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## Website application for locating and reserving house and boardroom for rent based on selected location or region

To cite this article: Fensen *et al* 2020 *IOP Conf. Ser.: Mater. Sci. Eng.* **1007** 012112

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**240th ECS Meeting** ORLANDO, FL

Orange County Convention Center Oct 10-14, 2021



Abstract submission due: April 9

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# Website application for locating and reserving house and boardroom for rent based on selected location or region

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**Abstract.** The establishment of house and boardroom for rent in Jakarta is needed for students who enroll tertiary institution, and worker who came from remote area. The use of information systems in house and room for rent business is needed for the development of marketing and sales. This study aimed at evaluating the effect of website application for locating and reserving house and room for rent. Data was collected by using questionnaire survey on Universitas Tarumanagara students chosen through random sampling, and primary data by photograph of the property.

## 1. Introduction

This website application is developed to locating and reserving house and boardroom for rent based on selected location or region. House and boardroom is one of the basic needs for students who enroll tertiary institution such as university or polytechnic [1]. The establishment of numerous universities has led to increase in the density of people from outside university neighbourhood area. As a results, it brings increase the housing demand in university surrounding area and as predicted by supply and demand equation this situation also leads into rising house or boardroom rental value [2]. In order to help students who seeks boardroom this website application is hoped will help to locate and reserve the house and boardroom.

## 2. Method and materials

### 2.1 Data Collecting Method

Semi-structured interviews and focus groups method is used to collect all data that needed. This method contains surveys, interviews, focus groups discussions, observation and extraction of informations [3]. Survey and interview was held on Tanjung Gedong, Grogol - West Jakarta. While focus groups discussions was did on Faculty of Information Technology Universitas Tarumanagara.

### 2.2 System development method

To develop this website application, Rapid Application Development (RAD) method is used as information systems development method (ISDM). RAD is chose because this method compromise dynamic changes of organisation and focus on agile development. RAD is an approach that combining analysis, design, build and test phases of development life cycle into short terms of time. RAD is focus on inspection – discussion – development - amendement cycle until the user requirements is fulfilled [4].

### 2.3 Materials

The data materials that being used are primarily and secondarily collected. Those data that primarily collected are photos of house and boardroom, and data that secondarily collected from internet are house and boardroom specification such as land and building sizes.



### 3. Literature Review

Boardroom or housing has become one of the biggest challenges for any kind of dense city due to increased urbanization and rising tertiary institution such as university and polytechnic [5]. This situation also become trigger to the rise of housing prices, and made rental housing market important especially for capital city such as Jakarta [6]. One of the most important thing when choosing house or boardroom for rent is on neighbourhood facilities as well as the community conditions. The neighbourhood facilities that usually being considered are transportation infrastructure such as nearest bus stop, urban parks, shopping centre, and also educational facilities [7]. However, study explained that not all of the neighbourhood facilities that makes house and boardroom price rise, educational facilities for example is the most related to the high rise of housing and boardroom rental [8].

### 4. Result and Discussion

This website application uses MySql database to store information about house and boardroom that collected. Yii PHP framework is used to develop website that visualising information from database. MySql database is designed based on Entity Relationship Diagram (Figure 1).

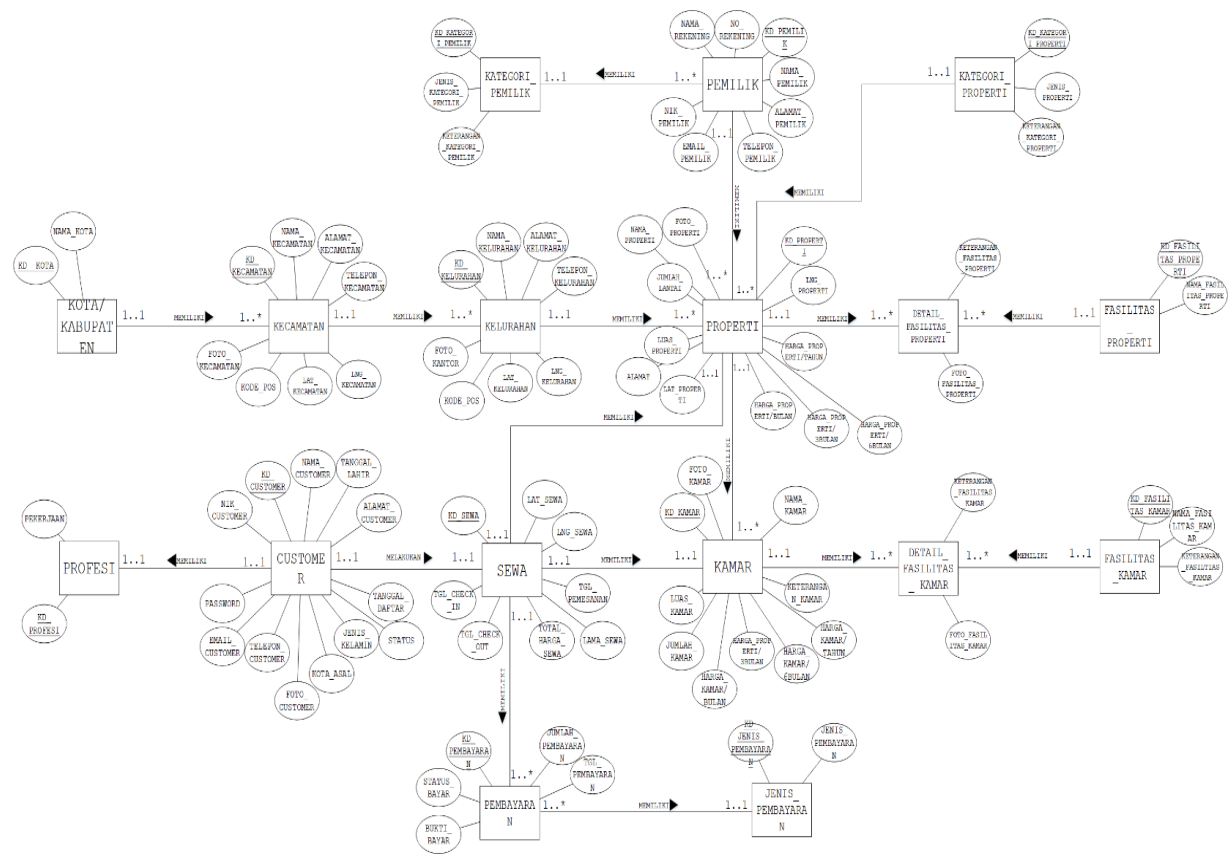


Figure 1. Entity Relationship Diagram

#### 4.1 Mapping of House and Boardroom

This website application could input coordinates data using maps that can be clicked to desirable locations of House and Boardroom. The location that clicked will gives corresponding longitude and latitude to be stored into database. The records coordinates of communities or associations of House and Boardroom that already stored is displayed using table 1.

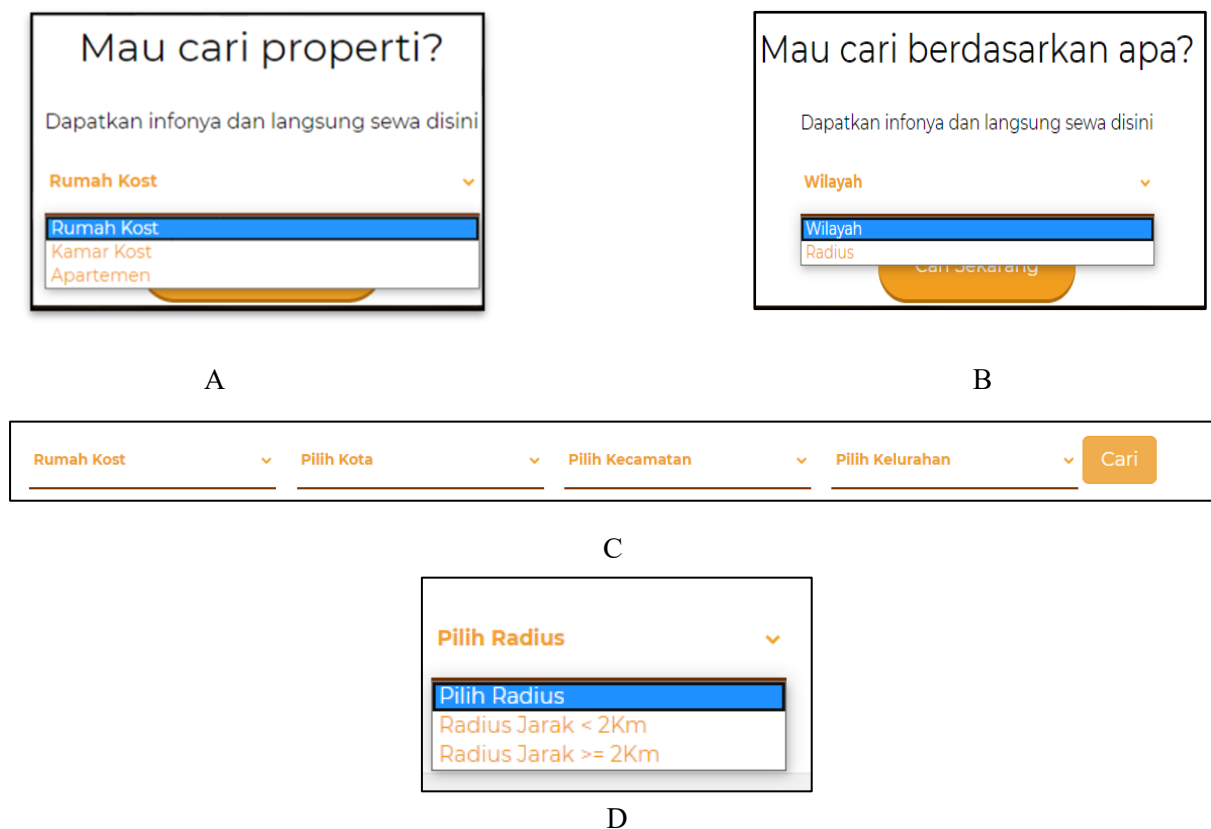
Nama Properti	Alamat	Nama Kategori Properti	Nama Pemilik	Lat Properti	Lng Properti	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	
Kost Fortuna Residence Tamansari Jakarta Barat 156NN	Jl. Pintu Besar Selatan No.69, RT.7/RW.6	Kamar Kost	Andre	-6.141	106.814	
Kost Duta Indah	Jl. Sawah Lio V No. 53	Kamar Kost	Ibu Neneng	-6.145	106.802	
Apartemen Lucky Tower Residence Tipe 2BR	Jl. Pintu Besar Selatan 1 No.17, RT.2/RW.6	Apartemen	Ibu Neneng	-6.141	106.813	

**Table 1.** Tabel of Input Form Coordinates and Coordinates of House and Boardroom.

Those coordinates that already stored inside database were read by Google Maps Javascript API. The coordinates that read from database is pointed by marker.

#### 4.2 Locating of House and Boardroom

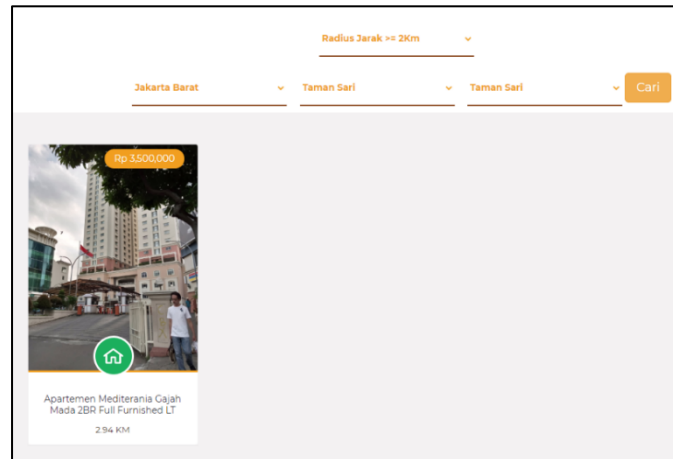
This website application provide with number of option to provide house and boardroom. The option such as based on properti, area, and radius (Figure 2).



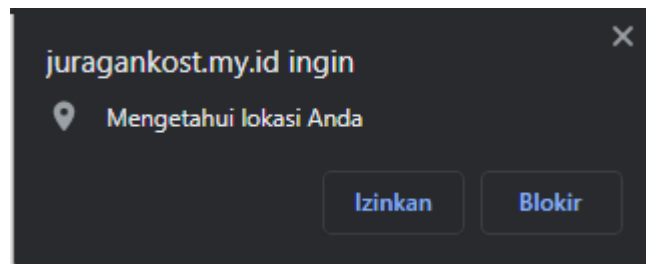
**Figure 2.** Option type of property.

- A.** Option to choose property type. **B.** Option to choose area coverage  
**C.** Option to choose area based on administrative region. **D.** Option to choose based on radius.

After user choose options that filtered property based on radius and administrative area, this website application will provide property that match with the criteria. The calculation of radius based on current location went user open website and radius based on “kecamatan” and “kelurahan”. To calculate radius of the property from current location or selected area, this website application use haversine formula. As the result, this formula can display distance of the property from the current or selected location based on kilometre (Figure 3).



A



B

```

$sql = "select * from (select a.*, 6371 * acos(cos(radians(lat_kelurahan)) * cos(radians($lat)) *
cos(radians($lng) - radians(lng_kelurahan)) + sin(radians(lat_kelurahan)) *
sin(radians($lat))) as jarak_kelurahan,
6371 * acos(cos(radians(lat_kecamatan)) * cos(radians($lat)) *
cos(radians($lng) - radians(lng_kecamatan)) + sin(radians(lat_kecamatan)) *
sin(radians($lat))) as jarak_kecamatan

from v_properti a left join kelurahan b on a.kd_kelurahan = b.kd_kelurahan
left join kecamatan c on c.kd_kecamatan = b.kd_kecamatan
left join kota d on d.kd_kota = c.kd_kota
where kd_kategori_properti = '$kt'
and ('$kel' = -1 or b.kd_kelurahan = '$kel')
and ('$kota' = -1 or d.kd_kota = '$kota')
and ('$kecamatan' = -1 or c.kd_kecamatan = '$kecamatan')) as x
where $where
order by 1 desc limit 4";

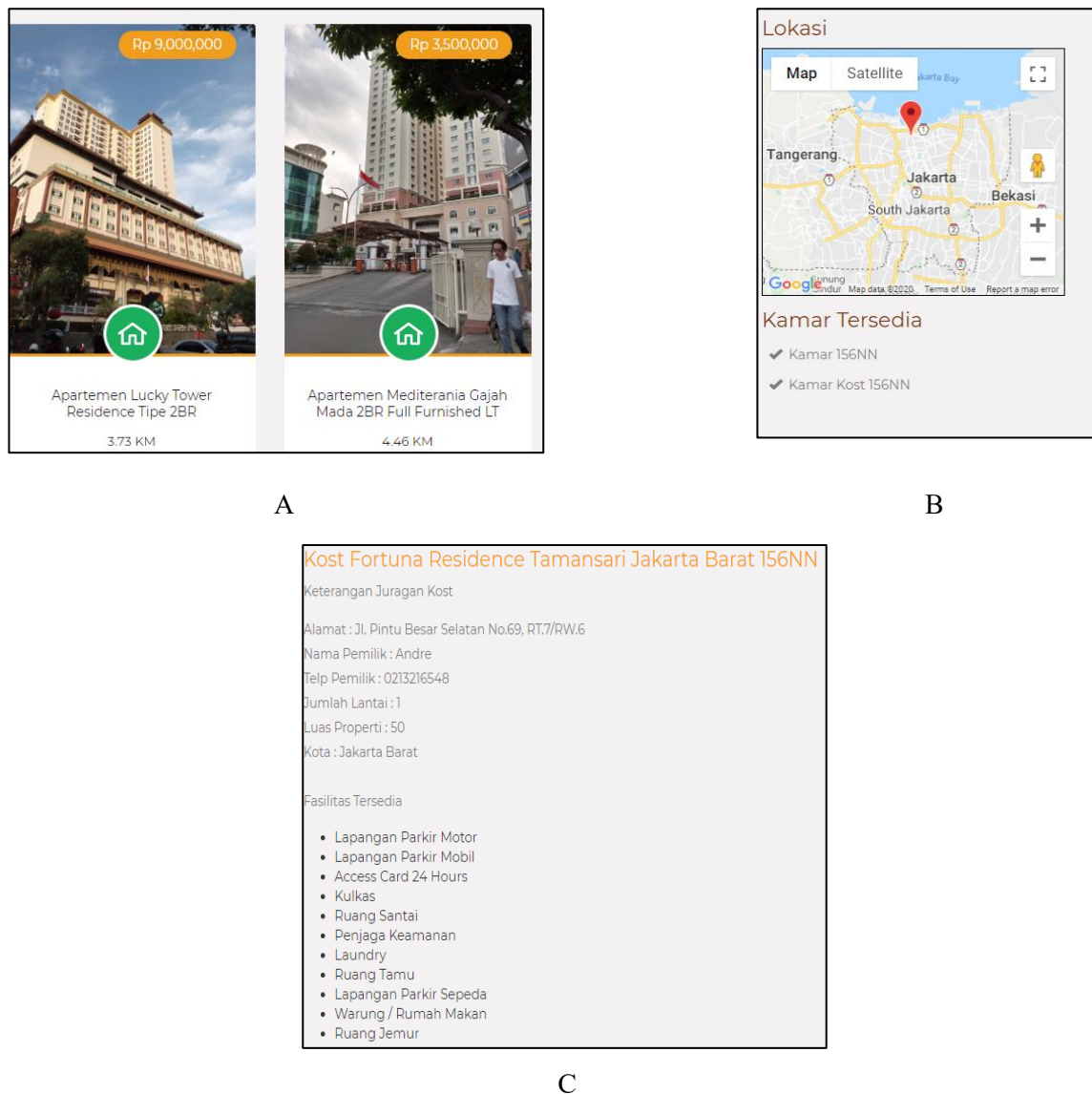
```

C

**Figure 3.** Display property based on area  
**A.** Selected property based on option of area and radius  
**B.** Permission for access current location  
**C.** Haversine formula

### 4.3 Display House and Boardroom

This website application displays property that selected and gives overview with the price and the details of the property (Figure 4).

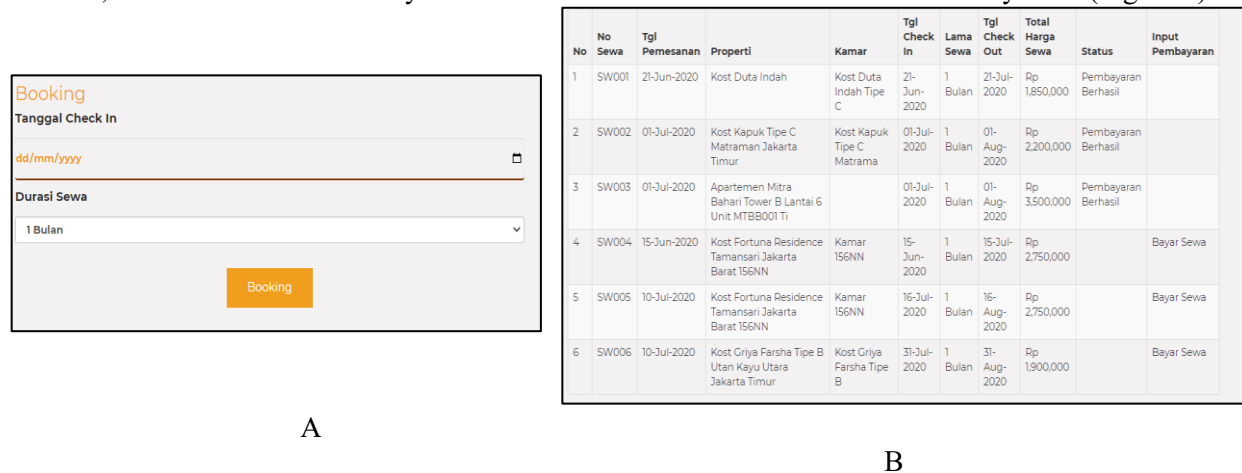


**Figure 4.** Display House and Boardroom.

- A.** Overview of Property and the range between the property and user
- B.** List of available room inside of the property
- C.** Detail information about the property

#### 4.4 Display Renting House and Boardroom

Customer who wants to rent house or boardroom can access the booking page and insert the date start of rents, also there is list of history booked house or boardroom that customer already done (Figure 5).



**Figure 5.** Display Renting House and Boardroom.

**A.** Booking checkin dialog **B.** List of history transaction of house and boardroom rental

## 5. Conclusion and Future Works

This website application provides information of house and boardroom using maps to visualise the location. Since the location of those house and boardroom were recorded, people can have a new knowledge about the house and boardroom using the detail informations and the picture that already provided. Students who lives on other area can have insights about the house and boardroom that being looked without directly come. This website application also hoped to help house and boardroom owner to expand their markets.

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