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Maid Tracers: Maid Matching Management System (3Ms)

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Abstract: Being a housewife is so hectic and needs assistance. Maid Matching Management System (3Ms) is a system that helps the user to match the best maid for every housewife. The 3Ms system can preview all the details about the suitable maid to facilitate users to pick which maid they prefer. The method used in System Development Life Cycles (SDLC) is the Waterfall Model because it helps the developer to plan and schedule the project. It is a simple method that is easy to use and understand. Due to the pandemic, the right action is to prevent foreigners or outsiders from entering Malaysia to reduce the spread of this Coronavirus Disease 2019 (COVID-19). Therefore, 3Ms helps users in finding a suitable maid for the household during the COVID-19 pandemic while the unemployed in Malaysia could apply for the maid job in the system through agencies.

Keywords: maid agency, domestic worker, waterfall model, covid-19

1. Introduction

Nowadays, anyone can hire maids directly or through agencies [1]. At the same time, there are some maids booking systems developed online through websites and applications. For instance, the first online website and application that provides house cleaning bookings are Maid4u [2]. According to the advice given by the government, we need to maintain physical distance during the Coronavirus Disease 2019 (COVID-19). Due to the pandemic, the right action is to prevent foreigners or outsiders from entering Malaysia to reduce the spread of this COVID-19. Therefore, the country should provide maid services from Malaysia. Due to the constraints that arise in the virus, the Maid Online System is not often used because most households take precautions not to hire maids from outside Malaysia. By that, Maid Tracers: Maid Matching Management System (3Ms) are developed in the form of a Web-Based System that can be used by anyone busy working and who does not have much time to do house chores as well as employees who want to apply for the job as maids. The system provides the facility to trace, select, filter, and match the maid services through an online platform. Thus, it saves time and energy as well as eliminating the doubts of employers in selecting maids because of the screening facilities and evaluation system that assures customers. 3Ms is used by employers and agencies. The main objective

of this system is to help users to get the best maid for them based on the difficulty of users to find a Malaysian maid and their own experience using some existing maid systems. In addition, 3Ms also help the unemployed in Malaysia to apply for the job as a maid and register themselves in 3Ms through agencies.

2. Literature Review

There are some discussions and information obtained from articles and websites related to the system that is currently being developed. These researches consist of reviews and comparison between several maid booking systems or applications.

2.1 Problem and difficulties of using Maid Booking Systems

Some households are capable of finding maids either directly or via agency [3]. At the same time, several maids booking systems have been developed online through websites and applications. For example, the first website and online application that provides cleaning service are Maid4u [1]. However, these websites lack certain services and are less convenient for the user.

The main reason why the previous system has a few lacks in system features is the feature did not have a filter search. So, this can make the customer not know the maid details information for the first impression. The customer just knows their maid`s basic information.

In addition, a few maids' systems did not provide a table database customers and maids for stored the information of customers and maids. For instance, the pink-collar system just uses a "Google Form" to collect all the information about the customer and hiring a maid.

As a result, the problem in using the Maid Booking System can be solved by finding a solution. So, the system can ease the customer to hiring a maid and the agency should not get in touch to contact them or email because all the information is managed by the agency system.

2.2 Search filtering technique

Search Filtering is a suitable way to ease the customer to find the best maid for them. This feature is being applied to 3Ms system. Search Filtering can show all the results that have been chosen by the user based on maid work experience, state, and others. In addition, search filtering has been used in many eCommerce websites and applications. For instance, Shopee. As a result, the system can avoid the user from receiving the unnecessary results.

2.3 An overview of existing Maid Booking System

Observation from the previous system is important to find the best way to build something in the system. Some information that has been used from the existing system can be used as a reference to develop a system.

Table 1 is a comparison between the system that has been developed related to 3M'S with basic information to explore the strength and the weakness of each system that has been developed to improve in 3Ms.

Table 1: System Comparison

Description	Maid Online	Hire pink- collar	Danu Gemilang Maid Agency	3Ms (Maid Matching Management System)
Features: ● Registration Form	Yes	No	Yes	Yes
● Login Form	Yes	No	Yes	Yes
● Admin Module	Yes	No	Yes	Yes
● User Module	Yes	No	Yes	Yes
● Navigation Buttons	Yes	Yes	Yes	Yes
● User Manual	Yes	No	No	No
Programming Language	HTML, CSS, PHP	HTML, CSS	HTML, CSS, PHP	HTML, CSS, PHP
Error Notification	Yes	No	Yes	Yes
Maid Search Filter	No	No	Needs to go through the maid interview process	Yes
Coverage Area	Philippine, Sri Lanka, Thailand, India, Laos, Nepal, Vietnam, Cambodia	Entire Malaysia	Entire Malaysia	Entire Malaysia
Description of the Entire System	The Employer needs to register and fill up the important details	Book through a form. An email will be sent, or the user will be the line	The employers need to register as a user to book	● Users need to register before logging into the system. ● Users can use the features of the filter to find the best maid according to the criteria they are interested in. ● Admin will update all maid information.
Had	Need to book in the system	No databases	No user manual	Need to book in the system
Method	Web-based system	Customer-based system	Web-based system	Web-based system

According to **Table 1**, there are the three related systems to produce comparative results that can be used to develop the proposed system. There have been comparisons made in terms of database, system features, and programming language used. The system studied has modules which are as follows registration module, login module, admin module, user module, and navigation.

The Maid Online System and Danu Gemilang have all these modules to help maid booking management while Pink-collar does not have registration, login, admin, and user modules. It is because pink-collar is a Customer-Based System and all information is collected via "Google Form". The next feature is the Programming language. According to the findings from table 1, every system uses HTML and CSS because these programming languages are simple to use and suitable for designing web interfaces. In addition, the database used PHP for form validation.

The last feature is the search "Filter". The Maid Online and Pink-collar, and Danu Gemilang systems do not have this feature in the system. However, the Danu Gemilang makes it easier for employers to make choices. The maids booked are interviewed first by the employer.

According to the comparison of the three related systems, all the flows will be improved in 3Ms and adding some new features to set it apart from Web-Based System. 3Ms can allow the user to search for the best maid that is suitable for them with the addition of search filtering to show better results.

3. Methodology

A methodology is a method that will be used to manage or guide the development of a system. In developing a system, the requirements will be outlined, and all these requirements need a comprehensive method of observation, understanding, and analysis. Various aspects should be seen and considered as important and the system should be studied, analysed, and understood. 3Ms will be developed using the Structured Analysis and Design Methodology (SAD) approach while System Development Life Cycle (SDLC) and the waterfall model are used for implementation. The reason why the waterfall model is chosen is that the phases are processed and completed at the same time. It could ease the process to develop the system [4].

3.1 Preliminary investigation

At this stage, it will be determined whether the system will be carried out and used. Upon obtaining permission or approval to develop the proposed system then a preliminary investigation process will be conducted where the relevant data will be collected through research and investigation. In addition, this phase is also to identify whether the problem exists to develop a system. If the system is not needed to develop, then the system will not be developed [5].
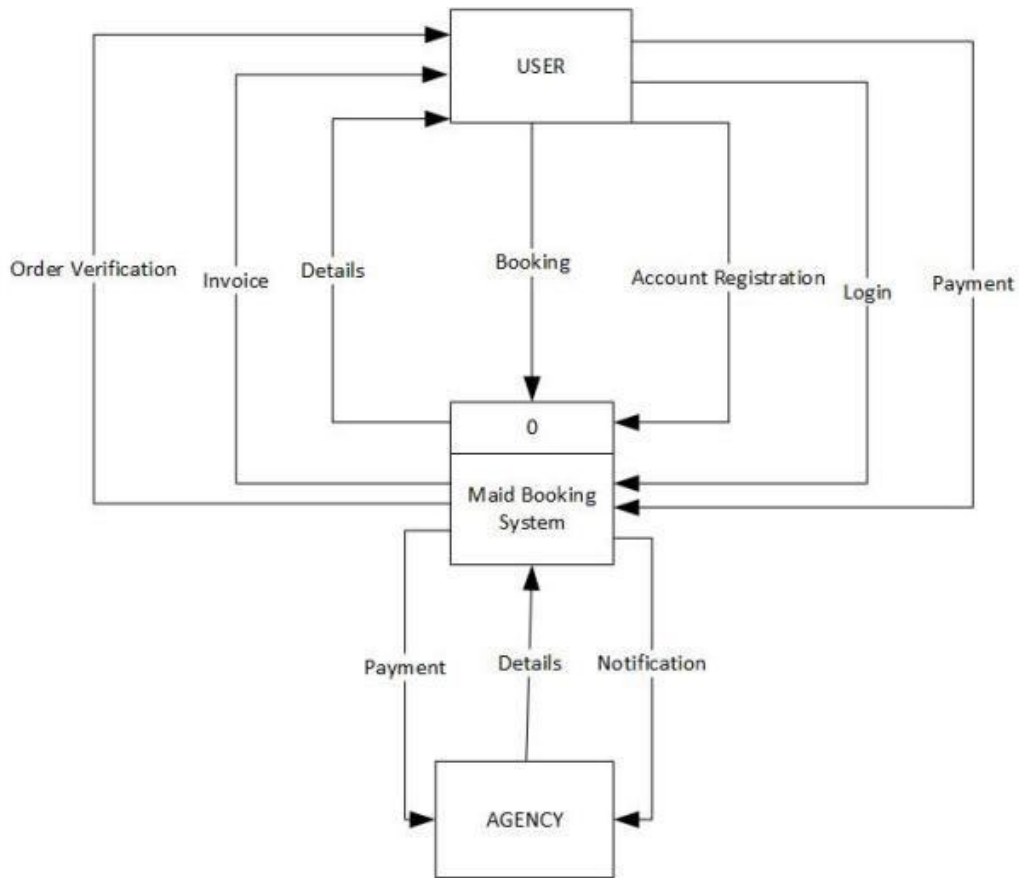
3.2 Analysis

In this phase, all the facts regarding the system to be developed will be identified and collected. For instance, the collection of facts available on the existing system and information regarding customer needs will also be gathered. The facts that have been taken will be processed and arranged according to the priority of the needs and will be modelled which will reflect the needs of the functionality required by the information system. In the analysis phase, it shows the models and schema such as Entity Relationship Diagram (ERD) and Data Flow Diagram (DFD) to show the process to develop a system [6].

3.3 Design

At this phase, the previous analysis phase of the completed data models will be used to continue the design phase by developing the database, website, and interface architecture. This design is made to replace an existing system whose weaknesses and shortcomings have been identified because of the initial investigation. The activities that will be carried out are preliminary design, detailed design, output

requirements, input requirements, processing requirements, file and database requirements, system control, security, and data control. **Figure 1** until **Figure 3** show the Data Flow Diagram (DFD) and Entity Relationship Diagram (ERD).
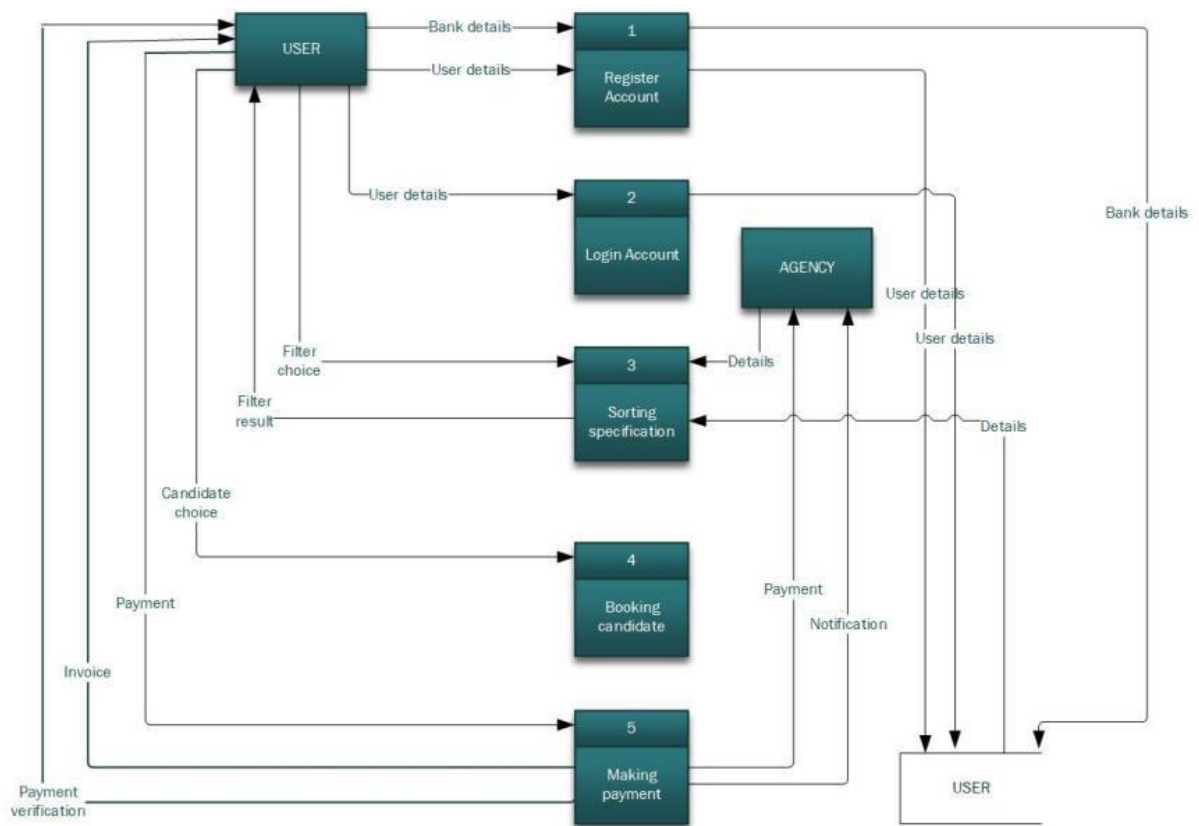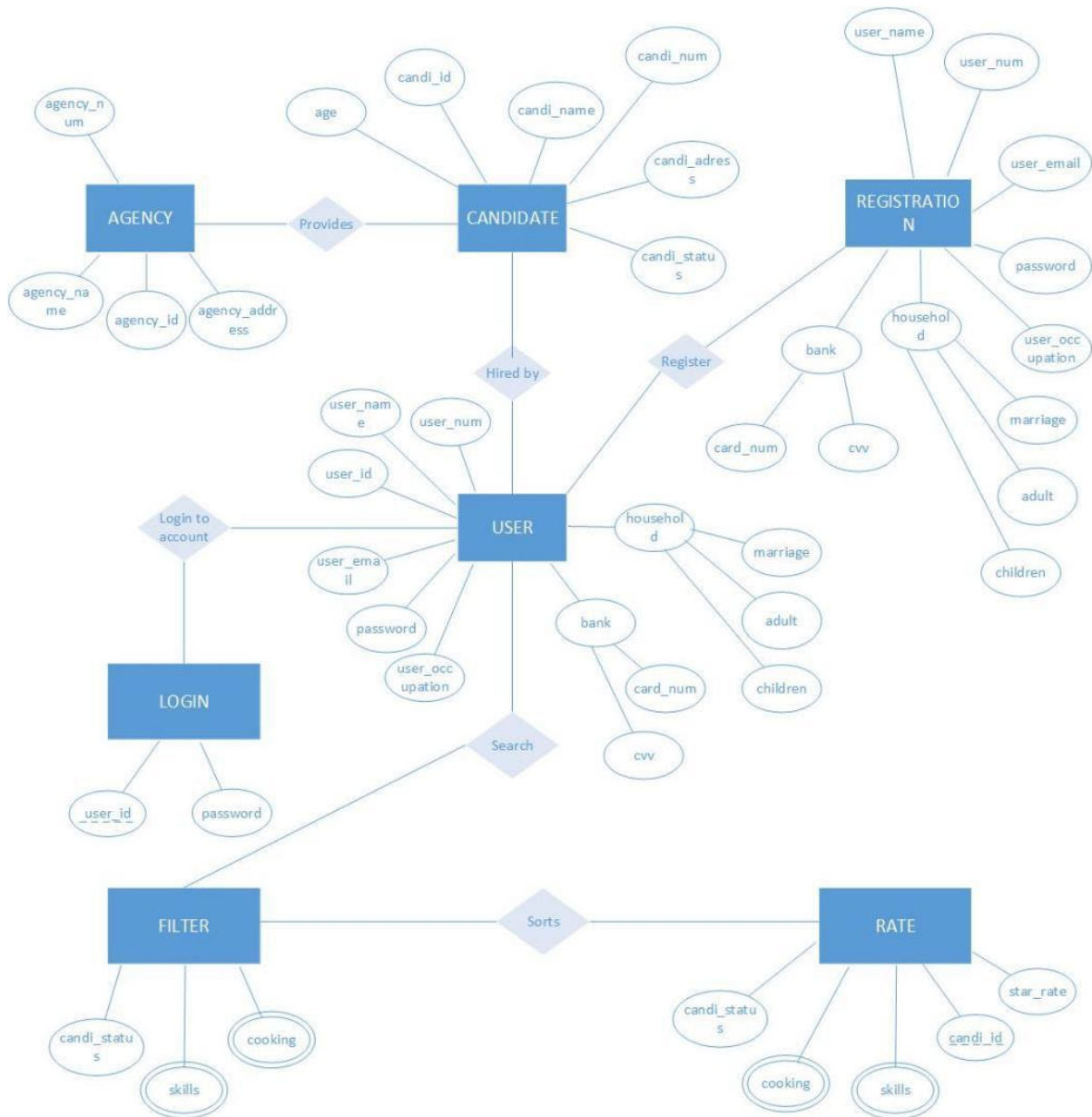

Figure 1: Context Diagram

Figure 2: Data Flow Diagram (DFD Level 0)

Figure 3: Entity Relationship Diagram (ERD)

3.4 Implementation

The roles of the implementation phase are to develop and prepare the system to operate in the development phase, several activities will be carried out such as database testing, installation, and testing of software packages, program writing as well as testing and preparation of documentation. The main activity in this phase is program writing because this activity will realize all the plans made. This phase is also testing the system to make sure the system can be used by the user [7].

3.5 Evaluation

In this phase, the respondents are needed to collect all the information and to make an analysis to ensure that this system will be developed. Evaluation is also to examine all the processes for system development. In addition, it is also to test the effectiveness of the system [8].

4. Results and Discussion

The results and discussion are done to collect all the information from respondents for this study. Our method for data collection is from questionnaires. The targeted audiences are for employed people. This survey is focusing on people who work and have an income.

We use "Google Form" to collect all the information about the respondents and make the analysis from the result. The result from the "Google Form", the total of people that have responded and answered is 5 people. The number of questions is three.

Based on **Table 2**, there are 6.1% of respondents which equals two people that give a scale of five and 9.1% equals 3 people give a scale of three because the system can help the employer to find the maid in Malaysia which is from a different country.

Table 2: Public Opinion the Effectiveness of Previous System

Scale	Respondent	Percentage (%)
1	0	0
2	0	0
3	3	9.1
4	0	0
5	2	6.1

Based on **Table 3**, there are 12.1% of respondents which equals 4 people that give a scale of three and 3% equals 1 person gives a scale of five because a system can give a fast response to the user in management to find their maids.

Table 3: Time Taken to Get the Search Result or Best Maid for Their Household

Scale	Respondent	Percentage (%)
1	0	0
2	0	0
3	4	12.1
4	0	0
5	1	3

Based on **Table 4**, two respondents that are equal to 6.1% of the respondents have rated the previous maid online systems' interfaces. The two respondents agree that those interfaces are user-friendly and easier to manage while one of the respondents has voted on scale 4 which means almost user-friendly. Another two respondents voted on scale 3 that means the interfaces have both difficulties and are easy to manage.

Table 4: Public Opinion on Previous Websites' Interfaces

Scale	Respondent	Percentage (%)
1	0	0
2	0	0
3	2	6.1
4	1	3
5	2	6.1

5. Conclusion

In conclusion, the system that will be built aims to make it easier for employers to trace and hire maids to manage their homes in a certain period and situation by obtaining accurate information. 3Ms might contain features and facilities that are not available on other similar booking systems. For instance, the search evaluation and filtering system.

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