ONLINE LEARNING MANAGEMENT SYSTEM WITH SMS NOTIFICATION FOR GATEWAYS INSTITUTE OF SCIENCE AND TECHNOLOGY

A Thesis Proposal

Presented to the Faculty of the

Information and Communications Technology Program

STI College Fairview

In Partial Fulfilment

of the Requirements for the Degree

Bachelor of Science in Information Technology

Adrian C. Ibon

Dancel B. Tee

Darrell B. Cheng

Karlo J. Bonayon

July 2017

ENDORSEMENT FORM FOR PROPOSAL DEFENSE

TITLE OF RESEARCH: Online Learning Management System with SMS Notification for Gateways Institute of Science and Technology

NAME OF PROPONENTS: Adrian C. Ibon

Dancel B. Tee

Darrell B. Cheng

Karlo J. Bonayon

In Partial Fulfilment of the Requirements

for the degree Bachelor of Science in Information Technology

has been examined and is recommended for Proposal Defense.

ENDORSED BY:

Mr. Rubinato G. Lubian III

Thesis Adviser

APPROVED FOR PROPOSAL DEFENSE:

Ms. Elizabeth N. Sagayno

Thesis Coordinator

NOTED BY:

Ms. Mary Rose C. Columbres

Program Head

July 2017

# **APPROVAL SHEET**

This thesis proposal titled: Online Learning Management System with SMS Notification for Gateways Institute of Science and Technology prepared and submitted by Karlo J. Bonayon; Darrell B. Cheng; Ibon C. Adrian; and Dancel B. Tee, in partial fulfilment of the requirements for the degree of Bachelor of Science in Information Technology, has been examined and is recommended for acceptance an approval.

Mr. Rubinato G. Lubian III

Thesis Adviser

Accepted and approved by the Thesis Review Panel

in partial fulfilment of the requirements for the degree of

Bachelor of Science in Information Technology

|  |  |
| --- | --- |
| <Panelists' Given Name MI. Family Name> | <Panelists' Given Name MI. Family Name> |
| Panel Member | Panel Member |

<Panelists' Given Name MI. Family Name>

Lead Panelist

Noted:

|  |  |
| --- | --- |
| Ms. Elizabeth N. Sagayno | Ms. Mary Rose C. Columbres |
| Thesis Coordinator | Program Head |

July 2017

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# **Introduction**

One of the widely used aspect of technology is a website. A website is a set of interconnected web pages, usually including a homepage, generally located at the same server, and prepared and maintained as a collection of information by person, group, or organization. One of the major strengths of the web is that virtually everyone who owns a computer may contribute high-value information and to make valuable information be found.

A Learning Management System (LMS) is a software application or web-based technology used to plan, implement, and assess a specific learning process. A Learning Management System provides an instructor with a way to create and deliver content, monitor student participation, and assess student performance. It also involves the administration, documentation, tracking, reporting, and delivery of electronic educational technology courses or training programs.

## Background of the problem

When it comes to learning, there are many different problems to be asserted depending on the educational capabilities of the school. Some of these problems are the insufficiency of learning materials given to the students, insufficient time given for them to learn, incapability of monitoring the student's progress, and communication between the students and the teachers. These are major concerns that the school organizations should solve immediately. It is vital for the school organizations to adapt to the growing technology that surrounds them and embrace the fact that they need these technologies in order to give more high-quality education for the students. Online Learning Management System will solve these problems through the features that it contains. Insufficiency of learning materials will be solved through the use of uploading handouts or e-books to the system. Insufficient time for the students to learn will be solved through these handouts that’s given to them. They can study/read these handouts anytime/anywhere. Incapability of monitoring the student’s progress will be solved through the charts and graphs that are located in the system. These charts represent the progress of the students based on their scores in their assignments and/or quizzes. Lastly, communication between the students and the teachers will be solved through the use of the real-time messaging feature of the system.

## Overview of the current state of the technology

**Quizzes**

The teachers have to create a quiz based on their lesson plan and give it to their students. Quizzes of the students are given manually by dictation or in written format. In dictation, the teacher will dictate the questions for the quiz and the students have to write their answers on a sheet of paper. In written format, the teacher will write the questions of the quiz and the students will answer on a sheet of paper.

**Assignments**

Assignments of the students are given manually by dictation or in written format. The teachers have to create assignments for their students. In dictation, the teacher will dictate the questions of the assignment then the students will write it down and pass their assignment before the stipulated time. I written format, the teachers will photocopy a particular sheet of paper that contains the quiz and the students will answer on the photocopied paper.

**Distribution of handouts/syllabus**

Hard copy of handouts is given to the students. Syllabus of the subjects are also in hard copy. The teacher will make the treasurer collect money to his/her classmates for the photocopying of their handouts. Once the handout was photocopied, the students can now take down notes using their handouts. The students don’t have such materials to study their lessons when there are no classes. Here are the reasons why there are no classes:

1. Suspension of classes

2. Events of the school

3. Holidays

**Notifications**

Absent students are not notified when there are quizzes or assignments given to the class unless they ask their classmates or their classmates notify them voluntarily because teachers notify the students in a verbal manner.

## Objectives of the study

The main objective of the proponents is to provide a learning system for Gateways Institute of Science and Technology designed to improve their education through the use of technology.

The proponent’s specific objectives are as follows:

1. Provide sufficient learning materials/resources for the students.

2. Provide a learning system that the students can use to advance through their lessons.

3. Provide a learning system that the teachers can use to monitor the student’s progress and performance.

4. Provide a learning system that will ease the work of teachers to give assignments and quizzes.

5. Provide a learning system that can be used by the students and teachers for their communication.

## Scope and limitations of the study

# The general purpose of this study is to provide a learning system for the teachers to use to give better education for the students and for the students to learn through the use of technology. Students, teachers and/or faculty members, and administrators are the target users or beneficiaries of the study.

Features of the system:

Maintenance

Administrator

* **Add Student**

This module allows the administrators to add a student. The administrator can choose between adding a student manually (typing information of the student), or by importing a CSV file that contains the list of students and follows the format of their master list (excel).

* **Add Teacher**

This module allows the administrators to add a teacher by entering the teacher’s information.

* **Add Administrator**

This module allows the system administrator to add another administrator.

* **Add Handout**

This module allows the administrator to add handouts to be used by the students.

* **Add Section**

This module allows the administrator to add a section.

* **Add Subject**

This module allows the administrator to add a subject.

* **Add School Year**

This module allows the administrator to add a school year.

* **Add Reminder**

This module allows the administrator to add a reminder for the students.

* **Add Trivia**

This module allows the administrator to add a trivia.

* **Add Program**

This module allows the administrator to add a program.

* **Edit Student**

This module allows the administrator to edit a student.

* **Edit Teacher**

This module allows the administrator to edit a teacher.

* **Edit Administrator**

This module allows the administrator to edit another administrator.

* **Edit Section**

This module allows the administrator to edit a section.

* **Edit Subject**

This module allows the administrator to edit a subject.

* **Edit Content**

This module allows the administrator to edit the contents such as the mission and vision of the school.

* **Edit Reminder**

This module allows the administrator to edit a reminder.

* **Edit Trivia**

This module allows the administrator to edit a trivia.

* **Edit Program**

This module allows the administrator to edit a program.

* **Inactive Student**

This allows the administrator to inactive a particular student.

* **Inactive Teacher**

This allows the administrator to inactive a particular teacher.

* **Inactive Administrator**

This allows the administrator to inactive another administrator.

* **Delete Section**

This module allows the administrator to delete a section.

* **Delete Subject**

This module allows the administrator to delete a subject.

* **Inactive School Year**

This allows the administrator to inactive a school year.

* **Inactive Semester**

This allows the administrator to inactive a semester.

* **Delete Reminder**

This allows the administrator to delete a reminder.

* **Delete Trivia**

This allows the administrator to delete a trivia.

* **Delete Program**

This allows the administrator to delete a program.

**Teacher**

* **Add Handout**

This module allows the teacher to add handouts or copy handouts to another classes.

* **Add Photo**

This module allows the teacher to upload photos.

* **Add Assignments**

This module allows the teacher to add assignments. The teacher can choose what type of assignment he/she wants.

* **Add Quizzes**

This module allows the teacher to add quizzes. The teacher can choose what type of quizzes he/she wants.

* **Add Rubrics**

This module allows the teacher to add rubrics for assignments and threaded discussions.

* **Add Threaded Discussions**

This module allows the teacher to add a threaded discussion.

* **Edit Assignment**

This module allows the teacher to edit an assignment.

* **Edit Quiz**

This module allows the teacher to edit a quiz.

* **Edit Rubric**

This module allows the teacher to edit a rubric.

* **Edit Threaded Discussion**

This module allows the teacher to edit a threaded discussion.

* **Delete Rubric**

This module allows the teacher to delete a rubric.

* **Delete Quiz**

This module allows the teacher to delete a quiz.

* **Delete Assignment**

This module allows the teacher to delete an assignment.

* **Delete Threaded Discussion**

This module allows the teacher to delete a threaded discussion.

**Student**

* **Add Photos**

This module allows the student to add photos.

* **Delete Photos**

This module allows the student to delete photos.

-Transaction

Teacher

* **Upload handouts**

The teacher can upload handouts for the students to download.

* **Create quizzes**

The teacher can create quizzes for the students to take. Questions in the quiz can be imported from and exported to the question bank. The purpose of the question bank is to handle and give questions. Once the teacher exports questions in the question bank, those questions can be imported to other sections too. This avoids the repetition of creating questions for quizzes and assignments.

* **Create assignments**

The teacher can create quizzes for the students to take.

* **Create threaded discussions**

The teacher can create threaded discussions for the students to answer.

* **Import and export questions in the question bank**

The teacher can import and export questions in the question bank to avoid the repetition of creating quiz questions.

**Student**

* **Download Handouts**

Handouts uploaded by the teachers can be previewed/downloaded by the students.

* **Take quizzes**

Quizzes given by the teacher can be taken by the students.

* **Take assignments**

Assignments given by the teacher can be taken by the students.

* **Answer threaded discussions**

Threaded discussions given by the teacher can be answered by the students.

**Administrator**

* **Assign subject to section**

This module allows the administrator to assign subjects a section.

* **Enroll students to section**

This module allows the administrator to enroll students to a section.

* **Assign section and subjects to teacher**

This module allows the administrator to assign section and subjects to a teacher.

-Utilities

* **Backup & Restore**

The purpose of this is to protect the database against data loss and reconstruct the database after data loss. This also involves data preservation and data transfer.

* **Log History**

The Log History records the activities made by the administrators, teachers, or students.

-Reports

* **Quiz, Assignment, Threaded Discussion report**

This involves the scores of the students in the respective tasks.

* **Student’s progress**

This is a chart that represents the percentage of downloaded handouts by the students.

* **Item Analysis**

This contains the statistics such as the percentage or rate of the students who passed or failed a certain task.

Limitations

The proposed system does not cater online examinations as it is too risky. Unstable internet connection may cause problems and conflicts when taking the exam. Also, the system produces only the scores of student’s quizzes, assignments, or answers in the discussion forum. Therefore, viewing of the overall grade of the students is not possible.

# **LitErature Review**

## Review of related literature, studies or systems

## Learning management systems are known in the literature by several different names. These include course management systems, virtual learning environments, and e-learning courseware. Some authors recognize distinctions between course management systems and e-learning management systems, while others argue that the term "course management system" abandoned, since the acronym CMS is also used for content management systems and may cause confusion.

## -LMS Growth

## The Campus Computing Project reported in 2002 that approximately three-quarters of all colleges and universities in the U.S. had adopted an LMS and that nearly one-fifth of all college courses used an LMS. By 2006, LMS adoption had increased to 90%. (Yefim K., 2010)

## Bersin & Associates, researching industry trends in North American LMS usage, note that between the years 2004 and 2006, the LMS market enjoyed a growth of 26% and generate an estimated 480 million dollars in annual revenues. (Yefim K., 2010)

## With these, the proponents can say that LMS has become popular among universities not only in the Philippines, but also around the world as the vast majority of U.S. based journals and other printed and digital media tend to use the terms “learning management system” and “course management system” interchangeably, while the designation “virtual learning environment” is most popular in Europe and Asia. (Yefim K., 2010)

## -LMS Features

## Dabbagh & Bannan-Ritland (2005) identified the most common features of an LMS by categorizing them as pedagogical tools for: content creation, communication, assessment, and administration. (Yefim K., 2010)

## We can conclude the similarities between the proposed system and the author’s views in terms of the LMS features. The proposed system also handles content creation, communication, assessment, and administration.

## The differences in author’s views can be observed through the statement of Ioannu & Hannafin; Pina 2007, Siemens (2004), noted that the LMS interface is not friendly to many users and should be simplified and made more intuitive. (Yefim K., 2010)

This view is somehow vague because it generalizes the majority of LMS in his/her own opinion. This view contradicts the proponent’s point of view regarding the user interface as the user interface (from the perspective of the proponents) depends on the viewers or users of the system.

## Synthesis

The proponents related and differentiated the research based on the flow of the proposed system. The proponents believe that there was no duplication occurred in the process of developing the project as the project was built with the features depending on the requirements of the client.

Based on the literatures stated, the proponents conclude that the growing technology that surrounds us can be used not only for entertainment, but also to further improve the quality of education and maximize the learning capabilities of school organizations.

# **Project Management**

## Methodology

To accomplish this research, the proponents chose the 4th Generation Technique (4GT). The proponents believe that this methodology fits the proposed system. The methodology fits the proposed system because the 4GT uses 4th Generation Languages which is flexible and easy to understand. Other than that, it simplifies the programming process.

The term fourth generation techniques (4GT) encompasses a broad array of software tools that have one thing in common: each enables the software engineer to specify some characteristic of software at a high level. The tool then automatically generates source code based on the developer's specification. There is little a debate that the higher the level at which software can be specified to a machine, the faster a program can be built. The 4GT paradigm for software engineering focuses on the ability to specify software using specialized language forms or a graphic notation that describes the problem to be solved in terms that the customer can understand (Mishal, 2012).

4GLs are more programmer-friendly and enhance programming efficiency with usage of English-like words and phrases, thereby increasing the productivity of professionals able to engage in software development.

Stages of 4GT:

1. Requirements gathering – The proponents gathered requirements/information that will be used in the development of the proposed system.

2. Design strategy – The proponents strategized what designs will be suitable for the proposed system.

3. Implementation using 4GL – At this phase, the proponents used a 4GL to develop the proposed system.

4. Testing – The proponents conducted tests to find bugs/errors in the proposed system.

## **H**ardware/Software

**-Hardware**

1. Operating System – Kali Linux was the OS used by the proponents.

2. Memory – 4 gigabytes are the size of the of RAM (Random Access Memory) used by the proponents. 465 gigabytes are the size of the ROM (Read-Only Memory) used by the proponents.

**-Software**

1. Browser – Used by the proponents for testing.

2. Xampp – The server used by the proponents.

3. Sublime Text – Text editor used by the proponents.

4. SMS Gateway – Mobile application used by the proponents for SMS Notification.

## Calendar of Activities

1. Requirements Gathering - This phase involves gathering of information that will be used for solving the problem of the customer/client.

2. Design Strategy - This process involves working on the appropriate design for the system.

After the requirements and information gathering, the proponents started to design the proposed system. The first one designed was the database, software architecture, then the interface.

3. Implementation using 4GL - This phase involves the generation of codes for the function of the system. The language to be used is a 4th Generation Language.

4. Testing - This phase involves testing of the functions of the system to remove errors and improve the system.

The Gantt chart presents the summary of activities. Listed are the activities and opposite them are their duration or periods of execution.

**Gantt chart of Activities**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| MONTH | JUNE | | | | JULY | | | | AUGUST | | | | | SEPTEMBER | | | | | OCTOBER | | | | | NOVEMBER | | | | | DECEMBER | | | | | JANUARY | | | | |
| ACTIVITY |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |
| Requirements  gathering |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |
| Design strategy |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |
| Implementation  using 4GL |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |
| Testing |  |  |  |  |  |  |  |  |  |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |  | |  |  |  |

## : Execution process

## : Finished

**Budgetary Estimate**

|  |  |  |
| --- | --- | --- |
| Quantity | Specifics | Approximate Cost |
| 20 pages, 3 copies | Printing of documentation | Php 60 |
| 1 | Paid domain | Php 1000 |
|  | Transportation | Php 550 |
|  | Food | Php 1500 |
| 3 pcs. | Folder | Php 24 |
| 3pcs. | Clip | Php 15 |

## Human Resources

The following pages contains the curriculum vitae of the researchers and the Adviser’s Acceptance Form.

Curriculum Vitae of

KARLO J. BONAYON

Block 30 Lot 1 Good Harvest Subdivision Novaliches, Caloocan City

bonayon.karlo@gmail.com

09173302328

EDUCATIONAL BACKGROUND

|  |  |  |
| --- | --- | --- |
| Level | Inclusive Dates | Name of school/ Institution |
| Tertiary | June 2014 | STI College Fairview |
| Vocational/Technical |  |  |
| High School | June 2010 | Caloocan City Business High School |
| Elementary | June 2004 | Urduja Elementary School |

PROFESSIONAL OR VOLUNTEER EXPERIENCE

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Nature of Experience/  Job Title | Name and Address of Company or Organization |
|  |  |  |

Listed in reverse chronological order (most recent first).

AFFILIATIONS

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Name of Organization | Position |
| January 2017 | Student Council of STI College Fairview | Member |

Listed in reverse chronological order (most recent first).

SKILLS

|  |  |  |
| --- | --- | --- |
| SKILLS | Level of Competency | Date Acquired |
| Java | Intermediate | June 2015 |
| C# | Intermediate | June 2015 |
| HTML | Expert | June 2016 |
| CSS | Intermediate | June 2016 |
| JavaScript | Intermediate | June 2016 |
| PHP | Intermediate | May 2016 |
| C++ | Beginner | May 2017 |
| Python | Beginner | May 2017 |

TRAININGS, SEMINARS OR WORKSHOP ATTENDED

|  |  |
| --- | --- |
| Inclusive Dates | Title of Training, Seminar or Workshop |
| June 2017 | FEU Tech Summit 2017 |

Listed in reverse chronological order (most recent first).

Curriculum Vitae of

DARRELL B. CHENG

Barangay 178 area D Camarin, Caloocan City

cheng.darrell12@gmail.com

09264668713

EDUCATIONAL BACKGROUND

|  |  |  |
| --- | --- | --- |
| Level | Inclusive Dates | Name of school/ Institution |
| Tertiary | June 2014 | STI College Fairview |
| Vocational/Technical |  |  |
| High School | June 2010 | Pagsahang National High School |
| Elementary | June 2002 | Dapdap Elementary School |

PROFESSIONAL OR VOLUNTEER EXPERIENCE

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Nature of Experience/  Job Title | Name and Address of Company or Organization |
|  |  |  |

Listed in reverse chronological order (most recent first).

AFFILIATIONS

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Name of Organization | Position |
|  |  |  |

Listed in reverse chronological order (most recent first).

SKILLS

|  |  |  |
| --- | --- | --- |
| SKILLS | Level of Competency | Date Acquired |
| Java | Intermediate | June 2015 |
| C# | Intermediate | June 2015 |
| HTML | Intermediate | June 2016 |
| CSS | Intermediate | June 2016 |
| JavaScript | Intermediate | June 2016 |
| PHP | Intermediate | May 2016 |
| AngularJS | Intermediate | May 2017 |
| NodeJS | Intermediate | May 2017 |
| Kali Linux | Intermediate | March 2017 |
| PenTesting | Intermediate | March 2017 |

TRAININGS, SEMINARS OR WORKSHOP ATTENDED

|  |  |
| --- | --- |
| Inclusive Dates | Title of Training, Seminar or Workshop |
| June 2017 | FEU Tech Summit 2017 |
| August 2016 | Programmers, Developers Meetup |

Listed in reverse chronological order (most recent first).

Curriculum Vitae of

ADRIAN C. IBON

Waterhole A Unit 1 Barangay Commonwealth, Quezon City

adrianian38@gmail.com

09754174658

EDUCATIONAL BACKGROUND

|  |  |  |
| --- | --- | --- |
| Level | Inclusive Dates | Name of school/ Institution |
| Tertiary | June 2014 | STI College Fairview |
| Vocational/Technical |  |  |
| High School | June 2010 | Kalayaan National High School |
| Elementary | June 2004 | North Fairview Elementary School |

PROFESSIONAL OR VOLUNTEER EXPERIENCE

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Nature of Experience/  Job Title | Name and Address of Company or Organization |
|  |  |  |

Listed in reverse chronological order (most recent first).

AFFILIATIONS

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Name of Organization | Position |
|  |  |  |

Listed in reverse chronological order (most recent first).

SKILLS

|  |  |  |
| --- | --- | --- |
| SKILLS | Level of Competency | Date Acquired |
| Java | Beginner | June 2014 |
| C# | Beginner | June 2015 |
| HTML | Beginner | June 2016 |
| CSS | Beginner | June 2016 |
| JavaScript | Beginner | June 2016 |
| PHP | Beginner | May 2016 |

TRAININGS, SEMINARS OR WORKSHOP ATTENDED

|  |  |
| --- | --- |
| Inclusive Dates | Title of Training, Seminar or Workshop |
|  |  |

Listed in reverse chronological order (most recent first).

Curriculum Vitae of

DANCEL B. TEE

1055 St. Clare St. Barracks 2 Tala, Caloocan City

danceltee2624@gmail.com

09476444765

EDUCATIONAL BACKGROUND

|  |  |  |
| --- | --- | --- |
| Level | Inclusive Dates | Name of school/ Institution |
| Tertiary | June 2014 | STI College Fairview |
| Vocational/Technical |  |  |
| High School | June 2010 | Lagro High School |
| Elementary | June 2004 | School of Our Lady Trinity |

PROFESSIONAL OR VOLUNTEER EXPERIENCE

|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Nature of Experience/  Job Title | Name and Address of Company or Organization |
|  |  |  |

Listed in reverse chronological order (most recent first).

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|  |  |  |
| --- | --- | --- |
| Inclusive Dates | Name of Organization | Position |
|  |  |  |

Listed in reverse chronological order (most recent first).

SKILLS

|  |  |  |
| --- | --- | --- |
| SKILLS | Level of Competency | Date Acquired |
| HTML | Intermediate | June 2015 |
| CSS | Intermediate | June 2015 |
| PHP | Intermediate | June 2016 |

TRAININGS, SEMINARS OR WORKSHOP ATTENDED

|  |  |
| --- | --- |
| Inclusive Dates | Title of Training, Seminar or Workshop |
|  |  |

Listed in reverse chronological order (most recent first).

# **References**

Yefim, K. (2010). Learning Management System Technologies and Software Solutions for Online Teaching: Tools and Applications [E-Book]. Retrieved from: <https://books.google.com.ph/books?id=2OsPGIvgjGwC&printsec=frontcover&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false>

Mishal (2012) Software Engineering 4th Generation Techniques [Webpage]. Retrieved from:<http://www.1000sourcecodes.com/2012/05/software-engineering-fourth-generation.html>

Asdasdasdasd

Hello world