

Student Mobility Program Management System

Nur Syazwani Mohd Yusoff¹, Noraini Ibrahim^{1*}

¹Faculty of Computer Science and Information Technology,
Universiti Tun Hussein Onn Malaysia, Parit Raja, Batu Pahat, 86400, MALAYSIA

*Corresponding Author Designation

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Abstract: The web system appears to be the current trend for the Student Mobility Program (SMP). In line with the Ministry's aspiration to enhance internationalization of higher education, most universities and non-profit organizations are committed to help increase their student's global mobility and provide opportunities for students to benefit from international travel. The goal of this project is to develop the Student Mobility Program Management System (SMPMS) within UTHM. Currently, the UTHM student mobility program is operated manually without a computerized system. There are certain problems that occur with present management that are, consume a lot of time and effort among mobility students and academic staff. In addition, the problem with the tedious process to submit the application and it is highly possible that the uploaded file was sent to the wrong person. These issues drive the development of SMPMS. It is developed through activities in the evolutionary software prototyping model where three iterations were involved. The SMPMS enables mobility students to submit their materials online. In addition, this system provides an important note or reminder, for instance, for the visa validation date. The system also allows mobility students to share their feedback or experiences when joining the mobility program. Apart from that, the system has been able to UTHM International Office to manage mobility programs, including the number of students participating and partner universities involved. Finally, it also produced a monthly and annual report to the International Office. The test result shows that the system passed 15 of the 15 test cases that represent 100% of all test cases. To conclude, this system is very useful for managing mobility programs effectively and efficiently, therefore, can increase the number of students joining UTHM mobility programs.

Keywords: Web-Based System, Evolutionary Prototyping, Student Mobility Program

1. Introduction

Student Mobility Program in UTHM provides opportunity for students to gain new experience in joining other university classes by applying the student mobility program. The application of this program is done by paper-based filling method.

*Corresponding author: noraini@uthm.edu.my

In order to join SMP, students are required to contact and meet the Faculty's Mobility Coordinator to discuss about the type of program, subject to register in UTHM, and other matters prior to the application. Students are required to fill up the mobility application form to proceed with the application. Once the students have finished filling up the forms and gather all required documents, students need to submit the documents to faculty coordinator. An offer letter will be issued by the PPA once the application is successful. For a mobility programme exceeding 1 month duration, students are required to apply for a visa, students need to go to PPA to request for the Student Confirmation Letter while the faculty coordinator also have to ask the collaborator's university to proceed students' visa account in immigration. There is no process monitoring of students during the program. After SMP comes to the end, SMP students were asked to make a report on the program.

This current situations lead to several problems, which are consume a lot of time and effort because the faculty's coordinator need to become a middleman. If the students are not around the university, he or she needs to print all the students' documents and pass it to other parties. Besides that, problem with tidies process to submit the application.

Next, there is highly possible that the file uploaded were sent to the wrong person. This resulted in the delay in completing the entire enrollment process. Other than that, miscommunication on the travel regulation of both universities. Some students may not alert with the visa validity and the latest policy regarding their visa. If they overstayed, students would need to pay fines for overstaying.

Thus, SMPMS is developed to overcome these problems. There are three main objectives of this project, which are analyzed and design a system for computerizing mobility program application, develop the solution for SMP using object-oriented approach and test the SMPMS with the system stakeholders. The main users of SMPMS were targeted by four parts which are inbound and outbound UTHM's mobility students, international officer, Academic Management Office (PPA), and faculty including Dean, Deputy Dean of Academic and Internationalization (TDAA), faculty coordinator and faculty administration staff.

This system consisted of seven main features including login into system, mobility program application, manage visa application, manage university collaboration, sharing experience, course result and generate report. This system, hopefully will improve the process of application mobility program, thus least the time and work needed to be done by the mobility staff and students. Finally, attract more students to join mobility program in UTHM. The following papers were organized into several sections as follows: Section 2 discusses the related works of the developed system. Section 3 on the other hand, describes the methodology used for SMPMS. Next, in section 4, explain about the results and discussion of the output of SMPMS. Finally, Section 5 consists of conclusion of overall works.

2. Related Work

In this section, the technology of SMPMS used are being focused related to the development of this system. SMPMS is a web-based system that focuses on application of student mobility program. PHP is used as scripting language while for the database MySQL are implemented and Apache HTTP Server as a web server. SMPMS is developed from scratch.

2.1 Management System

According to ISO [1], a management system is the method through which a company controls the various aspects of its operations to achieve its goals. These goals might be related to a variety of themes, such as product or service quality, operational efficiency, environmental performance, workplace health and safety, and so on [1]. The management is the organization and coordination of a company's activities in order to achieve specific goals. Along with equipment, materials, and money, management is frequently mentioned as a factor of production. While system known as a collection of interconnected pieces with clearly defined boundaries that operate together to achieve a common goal by receiving

inputs and creating outputs in a well-organized transformation process [2]. As conclude, the process of collecting, processing, storing, and transferring essential information to support management operations in any business is what a management system is all about [3].

There are various types of management systems such as learning management system, business management system, quality management system and integrated management system. This management system requires a sophisticated computerized system to replace the existing manual system. The existence of a systematic computerized system is good for management to be more effective.

2.2 Study of Existing Related Systems

A study of the existing system has been conducted on three existing systems in the market. This study is conducted so that the system developer can analyse and identify the advantages and disadvantages of the existing system to use it as a reference when developing the system. The three existing related systems that have been chosen are Universiti Teknologi Malaysia [4], Universitas Gadjah Mada [5] and Universiti Kebangsaan Malaysia [6]. Then, these three universities were compared with UTHM. Table 1 shows the comparison between the existing related systems and the developed system based on the characteristics and features of the system that has been appointed.

Table 1: Comparision table related to SMP

Features	University Teknologi Malaysia [4]	Universitas Gadjah Mada [5]	Universiti Kebangsaan Malaysia [6]	University Tun Hussein Onn Malaysia
System Type	Web-based system	Web-based system	Web-based system	Web-based system
Mobility Program Application	Allow user to fill up the application form using online form.	Allow user to fill up the application form using online form.	Students need to send the completed application form through email.	Allow user to fill up application form using the online form. User can see the progress of the re
Manage and Update Visa Application	This system gives a direct link to the official Education Malaysia website for student to apply visa.	Not provided	Not provided	Allow students to insert their visa type and date of issued. System generate notification on the visa validity
Sharing experience	Sharing experience shared only on Facebook and not in the system. UTM Facebook admin is responsible in uploading the student sharing.	Not provided student to share their experience	Allow student to share their experience by upload their video with story description.	Allow student to share their experience by upload their video with story description.

Based on the comparison of those application websites, some of the arrangements and information each university offered are relatively different, and a few of the requirements have the same information, there are some similarities between the three universities and UTHM. However, each university's website for an exchange student program is unique and has its own style and model, while some of the design components can be included in a UTHM website. The application form for the students to apply for those three universities can apply online in the system, except for the UKM. Some of the advanced features were implemented in SMPMS for UTHM. SMPMS allowed students to manage their visa same as UTM system. As additional, SMPMS generate a notification of student visa validation to ensure the

students will not mistakenly overstay in the country. Besides that, SMPMS also allow inbound and outbound students to share their experiences of joining this program. This will motivate and attract other students to apply the program.

3. Methodology

In this project, evolutionary prototyping is implemented. Evolutionary prototyping is a software process model where the developer or development team first constructs a prototype. After receiving initial feedback from the customer, subsequent prototypes are produced, each with additional functionality or improvements, until the final product emerges.

Prototyping is interwoven with almost all efforts in product, service, and system creation. A prototype is a representation of some aspect of a project or final design during pre-production. Prototyping also predetermines a significant portion of the deployment of capital in construction and affects the performance of project design [7]. In this project, all the activities are being driven by a software process model that are customized from the evolutionary prototyping model. The reason behind the customization is to synchronize with all the submission date set for the project. Prototype is an initial version of the developed software that function as a demonstration of concepts which will then be improved under a number of iterations until the final product are developed [8].

There are 6 main phases that need to carry on the process of development of this system. Table 2 detail out the task, techniques and tools used for each phase.

Table 2: Task, techniques and tools used for each phase

Phase	Task/Activities	Techniques	Tool
Planning	<ul style="list-style-type: none"> Identify and map the existing problems Determine the topic and proposed the title of the project Determine the scope, problem statement, objective, and project significance Develop the timeline in the Gantt Chart form using Smartsheet. 	<ul style="list-style-type: none"> Project proposal List of scope, problem statement, objective, and project significance Gantt Chart Interview 	<ul style="list-style-type: none"> Microsoft Word Microsoft Project
Analysis	<ul style="list-style-type: none"> Determine the user requirement/stakeholder Collecting data from the International Office UTHM. Conduct a study on the current business process Conduct a study of the existing system Determine the system requirement. Determine the list of hardware and software requirement. Draw the use case diagram, activity diagram, sequence diagram and class diagram. Reviews with stakeholder for three times 	<ul style="list-style-type: none"> Figure of swim lane diagram (as is and to be model) Listed of potential hardware and software specifications. Use case diagram, activity diagram, sequence diagram and class diagram. Requirement Definition 	<ul style="list-style-type: none"> Microsoft Word Draw.io

Table 2 (cont.)

Phase	Task/Activities	Techniques	Tool
Design	<ul style="list-style-type: none"> • Design all the modules the user interface of the propose system • Design the database of the propose system • Redefine user interface based on the stakeholder reviews 	<ul style="list-style-type: none"> • Initial user interface of Student Mobility Program Management System. • Second user interface • Final user interface • Database scheme 	<ul style="list-style-type: none"> • Microsoft Word • Draw.io
Implementation (Prototype)	<ul style="list-style-type: none"> • Develop 3 prototypes • Coding the program using PHP • Connect MySQL to the system. 	<ul style="list-style-type: none"> • Prototype 1 • Prototype 2 • Prototype 3 	<ul style="list-style-type: none"> • Visual Studio Code • Xampp
Prototype	<ul style="list-style-type: none"> • Develop Prototype 1 of Iteration 1 • Develop Prototype 2 of Iteration 2 • Develop Prototype 3 of Iteration 3 	<ul style="list-style-type: none"> • Prototype 1(interfaces of all use cases) • Prototype 2 (database connection between interfaces and database) • Prototype 3 (navigation between interfaces) 	<ul style="list-style-type: none"> • Visual Studio Code • Xampp • Draw.io
Implementation (System)	<ul style="list-style-type: none"> • Develop a system • Create the test case list • Testing the system function • Fixed bug and error 	<ul style="list-style-type: none"> • System • Test cases • Requirement Traceability Matrix (Test cases vs Requirements) 	<ul style="list-style-type: none"> • Visual Studio Code • Microsoft Word

4. Result and Discussion

This section will show the outcome of analysis and design for the developed system.

4.1 Analysis

The outcome of the analysis was represented in terms of the improved business process, the specification of the developed system and requirements definition. There are several improvements in the new system such as mobility students can apply the program by filling up the application form by online provided in the system without upload it. Next, international faculty and PPA able to check and give their approval letter to students in the system. Besides that, the system can show the progress or status of the student application. Lastly, able to generate notification of student visa validation.

4.1.1 Use Case Diagram

There are four actors in the system which are Mobility Student, Faculty, International Office and PPA. There are seven main functionalities in this system as shown as use case in the Figure 1.

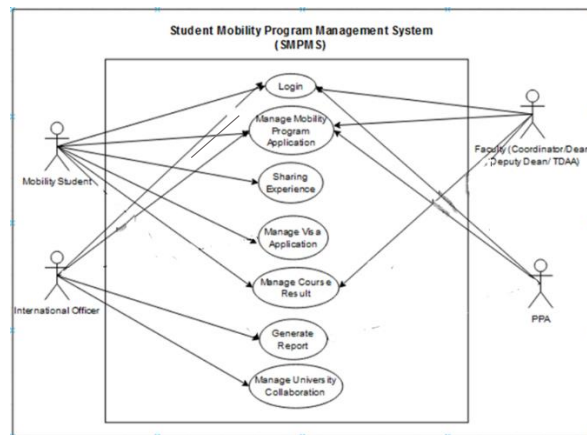


Figure 1: Use Case Diagram of the developed system

4.1.2 Class Diagram

The activities performed by each use case in Figure 1 are detailed out in activity diagram as shown in Figure 2 in Appendix. There are twelve entity classes in this system. There are students, experience, visa, university collaborator, international office, faculty, PPA, application, and report.

4.1.3 Requirements Definition

Details of functional requirements for each use cases are shown in Table 3.

Table 3: Functional Requirements of Developed System

Requirement ID	Descriptions
REQ_100	Login
FR01_101	User required to insert credential data, email and password.
FR01_102	The system shall display home page for the valid login.
QR01-101	The system display any error message for invalid login.
REQ_200	Manage Mobility Application Program
FR02_201	The system shall display application form interface.
FR02_202	Student required to insert all required information needed and click submit button.
FR02_203	The system shall display the student application details to PPA and faculty page
QR02_201	System displays message ask student to fill up the required information if the student does not fill up the form completely.
FR02_204	Faculty can review and give the status of the student application.
FR02_205	PPA can upload related document/letter to the student.

Table 3: (cont)

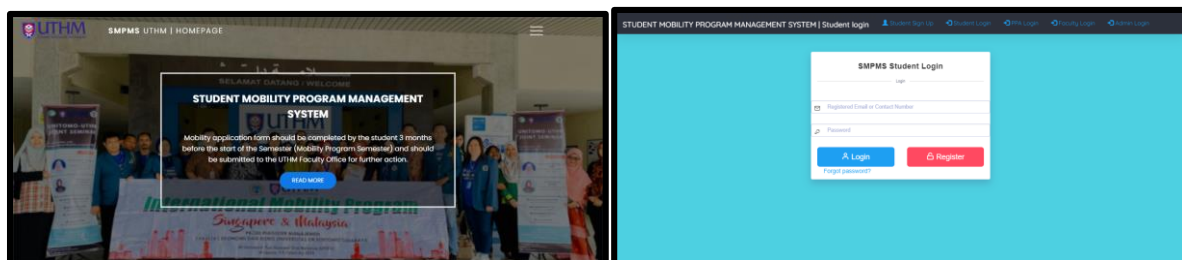
Requirement ID	Descriptions
REQ_300	Manage University Collaboration
FR03_301	The system shall allow the international office to insert information about university partner
QR03_301	System display message ask user to fill up the required information if the user does not fill up the form completely.
REQ_400	Sharing Experience
FR04_401	The system shall display the students' testimony in the home page of the system
FR04_402	Student required to insert all information needed for sharing the feedback.
QR03_401	System displays message ask student to fill up the required information if the student does not fill up the form completely
REQ_500	Manage Visa Application
FR05_501	Student required to insert visa expiry date into the system
QR05_501	System shall be able to send notification to student when the visa expiry has nearly come to an end.
REQ_600	Manage Course Result
FR06_601	Faculty Coordinator shall be able to key in student result into the system when they have finished their study
FR06_602	System shall be able to display student result in the student page.
REQ_700	Generate Report
FR07_701	System shall be able to display the list of students joining the mobility program for each faculty in UTHM
QR07_701	System shall be able to display the list of students joining the mobility program based on the filtering
QR07_702	System shall be able to export the report into excel file.

4.3 Implementation and Testing

This section discusses a description of the implementation and testing phases based on the system that has been developed.

4.3.1 Manage Mobility Program Application Interfaces

The user should be able to login into the system by inserting their email and password correctly as shown in Figure 2.

**Figure 2: Login Interface**

The system should validate whether the user insert the correct credential information as shown in Figure 3.

```

</div>
<div class="card-content">
<div class="card-body">
<p style="font-size:16px; color:red; align="center"> <?php if($msg){

echo $msg;
} }> </p>

<form class="form-horizontal" action="" name="login" method="post">
<fieldset class="form-group position-relative has-icon-left">
<input type="text" name="emailcont" id="email" class="form-control input-lg" placeholder="Registered Email or Contact Number"
required="true"
<div class="form-control-position">
<i class="ft-mail"></i>
</div>
<div class="help-block font-small-3"></div>
</fieldset>
<fieldset class="form-group position-relative has-icon-left">
<input type="password" name="password" id="password" class="form-control input-lg"
placeholder="Password" tabindex="5" required>
<div class="form-control-position">
<i class="la la-key"></i>
</div>
<div class="help-block font-small-3"></div>
</fieldset>
<div class="row">
<div class="col-6 col-sm-6 col-md-6">
<button type="submit" name="login" class="btn btn-info btn-lg btn-block"><i class="ft-user"></i> Login</button>
</div>
<div class="col-6 col-sm-6 col-md-6">
<a href="signup.php" class="btn btn-danger btn-lg btn-block" name="login" type="text"><i class="ft-unlock"></i> Register</a>
</div>
</div>
<div class="col-6 col-sm-6 col-md-6">
<p><a href="forget-password.php">Forgot password?</a></p>

```

Figure 3: Login Interface

4.3.2 Manage Mobility Program Application Interfaces

The student should be able to fill up the form by upload passport picture and insert all information needed and faculty are able to give approval result as shown in Figure 4.

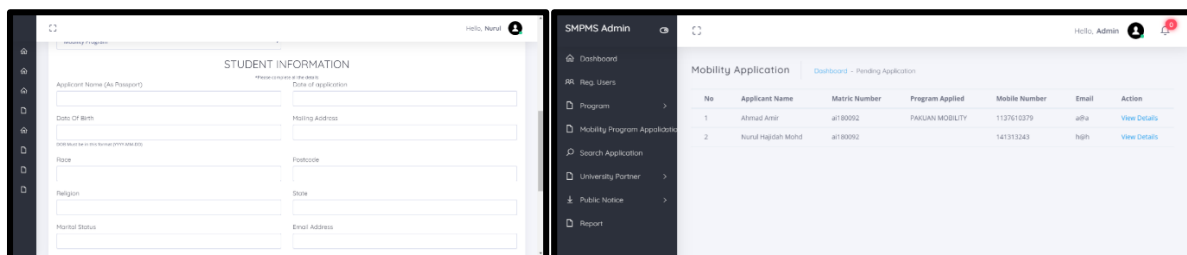


Figure 4: Manage Mobility Program Application Interfaces

All the data filled up by the students are saved in the database as shown in Figure 5.

```

<?php
session_start();
error_reporting(0);
include('includes/dbconnection.php');

if (strlen($_SESSION['uid']==0)) {
header('location:logout.php');
} else{
if(isset($_POST['submit']))
{
$extension = substr($_pic,strlen($_pic)-4,strlen($_pic));
// allowed extensions
$allowed_extensions = array(".jpg","jpeg",".png",".gif");
// Validation for allowed extensions .in_array() function searches an array for a specific value.
if(in_array($extension,$allowed_extensions))
{
echo "<script>alert('Invalid format. Only jpg / jpeg/ png /gif format allowed');</script>";
}
else
{
// rename user pic
$userpic=md5($_pic).$extension;
move_uploaded_file($_FILES["userpic"]["tmp_name"],"userimages/".$userpic);

$query=mysqli_query($con , "insert into applicationform(userId,userPic,faculty,matricNum,pngk,expectedDateOut,MobilityApplied,facultyHome,passwordNum,nationality,expectedDateIn,
value('$_uid','$_pic','$_faculty','$_matricNum','$_pngk','$_expectedDateOut','$_MobilityApplied','$_facultyHome','$_passwordNum','$_nationality','$_expectedDateIn','$_name','$_dob','$_race'
if ($query) {
$msg="Data has been added successfully.";
}
else
{
$msg="Something Went Wrong. Please try again";
}
}
}

```

Figure 5: Manage Mobility Program Application Code Segment

4.3.3 Manage University Collaboration Interfaces

The International Office is able to add any university that has collaborated with UTHM by inserting university name, location and description as shown in Figure 6.

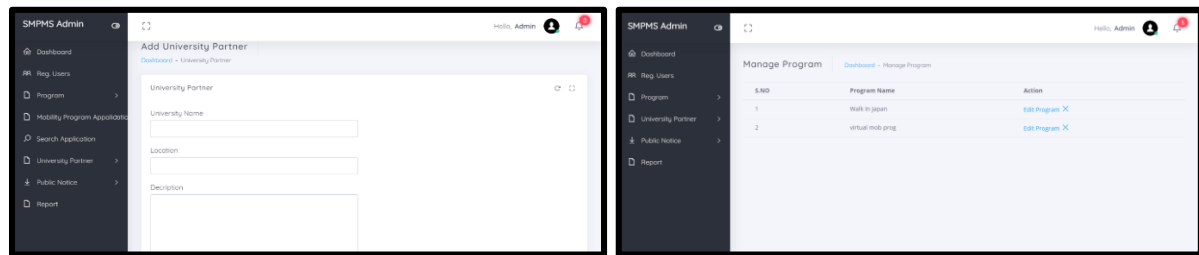


Figure 6: Manage University Collaborator Interface

The system will save all the information into database as shown in Figure 7.

```
<?php
session_start();
error_reporting(0);
include('includes/dbconnection.php');
if (strlen($_SESSION['aid'])==0) {
    header('location:logout.php');
} else{

if(isset($_POST['submit']))
{
    $title=$_POST['title'];
    $dec=$_POST['description'];

    $query=mysqli_query($con, "insert into tblpar(title, Description) value('$title','$dec')");
    if ($query) {
        $msg="Notice has been added.";
    }
    else
    {
        $msg="Something Went Wrong. Please try again";
    }
}
}
?>
```

Figure 7: Manage University Collaboration Code Segment

4.3.4 Sharing Experience Interfaces

Students are able to share their testimony after joining the mobility program by inserting the mobility applied, upload picture, and insert details as shown in Figure 8.

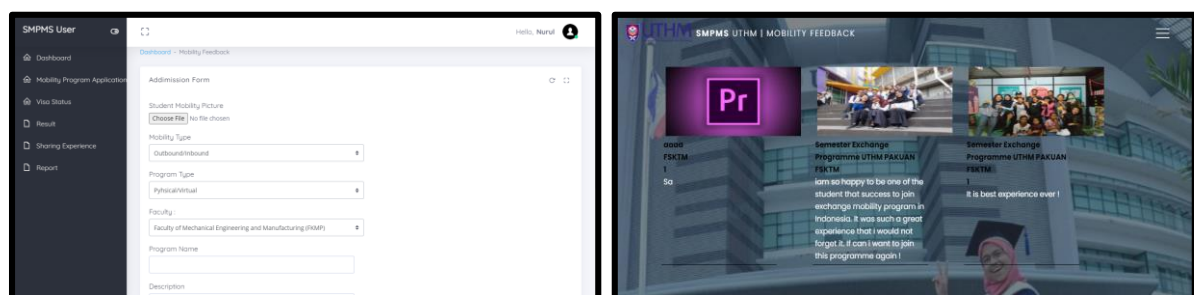


Figure 8: Sharing Experience Interface

All the information was saved in the database and were displayed in homepage of the system as shown in Figure 9.

```

<?php
$tuid=$_SESSION['uid'];
$query=mysqli_query($con,"select * from tblfeedback where id=$tuid");
$row=mysqli_num_rows($query);
if($row>0)
{
    while($row=mysqli_fetch_array($query)){
        >
        <p style="font-size:16px; color:red" align="center">Your Feedback already submitted.</p>
        <table class="table mb-0">

        <tr>
            <th>Mobility Applied</th>
            <td><?php echo $row['name2'];></td>
        </tr>

        <tr>
            <th>Student Photo</th>
            <td></td>
        </tr>

        <tr>
            <th>Experience / Feedback</th>
            <td><?php echo $row['description'];></td>
        </tr>

        </table>
        <?php } } else { >
        <form name="submit" method="post" enctype="multipart/form-data">
            <section class="formatter" id="formatter">
                <div class="row">
                    <div class="col-12">
                        <div class="card">

```

Figure 9: Sharing Experience Code Segment

4.3.5 Manage Visa Application Interfaces

Students are able to insert their visa expiry date in the system as shown in Figure 10. The system will display the day left before visa expired.

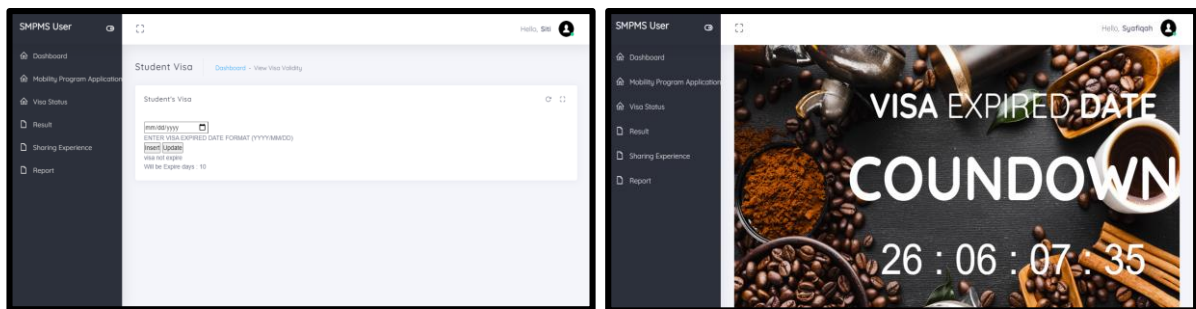


Figure 10: Manage Visa Application Interface

The visa information inserts by the student saved in the database as shown in Figure 11.

```

<?php
// update
if(isset($_POST["submit3"]))
{
    $z = mysqli_query($con, "update visa set expd='$_POST[t1]' where userId=$uid" );
    if ($z == 0) { >
        <script>alert("Data Fail to Update");</script>
        <?php
    } else { >
        <script>alert("Data Updated");</script>
        <?php
    }
}

>

<?php
// Insert
if(isset($_POST["submit2"]))
{
    $y = mysqli_query($con, "insert into visa(userId,expd) value('$_uid','$_POST[t1]'" );
    if ($y == 0) { >
        <script>alert("Data Fail to Insert");</script>
        <?php
    } else { >
        <script>alert("Data Inserted");</script>
        <?php
    }
}

```

Figure 11: Manage Visa Application Code Segment

4.3.6 Manage Course Result Interfaces

Once the student has finished their study, faculty coordinator needs to insert student result and student able to see their result in the system as shown in Figure 12.

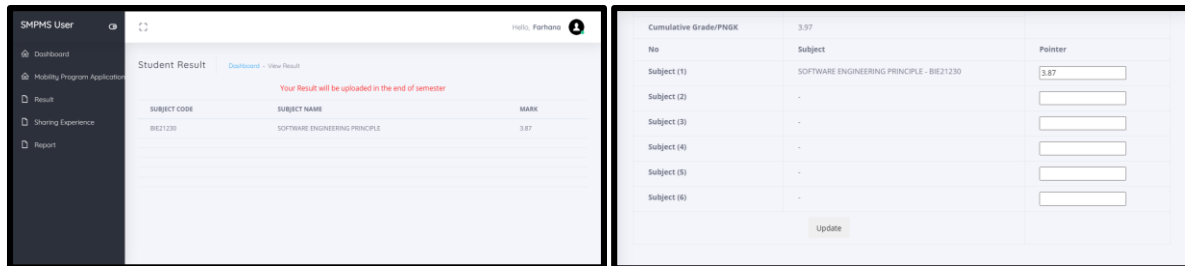


Figure 12: Manage Course Result Interface

All the information was saved in database and were displayed on the student page of the system as shown in Figure 13.

```
<?php
session_start();
error_reporting(0);
include('includes/dbconnection.php');
if (strlen($_SESSION['fid'])==0) {
    header('location:logout.php');
} else{
    if(isset($_POST['submit']))
    {
        $cid=$_GET['atcid'];
        $result1=$_POST['result1'];
        $result2=$_POST['result2'];
        $result3=$_POST['result3'];
        $result4=$_POST['result4'];
        $result5=$_POST['result5'];
        $result6=$_POST['result6'];

        $query=mysqli_query($con,"update applicationform set result1='$result1',result2='$result2',result3='$result3',
        result4='$result4',result5='$result5',result6='$result6' where userId='$cid'");
        if ($query) {
            $msg="Result has been updated.";
        }
        else
        {
            $msg="Something Went Wrong. Please try again";
        }
    }
}
```

Figure 13: Manage Course Result Code Segment

4.3.7 Generate Report Interfaces

International Office able to see reports that show the total number of students join the mobility program for each faculty as shown in Figure 14.

NO	Faculty	Total
1	Faculty of Computer Science and Information Technology	3
2	Faculty of Technology Management and Business	0
3	Faculty of Mechanical and Manufacturing Engineering	2
4	Faculty of Technical and Vocational Education	0
5	Faculty of Engineering Technology	0
6	Faculty of Civil Engineering and Built Environment	0
7	Faculty of Electrical and Electronic Engineering	1

Figure 14: Manage University Collaborator Interface

The system will save all the information into database as shown in Figure 15.

```
<?php
$set=mysqli_query($con,"select faculty from applicationform WHERE faculty
='Faculty of Computer Science and Information Technology (FSKTM)' and
applicationform.facultystatus='1' and applicationform.adminstatus='1' and
applicationform.ppstatus='1' and applicationform.session='2020/2021' and
applicationform.semester='1'");

$cnt=1;
$х= mysqli_num_rows($set);

?>

<tr>
<td><?php echo $cnt;?></td>

<td><?php echo 'Faculty of Computer Science and Information
Technology';?></td>
<td><?php echo $х ?></td>

</tr>
<?php
$cnt=$cnt+1;
?>

<?php
$set2=mysqli_query($con,"select faculty from applicationform WHERE faculty
='Faculty of Technology Management and Business (FPTP)' and applicationform
.facultystatus='1' and applicationform.adminstatus='1' and applicationform
.ppstatus='1' and applicationform.session='2020/2021' and applicationform
.semester='1'");

$х= mysqli_num_rows($set2);
?>

<tr>
<td><?php echo $cnt;?></td>

$year = $_SESSION["data"];
$sem = $_SESSION["data2"];

$con=mysqli_connect('localhost','smpmsit_smps','Smpms_syazwani20'
,'smpmsit_smps');

$sql="select faculty from applicationform WHERE faculty='Faculty of Computer
Science and Information Technology (FSKTM)' and applicationform
.facultystatus='1' and applicationform.adminstatus='1' and applicationform
.ppstatus='1' and applicationform.session='$year' and applicationform
.semester='$sem'";

$set2=mysqli_query($con,"select faculty from applicationform WHERE faculty
='Faculty of Technology Management and Business (FPTP)' and applicationform
.facultystatus='1' and applicationform.adminstatus='1' and applicationform
.ppstatus='1' and applicationform.session='$year' and applicationform
.semester='$sem'");

$set3=mysqli_query($con,"select faculty from applicationform WHERE faculty
='Faculty of Mechanical Engineering and Manufacturing (FKMP)' and
applicationform.facultystatus='1' and applicationform.adminstatus='1' and
applicationform.ppstatus='1' and applicationform.session='$year' and
applicationform.semester='$sem'");

$set4=mysqli_query($con,"select faculty from applicationform WHERE faculty
='Faculty of Technical and Vocational Education (FPTV)' and applicationform
.facultystatus='1' and applicationform.adminstatus='1' and applicationform
.ppstatus='1' and applicationform.session='$year' and applicationform
.semester='$sem'");
```

Figure 15: Generate Report Code Segment

4.3.8 Test Cases

Test cases are run based on the use cases in the system. The test cases are shown in Table 4.

Table 4: Test Cases of Developed System

Test Case	Software Requirement	Description	Expected Result	Output
STD TEST 100	SRS REQ 100	Login		PASS/FAIL
STD_TEST_100_001	REQ_FR01_101 REQ_FR01_102	The users provide correct email and password	Login should be success	PASS
STD_TEST_100_002	REQ_QR01_101	The users provide incorrect username and password	Fail to login to the system	PASS
STD_TEST_100_003	REQ_QR01_101	The users provide correct username but wrong password	Fail to login to the system	PASS
STD_TEST_100_004	REQ_QR01_101	The users provide incorrect username but correct password	Fail to login to system	PASS
STD TEST 200	SRS REQ 100	Manage Mobility Program Application		PASS/FAIL
STD_TEST_200_001	REQ_FR02_201 REQ_FR02_202 REQ_FR02_203 REQ_FR02_204 REQ_FR02_205	Students fill up all the information in the form	Success to submit the application and save into database.	PASS
			Display application form in PPA and Faculty page Faculty can give approval of student application.	
			PPA can upload letter to student	

Table 4 (cont.)

Test Case	Software Requirement	Description	Expected Result	Output
STD_TEST_200_002	REQ_FR02_201 REQ_QR02_201	Students do not insert all required information completely.	Fail to submit, system ask to complete information.	PASS
STD TEST 300	SRS REQ 300	Manage University Collaboration		PASS/FAIL
STD_TEST_300_001	REQ_FR03_301	International Office insert University name, location and description, then click add button.	System saves all collaborator university in the system.	PASS
STD_TEST_300_002	REQ_QR03_301	International Office did not insert all required information.	Fail to add, system ask to fill in the form	PASS
STD TEST 400	SRS REQ 400	Sharing Experience		PASS/FAIL
STD_TEST_400_001	REQ_FR04_401 REQ_FR04_402	Student insert all required data by inserting mobility applied, picture and feedback/experience details	System saves the feedback information and display in the home page of the system	PASS
STD_TEST_400_002	REQ_QR03_401	Students do not insert all required information completely.	Fail to add, system ask to fill in the form	PASS
STD TEST 500	SRS REQ 500	Manage Visa Application		PASS/FAIL
STD_TEST_500_001	REQ_FR05_501 REQ_QR05_501	Students insert the date of expiry visa in the system then click add button.	System displays the day left for visa validity on student dashboard send notification to g-mail when the visa left 2 weeks validity. Send notification to g-mail when the visa left 2 weeks validity	PASS
STD TEST 600	SRS REQ 600	Manage Course Result		PASS/FAIL
STD_TEST_600_001	REQ_QR06_601 REQ_FR06_602	Faculty coordinator key in student result in the system	System display result to student page	PASS
STD TEST 700	SRS REQ 700	Generate Report		PASS/FAIL
STD_TEST_700_001	REQ_FR07_701	Io choose the semester and the year they want to see for the report.	System shows the report based on the filtering	PASS

Table 4 (cont.)

Test Case	Software Requirement	Description	Expected Result	Output
STD_TEST_700_002	REQ_FR07_701 REQ_QR07_701	Io click on the print button.	System able to generate report into google sheet and able to be print	PASS
STD_TEST_700_003	REQ_FR07_701 REQ_QR07_702	Io click on the export to excel button.	System able to export report into excel file	PASS

4.4 User Acceptance Testing Result

The user acceptance testing was conducted online using a form to collect the feedbacks and perspectives from the selected group of users. The user group that participates in this process is the coordinator of Faculty of Computer Science and Information Technology. Figure 16 in Appendix shows the result of user acceptance testing related to the modules of the system. Overall, the users of the system have satisfied with the system. However, there is some improvement that can be done for the system in the future.

5. Conclusion

To conclude, this study is focused on the application of student mobility program management system with some add on other function. There are some disadvantages with the current management, which are consuming a lot of time and effort from students and academic staff. Thus, SMPMS solve the problems occur with the current management. The UTHM student can apply the mobility program online and see the progress of his application. However, there are some disadvantages within the SMPMS. This system has no connection to residential colleges or live chat functionality for students joining the same program. Thus, there are some recommendations to improve this system. This system should have the added feature of live chatting within students and have collaborated with college residential that can inform to student which residential college they will be placed for. Lastly, this system, hopefully, could attract more students to join the mobility program and the application process for the mobility program becomes easier.

Acknowledgement

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Appendix A

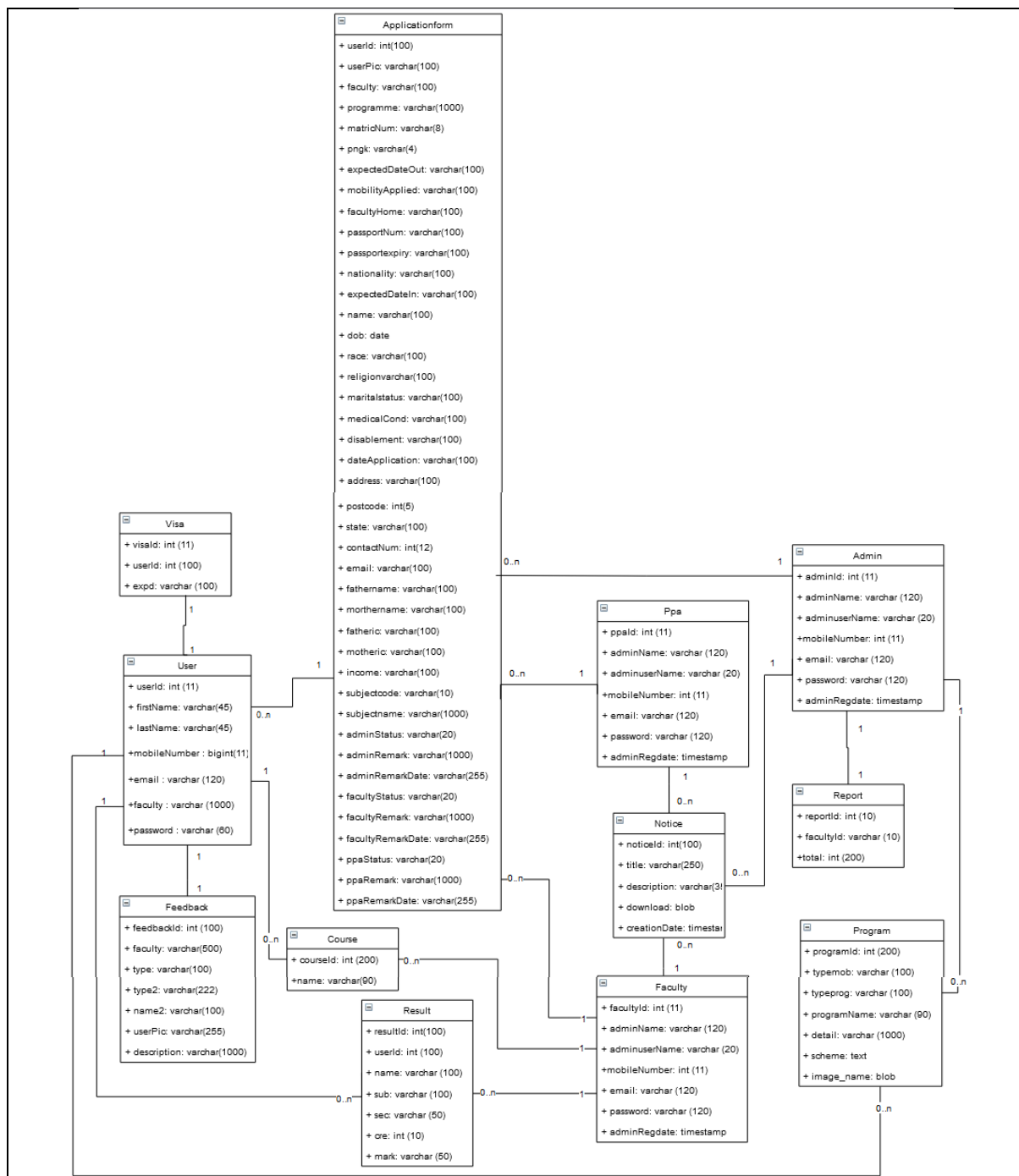


Figure 2: Class Diagram of the developed system

STUDENT MOBILITY PROGRAM MANAGEMENT SYSTEM

USER ACCEPTANCE TESTING SURVEY FORM

Please rate your satisfaction level as follows:

1	2	3	4	5
Very Dissatisfied	Dissatisfied	Average	Satisfied	Extremely Satisfied

	1	2	3	4	5
SYSTEM FUNCTION FOR EACH MODULE					
Login					✓
Manage Mobility Program Application					✓
Manage Result					✓
Manage Visa					✓
Sharing Experience					✓
Manage University Collaboration					✓
Generate Report				✓	
OVERALL COMMUNICATION THROUGHOUT THE PROJECT PRESENTATION					
Professionalism					✓
Media Presentation					✓
Prepared					✓
Quality of Info					✓
OVERALL SATISFACTION WITH THE SYSTEM					
Please rate your overall satisfaction with SMPMS					✓
WHERE ELSE CAN I IMPROVE?					
Any other comments: The system is extensive and covers almost all processes of the mobility program. I suggested that the mobility coordinator is allowed to specify the courses that are applicable.					

(SIGN) 
 Name: 

Date: 17/06/2021

Figure 16: User Acceptance Testing Result

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