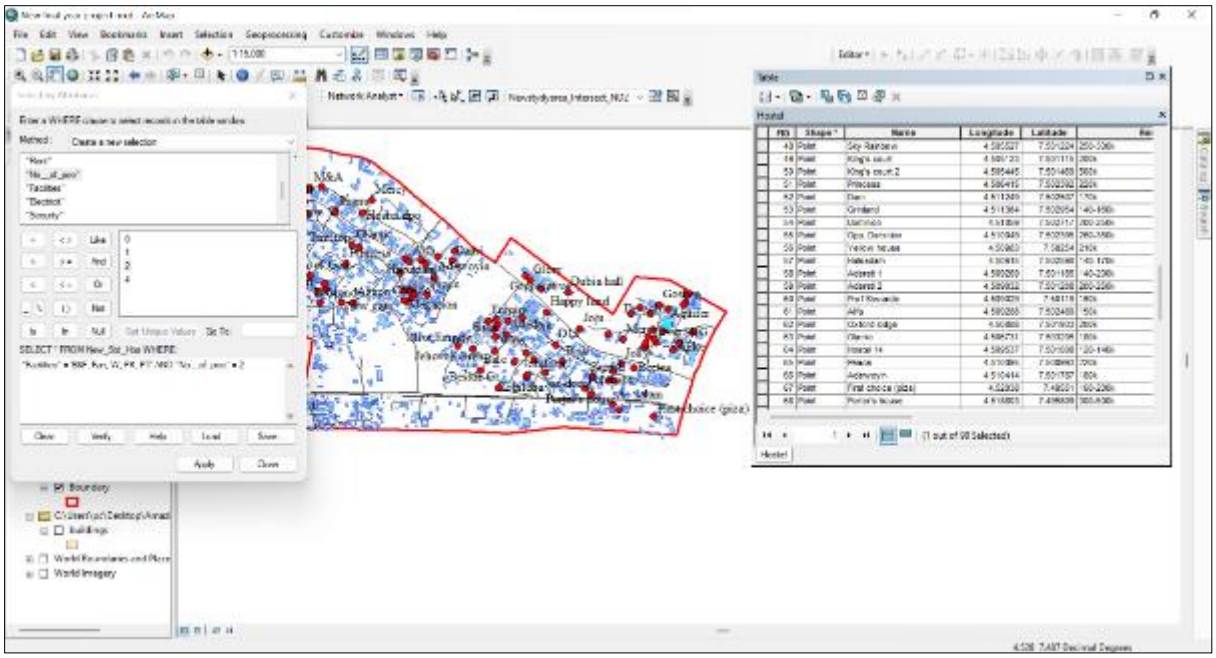
Source: Authors (2025)

Figure 6b Multi attributes Query showing electricity supply and proximity to campus



Source: Authors (2025)

Figure 6c Multi attribute Query of available mode of transportation and fare



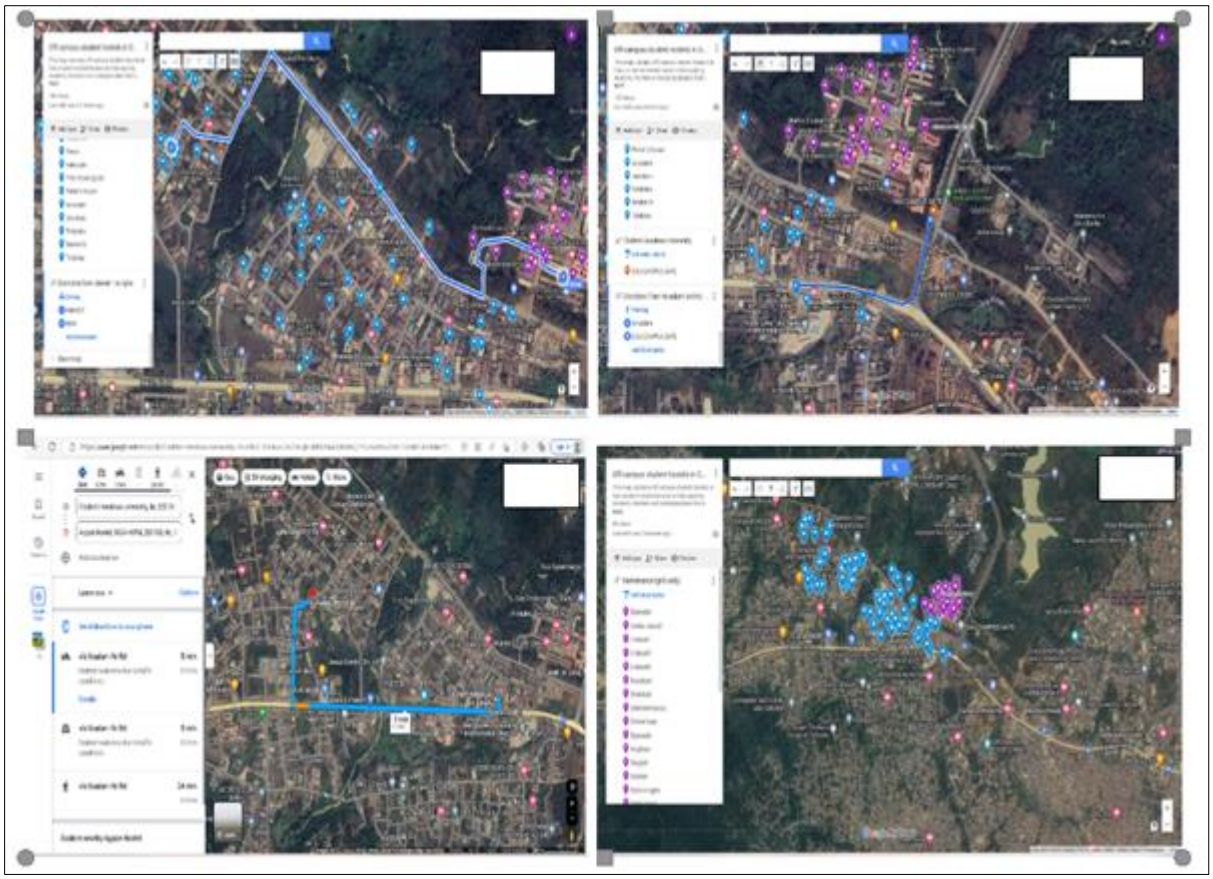
Source: Authors (2023)

Figure 6d Multi attribute Query of Basic Facilities and the number of people per room

Consistent with findings from Arumugam et al. (2020) and Mohan et al. (2020), this study demonstrates Google My Maps' capability to integrate and store data from Excel and Google Sheets. Specifically, hostel attribute data, such as rent, facilities, and security information, was compiled in Google Sheets and then directly imported into Google My Maps. Furthermore, the results of this study also revealed the possibility of integrating GIS technology with the use of mobile applications to explore spatially distributed objects and phenomena, as stated by Obuku (2020) and Mohammadreza and Tohid (2020) for students' housing selection preference. For example, GPS coordinates of each hostel were collected using mobile phones equipped with a GPS formatter app, which were then used to map the hostels' locations in ArcGIS and Google My Maps.

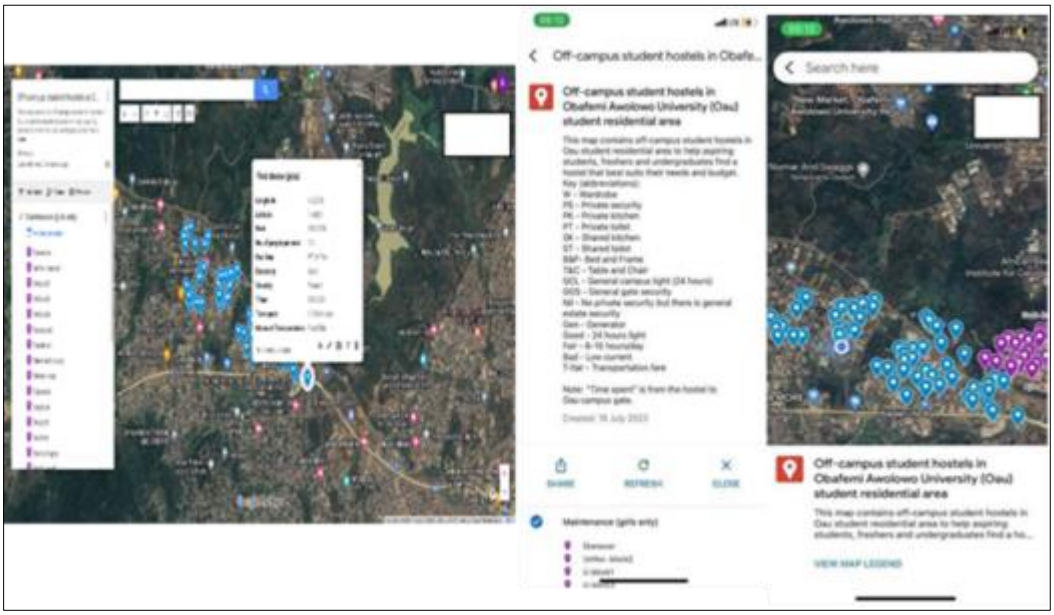
6. Discussion of Findings

The study identified and mapped off-campus student residential area of OAU campus, Nigeria and developed a comprehensive geospatial database of student hostels. A seamless process was achieved through a shareable web link provided by Google My Maps, making it readily accessible to students, university administrators, and other stakeholders (Figure 8). Google My Maps was used for proximity analysis, providing visualization to enhance student decision-making (Figure 7).



Source: Authors (2023)

Figure 7 Sample of proximity analysis between hostels and OAU campus



Source: Authors (2025)

Figure 8 Google My Map interactive for accessing Hostel accommodation on OAU campus

The study's findings offer valuable insights for students, parents, university administrators, researchers, urban planners and the Government, aiding in informed housing decisions and resource allocation in response to student housing

challenges. This enhances the practical impact of the research and its potential to contribute to sustainable urban development.

7. Conclusion

This study conducted a geospatial analysis of student off-campus hostels in student residential areas and explored Spatially Enabled Web to Enhance Student Housing Accessibility in Obafemi Awolowo University. The study used GIS technologies and created an interactive custom map in Google My Maps to examine the spatial distribution and characteristics of hostels. Additionally, factors influencing students' accommodation choices were identified. The study found that hostels are clustered in areas that in close proximity to the university campus, providing diverse options for students seeking accommodations. Factors such as rent pricing, electricity supply status, security measures, available facilities, and proximity to the campus gate were identified as key determinants influencing students' hostel choices.

This study recommends that students seeking off-campus accommodation around OAU use the interactive custom map created in Google My Maps. This custom map provides a user-friendly and informative tool for exploring and comparing various hostel options based on essential factors.

This study also has some limitations, including a limited sample size and scope, potential biases in data collection, a static analysis that may not capture the dynamic nature of students' accommodation demands, a focus on purpose-built hostels, and limited scope and depth due to time and resource constraints. Future studies are recommended to conduct longitudinal studies, expand the geographic scope, explore environmental factors, and assess socio-economic and social-cultural aspects. Despite its limitations, the study provides valuable insights into student hostel distribution near OAU, Ile-Ife, Nigeria. The custom map empowers students in choosing accommodations, promoting urban development and well-being and supporting Initiatives aimed at alleviating housing provision among students of higher institutions of learning.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare no conflicts of interest.

Author Contribution

- Caleb Olutayo OLUWADARE: Conceptualization, Writing- Review and Editing, Supervision.
- Ayodeji Iyanu ABIDOYE: Methodology, Data Interpretation
- Anthony Olatunbosun ABIRI: Visualization, Project Administration
- Amazino UWUBITI: Writing- Original draft preparation
- John Adeyemi EYINADE: Data curation, Formatting.

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