**APPROVAL SHEET**

In partial fulfillment of the requirements for the degree of BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY, this research/project proposal entitled ONLINE CLASS RECORD FOR THE SCHOOL OF INFORMATION TECHNOLOGY, UNIVERSITY OF BAGUIO has been prepared and submitted by CLEVER T. SECUATEN, DIVINA A. FELIPE, IVAN CLYDE M. ROM, TERENCE RALPH C. RAGA-AS who are hereby recommended to proceed with their study.

**ELLEN M. HALOVER, PhD**

Class Adviser / Co - Author

**PANEL OF EXAMINERS**

|  |  |
| --- | --- |
| **ERNA-KRISTI N. MARTINEZ, MIT**  Member | **CHERRY ANN CARPISO, MIT**  Member |
| **HYDI D. TOYENG, MIT**  Member | |

ACCEPTED AND APPROVED in partial fulfillment of the requirements for the degree of **BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY**

|  |  |
| --- | --- |
|  | **ENGR. ELISABETH D. CALUB, MSIT**  Dean |

**ABSTRACT**

A class record is a document or compilation of documents used by teachers to record enrollment, attendance and grade information of students. The class record may be electronic or manual and is created, updated and maintained in accordance with district and state requirements(NSCD,2014). Class record shows the students’ progress and academic performance. This includes assessments such as quizzes, report, seartwork and so on. These assessments follow a certain computation that results to a grade of a student. Airasian (1994) as cited by Marzon (2000) explains that educators use grades primarily (1) for administrative purposes, (2) to give students feedback about their progress and achievement, (3) to provide guidance to students about future course work, (4) to provide guidance to teachers for instructional planning, and (5) to motivate students.

In the case of basic education (elementary and high school), the final grades of the learners are the bases for promotion to the next grade level. In the tertiary level, a student has to get the minimum passing grade to be able to complete a particular subject. In many cases, a student cannot enroll some subjects if the student did not pass the pre-requisite subject(s). Hence, it is important for students to be aware of their scores in assessment tasks or activities given by teachers so that they will know their academic standing in their subjects. According to Spanella (2003), assessment is a key component of learning because it helps students learn. When students are able to see how they are doing in a class, they are able to determine whether or not they understand the course material. If students know they are doing poorly, then they may begin to work harder.

In University of Baguio, there are three grading periods for each semester and two for the short term. The highest percentage rating that may be given in any grading period is 99%. The lowest passing grade in the undergraduate including the School of Law is 75%. Any grade lower than 75% is considered FAILED. In the Graduate School, the passing grade is 85% (University Of Baguio, 2014).

The School of Information Technology(SIT), one of the ten(10) schools in the University of Baguio offers three degree programs, namely, Bachelor of Science in Computer Engineering, Bachelor of Science in Information Technology, and Bachelor of Science in Computer Science.

In SIT, the student grades for a particular grading period in lecture class is computed by getting the 40% of quizzes, 20% of other graded activities and 40% of the examination score. The laboratory grade is computed from the total score of the student from all laboratory and other graded activities.

Based on the proponents’ interviews with some faculty members and students, and from their experiences, it has been noted that not all teachers give back all the results of graded activities administered to the students nor show their class records to them. In some cases, students are not able to get their papers back because they are absent when the papers are returned, or the students misplace their corrected papers and/or they do not record their scores, so they cannot monitor their performance in their enrolled subjects, and there is no way for them to check if their encoded scores are correct. These motivated the proponents to propose a system that will allow the teachers to encode or upload the scores of students which can be accessible by the students themselves.

#### Acknowledgement

The team would like to express their utmost gratitude and sincerest appreciation to the following who made this study possible:

To Mrs. Cherrie Almazan, our project study

adviser, for her unending support, guidance and patience all throughout the project development.

To our panelists, Ms. Erna-Kristi Martinez,Ms. Cherry Ann Carpiso and Ms. Hydi Toyeng, for sharing their insights and knowledge in improving the project despite our countless mistakes.

To our respondents, the students, and other SIT teachers

In University of Baguio,for their sincere cooperation in answering our queries and testing the system.

To our families and friends, for always believing in

us.

Lastly, the team would like to express their deepest gratitude to the **Lord God Almighty** for his guidance and blessings, this study would not have been possible.

**D.A.F**

**T.C.R**

**I.C.M.R**

**C.T.S**

Table of Contents

TITLE PAGE **………………………………………………………………………………………………………………………** 1 APPROVAL SHEET **……………………………………………………………………………………………………………** 2 Abstract **……………………………………………………………………………………………………………………………** 3

Acknowledgement **…………………………………………………………………………………………………………** 5

Table of Contents **……………………………………………………………………………………………………** 6 List of Tables **……………………………………………………………………………………………………………** 8 List of Figures **…………………………………………………………………………………………………………** 9 CHAPTER

1. INTRODUCTION

Background of the Study **…………………………………………………………** 10 Significance of the Study **……………………………………………………** 16 Objectives of the Study **…………………………………………………………** 18 Scope of the Study **………………………………………………………………………** 19

1. REVIEW OF RELATED LITERATURE/ SYSTEMS **……………………** 20
2. METHODOLOGY

Methodology **…………………………………………………………………………………………** 31 Population and Locale of the Study **……………………………** 34 Data Gathering Techniques **……………………………………………………** 35

1. DISCUSSION OF FINDINGS

Requirements for the Design and Development **……** 37 Design for Mechanic-ko **……………………………………………………………** 44 Testing of the Application **…………………………………………………** 55

1. CONCLUSIONS AND RECOMMENDATIONS

Conclusion **……………………………………………………………………………………………** 58

Recommendations **………………………………………………………………………………** 61

REFERENCES **………………………………………………………………………………………………………………………** 63 APPENDICES

A Statistical Data **……………………………………………………………………………** 67

B Interview Guide **………………………………………………………………………………** 68 C Gantt Chart **…………………………………………………………………………………………** 71 D Statement of Ethics **……………………………………………………………………** 72 E Computation of the Sample Size **………………………………………** 78 F Computation of Interviewed Motorists **………………………** 80 G Statistics and Data Collected **…………………………………………** 81 H Request Letter to Land Transportation Office **…** 91 I Related Literature **………………………………………………………………………** 92 J Beta Test Questionnaire **…………………………………………………………** 93 K Beta Test Results **…………………………………………………………………………** 96 L Computation of Minimum Network Bandwidth **……………**102 M System Requirements Specifications **……………………………**103 N System Profile **…………………………………………………………………………………**213 O System Design Document **……………………………………………………………**221 P Test Cases **……………………………………………………………………………………………**285 Q Requirements Traceability Matrix **…………………………………**294

CURRICULUM VITAE **………………………………………………………………………………………………………**302

#### CHAPTER 1

#### INTRODUCTION

**Background of the Study**

**Significance of the Study**

The Online Class Record intended to benefit the School of Information Technology students and instructors. Through this web-based system, students were able to monitor their class standing. Knowing their scores motivated them to study harder or change their learning habits. Students were able to check if their encoded scores or computed grades were correct. On the part of the teachers, the system served as a tool to ensure correctness of scores and computed grades thereby reducing the possibility of rectification of grades. The benefit of the teachers from the study is that the uploading and printing of students’ scores became easier. Aside from students and teachers, the researchers also benefited from the study. They were exposed to the different phases of software development which allowed them to apply what they learned from their previous subjects. The study was also an opportunity for them to improve their skills and to have an experience which they can cite when they apply for a job. Other researchers also benefited from the study since they were able to use the study as a basis when they’ve done projects similar to the study.

**Scope and Limitation of the Study**

The Online Class Record was intended for the School of Information Technology (SIT), University of Baguio (UB). It aimed to make an online access for students to view their class standing that includes their quizzes, seatwork, assignments, examinations and other graded activities. A student will be notified through system notification if there is an upload of score or grade. With these features of the system, students oversee the subjects that need improvement and strategize on how to improve and pass that certain subject. Moreover, the system does the grade computation for teachers to have a more efficient and accurate way of recording, allows customization of class record wherein adding or reducing the number of graded activities is possible and exporting of class record for printing. Importing of class list downloaded from Academic Information Management System (AIMS) are added so that the names of officially enrolled students can be classified and generation of reports such as students who passed/failed in a certain graded activity, recorded scores and student records from previous or current semester that is part of maintenance of graded activities were also included so teachers can check the percentage of students who passed/failed and reflect on the effectiveness of teaching practice. Also, the system has an account management that will be handled by the SIT secretary. The Online Class Record was limited in recording only lecture or lab major subjects that are in the programs BSIT, BSCS, BSCPE.

#### CHAPTER 2

**REVIEW OF RELATED LITERATURE/ SYSTEMS**

With the help of technology, multiple projects have been made in order to improve grading systems which provide an easier way of passing information to the student regarding their class standing, grades, and attendance. There are advantages of using Online Class Record and one of these is that it helps the student to know their strength and weakness so they can identify the subject they need to focus on and improve their performance in that subject.

The following systems are similar to the study being proposed by the researchers:

GradeBookWizard by Blue Pegasus LLC. (2014). An online gradebook, attendance tracking, and class website solution for teachers, schools, and districts. Teachers can access their gradebook from any PC or Mac with Internet access. They can use their class website to post assignments, instructions, grades, announcements, and handouts for students and parents to access through individual, secure logins (GradeBookWizard, n.d.). It also has a feature which offers a live update of grades for students and this specific feature will be the basis for Online Class Record wherein this system will give an update regarding the class standing of the student.   
 MyGradeBook by KMKVGK Inc. (2019). MyGradeBook is a web-based application with a feature which is a grading summary that allows the teacher to select a student or grading period and they can further customize their report by category. So, for one student they can get a list of all of their grades across a subject or for a particular grading period. The grading system allows users to quickly view missing scores, attendance and assignment summaries, as well as individual student quiz question responses. Scores can be viewed by class, student, or by the individual quiz (brighthubeducation, n.d.). Similar to one of the features of this application, Online Class Record will notify the student of the summary of their scores and attendance.

TrackMyGrades.com (2019). TrackMyGrades.com is a web-based gradebook which allows teachers at any academic level to manage their grades from any computer with internet access. Teachers can also give students and/or parents access to [view their individual grades online](http://www.trackmygrades.com/ParentStudentAccess.aspx) (trackmygrades, n.d.). It also has a feature that can import a CSV file type which contains the list of student and this feature will be the basis for developing the Online Class Record.

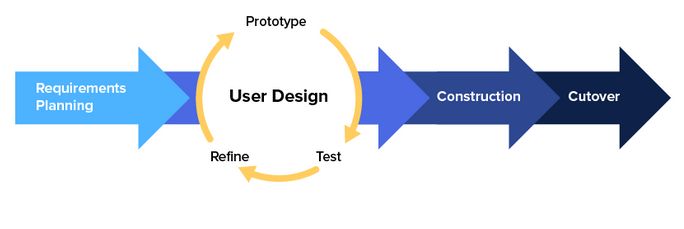
TeacherEase by Common Goal Systems Inc. (2019). TeacherEase is a web-based application which has a feature that allows parents to check their child's current averages and get details. Teachers easily email parents about missed assignments, good student work, behavior, etc. (TeacherEase, n.d.).

#### CHAPTER 3

#### METHODOLOGY

## Study Design

The study falls under applied research where the proponents will be using principles and standards on software development. The proponents will be using the Rapid Application Development (RAD). RAD is a development model prioritizes rapid prototyping and quick feedback over long drawn out development and testing cycles. With rapid application development, developers can make multiple iterations and updates to a software rapidly without needing to start a development schedule from scratch each time. (Kissflow, 2018). Using this approach, The RAD model as shown in Figure 1, illustrates that the initial planning is established, in this phase, the proponents will determine the scope and limitation of the study. These involves (1)researching the current problem (2) defining the requirements for the project and (3)finalizing the requirements with each stakeholder’s approval. In user design the initial product is built, which is then repeatedly modified until it satisfies the user. That is, the software is developed and delivered to the user. The user checks whether the desired functions 'are present. If not, then the software is changed according to the needs by adding, modifying or deleting functions. This process goes on until the user feels that the software can be used productively. Third is the Rapid construction where the software development team of programmers, coders, testers, and developers work together to make sure everything is working smoothly and that the end result satisfies the client’s expectations and objectives. This third phase is important because the client still gets to give input throughout the process. They can suggest alterations, changes, or even new ideas that can solve problems as they arise. Lastly is the cutover which is the implementation phase where the finished product goes to launch. It includes data conversion, testing, and the changeover to the new system, as well as user training. All final changes are made while the coders and clients continue to look for bugs in the system.



*Figure 2*. Rapid Application Development

(Kissflow, 2018)

Requirements Planning. In this phase, the proponents will propose a system that addresses a problem. Then, they will gather the requirements needed to develop the system. The proponents will use the Internet to search for work-related articles and they will conduct an interview at the School of Information Technology. The interviewees are the students and instructors, they will also serve as the stakeholders along with the proponents. The interview will help the proponents to determine the problem of the study, as all the questions of the proponents will be answered. The articles serve as a basis for information and improvements of the study, This will help the researchers to achieve their goal. Also, based on the requirements that will be gathered, the specification of the online class records will be identified in this phase.

User Design. The developers will be creating the prototype. The functionalities of the Online class records will be developed and tested. If the stakeholders are satisfied with the functionality, the developers will proceed to the next module, when the test fails, the developers will fix the errors. The developers and the independent testers will be using the product. The product will be tested by instructors for inputting the class records while the students will check their records if there will be a notification. When the functionality will be tested, the feedback gathered from the testers will be used for fixing the issue.

Construction. In preparation for rapid construction. the developers will use the SDD as a basis in developing the system.Testing of the product will also be on this phase, like internal. In internal testing, the stakeholder will test the online class record system, the process will be tested along with all the functionalities of the system.

Cutover. When all the code developed is error free, the proponents will choose a hosting domain to deploy the system. Although all changes were made, the developers will continue to look for any bugs in the system.

**Locale and Population of the Study**

The study is exclusive for the School of Information Technology, University of Baguio. The target population of this study consists of students who are enrolled during the First Semester SY 2019-2020.

The sampling method that will be used is the non-probability sampling. A non-probability sampling is a sampling technique where the samples are gathered in a process that does not give all the individuals in the population equal chances of being selected (Explorable.com, n.d.). To be able to conduct this type of sampling, the proponents decided to use the convenience sampling. In convenience sampling, the participants will be chosen by the proponents which they think are the most convenient source of data. Since the teachers follow a common process in computing grades, only the panels and the technical adviser from the faculty of the SIT will be requested to participate in the study. They will be asked about the schedule of uploading grades and issues with the current grading system.Using the convenience sampling, the estimated population size(N) of the students of the School of Information Technology is 400 and the sample desired size(n) is 10. The formula for the total population is (N/n), so the total population that will be participating in the study is 40 students. As such, we would continue to invite students to take part in the research until our sample size will be reached. Both of the chosen participants will be joining the testing phase.

**Data Gathering Tools**

Interview and research will be used to gather data needed for the design in the system. The interview is more suitable for the study since the research focus on the needs of students and teachers. An interview guide will be crafted by the proponents to ensure that all needed information will be asked and as for research, the proponents will use online resources to look for similar applications or systems that would help in the development of the system. And lastly, a sample class record template will be requested from the SIT office to help the proponents understand how the class record is created and grades are computed..

**Data Gathering Procedures**

Interview. The proponent will be conducting an interview with different individuals that will be involved in the grading system. The data to be gathered will be in response to the questions in appendix A. The questions involved with students and instructors as the main source of information to gather the needed data for the development of the study, and a semi-structured interview will be conducted to satisfy the questions of the proponents.

Research.The proponent seeks to obtain data by learning about the systems providing similar services and methodologies used in their system. Moreover, the methodologies used in their studies will assist the group in integrating and testing the different functionalities, providing a timeframe to complete in developing their study and making the proper changes to the system.

Observation.The researchers will use participant observation in collecting data to help in developing questions that make sense in native language or relevant to the study.

#### CHAPTER 4 DISCUSSION OF FINDINGS

METHODOLOGY

**Treatment of Data**

In processing the data that will be gathered from the interview, the proponents will follow four steps in qualitative data analysis.First is to become familiar with the data. After conducting the interview, the researchers will familiarize themselves with the gathered data from respondents.Second is revisit research objectives, where the researchers revisit the research objective and identifies the questions that can be answered through the collected data.Third is to develop a framework which is also known as coding or indexing, here the researchers will identify broad ideas, concepts, behaviors, or phrases and assigns codes to them. For example, coding age, gender, socio-economic status, and even concepts such as the positive or negative response to a question. Coding is helpful in structuring and labeling the data.Lastly is to identify patterns and connections.Once the data is coded, the researchers can start identifying themes, looking for the most common responses to questions, identifying data or patterns that can answer research questions, and finding areas that can be explored further(Bhatia,2018).

**Ethical Considerations**

The data that will be gathered from the respondents will be used strictly for the development of the system and will be treated with strict confidentiality. The name of the students and the teachers who will participate will be hidden to ensure anonymity.

During the interview process, the development team shall maintain ethical standards by not asking personal information or any question that is not relevant to the study. Moreover, the questions are designed with the intent to cover the major aspects that will help in developing the system. The informants selected will only be the one who are most important to check, test and build the system in align to the definition of convenience sampling. All sources will be cited appropriately throughout the study.

REFERENCES

BBC (n.d.). Introduction to Computational Thinking. Retrieved from

<https://www.bbc.com/bitesize/guides/zp92mp3/revision/1>

Bhatia, M(2018). Your Guide to Qualitative and Quantitative Data Analysis Methods.

Retrieved from

https://humansofdata.atlan.com/2018/09/qualitative-quantitative-data-analysis-methods/

Bradley, J.(2019). Target Population Characteristics. Retrieved from<https://smallbusiness.chron.com/target-population-characteristics-65088.html>

Brighthubeducation (n.d.).MyGradeBook Website for Teachers. Retrieved from [https://www.brighthubeducation.com/teaching-methods-tips/](https://www.brighthubeducation.com/teaching-methods-tips/28549-my-grade-book-website-for-teachers/)

[28549-my-grade-book-website-for-teachers/](https://www.brighthubeducation.com/teaching-methods-tips/28549-my-grade-book-website-for-teachers/)

ComputationalThinkingCourse (n.d.) Computational Thinking For Educators.

Retrieved from <https://computationalthinkingcourse.withgoogle.com/unit>

Explorable.com (n.d.). Non-Probability Sampling.

Retrieved from <https://explorable.com/non-probability-sampling>

GradeBookWizard (n.d.). GradeBookWizard Home.

Retrieved from<http://www.gradebookwizard.com/>

GradeBookWizard Review (n.d.). GradeBookWizard Review.

Retrieved from [http://users.csc.calpoly.edu/~gfisher/classes/309/specs/TeamName/](http://users.csc.calpoly.edu/~gfisher/classes/309/specs/TeamName/requirements/gradebookwizard_review.html)

[requirements/gradebookwizard\_review.html](http://users.csc.calpoly.edu/~gfisher/classes/309/specs/TeamName/requirements/gradebookwizard_review.html)

Guru99 (n.d.).SDLC (Software Development Life Cycle) Tutorial: What is, Phases, Model.

Retrieved from https://www.guru99.com/software-development-life-cycle-tutorial.html

Kissflow(October 2018).Rapid Application Development: Changing How Developers Work. Retrieved from <https://kissflow.com/rad/rapid-application-development/>.

Landner, S. (n.d)Sampling Method. Retrieved from [https://cirt.gcu.edu/research/developmentresources/research\_ready/](https://cirt.gcu.edu/research/developmentresources/research_ready/quantresearch/)

[quantresearch/](https://cirt.gcu.edu/research/developmentresources/research_ready/quantresearch/)sample\_meth

Lucidchart(2018).Four Phases of Rapid Application Development Methodology. Retrieved from https://www.lucidchart.com/blog/rapid-application-development-methodology

Marzano, R. (December 2006) Classroom Assessment and Grading that work

Retrieved from <http://www.ascd.org/Publications/Books/Overview/>

Mason, M.(September, 2010). Forum Qualitative Sozialforschung / Forum: Qualitative Social Research, Vol 11, No 3. Retrived from http://www.qualitative-research.net/index.php/fqs/rt/printerFriendly/1428/3027

MyGradeBook (n.d.). MyGradeBook Learn More.

Retrieved from<http://www.mygradebook.com/learn_more.cfm>

NSCD (n.d). Class Record.

Retrieved from [images.pcmac.org/Uploads/NyeCounty/.../7060R\_Class\_Record\_](http://images.pcmac.org/Uploads/NyeCounty/NyeCounty/Departments/DocumentsCategories/Documents/7060R_Class_Record_Books.pdf)

[Books.pdf](http://images.pcmac.org/Uploads/NyeCounty/NyeCounty/Departments/DocumentsCategories/Documents/7060R_Class_Record_Books.pdf)

Odhiambo, D. (September 2018). System Design in Software Development.

Retrieved from [https://medium.com/the-andela-way/system-design-in-software-](https://medium.com/the-andela-way/system-design-in-software-development)

[development](https://medium.com/the-andela-way/system-design-in-software-development)[-f360ce6fcbb9](https://medium.com/the-andela-way/system-design-in-software-development-f360ce6fcbb9)

Reddy, C. (2016). Grading System in Education: Advantages and Disadvantages.

Retrieved from<https://content.wisestep.com/advantages-disadvandages-grading->

[system-education/](https://content.wisestep.com/advantages-disadvandages-grading-system-education/)

SDLC Waterfall Model.

Retrieved from<https://www.tutorialspoint.com/sdlc/sdlc_waterfall_model.htm>

[Spanella, T. (2013). The Importance of Assessment.](https://content.wisestep.com/advantages-disadvandages-grading-system-education/)

[Retrieved from](https://content.wisestep.com/advantages-disadvandages-grading-system-education/) [https://study.com/academy/lesson/the-importance-of-assessment-](https://study.com/academy/lesson/the-importance-of-assessment-in-education.html)

[in-education.html](https://study.com/academy/lesson/the-importance-of-assessment-in-education.html)

Thakur, D. (n.d.). [What is build and fix model or ad hoc model? and Explaining its Advantages and Disadvantages.](http://ecomputernotes.com/software-engineering/build-and-fix-model)

[Retrieved from http://ecomputernotes.com/software-engineering/build-and-fix-model](http://ecomputernotes.com/software-engineering/build-and-fix-model)

TrackMyGrades (n.d.). TrackMyGrades. Retrieved from

<http://www.trackmygrades.com/>

TrackMyGrades (n.d.). TrackMyGrades Parent and Student Login Access.

Retrieved from <http://www.trackmygrades.com/ParentStudentAccess.aspx>

TrackMyGrades (n.d.). TrackMyGrades About our Online Gradebook. Retrieved from

http://www.trackmygrades.com/Online-Gradebook.aspx

TeacherEase (n.d.). Online Gradebook - TeacherEase. Retrieved from

https://www.teacherease.com/online-gradebook.aspx

University Of Baguio (2014). UB Student Handbook. Published by University of Baguio

**APPENDIX A**

**INTERVIEW QUESTIONS**

1. How does the class record look like?
2. What are the problems encountered by teachers in recording scores in excel?
3. Is there a limitation of numbers of graded activities?
4. In the class record, what is the basis in using the 50/50, 60/40 and 40/60 percentage in computing the grades in lecture and lab.
5. What are the reports generated in the current grading system?
6. What is the timespan in keeping the old class records before it will be deleted?