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SHEARS Inc. Salon Management System

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***Abstract*— Management system is the framework of processes and procedures used to ensure that an organization can fulfil all task required to achieve its objectives. In recent times, most organization will opt to use management system in their daily business task. There are those who still use the non-computerized system as opposed to the computerized management system. The non-computerized system may be effective but it also causes greater task load when implemented. Computerized system makes it easier for users with functions such as searching, automatic calculation, and display of related information with minimal queries. The development of Shears Inc. Salon Management System is to act an alternative to the non-computerized system implemented by Shears Inc. Salon. The system developed will be able to decrease the task load of owner and employees of Shears Inc. Salon. Software Development Life Cycle methodology is used in the development of Shears Inc. Salon Management System. This system is installed in computer device. It runs on local host server and MySQL is used as the database server. The programming language used in developing Shears Inc. Salon Management System is PHP programming language. Hence, Shears Inc. Salon Management System is an alternative for the salon to manage recording tasks.**

***Keywords*— salon management system, computerized system, software development life cycle.**

I. INTRODUCTION

Shears Inc. Salon is a hair salon owned by Mr. Kenny. The salon is located at Lot 1980, Block 16 KCLD, Brighton Square Jalan Song, Kuching, Sarawak, Malaysia. The operating hours is from Monday to Sunday, 10a.m. to 8p.m. and can be contacted at 082-285556. The salon offers hair services such as cut, wash, rebounding, bleach, perming, and color.

The salon has three employees who provide hair services. To date, all the employees and the owner take a part in recording transactions information manually. The transactions are categorized into daily and periodic transaction. The daily transactions include recording payments, appointments, and customer information. The periodic transactions include recording new product information, amount of stock added and the amount of stock that have been used. The information recorded during daily and periodic transactions are needed as a reference record used during stock check, and analysis of service sales. The salon relies on the non-computerized system to record those transactions currently.

Yet, the non-computerized system inconveniences the owner and employees when any calculation needs to be completed fast, searching is needed, and when analysis is conducted. These processes are time consuming especially searching the customer information for generating the monthly and yearly revenue reports. Therefore, a systematic computerized system for Shears Inc. Salon Management System using object oriented approach was designed, developed and tested.

The following sections in the paper are organized as follows. In Section II literature review, analysis and features of existing systems similar to Shears Inc. Salon Management System is discussed. Section III discusses about waterfall model, one of the model of Software Development Life Cycle (SDLC). Section IV discusses about the system analysis and design. Section V is about the implementation and testing of system. Lastly, Section VI concludes the documentations and development of the Shears Inc. Salon Management System.

II. LITERATURE REVIEW

In accordance with ISO 9000:2000, management system is defined as a set of interrelated or interacting elements to establish policy and objectives, and to achieve those objectives [1, 2]. Today, management system is slowly becoming a necessity to business organizations. The management system is slowly becoming the norm by taking over tasks that are meddlesome to be done manually [3].

Computerized systems are fast, reduces data anomalies, reduces data redundancy, low paper usage and generates information needed automatically [4 - 7]. Manual system takes time in data retrieval, has higher chances of anomalies and redundancy, high paper usage and needs to gather analysis data step by step.

A. Xandaro Scheduling Software

Xandaro Scheduling Software [8] main focus is on the appointment function. This software is easy to maneuver. The making of appointments uses images to differentiate employee and it progresses part by part instead of enquiring everything is a page. Xandaro Scheduling Software's user interface is kept simple and direct. This is helpful for those who is not used to making appointment online.

B. Unique Salon Software

Unique Salon Software [9] is complex software where one will not be able to use the system before reading the user manual. This homepage of this system is unorganized as the buttons are all in different sizes and the arrangements are all packed together. There are 18 buttons in total in the homepage. Unique salon software uses search function in all the modules. It simplifies the retrieval of specific information. So, users can obtain the information faster and easily.

C. Advantage Salon Software

Advantage Salon software [10] is organized and neat. Menus are displayed vertically on the right side of the page while buttons are placed horizontally on the top of the page. Each interface or Advantage salon software are standardized where buttons and menus are always placed at the same position. This decreased the possibilities of user mistakenly select the wrong menu or button.

D. Shears Inc. Salon Management System

Shears Inc. Salon Management System is designed based on the observations and analysis done on salon software. Shears Inc. Salon Management System has search function module to allow the users to obtain information quickly. Simple designs are planned so users will not be confused on how to maneuver the system. Appointments module is displayed in calendar style. Planner style appointments displays the complete list of appointments that have been recorded.

III. METHODOLOGY

The development of Shears Inc. Salon Management System is based on waterfall model also known as software life cycle. The phases in waterfall model cascades from one to another. The waterfall model is an example of a plan-driven process. In principle, planning and schedules of activities must be made before starting on them [11, 12]. There are five phases in waterfall model. The first phase is requirement definition followed by system and software design. The third phase is implementation and unit testing. The fourth phase is integration and system testing. The last phase is operation and maintenance.

A. Requirement Definition

The system's services, constraints, and goals are established by consulting the owner of Shears Inc. Salon. The owner specified that the system should be able to record customer information, employee information, product information, appointment information and payment information. The system should also be able to generate performance report of each of the employees.

B. System and Software Design

The system design process allocated the requirements to either hardware or software systems. It is done by establishing overall system architecture. Data flow diagram, flow chart and entity relationship diagram are designed to act as the foundation to the development of Shears Inc. Salon Management System.

C. Implementation and Software Testing

In this phase, the front-end and back-end system are developed which includes all designed modules and the design database based on requirement of the customers. For its development, php language is used. The database was created using MySQL.

D. Integration and System Testing

During this phase, the interfaces are linked together to ensure the navigation and flow is smooth. All functions are integrated into the system along with the database. System testing is conducted to ensure that the modules are functional and to check for errors.

IV. SYSTEM ANALYSIS AND DESIGN

System analysis and design illustrates the architecture of the system. There are two main users for this system. The users are an admin and employees of Shear Inc. For admin, correct username and password are required in order to access to the system. Once the username and password are verified and status of admin is authenticated, admin will be given access to the homepage of the system. However, if the login fails, admin will have to enter the information again. After gaining access to the homepage, admin can choose from customer record, appointment calendar, employee record, product record, service record, appointment planner, payment, and performance report. Noted that, only admin can manipulate the data of employee, service and employee performance reports for security purposes.

When admin chooses to access customer record, a list of customer details will be displayed. Then, admin can choose to update the customer records if he or she wishes to insert, edit, and delete customer information. Once the update is successful, an updated record will then be displayed. If the admin does not want to update, the process will then be redirected to the "view customer record" decision. Admin then can choose to proceed with the same process or go to a different process. The flows are identical for all other processes in the system except for performance report process. Upon selecting the performance report option, an overall performance report will be displayed. Admin can then proceed to view a different type of report which is individual performance report.

For employee, correct username and password are required for using this system. The status of the employees is authenticated using their own username and password. The employee can view customer record, appointment calendar, product records, payment, and planner.

A. Entity Relationship Diagram (ERD)

Fig.1 shows the entity relationship diagram of the system. There are 8 tables in overall. The first table is product table with prod_code as its primary key (PK). The second table is service table with service_id as its PK. The third table is employee with emp_ic as the PK. The fourth table is customer table with cust_ic as PK and emp_ic as the foreign key(FK). Appointment table have app_id as PK. Cust_ic, emp_ic, and service_id in appointments table are FK. Payments table have emp_ic, service_id, and cust_ic as the foreign key and p_id as the PK. Stock in have stockin_id as PK and prod_code as FK. Stock used table have stockused_id as PK and prod_code as FK.

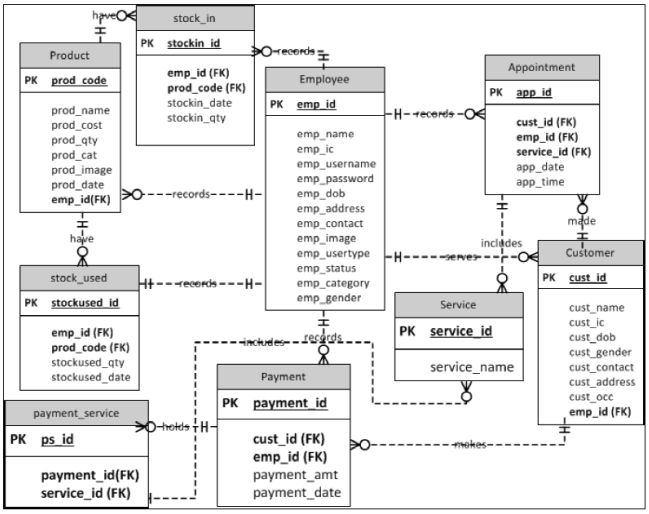

Fig. 1 ERD Shears Inc. Salon Management System

V. IMPLEMENTATION AND TESTING

In this phase, the development of the system will be based on the designs made in Section V. There are eight modules in this system. The modules are login module, customer module, employee module, appointment module, product module, payment module, service module and report module. The programming language used in development is PHP. Fig. 2 shows the login interface of Shars Inc. Salon Management System. Fig. 3 shows customer list module.

Fig. 2 Login interface

Fig. 3 Customer list module

There is search function for searching customer record. Fig. 4 shows the partial coding for customer searching.

```
if($_POST['cust_name']==''){
$cust_name='%';
}else{
$cust_name=$_POST['cust_name'];
}
$sql="SELECT * FROM customer WHERE cust_ic LIKE '$cust_ic' AND
cust_name LIKE'$cust_name%' ";
$result = mysql_query($sql);
$num=mysql_num_rows($result);
```

Fig. 4 Source code searching customer

Fig. 5 shows the interface of appointment list based on selected date. When cursor points to the customer name, it will show the service required by the customer and the customer's contact number.

Fig. 5 Appointment list interface

Fig. 6 shows the source code for appointment list in php.

```
<a href='delete_appointment.php?app_id=<?php echo $app_id; ?>'
onClick="return confirm('Are you sure you want to delete this appointment?');"
<?php
echo "<style='text-decoration:none;color : royalblue;'
title='Service:".$list8['service_name']."&#13;Time:".$list9['app_time']."&#13;
Contact: ".$list7['cust_contact']." '>*".$list7['cust_name']."</a></font><br>";
?>
```

Fig. 6 Source code for appointment list

In the report module, one can display the performance of each report. The source code of the performance is shown in Fig. 7.

```
$sql="SELECT
payments.emp_ic, payments.service_id,
SUM(payments.payment_amt) as TotalSale,
COUNT(DISTINCT payments.payment_id) as TotalCustomer,
SUM(payments.payment_amt) as TotalSale,
COUNT(payments.service_id) as TotalService,
MAX(payments.service_id) as highest,
employee.emp_name
FROM employee NATURAL JOIN payments WHERE payments.payment_date
BETWEEN '$date1' AND '$date2' GROUP BY payments.emp_ic ORDER BY TotalSale
DESC";
$result=mysql_query($sql) or die(mysql_error());
```

Fig. 7 Source code of report

User Acceptance Testing

User acceptance testing is carried out to make sure the developed system fulfil the customer needs and requirements. There are four users who evaluated this system. There are owner and three employees from Shears Inc. Salon. Four questionnaires are given for user acceptance test. The questionnaire is divided into three parts which are user interface evaluation, system evaluation for owner, and system evaluation for employee. The questions ask contain the scale with 1=very poor, 2=poor, 3=moderate, 4=good and last is 5=very good. Users answer the questionnaire based on the scaled provided.

Fig. 8 shows the user interface evaluation result. The results show the satisfactory of the user interface is in the range of moderate to very good.

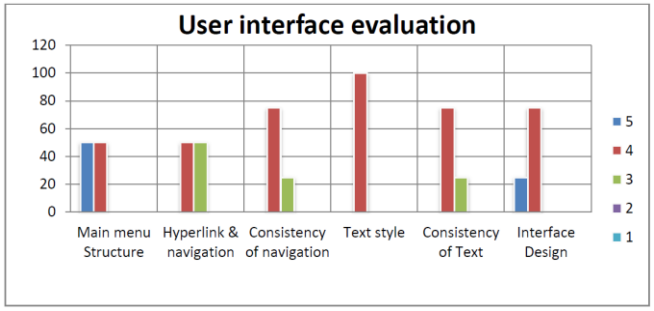

Fig. 8 User interface evaluation result

Fig. 9 shows system evaluation by the owner of Shears Inc. Salon. The evaluation given by the owner is positive.

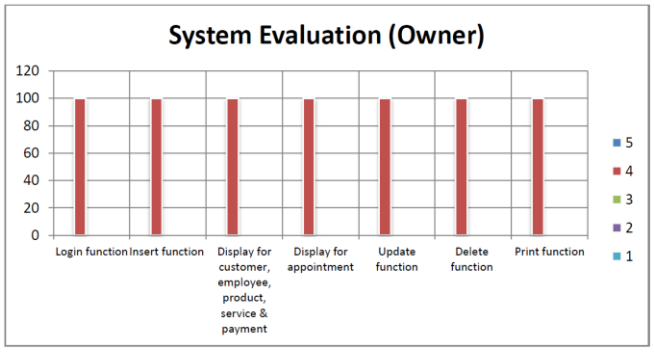

Fig. 9 System evaluation by owner

Fig 10 shows the system evaluation by employees. The results show the satisfactory for the system is in the range of moderate to very good.

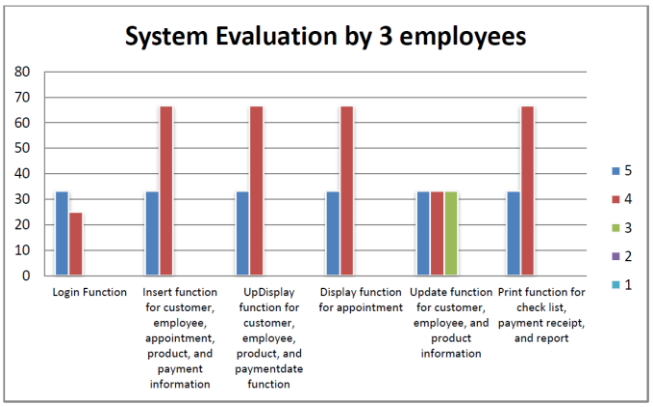

Fig. 10 System evaluation by employees

VI. Conclusions

Shears Inc Management System is a system that allows users to record different type of information such as record appointments, records product information, records transactions, display appointments in both calendar and planner form and generate reports on the performance of employees. In summarization, this system is successfully developed and the objectives are fulfilled. However, an enhancement should be complete as future work is adding the customer booking module which allow the customer to view the calendar of the stylist then book the time online.

Acknowledgment

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References

[1] D. Hoyle, *ISO 9000 Quality Systems Handbook* 4th ed., Butterworth – Heinmann, 2001.

[2] CERCO Working Group on Quality, *Handbook for Implementing a Quality Management System in a National Mapping Agency*, 2000.

[3] L. Halawi, R. McCarthy and J. Aronson, *Success Stories in Knownledge Management System*, Journal in Issues in Information Systems, vol 28, no 1, 2017.

[4] E. Sissy-Josefina, J. Andreas, P. Christoph and L. Jan Marco, *Understanding IT-Culture Conflicts to Drive Successful Technochange Projects – A Case Study*, International Conference on Information System (ICIS), 2017.

[5] H. S. Gitlow, *Quality Management System a Practical Guide*, CRC Press LLC, 2001.

[6] T. H. Lee, S. Shiba and R. C. Wood, *Integrated Management System: A Practical Approach to Transforming Organizations*, John Wiley & Sons, 1999.

[7] C. Demartini, *Performance Management Systems: Design, Diagnose and Use*, Springer-Verlag Berlin Heidelberg, 2014.

[8] Xandaro: Free Salon Software (2017). URL: http://xandaro.com/.

[9] Unique Salon Software (2017). URL: http://uniquesalonsoftware.com.

[10] Advantage Salon Software. URL: http://www.aknaf.com/salon

[11] Sommerville, I. (2016). Software Engineering. 10th ed. United States: Pearson Education Limited.

[12] A. A. Siqueira, S. Reinehr and A. Malucelli (2017). Using a Statistical Method to Compare Agile and Waterfall Processes Performance. In European Conference on Software Process Improvement. Pp 523-532.