MOBILE COMPUTING

MOBILE MONITORING SYSTEM:
COMPUTERIZED ENROLLMENT OF MSU-MARAWI CITY

Presented to
PROF. ORVEN E. LLANTOS
Computer Science Department
School Of Computer Studies
Iligan Institute of Technology
of the Mindanao State University
Iligan City

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JOSEPH C. SIERAS

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Mobile Monitoring System: Computerized Enrollment of MSU-Marawi City

Enrolment monitoring system is a web- based mobile application that will run in any mobile device that is connected to the local area network of the MSU, main campus. Since the user or actor of this mobile application must be a bona fide student of the Mindanao State University in Marawi City, it requires connection to the student data of the MSU database in order for it to work properly. Thus, a user or actor of this mobile application must have an active student Akan account, secured from Information Systems Department of the College of Information Technology, in order to use the mobile application.

This enrolment monitoring system is designed to cater the enrolment needs of students such as to monitor their enrolled subjects, and to view their statement of account and certificate of registration. This allows students to view their enrolled subjects and its details, statement of account and its details, and to check their certificate of registration whether they are officially enrolled or not. It will also show the student's status of enrolment through which they can monitor if their preliminary registration form is already printed, or if their statement of account is already paid, and if the certificate of registration is already printed. Thus, through this mobile version, long queue of students who want to do some enrolment-related inquiries will be lessened.

Network Architecture

The network architecture of this mobile application is a 3-tier client–server architecture which has three layers. Layer 1, the presentation tier, is the topmost level of the application which is the user interface. This presentation tier is developed using jquery mobile, HTML, CSS and Javascript. Layer 2, the application tier, coordinates the application, processes commands, makes logical decisions and evaluations, and performs calculations. Application tier is implemented using php programming language. Layer 3, the data tier, consists of database servers which information is stored and retrieved from a database or file system. Data tier is implemented using mysql and xampp database applications. This 3-tier client–server architecture is implemented in a thin-Client Wireless Client–Server.

Figure 1 shows the network architecture diagram of this mobile application in which the actor uses a wifi capable mobile device with an internet browser installed to use the enrollment monitoring system. The wifi capable mobile device must be connected to the local area network of the MSU through a wireless router. Once connected, the actor will just type the IP address and the name of the mobile application in the internet browser to run the enrollment monitoring system. When the enrollment monitoring system is successfully loaded, the actor can login and perform the available services of the mobile application.

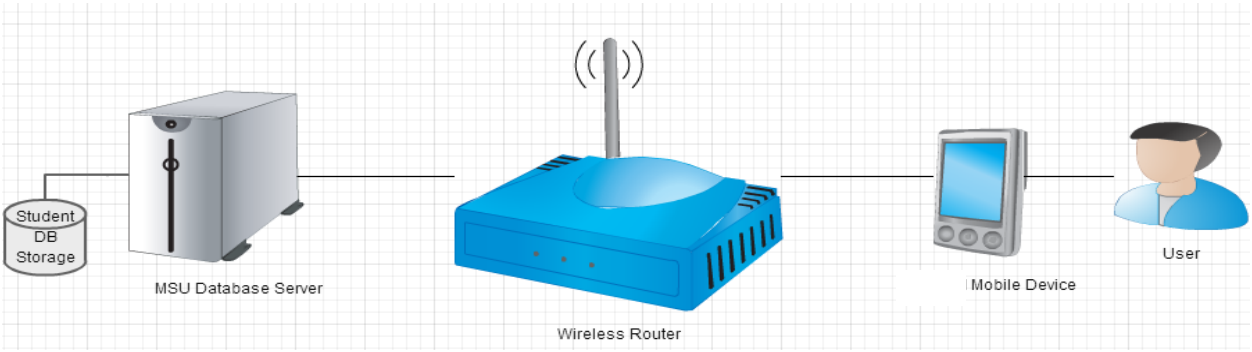

Figure 1. Network Architecture Diagram

USE CASES

1.

Name: Login

Description: Student will login to access their Mobile Akan Account.

Duration: 4 hours

Actor: Student

Pre-conditions: Student must have an active Akan account.

Post-conditions: Student can see its computerized preliminary registration form.

Main Course:

1. The student enters its ID number and password.

   Exceptions:

   1a. Student ID number and password is invalid on first try, repeat step 1.

   1b. Student ID number and password is invalid on second try, repeat step 1.

   1c. Student ID number and password is invalid on third try.

The student needs to see the database administrator to check his/her Akan account.

Use case exits.

2. The system shows the student enrollment details.

   Alternatives:

   2a. The system shows preliminary registration form of the student if the COR is not yet printed.

   The use case exits.

   2b. The system shows the certificate of registration if the COR is already printed.

   Use case exits.

User Story

As a student, I want to login so that I can access my enrollment details.

2.

Name: Computerized Preliminary Registration Form (CPRF)

Description: Student's list of currently enrolled subjects, section, unit and total units.

Duration: 5 hours

Actor: Student

Pre-conditions: The student's login is valid.

Post-conditions: The student can see the list of currently enrolled subjects and its section only.

Main Course:

1. The system will show the student's list of currently enrolled subjects and its corresponding section and unit.

   Alternatives

   1a. No subjects currently enrolled.

   The student must see his/her adviser or his/her enrolling officer.

   The use case exits.

User Story

As a student, I want to see my preliminary registration form so that I can see the list of currently enrolled subjects.

3.

Name: Subject Details

Description: This shows the details of a subject like course code, title description, section, instructor, room and unit.

Duration: 4 hours

Actor: Student

Pre-conditions: It shows the list of currently enrolled subjects.

Post-conditions: It shows the details of a certain subject.

Main Course:

1. The student selects one subject to view its details.
2. The system shows the details of the selected subject.

   Alternatives

   1a. Student doesn't like the subject and/or the schedule.

   The student must see his/her adviser or his/her enrolling officer to change the enrolled subject.

   The use case exits.

User Story

As a student, I want to see the subject details of a certain subject so that I will know the subject details of that subject.

4.

Name: CPRF Status

Description: This shows the status of the CPRF whether it is already printed, and/or ready for payment at the cashier.

Duration: 4 hours

Actor: Student

Pre-conditions: The student must successfully login.

Post-conditions: It shows the CPRF status if it is printed or not.

Main Course:

1. The student checks the status of his/her CPRF.
2. The CPRF is not yet printed.
3. The student must see his/her adviser or his/her enrolling officer to have the CPRF printed.

   The use case exits.

User Story

As a student, I want to know the CPRS status so that I can pay my statement of account.

5.

Name: Statement of Account (SOA)

Description: This shows the student billing details.

Duration: 6 hours

Actor: Student

Pre-conditions: The student must have enrolled subjects.

Post-conditions: It shows the details of the student's statement of account.

Main Course:

1. The student selects the statement of account button.
2. The system shows billing details.

   The use case exits.

User Story

As a student, I want to view my statement of account so that I will know the details and the total amount to be paid to the cashier.

6.

Name: Statement of Account Status

Description: This shows the status of billing- once it is paid, the certificate of registration is ready for printing.

Duration: 4 hours

Actor: Student

Pre-conditions: Must be in statement of account view.

Post-conditions: Shows the SOA status if it is already printed or not.

Main Course:

1. The student checks the status of his/her SOA.
2. The SOA is not yet mark as paid.
3. The student must see the cashier.

   The use case exits.

User Story

As a student, I want to see the SOA status so that I will know that it's already paid and I'm ready for COR printing.

7.

Name: Certificate of Registration (COR)

Description: This shows the student officially enrolled subjects.

Duration: 10 hours

Actor: Student

Pre-conditions: Student statement of account must be settled.

Post-conditions: It shows the COR details.

Main Course:

1. The student must go to his/her designated COR printer for the COR printing.

   The use case exits.

User Story

As a student, I want to view my certificate of registration so that I can see my official list of currently enrolled subjects.

Each use case defined has an appropriate estimated time in hours to complete the task. The number of hours of each use case has a total of 54 hours. This 54 hours is only a minimum estimated time and is inclusive of the time used in researching and reading of related studies, and exploring and experimenting of codes. There are additional time needed to the other tasks

like download, install and configure a database server as a temporary storage. The total estimated hours to complete this mobile application is more or less 200 hours.

Figure 2 shows the total estimated hours to complete the development of this enrollment monitoring application, while figure 3 shows the actual development progress or burn down of enrollment monitoring application.

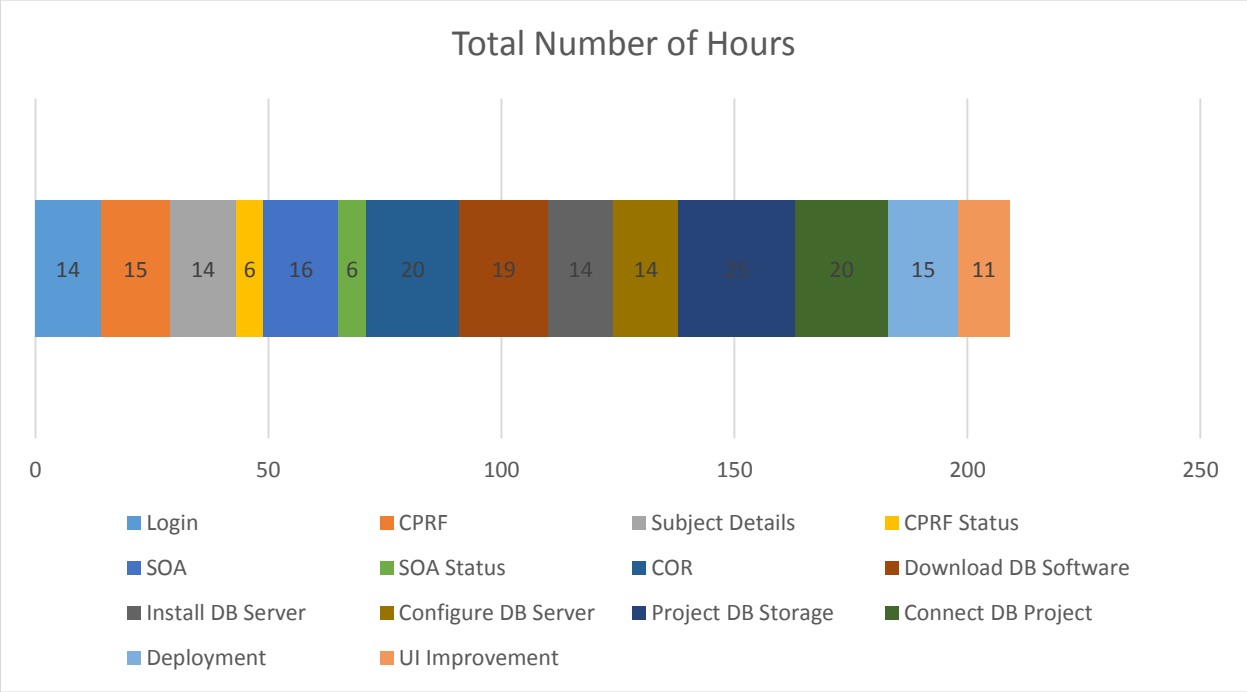

Figure 2. Total Number of Hours

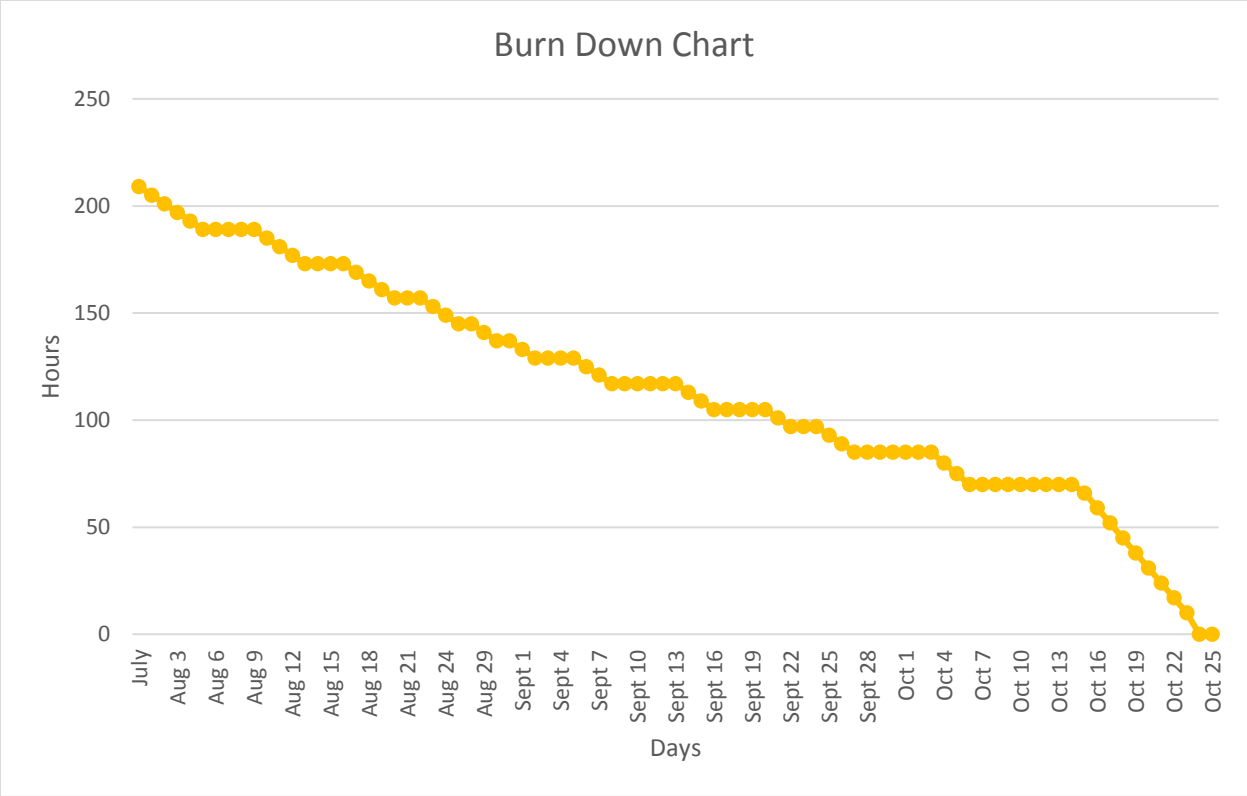

Figure 3. Burn Down Chart

TEST CASES

1.

LOGIN

Case 1:

Given

Student with ID Number “2013-12345”, password “12345678”, COR is not yet printed, and is not currently login.

When

Student with ID Number “2013-12345” do the login.

Then

Preliminary Registration Form of student will show up with ID number “2013-1234”, Full Name “DE LA CRUZ, JUAN A”, Course “BSIT”, Semester “First”, Academic Year “2013-2014”, List

of currently enrolled subjects data like subject code “CSc 101”, Section “Bb”, Units “3”, Total Units Enrolled “15”, Allowed Units “21”, and CPRF status “Not Yet Printed”.

Case 2:

Given

Student with ID Number “2013-12345”, password “12345678”, COR is already printed, and is not currently login.

When

Student with ID Number “2013-12345” do the login.

Then

Certificate of Registration of student will show up with ID number “2013-1234”, Full Name “DE LA CRUZ, JUAN A”, Course “BSIT”, Semester “First Semester”, Academic Year “2013-2014”, List of currently enrolled subjects data like subject code “CSc 101”, Section “Bb”, Units “3”, Total Units Enrolled “15”, Total Assessment “3850”, and COR Status “Printed on 2013-10-06”.

Case 3:

Given

Student with ID Number “2013-12345”, password “12345678” and is not currently login.

When

Student with ID Number “2013-12345” do the login.

Then

Student login failed with error message invalid username and/or password.

2.

SUBJECT DETAILS

Case 1:

Given

Preliminary Registration Form of student will show up with ID number “2013-1234”, Full Name “DE LA CRUZ, JUAN A”, Course “BSIT”, Semester “First Semester”, Academic Year “2013-

2014", List of currently enrolled subjects data like subject code "CSc 101", Section "Bb", Units "3", Total Units Enrolled "15", Allowed Units "21", and CPRF status "Not Yet Printed".

When

Student select one subject to be viewed with subject code "CSc 101".

Then

Subject details of subject code "CSC 101" will show up with Title "INTRODUCTION TO COMPUTER PROGRAMMING 1", Section "Bb", Days "MTh", Time "7:00AM-8:30AM", Room "201", Lecture Hours "3", Laboratory Hours "3", Units "3", Instructor "ABC".

Case 2:

Given

Certificate of Registration of student will show up with ID number "2013-1234", Full Name "DE LA CRUZ, JUAN A", Course "BSIT", Semester "First Semester", Academic Year "2013-2014", List of currently enrolled subjects data like subject code "CSc 101", Section "Bb", Units "3", Total Units Enrolled "15", Total Assessment "3850", and COR Status "Printed on 2013-10-06".

When

Student select one subject to be viewed with subject code "CSc 101".

Then

Subject details of subject code "CSC 101" will show up with Title "INTRODUCTION TO COMPUTER PROGRAMMING 1", Section "Bb", Days "MTh", Time "7:00AM-8:30AM", Room "201", Lecture Hours "3", Laboratory Hours "3", Units "3", Instructor "ABC".

3.

STATEMENT OF ACCOUNT (SOA)

Case 1:

Given

Preliminary Registration Form of student will show up with ID number "2013-1234", Full Name "DE LA CRUZ, JUAN A", Course "BSIT", Semester "First Semester", Academic Year "2013-

2014”, List of currently enrolled subjects data like subject code “CSc 101”, Section “Bb”, Units “3”, Total Units Enrolled “15”, Allowed Units “21”, and CPRF status “Not Yet Printed”.

When

Student press SOA button.

Then

Statement of account of student ID Number “2013-12345” will show up with Tuition Fee “750”, ID Fee “100”, Computer Fee “100”, Internet Fee “100”, Laboratory Fee “2500”, Publication Fee “50”, Library Fee “100”, Dental Fee “100”, Insurance Fee “50”, Total “3850”, and SOA Status “Unpaid”.

Case 2:

Given

Certificate of Registration of student will show up with ID number “2013-1234”, Full Name “DE LA CRUZ, JUAN A”, Course “BSIT”, Semester “First Semester”, Academic Year “2013-2014”, List of currently enrolled subjects data like subject code “CSc 101”, Section “Bb”, Units “3”, Total Units Enrolled “15”, Total Assessment “3850”, and COR Status “Printed on 2013-10-06”.

When

Student press SOA button.

Then

Statement of account of student ID Number “2013-12345” will show up with Tuition Fee “750”, ID Fee “100”, Computer Fee “100”, Internet Fee “100”, Laboratory Fee “2500”, Publication Fee “50”, Library Fee “100”, Dental Fee “100”, Insurance Fee “50”, Total “3850”, and SOA Status “Paid on 2013-10-06”.

4.

CERTIFICATE OF REGISTRATION (COR)

Given

Preliminary Registration Form of student will show up with ID number “2013-1234”, Full Name “DE LA CRUZ, JUAN A”, Course “BSIT”, Semester “First Semester”, Academic Year “2013-

2014”, List of currently enrolled subjects data like subject code “CSc 101”, Section “Bb”, Units “3”, Total Units Enrolled “15”, Allowed Units “21”, and CPRF status “Not Yet Printed”.

When

Student press COR button.

Then

Certificate of Registration of student will show up with ID number “2013-1234”, Full Name “DE LA CRUZ, JUAN A”, Course “BSIT”, Semester “First Semester”, Academic Year “2013-2014”, List of currently enrolled subjects data like subject code “CSc 101”, Section “Bb”, Units “3”, Total Units Enrolled “15”, Total Assessment “3850”, and COR Status “Not Yet Printed”.