# I, Models use in project:

## ChangeClass:

Use to handle change class management for student. Admin will know what semester and what class that students move to. Properties: id, student, oldClass, newClass, semester, status and reason. The reason field is for school admin response that why accept or reject. When the Student sent request to change class, the default status of change class request is “process”. This model have 3 main status: process, accept and reject.

## City:

Use to save data of City. Properties: id, cityname, status.

## Class:

Use to manager class in school. A school will have many class and each class just in one school -> relationship to school is ManyToOne. Properties: id, classname, classTeacher, classOrganization. classTeacher is mapping to Teacher\_Subject\_Class table to manager teacher teach subject and in what class. classOrganization is for school management, the system will know that class in what organization.

## District:

Use to save data of District. Properties: id, districtname, status and city that map to city table.

## Ethnic:

Use to save data of Ethnic. Properties: Id, ethnic, status.

## Gender:

Use to save data of Gender. Properties: Id, gender, status.

## Mark:

Use to save data for student mark. Properties: Id, mark, weight. There are 3 kinds of weigh such as 0.1 for coefficient 1, 0.2 for coefficient 2, 0.3 for coefficient 3.

## Organization:

Use to handle Organization Management. Properties: Id, schoolcode, schoolname, wardorganization, ward, status, operating day, classOrganization. This model is design to handle school and ward management. SchoolCode and SchoolName, wardorganization, status, operatingday are school information otherwise ward is storing ward information.

## Religion:

Use to save data of Religion. Properties: Id, religion, status.

## Role:

Use to save data of Role. Properties: Id, role name. there are four main roles: student, teacher, school admin and super admin.

## Semester:

Use to save data of Semester. Properties: Id, Semester, Year. This model is general model use for all system and management by super admin. When the Super Admin start new semester, database will create new semester and change status in table teacher\_class that close all the record in old semester.

## Student Transcript:

Use to store student transcript. Properties: id, student, semester, subject, marks. This model relates to user and subject, mark, semester model to management the study results of student in each subject and each different semester.

## Subject:

Use to handle information of subject. Properties: subjectcode, subjectname, organizations, subjectTeachers. This model relates to teacher\_class table to manager the subject and semester that teacher teach; organizations for locate what school organizations in use the subject.

## TeacherClassSubject

Use to manager teacher teach what subject and in what class in each semester. Properties: id, teacher, classTeaching , subjectTeaching, status. It does not have the semester field but still relate to semester that when super admin starts new semester, all record in this table will change status from active to inactive and in case that the old student continues teach that subject in that class next semester, school admin can update status of record in Update Function.

## Users

This is the most important model of School Management System that have many data to handle. Properties: rollnumber, fullname, username, password, email, gender, ethnic, religions, picture, hobbies, address, hometown, parrentName, status, roles, teacherclass, studentclass, lastchangepassword, deactivetime, teacherClassSubject, schoolOrganization. Rule: each user must have one rollnumber, username and email. The status must be active or deactive. Roles in this model is related to role model and one user can have more than one role. Picture is String type that locates the path to avatar picture locate in database. And because of user can have more than once role that teacherclass is for teacher role that manager what class that teacher responsibilities, while student class is for student role that manager what class that student in. lastchangepassword is Date type that save the Data last time user update, change password, this feature use to checking if user changed password last time after 6 months ago, user can’t be logging in and must change password. Deactivetime use to export report for school admin and super admin role, the report will include students in current year that be deactive.

## Ward

Use to stored data of ward. Properties: Id, wardname, status, district.

# II. Feature

## Auth Controller:

### Definition:

This Controller use to handle login to system. Two-way login is by username, password, and google authentication.

### Using:

When user input username and password, the system will first be checking in database if the user with username is exist. If the user is not existed, the system will call back to login site with error logging fail, otherwise, if the user exists, the system will be using Password Encoder to check if password use provide match to encode password in db. If password is matching that system will check if that user change password in time or expired and redirect to select role page or reset password page.

## Excel Package:

### ExcelDownloadController

#### a.1: Definition

This Controller use to handle download excel report for each situation.

#### a.2: Using

##### a.2.1: method dowloadDeactiveStudentReport(response, session)

This method will get all student in school organizations that have status is inactive and the timedeactive of the user must be in current year. This student list then will be export to Excel and accept user to download directly from website by using response.

##### a.2.2: method downloadEthnicStudentReport(response, session)

This method will get all student in school organization that have ethnic selected provide by website. This student list then will be export to Excel and accept user to download directly from website by using response.

##### a.2.3: method downloadSubjectTeacherReport(response, session)

This method will get all Teacher in school organization that the teacher teaches the subject selected provide by website. This teacher list then will be export to Excel and accept user to download directly from website using response.

##### a.2.4: method downloadStudentUpClass(response, session)

This method will get all Student in school organization that the average mark of both semester is >=5. The system will calculate average mark automatically and export to Excel with average mark of each student then accept user to download directly from website using response.

##### a.2.5: method downloadSADeactiveReport(response)

This method is similar to method downloadDeactiveStudentReport except that the student list will be retrieve from all organizations not in one school organization.

##### a.2.6: method downloadSAUpClassReport(response)

This method is similar to method downloadStudentUpClass except that the student list will be retrieve from all organizations not in one school organization.

##### a.2.7: method downloadSASubjectTeacherReport(response)

This method is similar to method dowloadSubjectTeacherReport except that the teacher list will be retrieve from all organizations not in one school organization.

##### a.2.8: method dowloadSAEthnicStudentReport(response)

This method is similar to method downloadEthnicStudentReport except that the student list will be trtrieve from all organizations not in one school organization.