



## Requirements

Prior to the development of the Digi Cabinet, research was conducted on the overall application goals and system requirements through numerous interviews with the intended stakeholders. Several structured and unstructured one-to-one interview sessions were conducted, along with brainstorming between stakeholders and Analysts. Suggestions and recommendations given through discussions involved Bio-Data, Attendance, Parent Guardian involvement and past student statistics etc. Stakeholder analysis was also a part of the preceding research conducted, to better gauge the stakeholders' expectations and capability of using the Software Application.

## User Requirements

A system which allows for student data to be recorded, stored and used to improve and help both guardians, guidance counselors, teachers and institutions in deciding how to approach a student to give them the best chance of success.



## Functional Requirements

General look into Digi Cabinet's functionality:

### Institutions

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1. Institutions can create an account online.
2. Institution will confirm teachers that requested to link to them.
3. Institutions request student historical data from another institution.
4. Institutions can share student historical data with another institution.
5. Institutions create student profiles.
6. Institutions enroll students in class.
7. Institutions add students to subjects.
8. Institutions send forms to guardians/students to add sensitive information

### Teachers

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1. Teachers create a teacher's account and send a request to the institution they want to link to.
2. Teachers can view their class's overall statistics
3. Teachers can request to view student's statistical data
4. Teachers add student's results
5. Teachers add if student is present or absent in class
6. Teachers add misdemeanors

## Non-Functional Requirements

To create Digi-Cabinet, many conditional testing has been taken into consideration before the final product was approved. Here we review some non-functional requirements associated with Digi Cabinet.

**Speed:** In terms of workload for Digi Cabinet, there is nothing it can't handle when it comes to dealing with an increased workload, our scalable system utilising node.js and express.js allows for a non-blocking I/O that can serve many clients at once and allows for scaling of the database into overtime. The Application is very versatile in its movements when running simultaneously with other apps on any device.

**Security:** Upon initial use of Digi Cabinet, users are required to sign-up and set specific passwords before they are allowed to use the application. This helps to secure and manage access to different organizations with access to specific accounts within Digi Cabinet.

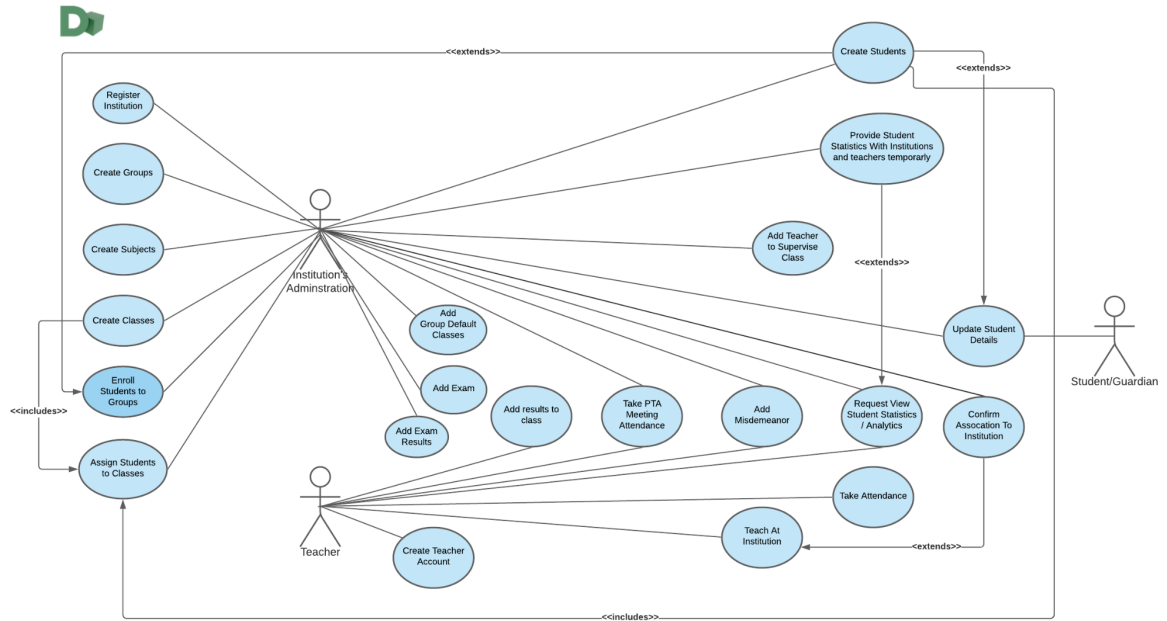
**Portability:** Digi Cabinet was created to span diverse systems as a Web Application, it can be used with many Operating Systems today, which includes Windows, Apple macOS, Android and Apple's IOS, and so assures very high portability across varying systems.

**Localization:** Digi Cabinet's initial development plan, showcased that the application was specifically designed for use Regionally and will match the geographical location of its users regionally in relation to different time zones and languages of the region.

**Usability:** One of our main goals when designing this application was to make it as user friendly as possible, where navigation of the Application is an easy feat, an application that anyone can use, where the application itself is your user guide.

**Reliability:** Digi Cabinet has been run several times with a low failure rate and little to no critical failures which guarantees that Digi Cabinet runs very efficiently after extended use of the application.

## Use Case



### Use Case Descriptions:

1. **Create Students:** The administration of an institution can add students to the system
2. **Update Student Details:** The administration of an institution, the student or the guardian will be able to edit the student's details either by having an online form sent to the student/guardian or making the admin do it from their account.
3. **Create Groups:** Admin will create groups and which teacher supervises it. Groups are used instead of Form, or grade so that it may be used across different environments.
4. **Create Subjects:** Add subjects that are taught in the institution
5. **Create Classes:** Admin creates classes and the subjects that are taught in these classes
6. **Add Group Default Classes:** Add which classes the group should do by default and by extension the students
7. **Enroll Students To Groups:** The admin may add a student to a group, for example: student A will be enrolled in Form 4C



8. **Assign Students To Classes:** They are cases where students may belong to the same group but go to different classes. The admin may assign that too.
9. **Add Results To Class:** Teacher will add class assignment and class assessment results to database
10. **Request to view student statistics/analytics:** Teachers or Admins may send a request to the institution to have access to a student's historical performance.
11. **Teach at institution:** Teacher will send a request to be associated with an institution before being linked
12. **Confirm Association To Institution:** Admin will confirm if a teacher should be associated with their institution
13. **Register the Institution:** The admin should first and foremost register the institution as part of this system before carrying out any tasks.
14. **Provide Temporary Statistics:** The admin is responsible for providing temporary access to a student's performance statistics for other institutions, should they leave the originating institution.
15. **Assign Teachers to class:** The administrator will confirm that the correct teacher is assigned to the correct class
16. **Add Exam:** The admin will be able to add exams for students.
17. **Add Exam Results:** Once an exam has been completed, the admin will add the corresponding exam results.
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## User Stories

No.	Use Case	User Story
1	Create Students	<p>As an admin I want to create student profiles so that students may be recorded in the system</p> <hr/> <p><b>Pre-conditions:</b> Account must be registered and verified  <b>Post-conditions:</b> New student profile would be in the database  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
2	Update Student Details	<p>As an admin I want to update student details so that information that is needed by the institution can stay relevant and up to date.</p> <p>As a student/guardian I want to update my student details so that information that is needed by the institution can stay relevant and up to date.</p> <hr/> <p><b>Pre-conditions:</b> Student data must already be in database  <b>Post-conditions:</b> Student data would be updated  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown for both users.</p>
3	Create Groups	<p>As an admin I want to create groups to organize which form/standard or grade a student belongs to and pinpoint their supervisor or homeroom class to have access to student</p> <hr/> <p><b>Pre-conditions:</b> Admin account would be signed in  <b>Post-conditions:</b> A new group for students to be added to will be available  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
4	Create Subjects	<p>As an admin I want to create subjects to easily pick between them for creating classes and tracking student progress along subjects</p> <hr/> <p><b>Pre-conditions:</b> Admin account would be signed in  <b>Post-conditions:</b> A new subject will be available to link to a class  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
5	Create Classes	<p>As an admin I want to create classes to organise which section a student may be in and who supervised them during the time of doing a subject</p> <hr/> <p><b>Pre-conditions:</b> Subjects should be in the database to link it to  <b>Post-conditions:</b> A new class for students to be added to will be available  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
6	Add Group Default Classes	<p>As an admin I want to add group default classes to make data entering easier and more automated in connecting students to classes</p> <hr/> <p><b>Pre-conditions:</b> Group is created  <b>Post-conditions:</b> Any student added to group will automatically have classes added  <b>Story Complexity:</b> This story was easy to understand. Group attributes</p>

		needed some more elaboration from the admin.
7	Enroll Students to Groups	<p>As an admin I want to enroll students to groups so that students will be under a group to complete the data of which group a student belongs to.</p> <hr/> <p><b>Pre-conditions:</b> Student is created  <b>Post-conditions:</b> Student will be enrolled to a specific group (Form/Standard/Grade)  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
8	Assign Students to Classes	<p>As an admin I want to assign students to classes so that data about which class a student is under and who their supervisor would be can be complete.</p> <hr/> <p><b>Pre-conditions:</b> Student and Class admin wants to assign student to is already created  <b>Post-conditions:</b> Student will be assigned to the class  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
9	Add Results to Class	<p>As a teacher I want to add results to my class so that student progress could be recorded</p> <hr/> <p><b>Pre-conditions:</b> Teacher is supervising class, class has already been created  <b>Post-conditions:</b> Student result will be added  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
10	Request to view student statistics/analytics	<p>As an institution I want to request to view a student's statistics/analytics so that staff can make an informed decision about placement and curriculum structures.</p> <p>As a teacher I want to request to view a student's statistics/analytics so that I can make an informed decision about the syllabus and teaching methods.</p> <hr/> <p><b>Pre-conditions:</b> Teacher or Admin is logged in  <b>Post-conditions:</b> Teacher or Admin has temporary access to student's statistics  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown for both users</p>
11	Teach at institution	<p>As a teacher I want to request to teach at a institution so that my account is still separate from the school and I can switch or teach at multiple schools</p> <hr/> <p><b>Pre-conditions:</b> Teacher account was registered  <b>Post-conditions:</b> Teacher request to be associated to a institution  <b>Story Complexity:</b> This story can be broken down into the user requesting to be associated with institution and institution accepting user.</p>
12	Confirm association with institution	<p>As an admin I want confirm a teacher's association to the institution so that a level on control is had to only have actual teachers at the institution</p> <hr/> <p><b>Pre-conditions:</b> Institution is registered and confirmed  <b>Post-conditions:</b> Teacher is associated to a institution  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>

13	Register the institution	<p>As an admin, acknowledging that the institution I work for is valid and active within the education society, it's imperative that I register the institution as part of this system before any task is carried out.</p> <hr/> <p><b>Pre-conditions:</b> The school is a functioning unit i.e. it has not closed down permanently.  <b>Post-conditions:</b> The system is operated by it's primary users  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
14	Provide Temporary Statistics	<p>As an admin, I would like to give another educational institution temporary access to a previous student's details and performance statistics.</p> <hr/> <p><b>Pre-conditions:</b> The student is no longer a part of this institution.  <b>Post-conditions:</b> The new institution obtains all the necessary info on the student before access is revoked.  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
15	Assign Teachers to class	<p>As an admin, once a class is created, I want to assign a teacher to that class.</p> <hr/> <p><b>Pre-conditions:</b> A class has to be created.  <b>Post-conditions:</b> A teacher can now perform tasks specific to that class and its students.  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
16	Add exam	<p>As an Admin, I want to add exams to the system for easy distribution to students</p> <hr/> <p><b>Pre-conditions:</b> A class with a teacher and students assigned must exist.  <b>Post-conditions:</b> The exam can be accessed for that particular class  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
17	Add exam results	<p>As an admin, once the exams are completed and the results are generated by the teacher, I want to add them to the corresponding student's profile</p> <hr/> <p><b>Pre-conditions:</b> The student has to complete the exam in order for the teacher to provide marks. The teacher should also have those results ready by a specific deadline.  <b>Post-conditions:</b> The corresponding results are posted on the students profile and their overall performance is updated.  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
18	Create Teacher Account	<p>As a teacher it is in my best interest to create my teacher account as this will allow me to create class lists, assignments and also gain access to insightful reports and monitor the student's progress.</p> <hr/> <p><b>Pre-conditions:</b> User must be a teacher that is associated with the particular school and the teacher must have access to software so that they can enter the system and create the account.  <b>Post-conditions:</b> User accounts are created and added to the database.  <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>





19	Take attendance	<p>As a teacher I will take student's attendance. This information is critical because students are more likely to succeed in academics when they attend school consistently, and as schooling is on-line it will help evaluate if the student has a device for online learning.</p> <hr/> <p><b>Pre-conditions:</b> There must be a scheduled class, teacher must be present I, teacher must have names of all students to record them as present or absent. <b>Post-conditions:</b> Attendance will be stored on the database for relevant personnel access. <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
20	Add misdemeanor	<p>As an institution administrator I will add misdemeanors because this information is to be provided to parents, police guidance counselors and health and safety officers for the welfare of all student's.</p> <hr/> <p><b>Pre-conditions:</b> Institution administrators must gain the information about the misdemeanor from a reputable source or designate in order to enter this information also they must have access to the system to add misdemeanors. <b>Post-conditions:</b> The information is added to the database for relevant personnel access. <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>
21	Take PTA meeting attendance	<p>As an institution administrator I will take PTA meeting attendance because this information will allow all stakeholders to contact negligent parents. This way it will keep parents informed about how the school works, what's coming up and any issues teachers have come across.</p> <hr/> <p><b>Pre-conditions:</b> All parents are to be informed of the meeting. There must be a scheduled meeting in order for the attendance to be taken. All parents' records are to be accessible to the Institution administrator so they can record who were present and absent. <b>Post-conditions:</b> Meeting attendance information is saved in the database and parents who were missing are contacted. <b>Story Complexity:</b> This story was easy to understand and did not need any breakdown.</p>



## **Glossary**

- Stakeholders: Individuals who would use the system
- Functional: Dealing with the technical features
- Non-Functional: Tasks and concerns that the system's technical aspect doesn't solve
- Pre-conditions: Conditions that need to be met before carrying out the user case
- Post-conditions: Conditions that will to be met after carrying out the user case
- User Case: Logical breakdowns of user actions