

Software Requirement Specification Document

Nile Schools System

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1 Introduction

1.1 Purpose of this document

The purpose of this document is to give a detailed description of the requirements for the “Nile Schools System”. It will illustrate the purpose and complete declaration for the development of system. This document will cover each of the system’s intended features, as well as offer a preliminary glimpse of the software application’s User Interface (UI). The document will also cover hardware, software, and various other technical dependencies.

1.2 Document Conventions

This document features some terminology which readers may be unfamiliar with. See Appendix A (Glossary) for a list of these terms and their definitions.

1.3 INTENDED AUDIENCE AND READING SUGGESTIONS

This document is intended for all individuals participating in and/or supervising the “Nile Schools System” project. Readers interested in a brief overview of the product should focus on the rest of Part 1 (Introduction), as well as Part 2 of the document (Overall Description), which provide a brief overview of each aspect of the project as a whole. Readers who wish to explore the features of “Nile Schools System” in more detail should read on to Part 3 (Functional Requirements), which expands upon the information laid out in the main overview. Readers interested in the non-technical aspects of the project should read Part 5, which covers performance, safety, security, and various other attributes that will be important to users. Readers who have not found the information they are looking for should check Part 8 (Other Requirements), which includes any additional information which does not fit logically into the other sections.

1.4 Project Scope

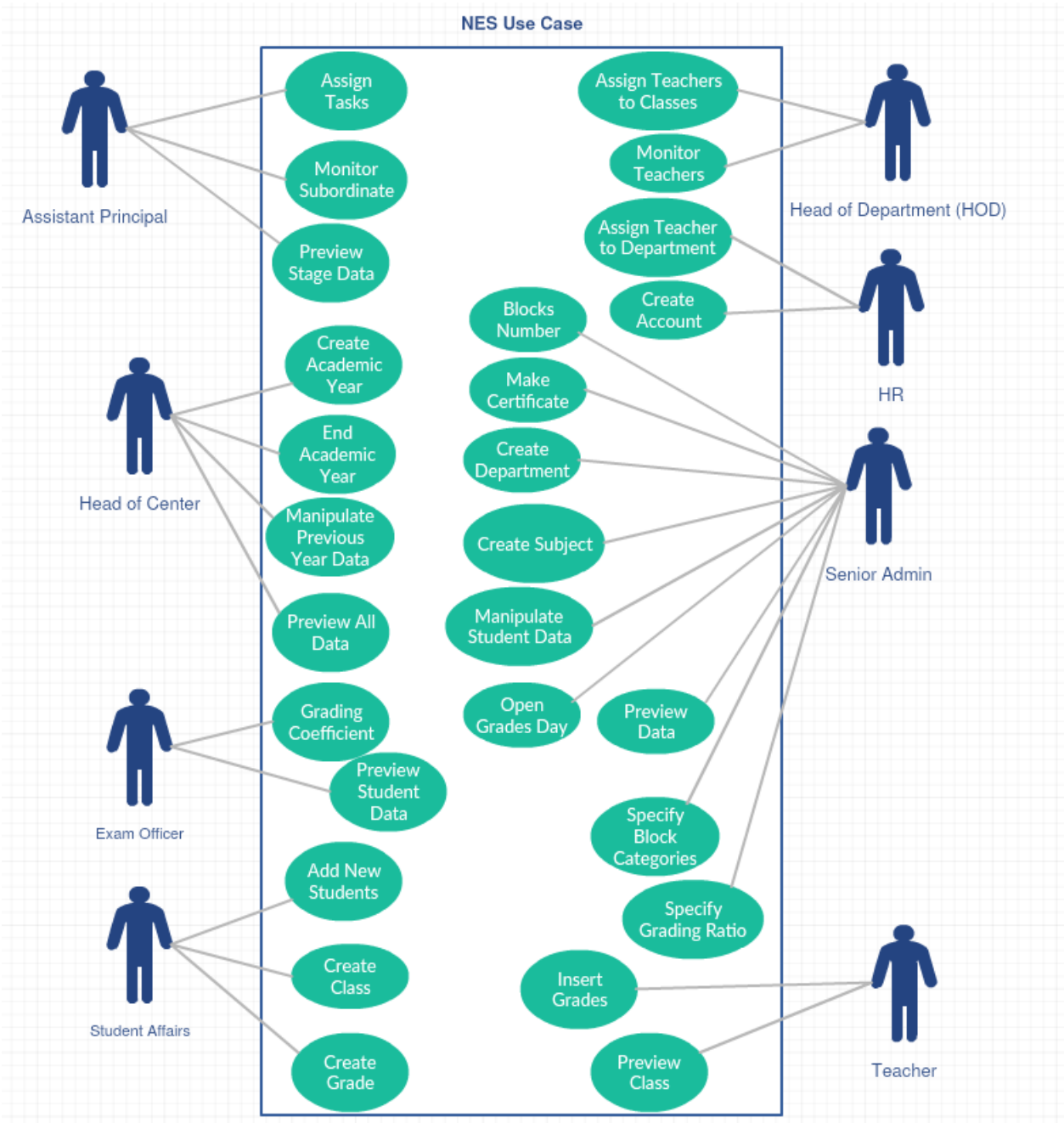
This software system will be a School management System “Nile Schools System” for a local school. This system will be designed to maximize the schools’s efficiency and system reliability by providing tools to simplify the enrollment of the students and distributing teachers among the classes and also assist and automate the grade calculation and certificates creation process, which would otherwise have to be performed manually. By maximizing the schools’s work efficiency the system will meet the schools’s needs while remaining easy to understand and use.

2 General Description

2.1 Product Features

2.2 User Classes and Characteristics

The following diagram represents the user classes and their main characteristics



2.3 OPERATING ENVIRONMENT

System is not dependent on geographical areas and shall operate in newest versions of all web browsers. The system shall also be accessible only to the computers within the school itself or connected to the school's main server.

3 Functional Requirements

This system is a grading and reports system it consist of three main functions, first to import all students and teachers to the system and give the teacher the ability to insert his students scores and calculate students class work, second to generate reports for every student and last to display statistics to system admin to monitor school progress.

The system is consist of 8 positions and 7 entities every position interact with an entity with its unique way. The 8 positions are

1. Head of center
2. Senior admin
3. Exam officer
4. Assistant principle
5. Head of department
6. Teacher
7. Student affairs
8. HR

The 7 entities are

1. Academic Years
2. Grades
3. Classes
4. Blocks
5. Students
6. Departments
7. Subjects

3.1 Head of center

Head of center is the highest positions in the system, head of center got 4 functions

1. Start new academic year
2. End current academic year
3. Manipulate previous academic year data
4. Preview current academic data

Head of center is the only position with the ability to edit data from previous year, start new academic year, end current academic year.

Head of center can only view current year data without editing it.

Head of center can only create senior admin.

3.2 Senior admin

Senior admin is the most functional in the system with 10 functions

1. Set blocks number
2. Set grades letters
3. Specify blocks criteria
4. Create departments
5. Assign head of departments
6. Create subjects
7. Manipulate students data
8. Open scores day
9. Make Certificate and reports
10. Preview students data

In the start of every academic year senior admin is the one responsible to set blocks numbers and grades letters and along the year to specify blocks criteria.

Also senior admin is responsible to create departments, subjects , assign subject to its department and assign head of each department.

Moreover, senior admin can manipulate students data and preview it but not creating it, that responsibility is assigned to student affairs.

Senior admin is the one responsible to open scores day which is the day when teachers can assign their students scores.

The last functionality for senior admin is making certificates and reports.

3.3 Exam officer

Exam office is the position responsible for 2 simple things first to set score coefficient which is the percentage of class work to the whole score, second thing is to preview students data.

3.4 Assistant principle

Assistant principle has three functions

1. Assign tasks
2. Monitor subordinate
3. Preview stage data

Assistant principle is responsible for assigning a task with a deadline and a subject upon the lower roles in the school hierarchy.

Assistant principle with monitor subordinate functionality can be informed about the processes of the Head of departments, teachers, students in the assigned stage.

The last function preview stage data is previewing any available data or information that had been inserted by any employee (teacher , head of department) in the assigned stage to the assistant principle.

3.5 Head of department

Head of department is the one who manages a department.

Head of department has two functions, assign teachers to their classes and monitor teachers.

3.6 Teacher

Teachers main functionality is to insert students scores also he can preview students data

3.7 Student affairs

Student affairs have three functions

1. Create grades
2. Create classes
3. add new students

Student affairs is the responsible for creating grades and creating classes associative to them.

Student affairs is responsible for adding new students data

3.8 HR

HR has two functions, first to assign teachers to their departments, second to create all accounts but head of center and senior admin

4 Operational Scenarios

4.1 Assistant Principle

Name	Create tasks
Goals	Assign a task with a deadline and a subject upon the lower roles in the school hierarchy.
Triggers	
Pre-Condition	
Post-Condition	
Basic Flow	
Alternative Flows	
Exceptions	Data isn't available.
Qualities	Searching process takes no more than 0.5s.

Name	Monitor teachers & classes
Goals	Update the AP with the latest changes and new data inserted in the stage around the hour.
Triggers	AP wants to be always informed about the processes of the HODs / teachers / students in the assigned stage.
Pre-Condition	Logged in as the AP.
Post-Condition	Provide a Log partition on AP screen that always online and updated with the latest changes in the system (ONLY IN THE ASSIGNED STAGE).
Basic Flow	<ul style="list-style-type: none">• Login with AP account.• Log partition appears on the screen and keeps up with every change in the system.
Alternative Flows	
Exceptions	Data isn't available.
Qualities	Searching process takes no more than 0.5s.

Name	Preview all available data in the stage
Goals	Preview any available data / information that had been inserted by any employee (teacher , HOD) in the assigned stage to the AP.
Triggers	<ul style="list-style-type: none">• The Assistant Principle wants to evaluate the flow of the year of the stage (charts - statistics).• Assistant Principle wants to check about the processes of specific employee / student.• Assistant Principle wants to inform any student's guardians with the student overall classwork.
Pre-Condition	<ul style="list-style-type: none">• Logged in as the Assistant Principle.• Click on Preview data.• Choose a specific entity to list its data Ex(Specific grade in academic year , class , specific block , teacher , student).
Post-Condition	<ul style="list-style-type: none">• View a table with all the information of the search result.• View charts that provide a visual representation of a data which had been checked by the admin from the table.• View some overall statistics about the table.• Search bar should be available if the assistant Principle want further searching.
Basic Flow	<ul style="list-style-type: none">• Login as the Assistant Principle.• Choose Preview data.• Specify the data to be represented.• Click Search.• Specified data appear in an organized table.
Alternative Flows	
Exceptions	Data isn't available.
Qualities	Searching process takes no more than 0.5s.

4.2 Exam Officer

Name	Specify the yearly grading coefficient
Goals	Specify the grading coefficient which is used in the class work grade equation after each block. Ps. Decided yearly.
Triggers	Start of an academic year.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the exam officer. • Click on Grading coefficient.
Post-Condition	<ul style="list-style-type: none"> • View an input field to hold the grading coefficient. • Acceptance message appear on confirm clicked. • Insert it into year specifications table in DB.
Basic Flow	<ul style="list-style-type: none"> • Login as the exam officer. • Choose Grading coefficient. • Specify the grading coefficient. • Enter the exam officer password to confirm the acceptance message.
Alternative Flows	
Exceptions	Grading coefficient input field is empty.
Qualities	

Name	Preview students' data
Goals	Preview any available data / information that had been inserted by teachers and HODs about students.
Triggers	<ul style="list-style-type: none"> • The exam officer wants to evaluate the flow of the year (charts - statistics). • Exam officer wants to check about the processes of specific student.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the exam officer. • Click on Preview data. • Choose a specific entity to list its data Ex(Whole academic year , specific grade in academic year , specific block , student).
Post-Condition	<ul style="list-style-type: none"> • View a table with all the information of the search result. • View charts that provide a visual representation of a data which had been checked by the exam officer from the table. • View some overall statistics about the table. • Search bar should be available if the exam officer wants further searching.
Basic Flow	<ul style="list-style-type: none"> • Login as the exam officer. • Choose Preview data. • Specify the data to be represented. • Click Search. • Specified data appear in an organized table.
Alternative Flows	
Exceptions	Data isn't available.
Qualities	Searching process takes no more than 0.5s.

4.3 Head of Center

Name	Preview all available data.
Goals	Preview any available data / information that had been inserted by any employee (senior admin, teacher, HOD, EO, HR, SA) about any participant in the system (employee, student).
Triggers	<ul style="list-style-type: none"> • The HOC wants to evaluate the flow of the year (charts - statistics). • HOC wants to check about the processes of specific employee / student.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the HOC. • Choose which category to preview its data. • Choose a specific entity to list its data Ex(Whole academic year , specific grade in academic year , specific block , teacher , student).
Post-Condition	<ul style="list-style-type: none"> • View a table with all the information of the search result. • View charts that provide a visual representation of a data which had been checked by the HOC from the table. • View some overall statistics about the table. • Search bar should be available if the HOC want further searching.
Basic Flow	<ul style="list-style-type: none"> • Login as the HOC. • Choose category. • Specify the data to be represented. • Click Search. • Specified data appear in an organized table.
Alternative Flows	
Exceptions	Data isn't available.
Qualities	Searching process takes no more than 0.5s.

Name	Start new academic year.
Goals	Create new academic year entry in DB with new standards to be assigned.
Triggers	Beginning of new academic year.
Pre-Condition	Logged in with the Admin account.
Post-Condition	New entry in academic year table.
Basic Flow	1 - Login in as an admin. 2 - Choose to start a new year.
Alternative Flows	
Exceptions	
Qualities	

Name	End Academic year
Goals	Save the academic year data in the archive and isolate it, to not mix up years data with each other.
Triggers	All the blocks in the year are finished and its data recorded.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the admin. • Click on End Academic year. • Enter the admin's password to confirm the acceptance message.
Post-Condition	<ul style="list-style-type: none"> • Go back to home screen. • Make start new academic year option available and all the other functionality unavailable. • Move all the previous year data into archive table.
Basic Flow	<ul style="list-style-type: none"> • Login as the admin. • Choose End academic year. • Pop-up acceptance message with password input. • Admin insert the right password and click confirm. • The DB cleared from the previous year data.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Year Blocks unfinished. • Admin's password entered wrong.
Qualities	<ul style="list-style-type: none"> • Archive data should be available to be previewed later.

Name	Update previous years data
Goals	Update any student data that had been inserted into the system.
Triggers	<ul style="list-style-type: none"> • A mistake has been made by an employee while inserting the data and needed to be corrected. • A critical change should be done urgently in a previous year Ex(coefficient , block criteria's max value).
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the HOC. • Click on Manipulate Previous year data. • Choose the academic year to represent its data.
Post-Condition	<ul style="list-style-type: none"> • A panel identical of the HOC's normal panel appears with the specified year's data with update privilege not preview only. • HOC then can choose any category and manipulate its data.
Basic Flow	<ul style="list-style-type: none"> • Login as the HOC. • Choose Manipulate Previous year data. • Choose the academic year to represent its data. • An interface appears with all possible categories. • Choose the category that contains the data. • Manipulate the desired data. • Click update.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Data isn't available (can't add data).
Qualities	<ul style="list-style-type: none"> • Searching process takes no more than 0.5s.

4.4 Head of Department

Name	Monitor teachers
Goals	Update the HOD with the latest changes and new data inserted in the stage around the hour.
Triggers	HOD wants to be always informed about the processes of the teachers / students in the assigned department.
Pre-Condition	Logged in as the HOD.
Post-Condition	Provide a Log partition on HOD screen that always online and updated with the latest changes in the system (ONLY IN THE ASSIGNED Department).
Basic Flow	<ul style="list-style-type: none"> • Login with HOD account. • Log partition appears on the screen and keeps up with every change in the system.
Alternative Flows	
Exceptions	Data isn't available.
Qualities	Searching process takes no more than 0.5s.

Name	Assign teachers to classes.
Goals	HOD can assign teachers of his/her department to a certain class with assigned subject.
Triggers	<ul style="list-style-type: none"> • Classes schedules need to be filled. • Class's teacher may be changed.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the HOD. • Click assign teacher.
Post-Condition	<ul style="list-style-type: none"> • View a table with all the teachers in the department. • HOD choose certain teacher. • HOD choose certain subject. • HOD choose certain class. • Click assign.
Basic Flow	<ul style="list-style-type: none"> • Login as the HOD. • Choose assign teacher. • View all teachers in the department. • Choose teacher, class and subject. • Click assign.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Data isn't available. • Teacher hasn't been chosen. • Class hasn't been chosen. • Subject hasn't been chosen.
Qualities	<ul style="list-style-type: none"> • Searching process takes no more than 0.5s.

4.5 HR

Name	Assign teachers to department.
Goals	HR can assign teachers to specific department.
Triggers	<ul style="list-style-type: none"> • Enrol a teacher into specific department.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the HR. • Click assign teacher to department.
Post-Condition	<ul style="list-style-type: none"> • View a table with all the teachers in the system. • HR choose certain teacher OR search for the teacher in a search bar. • View a table with all the departments in the system. • HR choose certain department OR search for the department in a search bar. • Click assign.
Basic Flow	<ul style="list-style-type: none"> • Login as the HR. • Choose assign teacher to deployment. • Choose the department and the teacher. • Click assign.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Data isn't available. • Department hasn't been chosen. • Teacher hasn't been chosen.
Qualities	<ul style="list-style-type: none"> • Searching process takes no more than 0.5s.

Name	Create new Account
Goals	Insert a new employee account into the system to be used either (Teacher – HOD – Exam officer).
Triggers	Register a new employee.
Pre-Condition	Logged in as the admin
Post-Condition	<ol style="list-style-type: none"> 1. Choose the new account role. 2. Create a username and password. 3. New entry in the employees table.
Basic Flow	<ol style="list-style-type: none"> 1. Login as the admin. 2. Choose Add new employee. 3. Choose the role. 4. Create the new account's username
pass.	
5. Click Create.	
Alternative Flows	
Exceptions	<ol style="list-style-type: none"> 1. The role hadn't been chosen. 2. Either of username or password hadn't been entered. 3. The entered username is already existed.
Qualities	<ul style="list-style-type: none"> • Username
password must appear immediately after the account creation for assurance.	
<ul style="list-style-type: none"> • Creation process takes no more than 0.5s. 	

4.6 Senior Admin

Name	Specify Grades Ratio
Goals	Convert the numeric score for students into symbolic characters that represents evaluation.
Triggers	<ul style="list-style-type: none"> • A good visualization that summarize the student category is needed.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the Senior admin. • Click on Grades ratio specifier.
Post-Condition	<ul style="list-style-type: none"> • View a minimum input and maximum input and the character input. • After every enter another three fields is loaded. • Click confirm.
Basic Flow	<ul style="list-style-type: none"> • Login as the Senior admin. • Choose Grades ratio specifier. • Specify the ratios. • Click submit. • The grading ratios is updated in the database.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Exceed the grades balance. Thus, can't add anymore columns.
Qualities	

Name	Make certificate
Goals	Make a certificate for the students with their block/year grades represented in it.
Triggers	<ul style="list-style-type: none"> • Provide the parents with certificate that summarize the students work during the block/year.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the exam officer. • Click on Certificate manager. • Choose Certain academic year. • Choose certain class (optional). • Specify how many blocks should the certificate should cover. • Choose the certificate template (2 designs are provided in the system).
Post-Condition	<ul style="list-style-type: none"> • Certificates made for each student individually with his/her individual grades. • Class work is added into the certificate calculated with specific equation $((\text{Summation of blocks grades} / \text{blocks}) * \text{grading coefficient})$.
Basic Flow	<ul style="list-style-type: none"> • Login as the exam officer. • Choose Certificate manager. • Choose Certain academic year. • Choose certain class (optional). • Specify how many blocks should the certificate should cover. • Choose the certificate template. • Click confirm. • PDF file is generated with of certificates for each student.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Data isn't available. • Certain academic year hadn't been chosen. • of blocks hadn't been chosen. • Template hadn't been chosen.
Qualities	

Name	Access / Update student data
Goals	Update any student data that had been inserted into the system.
Triggers	<ul style="list-style-type: none"> • If there are any change in the student personal data Ex (Address, Parent). • A teacher asks the admin to change a specific grade to correct a mistake been made by the teacher while inserting the grade. • Preview the data to the student's guardian.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the admin. • Click on Manipulate student data. • Manually: Choose the current academic year and class that the student enrolled in Or Automatic: search the student by his name. • Click Search.
Post-Condition	<ul style="list-style-type: none"> • Student personal data appear. • Show the student grades ordered in a table.
Basic Flow	<ul style="list-style-type: none"> • Login as the admin. • Choose Manipulate student data. • Specify the data to be represented. • Click Search. • Specified data appear in an organized table.
Alternative Flows	
Exceptions	Data isn't available.
Qualities	Searching process takes no more than 0.5s.

Name	Specify blocks categories
Goals	Divide a block into individual grading categories for teachers to follow through the academic year.
Triggers	<ul style="list-style-type: none"> • The academic year starts. • The previous block ended and the next block will begin.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the exam officer. • Click on Block specification. • Exam officer specify marks balance Ex (100, 200, 350)
Post-Condition	<ul style="list-style-type: none"> • View a table structure with the block number as an identifier. • View the marks balance. • EO can add columns into the block table and specify its names and how many grades it holds. • Marks balance decrease with every new column added into the block table.
Basic Flow	<ul style="list-style-type: none"> • Login as the exam officer. • Choose Block specification. • Specify the marks balance for this block. • Add columns and specify it into the block table.
Alternative Flows	
Exceptions	• Exceed the marks balance. Thus, can't add anymore columns.
Qualities	

Name	Specify blocks number
Goals	Divide the academic year into individual blocks with individual grading system.
Triggers	Start of an academic year.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the exam officer. • Click on Blocks number.
Post-Condition	<ul style="list-style-type: none"> • View an input field to hold the of blocks. • Acceptance message appear on confirm clicked. • Insert it into year specifications table in DB.
Basic Flow	<ul style="list-style-type: none"> • Login as the exam officer. • Choose Blocks Number. • Specify the blocks number. • Enter the exam officer password to confirm the acceptance message.
Alternative Flows	
Exceptions	Blocks number input field is empty.
Qualities	

Name	Add new Subject
Goals	Insert a new subject into the school system to be taught.
Triggers	<ul style="list-style-type: none"> • The subject was added by the ministry of the education. • The school wants to add an elective subject.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the admin. • Click on Add New Subject option.
Post-Condition	<ul style="list-style-type: none"> • Enter the subject name. • Assign the subject to specific department / HOD or Create new employee (HOD) and assign the subject to the newly HOD. • New entry created in the subject table.
Basic Flow	<ul style="list-style-type: none"> • Login as the admin. • Choose Add new subject. • Enter the subject name. • Assign a supervisor to the subject. • Click Create.
Alternative Flows	
Exceptions	• Subject already exists. • No supervisor is assigned to the subject.
Qualities	• Creation process takes no more than 0.5s.

Name	Open Grades Day
Goals	This feature is available only once a year; Teachers should check their hard copy students evaluating paper and compare it to the data in the system and if any grade is wrong, they can adjust it.
Triggers	<ul style="list-style-type: none"> • Teacher entered a wrong data by mistake. • Teacher want to give a student a bonus grades.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the admin. • Click on Give privilege.
Post-Condition	<ul style="list-style-type: none"> • View table that lists all the registered teachers in the system. • Admin could search for the teacher manually or auto search by name. • Admin chooses the teacher and mark the privilege day by calendar. • Admin clicks Confirm. • New entry inserted into privilege table. • HOD of the teacher gets updated with all the changes by his/her teachers department have done in their privilege day.
Basic Flow	<ul style="list-style-type: none"> • Login as the admin. • Choose Give privilege. • Choose the teacher and insert the day of privilege. • Click Confirm. • Teacher gain privilege in the specified day.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Teacher isn't available. • Day hasn't been chosen.
Qualities	<ul style="list-style-type: none"> • Process takes no more than 0.5s.

Name	Add new Department
Goals	Insert a new department into the school system to assign teachers and subjects to it.
Triggers	<ul style="list-style-type: none"> • The system is deployed and the departments should be created. • A new department is created by the ministry of institution.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the senior admin. • Click on Add New Department option.
Post-Condition	<ul style="list-style-type: none"> • Enter the department name. • Assign the HOD to the department on creation OR in update. • New entry created in the department table.
Basic Flow	<ul style="list-style-type: none"> • Login as the senior admin. • Choose Add new department. • Enter the department name. • Assign HOD to the department(OPTIONAL). • Click Create.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Department already exists.
Qualities	<ul style="list-style-type: none"> • Creation process takes no more than 0.5s.

Name	Preview all available data
Goals	Preview any available data / information that had been inserted by any employee (admin , teacher , HOD) about any participant in the system (employee , student).
Triggers	<ul style="list-style-type: none"> • The admin wants to evaluate the flow of the year (charts - statistics). • Admin wants to check about the processes of specific employee / student.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the admin. • Click on Preview data. • Choose a specific entity to list its data Ex(Whole academic year , specific grade in academic year , specific block , teacher , student).
Post-Condition	<ul style="list-style-type: none"> • View a table with all the information of the search result. • View charts that provide a visual representation of a data which had been checked by the admin from the table. • View some overall statistics about the table. • Search bar should be available if the admin want further searching.
Basic Flow	<ul style="list-style-type: none"> • Login as the admin. • Choose Preview data. • Specify the data to be represented. • Click Search. • Specified data appear in an organized table.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Data isn't available.
Qualities	<ul style="list-style-type: none"> • Searching process takes no more than 0.5s.

4.7 Student Affairs

Name	Create a new grade
Goals	Insert a new grade in the system.
Triggers	<ul style="list-style-type: none"> • The system is deployed and the grades should be created.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the Student affairs. • Click on Educational manager option. • Click on Add new grade option.
Post-Condition	<ul style="list-style-type: none"> • Enter the grade ID Ex. (1,2,3). • New entry in the grade table.
Basic Flow	<ul style="list-style-type: none"> • Login as the Student affairs. • Click on Educational manager option. • Click on Add new grade option. • Enter the capacity and the class's ID. • Click Create.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • Grade's ID already exists.
Qualities	<ul style="list-style-type: none"> • Creation process takes no more than 0.5s.

Name	Add Classes into academic year
Goals	Insert a new class into a specific academic year in the system.
Triggers	Certain class in an academic year reached its capacity hence there is a need to increase it.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as a student affair. • Click on Add new class option. • Choose specific academic year.
Post-Condition	<ul style="list-style-type: none"> • Enter the grade ID Ex. (A , B , C). • Assign a capacity to the class. • New entry in the class table.
Basic Flow	<ul style="list-style-type: none"> • Login as the student affair. • Choose Add new class. • Choose the academic year. • Enter the capacity and the class's ID. • Click Create.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • The academic year don't exist. • Capacity and class's ID fields is empty. • Class's ID already exists.
Qualities	<ul style="list-style-type: none"> • Creation process takes no more than 0.5s.

Name	Create new student
Goals	Insert a new student account into the system to be evaluated by teachers.
Triggers	Register a new student.
Pre-Condition	<ul style="list-style-type: none"> • Logged in as the Student affair. • Choose the Student manager. • Choose Add new student.
Post-Condition	<ul style="list-style-type: none"> • Add the student name. • New entry in the students table.
Basic Flow	<ul style="list-style-type: none"> • Login as the student affairs. • Choose the Student manager. • Choose Add new student. • Enter the new student's name. • Click Create.
Alternative Flows	
Exceptions	<ul style="list-style-type: none"> • The entered name is already existed.
Qualities	<ul style="list-style-type: none"> • Creation process takes no more than 0.5s.

4.8 Teacher

Name	Preview assigned classes
Goals	View all the classes that assigned to the teacher with list of its student.
Triggers	<ul style="list-style-type: none">• Teacher want to view students’ data of an assigned class to the teacher.• Student guardians asked the teacher to preview the student grades.
Pre-Condition	<ul style="list-style-type: none">• Logged in as a teacher.• Click on preview classes.• choose an assigned class to present its student data.
Post-Condition	<ul style="list-style-type: none">• View a table which contains every student in the class with their grades.
Basic Flow	<ul style="list-style-type: none">• Login as the teacher.• Choose Preview classes.• Choose a specific class to be reviewed.• The data is represented in a table form.
Alternative Flows	The teacher reaches the Exam officer or HOD to preview the data for him or print it hard copy.
Exceptions	<ul style="list-style-type: none">• The class isn’t assigned to the teacher.• No student is assigned to the class.
Qualities	

Name	Insert grades
Goals	Insert the students’ recorded grades along the whole block/academic year.
Triggers	<ul style="list-style-type: none">• A specific category is completed in a block and its grades needs to be allocated in the system.
Pre-Condition	<ul style="list-style-type: none">• Logged in as a teacher.• Click on Insert grades.• choose an assigned class to present its students data.
Post-Condition	<ul style="list-style-type: none">• View a table which contains the block categories horizontally and the class students vertically.• Click confirm changes the changes are sent into the database all at once to be inserted.• Any grade added/changed inserted into Log table to be previewed by HODs.
Basic Flow	<ul style="list-style-type: none">• Login as the teacher.• Choose Insert grades.• Choose a specific class to register the grades.• The data is represented in a table form.• The teacher can add any data into any cell in the table
Alternative Flows	
Exceptions	<ul style="list-style-type: none">• The class isn’t assigned to the teacher.• No student is assigned to the class.• The entered grade exceeds the limit of the category.
Qualities	

5 Non-functional requirements

5.1 Security

Every controller action is constrained with a role which is authenticated by the logged in account by checking the user type in the logged account before authorize the user to use the action or return http status code 401 unauthorized and redirect to the login page, all that handled by the backend (Laravel) service.

Every password saved in the database is saved after hashing by bcrypt algorithm with adding salt to ensure no duplicated password after hashing even if the password is the same before hashing.

Https and SSL is used to encrypt upcoming and oncoming data to protect system from packet sniffing and manipulating transferred data especially when transferring sensitive data like username and password in registration and students scores.

Cross-site request forgery (CSRF) protection is enabled and handled by the backend (Laravel) in order to protect from unauthorized commands to be performed on behalf of an authenticated user ,backend (Laravel) automatically generates a CSRF "token" for each active user session, this token is used to verify that the authenticated user is the one actually making the requests to the application.

Before any critical change the associated admin will requested to insert his password to ensure he is the one who actually making the change

5.2 Binary Compatibility

Web application should be compatible on any modern browser but it's advisable to use Google Chrome or Mozilla Firefox

5.3 Reliability

Service shouldn't have any reliability issue from network or electricity as the customer promised to have backup electricity sources and a network engineer to handle the local network

Service also shouldn't have any reliability issue from usage overloading because it's expected to have less than 150 user in any given which can handled with n problem with current server specifications

Service may have reliability issue if DDOS attack was used on the service from the local network which is customers responsibility to install efficient firewall and protection systems on the server

5.4 Maintainability

The system was designed to be flexible to any future needs with a database to handle as estimated as at-least twenty years of data, with heavy testing before deploying it's very unlikely for the system to need any maintainability in the future

5.5 Portability

The system is accessible to any device connected to the local network with modern web browser

5.6 Extensibility

The system is implemented with an calender and an agenda to give the ability to users to follow updates and event specified to them

5.7 Re-usability

the system landing pages shall provide an efficient, aesthetically pleasing layout that can be used as a foundation for any upcoming sub pages or a future overhaul of the website.

5.8 Application Affinity/Compatibility

the web application shall be compatible with all modern web browsers but it's advisable to use Google Chrome or Mozilla Firefox

5.9 Resource Utilization

the system is expected to demand minimal system resources though it is recommended to have at-least 30 gigabytes of free space for sufficient storage of the system and all of its components.

5.10 Serviceability

The system shall provide an interface for system admins to manipulate any data in the system with no predefined constraints