

## **Development of Numidia Tours Travel Agency Online Management System for Saving Client's Time**

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**Abstract:** Nowadays people are able to make their holiday plans through internet and developing technology; and they can purchase their holiday packages online. However, nowadays people tend to make their lives easier and convenient. Managing holidays, travel and tourism are some of the popular issues that rose with the development of technology. Next, people might waste time in the process of reserving holiday packages and hotels or any offers, because they might go to an agency to check the offers and proceed with reservation or call the agency to get information about that which it may be a bit confusing for the client. Therefore, an online travel agency management system is proposed which is able to generate and solve the mentioned problems. The online travel agency management system consisted of five system modules is then built which involved the user as well as the system admin. Also, the system is developed based on the prototype model as a methodology of work. The importance of this project is to provide an easier method for all the clients of NUMIDIA TOURS SDN BHD comparing to the traditional method. The system will help them to choose their preferred offers from the online offers catalogue, as well making online reservation and for the payment the client will proceed with it at the agency office. In view of time saving, less time consuming by waiting in the queue at the agency office to meet agent in order to get information.

**Keywords:** Numidia Tours, Reservation System, Online Management System, Travel

### **1. Introduction**

As Internet has transformed the way we live our regular daily life, our information collection ways regarding tourism alternatives have been altered significantly [1]. In addition to information collection, people are able to make their holiday plans through internet and developing technology; and they can purchase their holiday packages online. The companies in the travel industry have started to use these technological applications to keep up with these innovations and to obtain advantage in competition [4]. Today, it is possible to say that individualized services based on technology will shape future's travel industry [2].

This study in this project is conducted at NUMIDIA TOURS SDN BHD which is located in Kuala Lumpur, Malaysia. NUMIDIA TOURS as any travel agency has a manual system for reservation and management. Client should go to the office to check the offers of the agency. However, the client can either call or e-mail the agency and ask about the offers. Then the agent will give to the client the offers of the company. Client choose offer and inform back the agent. Then agent will do the reservation for the client and receive the payment.

However, mostly the clients contact the agency by calling or using e-mail. Often client may wait until the agent check the offers. Then the agent will inform back the client about the offers. In addition, the agency has specified time of opening and closing, so the client cannot do the reservation in any time. Furthermore, sometimes clients are not convinced with the reservation that the agent made, so the client need to claim about changing the reservation.

Therefore, this problem can be solved by developing web site management system which the clients can choose the offer and reserve online so they do not have to go to the office or call or e-mail the agent to know about the offers and make a reservation. This web site makes also client very comfortable everywhere and whatever the circumstances, the customer can modify or cancel the reservation later, check the update and the available offers anytime. The new system provides to the client the offers available in the agency for reservation. Client be able to see the offers in details online. Online travel agency management system is provided as well as the receipt function. In addition, offers can be updated in real-time and a flood of information can be displayed without a single limit.

Furthermore, the new system has a lot of advantages. It will help the client to make reservation in easier way, client does not need to go to the agency to check the available offers any more. Client can check in the system the offers and choose whatever he wants for reservation, and make the reservation online through the system, so the client will save a lot of time. As well, the new system will be a user friendly, so it is easy for the user to navigate.

## **2. Related Work**

Online reservation website is being widely used by many travel agencies. Nowadays many travel agencies around the world are implementing online website that can be expand their business and bring them more profits [5]. The goal of this project is to develop an offers list system for NUMIDIA TOURS travel agency. Indeed, there are no past experiences related to this work but, there are similar websites related to our project. Beside that the browsing long lists to find a favourite offer however is tedious. The system should be able to show available offers based on the type of offer.

In order to develop this system, some research had been performed in order to analyse existing system similar to the proposed system, another three similar systems will be evaluated during this literature reviews.

This study reviews three comparable existing systems, namely Sri Sutra Travel System, Traveloka and Sedunia Travel System. The features and the characteristic of the existing system is reviewed and compare to the proposed system.

Firstly, Sri Sutra has Established in 1988, Sri Sutra Travel has grown to become one of leading travel consultancies and travel agency in Kuala Lumpur (KL), Malaysia. With a dedicated, experienced and committed team, it has successfully garnered an extensive market reach in the travel services sector, both locally and abroad.

Secondly, Traveloka is an Indonesian unicorn company that provides airline ticketing and hotel booking services online expanding rapidly into South East Asia and Australia [6]. It was established in 2012 by information technology practitioners who returned from the United States to Indonesia,

Derianto Kusuma, Ferry Unardi and Albert Zhang [7]. It recently expanded to provide lifestyle products and services, such as attraction tickets, activities, car rental, and restaurant vouchers.

Thirdly, Sedunia Travel is an award-winning travel specialist based in the heart of Kuala Lumpur, Malaysia. An IATA, PATA and MATTA member, founded in 1976. Sedunia Travel has gone from strength to strength. Starting as a corporate ticketing agent, it has grown to be one of the largest travel agencies in Malaysia offering a full range of corporate, incentive and leisure services.

Finally, the proposed system is NUMIDIA TOURS travel agency online management system, which is an online reservation website. The platform will replace the manual reservation system. The new system will provide to the client an easy way for reservation. Firstly, the client should register if he does not have an account, if he has the just proceed with login. Then, client need to check the available offers on the website to choose the offers for reservation. Then, the client may place the reservation by entering his details (name, e-mail, phone number) then choose the offer for reservation. After, placing the reservation the client can check the receipt in the bill module, while the payment will be in cash after the client arrive to the agency will proceed with payment at the counter.

## 2.1 Comparison between Proposed System and Existing Systems

Table 1 summarized the comparison between the existing systems Sri Sutra, Traveloka and Sedunia Travel with the proposed system.

In addition, different criteria have been chosen for that comparison which are Login and Registration model, offers and reservation, offers description, attractive user interface, payment model and report model. All these criteria are taken in consideration because they are most important for any travel agency online management system.

**Table 1: System's Comparison**

System	Siti Sutra	Traveloka	Sedunia Travel	NUMIDIA TOURS travel agency online management system
Login and register model	No	Yes	No	Yes
Offers and reservation	Yes	Yes	Yes	Yes
Offers description	Yes	Yes	Yes	Yes
Attractive user interface	Yes	Yes	No	Yes
Payment model	Cash or credit card	Cash or credit card	Cash or credit card	Cash
Report model	Yes	Yes	Yes	Yes

According to Table 1, all the existing systems have login and registration model except Sedunia Travel System, and it is expected that the proposed system has a login and registration model. Next, for the offers description and reservation it is involved in all the existing systems because it's the most important thing in the system and it is expected that the proposed system will also has a offers description and reservation. In addition, from observation of website interface of each system, it was

noticed that all system has an attractive user interface except Sedunia Travel system, and these criteria will be taken in consideration in the development of the proposed system. Furthermore, all the systems have cash payment model or credit card, however the proposed model will use the cash payment model. Finally, all the existing systems have a report model which is expected to be as well in the proposed system.

### 3. Methodology/Framework

In order to build this system successfully, the appropriate methodology must be defined correctly. There are various methods that can be used for the development of this system. However, Prototype Model has been chosen as a main methodology for this particular project. This chapter will demonstrate the methodology and the framework for the development, installation and the documentation that is used in this project.

As a matter of fact, deciding what methodology to use is one of the most critical decisions that can affect the whole progress of any project. So, Prototype Model is the right methodology that can meet the scope of this system. Because Users are actively involved in development. Therefore, errors can be detected in the initial stage of the software development process. Moreover, Missing functionality can be identified, which helps to reduce the risk of failure as Prototyping is also considered as a risk reduction activity. Furthermore, it is a straightforward model, so it is easy to understand.

#### 3.1 Prototyping Methodology

In this model prototype is built as per the client requirements. Instead of freezing the requirement before a design or coding can proceed. The purpose of a prototype is to allow users of the software to evaluate proposals for the design of the eventual product by actually trying them out, rather than having to interpret and evaluate the design based on descriptions [3]. Figure 1 shows the prototyping model.

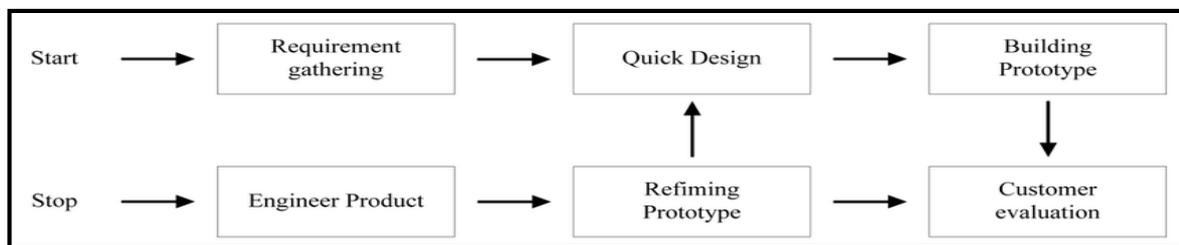


Figure 1: Prototype Model [3]

Prototyping has several benefits: The software designer and developer can obtain feedback from the users early in the project. The client and the developer can compare if the software made matches the software specification, according to which the software program is built. It also allows the software engineer some insight into the accuracy of initial project estimates and whether the deadlines and milestones proposed can be successfully met. Figure 1 shows the several phases of prototype model.

##### 3.1.1 Requirement gathering

A prototyping model begins with requirements analysis and the requirements of the system are defined in detail. The goal of this phase is to understand the client's requirements and to document them properly. The emphasis in requirement analysis is an identifying what is needed from the system. It is most crucial phase in prototyping model. Numidia Tours Client's will be interviewed about the needed requirement of the system.

##### 3.1.2 Quick Design

In this phase, All the agreed requirements will then be documented into Technical Requirement Documents such as System specification, Uses cases and DFD. When requirements are known, a preliminary design or quick design for Numidia Tours Travel Agency Management System (NTTAMS) is created. It is not a detailed design and includes only the important aspects of the system, which gives an idea of the system to the user such as the input and output. A quick design helps in developing the prototype Model.

### 3.1.3 Building Prototype

This phase mainly involved software building activities such as designing and developing architectural, database, module and user interface for NTTAMS based on the requirements specified in the technical documents. Information gathered from quick design is modified to form the first prototype, which represents the working model of the required system. All the activities might be repeated until the software process design produce a working prototype which would be ready for internal verification by developer. The prototype will be modified if the result from the verification process was unsatisfactory. But, if the result was satisfactory and the prototype worked as expected in the requirements, the revised prototype then went through evaluation involving potential users.

### 3.1.4 Customer Evaluation

In the customer evaluation phase, the proposed system is presented to the user for thorough evaluation of the prototype to recognize its strengths and weaknesses such as what is to be added or removed. Comments and suggestions are collected from the users and provided to the developer. This evaluation from Numidia Tours Client's aimed to seek how easy the prototype was to use; how this could be improved; and which parts were useful especially for measuring and monitoring.

### 3.1.5 Refining Prototype

Once Numidia Tours Client's (NTC) evaluates the prototype and if he is not satisfied, the current prototype is refined according to the requirements. That is, a new prototype is developed with the additional information provided by the user. The new prototype is evaluated just like the previous prototype. This process continues until all the requirements specified by NTC are met. Once NTC is satisfied with the developed prototype, a final system is developed on the basis of the final prototype.

### 3.1.6 Engineer Product

Finally, when all the requirements are completely met and the NTC accepts the final prototype. The final system is evaluated thoroughly followed by the routine maintenance on regular basis for preventing large-scale failures and minimizing downtime.

## 3.2 Methodology Justification

Actually, it was mentioned that there are many methodologies, however the prototyping methodology was chosen for the development of this project. Therefore, Prototyping is a development methodology in which a model is quickly constructed to test or illustrate design features and ideas, in order to gather user feedback. Subsequent models are created by refining earlier versions, with the aim of convergence on the desired end product. Furthermore, the prototyping model serves to clarify requirements, which are not clear, hence reducing ambiguity and improving communication between the developers and users. In addition, it reduces risk of failure, as potential risks can be identified early and steps can be taken to remove that risk.

## 3.3 System Model

This phase will carry out the process of developing abstract models of a system, with each model presenting a different view or perspective of that system, such as context diagram, data flow diagram, and flowchart.

### 3.3.1 Context Diagram

Context Diagram in Figure 2 shows the main process which is NTTAMS and the two main entities in the process which are user and admin, as well shows the flow of data in general on the system.

Context Diagram has two main entities user and admin. As well, there are many inputs and output data flows from both entities to the main process NTTAMS. Firstly, when user use the system for the first time need to fill in his details for registration, then admin will receive client details and notify the confirmation of registration. Next, in order to login to the system, user need to input the username and password, then system will confirm login according to the user details database. In addition, user can see the offers details in the system. User can make reservation in the system for any offer by entering the type of offer and quantity. Then, client will receive a reservation confirmation from the admin. Furthermore, in order to check the bill, user can request receipt on the system, admin will provide a receipt notice for the client. Finally, user can send feedback about the system, reservation process and admin will receive it.

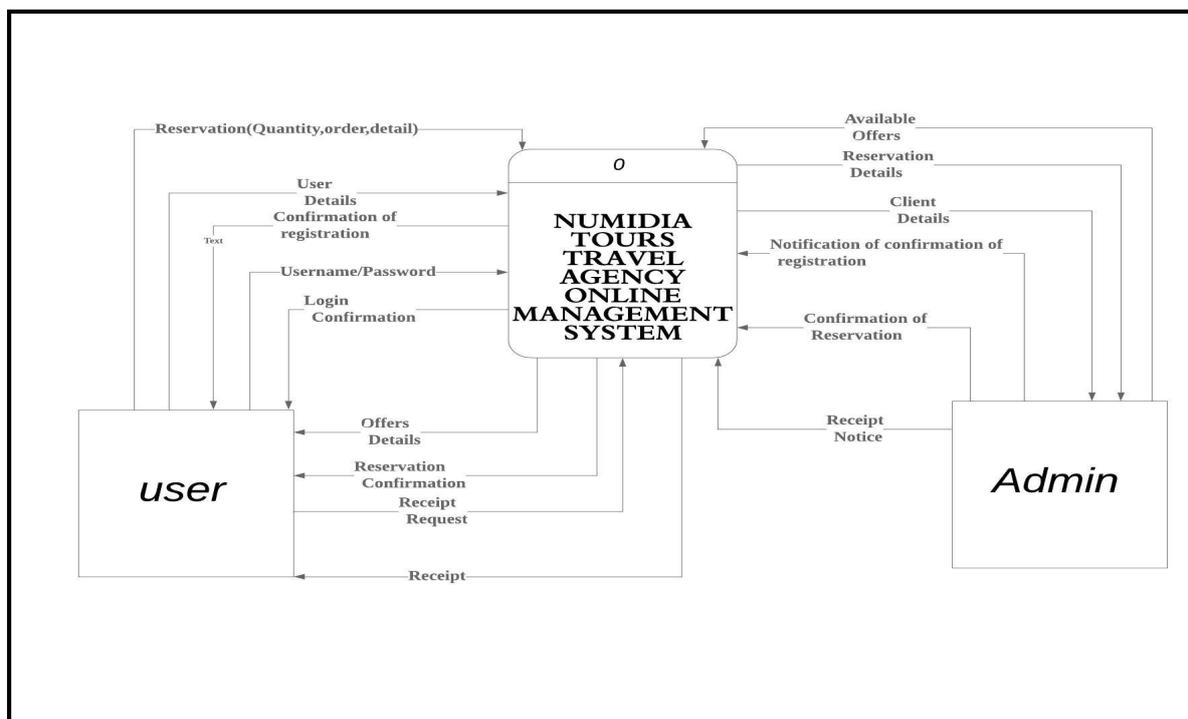


Figure 2: Context Diagram

### 3.3.2 Data Flow Diagram Level 0

The Data Flow Diagram Level 0 for the system has five processes which are register/login, offers, reservation, receipt and feedback. Figure 3 explain about the flow of data in the system including these processes.

The first process is register and login. If the user hasn't register yet in the system, he should register his details (name, phone number, matric number, e-mail), then the system will receive his details and

store it in the user database. If the user already signs in the website, the only login in is needed, using username and password.

The second process is offers, which will provide for user offer details (name, specifications, picture and prices) and the available offers from the offers database, so the customer can see the available offers with specifications for the order.

The third process is reservation. The admin will provide the available offers for the user from the offers database. Then the user can reserve from those offers. The admin will receive the reservation details which will be stored in the reservation database, then the admin will provide a confirmation of reservation for the user.

The fourth process is receipt. The admin provides the receipt notice according to the reservation details from the reservation database. Then the client will proceed with payment at the agency office.

The fifth process is feedback. The client can send feedback about the process of reservation through the system and send feedback about the agency. The admin will receive the feedback and send greeting for the feedback.

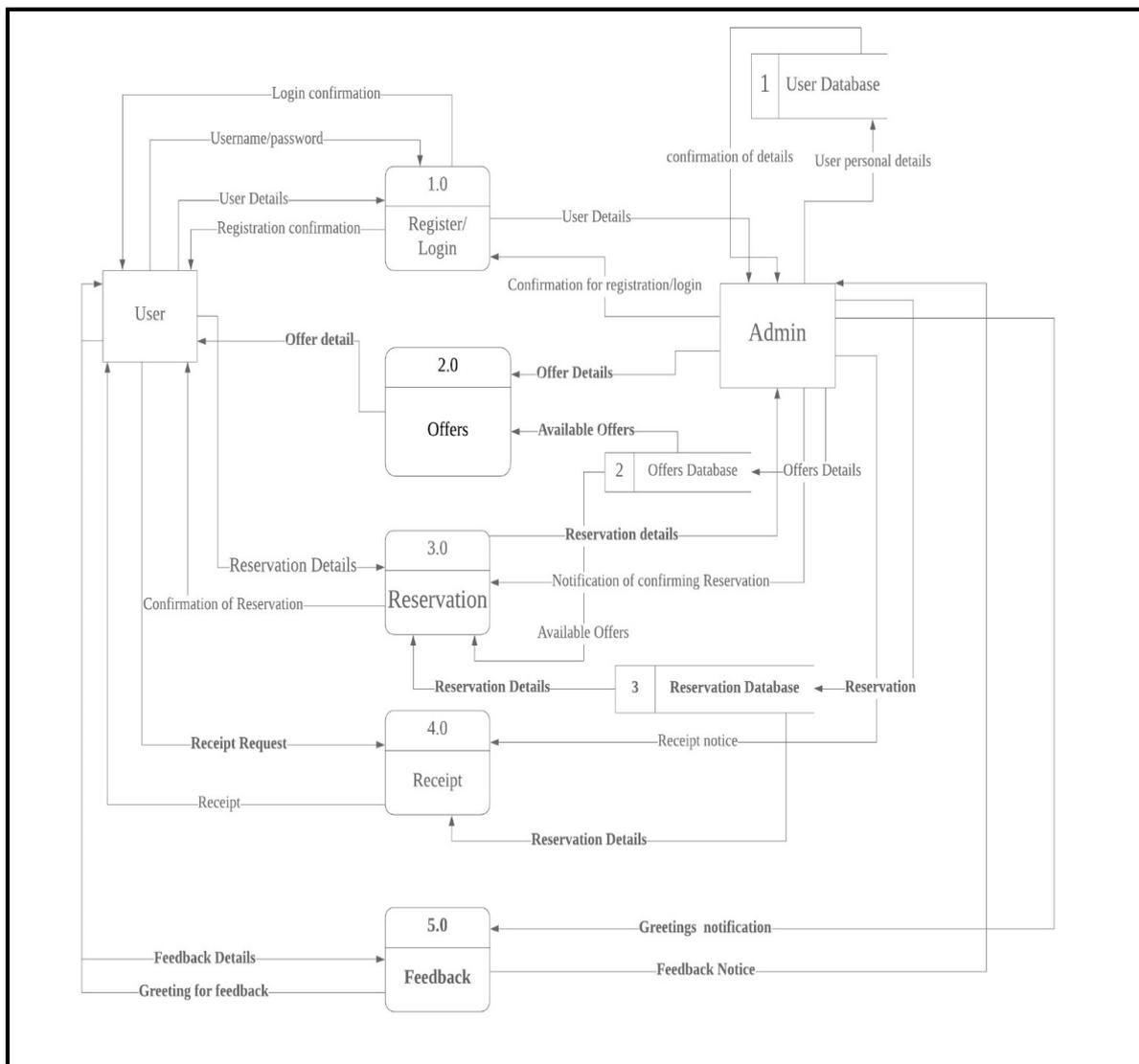
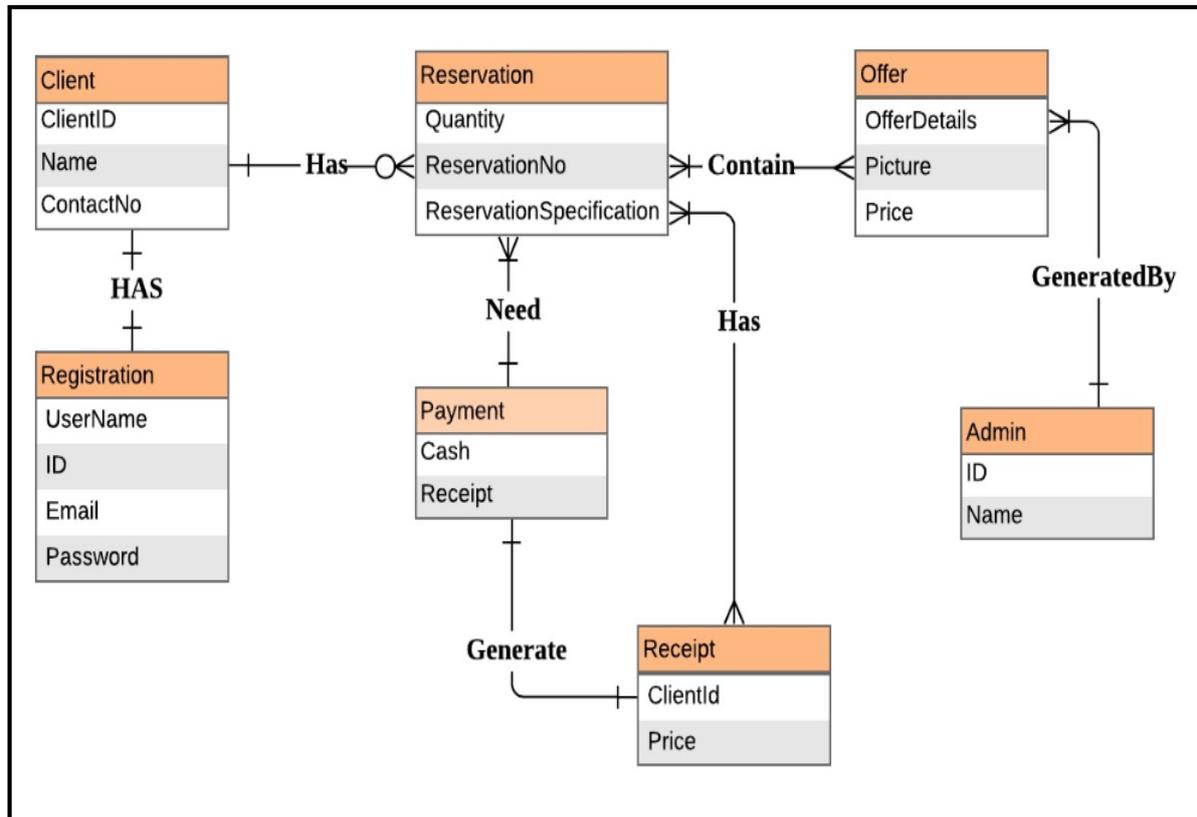


Figure 3: Data Flow Diagram Level 0

### 3.3.3 Entity Relationship Diagram

Figure 4 shows the Entity Relationship Diagram for Numidia Tours Travel Agency Online Management System.



**Figure 4: Entity Relationship Diagram**

This entity relationship diagram (ERD) showed in figure 4 explains the relationships of entity sets stored in the database of NTTAMS. An entity in this context is an object, a component of data. An entity set is a collection of similar entities. These entities can have attributes that define its properties.

Firstly, the main entity is client that contains three attributes client id, name and contact no. Client has to do in the beginning registration that contains four attributes username, id, email and password. As well, client has reservation that contains three attributes quantity, reservation no and reservation specification. Then, any reservation made by the client contains offer that has three main attributes to be inserted in the system offer details, picture and price. In addition, the offer is generated by an admin who is able to edit, delete and make any changes in those offers. The admin entity contains two attributes which are id and name. Furthermore, the reservation should have a receipt and need to be paid. The payment that contains two attributes' cash and receipt is generated by the receipt which contains the client id and the price.

#### 4. Results and Discussion

This chapter is explained the scope of the project using a web-based development. This system consists of two parts, first part is web-based system that enables the manager of Numidia Tours Travel Agency or the admin to manage the travel agency through the system of Numidia Tours Administration. Admin can see the registered user and give different permissions to them in the website, admin can edit the information registered of the users or delete the accounts. In addition, can add, edit, delete, and makes the offer as available or not for all the offers, Airport pickup, Hotels and Tours. Admin also should confirm the reservation of user after the user proceed with the payment transfer.

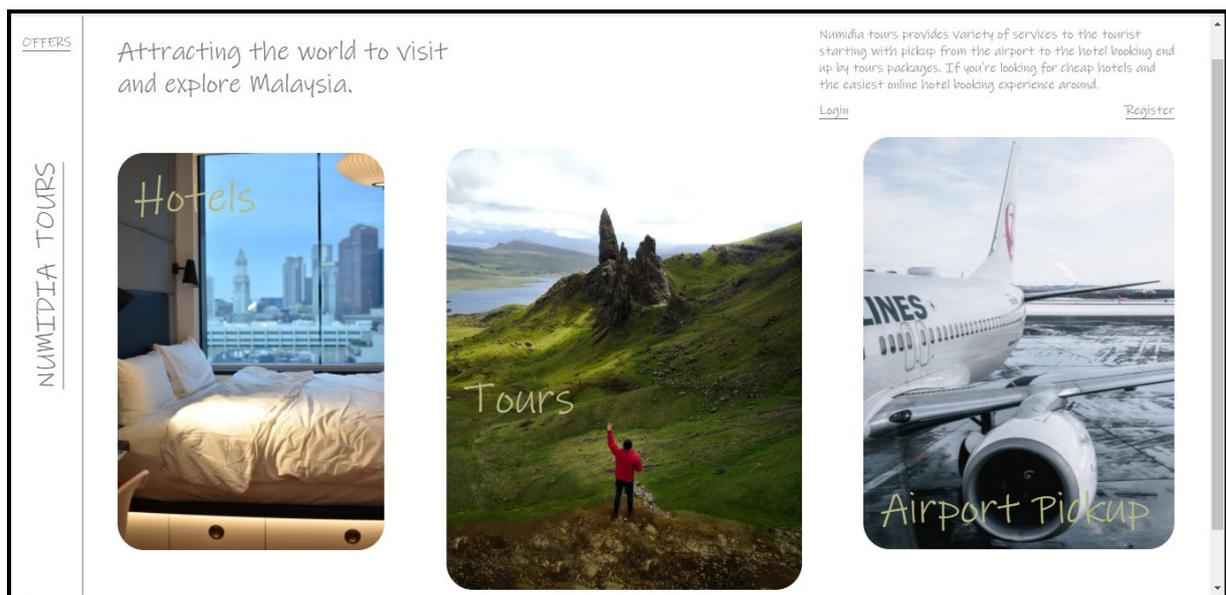
The second part is web-based system that enables the user and client of Numidia Tours Travel Agency to use the system of Numidia Tours and see the available offers which are inserted by the admin from Hotels, Tours and Airport Pickup. User can choose any offer to see the description, price, picture and can proceed with booking. After that, system will display a receipt and information to the user to proceed with payment transfer to the bank account, then the user will send the screenshot of payment transfer through the E-mail or WhatsApp. Finally, user can send feedback through the system.

Programming languages that were used to build the system are Django for back end and React for front end, PostgreSQL was used to build the database for the system. As well, Adobe XD was used for the design implementation.

#### 4.1 Numidia Tours Travel Agency Online Management System (NTTAMS)

A Web user interface or Web app allows the user to interact with content or software running on a remote server through a Web browser. The content or Web page is downloaded from the Web server and the user can interact with this content in a Web browser, which acts as a client. The distributed nature allows the content to be stored on a remote server, while the ubiquitous nature of the Web browser permits a convenient access to the content.

Figure 5 Below shows the web user interface of Numidia Tour Travel Agency Online Management System.



**Figure 5: Web User Interface**

Figure 5 above shows the web user interface of Numidia Tour Travel Agency Online Management System. Web User Interface of the Online Management System for Numidia Tours Travel Agency, the interface was built using Django and React programming languages. The design of this interface was built using Adobe XD. The User and client can see the offers in the home page.

## 4.2 Offers



**Figure 6: Offers**

Figure 6 shows the offers interface page that appears to the user from the different offers, Hotels, Airport Pickup and tours. User can switch the offers by clicking on the name of offer in the top page. As well, user can come back any time to the offers page by clicking on the button “Offers: on the top left corner in the page.

The user can make any kind of booking for any offer by just clicking book on the offer that he wants from the offers page. The system then displays a specific form that the user needs to fill according to the specific offer with the receipt. For example, the figure above shows the hotel booking, the user needs to fill in the check-in and the checkout dates and the number of persons, system will automatically calculate the total price and appear it on the screen and on the receipt. User can print the receipt and click on confirm booking to confirm his booking. After confirming the booking from the user, system will redirect the user to my booking page, user will see his booking in the pending payment part. When the user makes the payment transfer and send the screenshot to the admin, admin then will confirm the booking through the system, and the booking will disappear from the pending payment part and will be confirmed booking.

## 4.3 Some Interfaces of the system

In this part will show Some Figures interfaces of the system such as Register, Login, Booking, Process of payment and feedback.

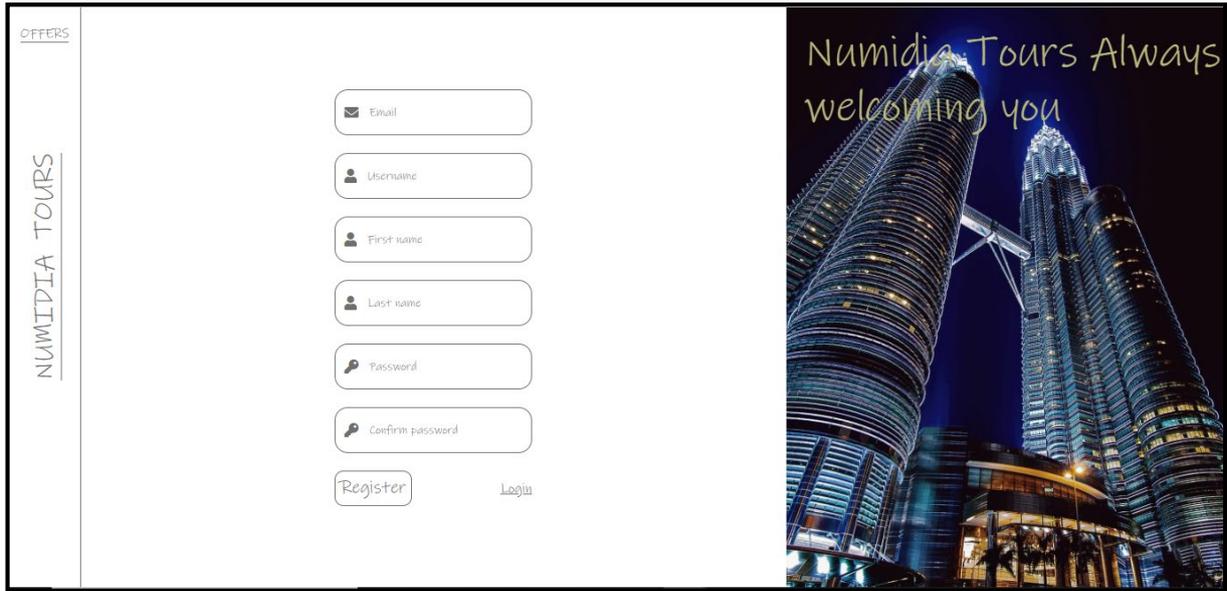


Figure 7: User Registration

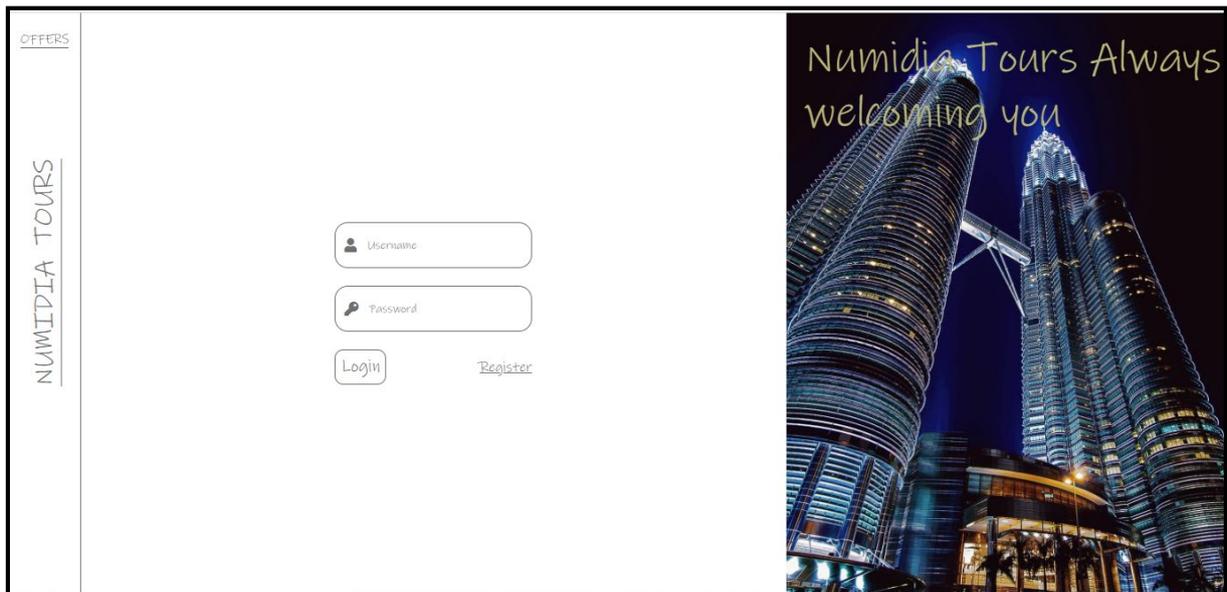


Figure 8: User Login

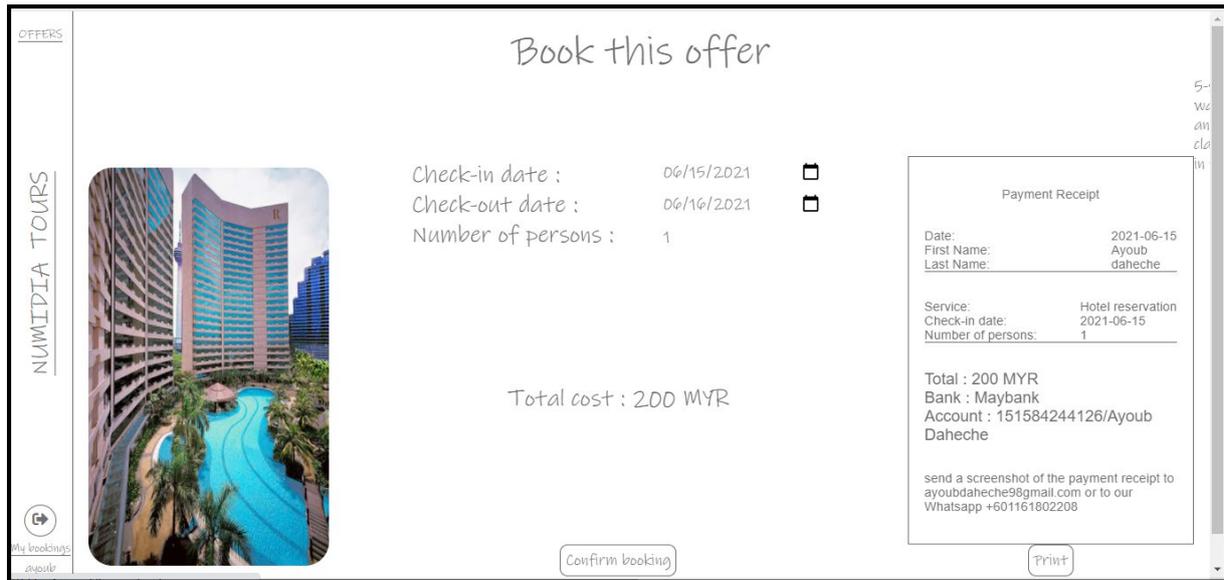


Figure 9: Make a booking

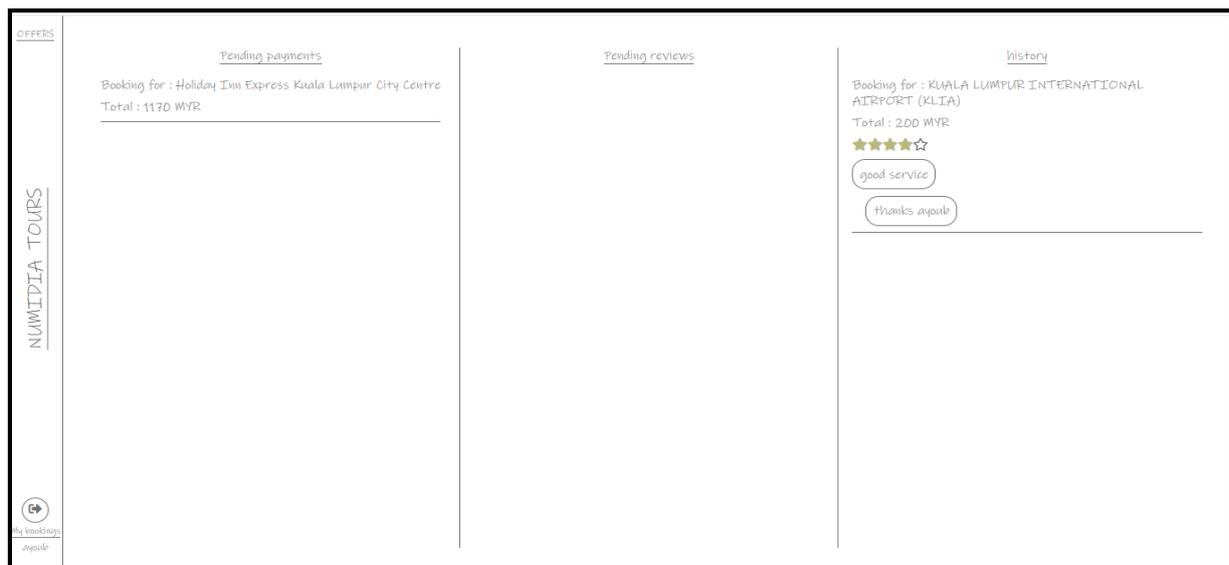
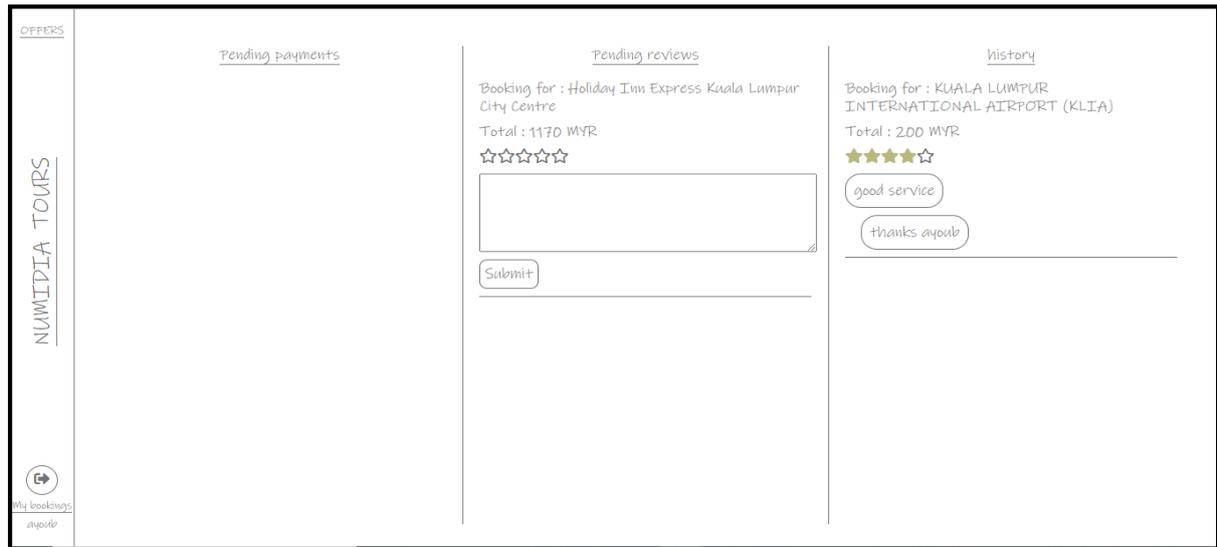


Figure 10: Payment Process



**Figure 11: Review Process**

## 5. Conclusion

All the processes and activities that were planned for the development of this project “Numidia Tours Travel Agency Online Management System (NTTAMS)” have been successfully completed. The overview of the project was identified. The objectives and scopes are defined. Literature related to the project was studied. Methodology for analyses and development the project was specified and discussed.

This paper is organized as follows: chapter I describes the problem statement for this project and the main objective for this application. chapter II describes the related work on profiling and classification models such as Sri Sutra, Traveloka, Sedunia Travel Systems and the explanation for proposed system. chapter III presents the methodology classification model for the online management system for Numidia Tours and use the prototyping methodology to develop the proposed system, also will show the Context Diagram, Entity Relationship Diagram and the Database Specification for the system. Finally, chapter IV shows the Design Interface for the application as well the results and discussion. Lastly, Chapter 5 give a description and conclusion about the entire project, Challenges and Future Work for this application.

The project implementation and testing plan was successfully done and a prototype. Project report and documentation has been achieved. Moreover, more improvements and features will be added to the system as stated in the recommendation for future work.

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## References

- [1] K. Prantner, Y. Ding, M. Luger, Z. Yan and C. Herzag. Tourism Ontology and Semantic Management, 2007.
- [2] A.A. Reyhan, WCETR :Dynamic Packaging Applications in Travel Agencies, 2013.

- [3] Naresh Kumar, A.S. Zadgaonkar, Abhinav Shukla, “Evolving a New Software Development Life Cycle Model SDLC-2013 with Client Satisfaction. International Journal of Soft Computing and Engineering”, IJSCE, 2013.
- [4] Lauren Darcey, Shane Conder, “Android Application Development”, Pearson Publisher, 2010.
- [5] Royce, Winston, "Managing the Development of Large Software Systems", 2012.
- [6] Hutapea, Febriamy, “Ainun Najib Barbaungdengan Traveloka”, Beritasatu, February 08, 2015. [online]. Available: beritasatu.com [accessed April 20, 2020].
- [7] Baziad, Masitha, “Indonesia’s Traveloka Begins South-East Asian Voyage”, Digital News Asia, September 22, 2016. [online]. Available: <https://www.digitalnewsasia.com> [Retrieved, June 07, 2020]