# 1. Introduction

Intro::

## 1.1 Project Background

## 1.2 Project Aims and Objectives

The aim of this project is to discuss and investigate the possibility of developing and implementing a computerized course management system for computing course provided by Woodlands University College, as per the directions and requirements of the stakeholders involved and the requirements developed from different other existing system like this one. The system should later be adaptive to scale it for all the courses provided by the college. To conquer this aim, following objectives can be set for this project:

* 1. Study the given documents including brief.
  2. Recognize and collect necessary information of problem domains to understand requirements.
  3. Form plans for elicitation to form requirements specifications.
  4. Conduct meetings with stakeholders to validate the requirements.
  5. Create system designs documents to fulfill the needs from user logs and requirements.
  6. Create prototypes according to requirements with regular validation from clients.
  7. Create Testing plans to test the system.
  8. Confirm and deliver the system to the clients.

## 1.3 Project Development Methodology

The project is conducted through Scrum Agile method. This is a principle of software development where clients and users are also involved in developing the system throughout the development. Jira is used for Project management and GitHub is used to implement the version control of the system. The system is created in Object Oriented Method which implies all the major areas of software or system as classes with different objects. Node JS with express libraries is used for creating the backend of the system whereas HTML, CSS and JavaScript is used for frontend. MongoDB is used to create databases used to store records.

# 2. Requirements Engineering

Requirements Engineering is the process of formulating the requirements of the system. The requirements can be functional (features of the system or software) and non-functional (speed, reliability). This is formed by different elicitation activities like interviews with clients and references from other system software.

## 2.1 Elicitation Activities

### 2.1.1 Problem Domain Description

## 2.2 Requirements Specification

### 2.2.2 Functional Requirements

Functional Requirements are the features and facilities that a system needs to deliver. They are generally active requirements of the system that requires an input and gives a certain output (directly or indirectly). The following are the lists of functional requirements for records management system and Student portal for Woodland University College:

**Records Management System**

1. A user with proper access level should be able to add any data, and edit, delete, or archive it with one click of a button.
2. A user should be able to view the data (according to needs) with one click.
3. A user should be able to re-enlist the archived data.
4. Only Hashed password should be stored instead of actual password literals.

**Students Portal**

Requirements for student portal is separated for different types of users.

Common:

1. Users should log in with proper credentials.
2. All users should be able to manage their schedule through a diary management system.
3. Different pages should be shown for different kinds of users (admin, tutor, module leader and student).
4. Users should be able to change their passwords.

Admin:

1. Admin should be able to create global announcements.
2. Admin should be able to admit a student to a certain module.
3. Admin should be able to create, edit and delete records.

Module Leaders:

1. Module leader should be able to create announcement for a certain module.

Tutors:

1. The teachers should be able to create announcements for the students they teach.
2. The teachers should be able to upload resources and assignment public to the students they teach.
3. The teachers should be able to view the submitted documents and grade the assignment.

Students:

1. Students need to be able to submit a document or a file as assignment submission.
2. Grades should be visible to the students in their modules.
3. Students should be able to access the announcements and reading materials from the teachers.

### 2.2.2 Non-Functional Requirements

Non-functional requirements are the passive features requirements or performance requirements of a system. Some of these can be superficial attributes and others can be well-defined properties of the system needs. These requirements are listed below.

**Records Management System**

1. Performance

The Records management should perform all tasks within 3 seconds timeframe.

**Student portal**

# 3. System Analysis and Design

This component of the report contains the design documentation and system analysis. The system's functional requirements are obtained using object-oriented analysis (OOA) methodologies. Based on their function and characteristics, classes are recognized and categorized. Mongo DB is used to store records and data.

## 3.1 Preliminary Design Stages

Preliminary design stages consists of textual analysis, even analysis and a class-responsibility-collaborator diagrams to validate the requirements specification.

### 3.1.1 Textual Analysis

The textual analysis of the system is illustrated in this sub-section of the report. The major candidate classes and their use cases BBBB BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBare

# 4. System Interface Designs

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