KM PROJECT REPORT- 2021

Kg/Wa Delgamuwa Primary School

B.Sc. Special (Honors) Degree in Information Technology
Specialization in Information Technology

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DECLARATION

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ABSTRACT

Knowledge management has become an important factor to consider when it comes to knowledge gathering. The idea of sharing knowledge can be seen as tacit and explicit where the type of it depends on different scenarios. When considering Knowledge management, it can be helpful in personal as well industrial aspects. Knowledge Management is a very useful factor nowadays to improve the knowledgebase in an organization to streamline the daily tasks in an efficient manner. A Document Management System can be considered as a component in a knowledge manage system where it can ease up the paper work in a well-organized manner with a software. In this module as a group, we decided to develop a Document Management System for a primary school in Sri Lanka where the school is in a requirement of having such a system to carry out the daily tasks more efficiently for both teachers and students.

Key Words –Document Management System, Knowledge Management

ACKNOWLEDGEMENT

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1. INTRODUCTION

1.1.   Background

Kg/Wa Delgamuwa Primary School is a rural school situated in the Kegalle educational zone. Established in 1960, though with very small beginnings the school, during its progressive history had grown from strength to strength and has emerged today its glory as a scholarly institution. The commitment of the principal and teachers have elevated the school to a prestigious level. The school has about 98 numbers of students at present including an academic staff of 10. Delgamuwa Primary School has continuously excelled with unparalleled academic performances especially at Grade 5 Scholarship examinations throughout the years.

Vision
"Bestowing a class of worthwhile citizens for the country"

Mission
"A generation of children with outstanding performance for the new millennium."

1.2. Objectives of doing this Project

Under this module, the idea of Knowledge Management & Knowledge Sharing explained well under the series of lectures. As we all know, Knowledge is a great asset in organizational level as well as in personal level. If we ask someone the definition of 'Knowledge', we can expect many answers from different perspectives. But if someone evaluates or learn some sort of information and once understood, we can refer that as a 'Knowledge'.

When discussing about Knowledge Sharing, it an in depth topic to discuss where the knowledge can be shared mainly through 'Tacit Knowledge' and 'Explicit Knowledge'. In organizations we have seen there are many numbers of experts where they are having a greater knowledge that has been gathered throughout their experience time. This is a great asset for a company. But what will happen if that specific person had to move into another company or had to face for a catastrophic disaster? Then it could directly affect the company's productivity, hence due to these factors, organizations have tended to implement mechanisms, services to strengthen the knowledgebase of the organization. These can be documented or stored inside the database so that everyone can access/share the knowledge throughout the company.

With respective to the above factors, the knowledge can be managed using different mediums and techniques. Some organizations use traditional knowledge sharing methods while some uses tools. When considering this projects aspect, the organization that we found comes under educational institutions section. And the selected component is a 'Document Management System'. As a group, we were able to find the 'Kg/Wa Delgamuwa Primary school' which consists 98 of students where both students and teachers are not having a proper method to manage/publish/share the educational materials properly due to the pandemic. As we all know the pandemic has done a greater impact for Education in Sri Lanka, it became a goal for us to develop this document management system for the use of teachers and students in this specific school to fulfil their requirements. Given below are key major points that we focused when developing this application.

- Easiness of use.
- Simple and user-friendly interface.
- Document sharing for teachers/ students.
- Messaging mechanism to gather knowledge.

Additionally, we targeted on developing the below features as well.

- Class schedule adding features for the teachers.
- Assignment uploads for teachers.
- Announcements for teachers.
- Event management Calendar.
- Assigned teachers for the subjects.

With the learned theories throughout the module, we wanted to make this system more reliable and efficient for the users as a goal in this module, also as an aid for this school.

2.   EXISTING INFRASTRUCTURE FACILITIES

When considering the infrastructure aspect, we got to know that the school contains 10 classrooms where each can allocate 31 students maximum in each class. Also, it is given a mini library (30 seats) and a computer room (10 desktop computers) that can be used by both the teachers and students.

A Library which consists of a capacity of 30 seats.

- **Textbooks**   - These books are support text books that can be helpful for students to study.

- **Educational Newspapers** – These are newspaper articles that are kept for the reading purposes for the students.

- **School Papers**   - Maintains an archive of school past papers from previous years, so that the students can practice.

Class schedules, Announcements and Department information.

As explained in the above, the school follows a traditional way of communicating and maintaining important documents. The school maintains documents of the class schedules along with the department information. The announcements for the students are pinned in school notice board.

Computer Room

The computer room of the school contains 30 computers where only 23 are working. Mostly used by the staff when creating school papers, announcement, and study materials. Also they have stored study guides, syllabuses in the computers as pdf , word files.

2.1.   Current systems including KMS (if any) and processes

Kg/Wa Delgamuwa Primary School is currently not having a Knowledge Management System. Below are some major documents that the school staff and the students are using in traditional method (Physically).

- Syllabus guides for the teachers (Books).
- School past papers.
- Timetable and schedules sheets.
- Student and staff attendance record files.
- Textbooks and educational articles for students.
- Announcement papers.

Due to the current situation of the pandemic, staff uses Google drive to store the documents and WhatsApp as the announcement/document sharing platform. The students are doing the classes from Zoom applications and the study materials, assignments are sent via WhatsApp

Techniques or procedures have currently been followed for knowledge sharing purpose

- Seminars.
- Staff meetings.
- Sharing Documents.
- Assignments.

Analyzing the current Organizational Knowledge Sharing Structure

The school consists of expert teachers who have been working in the field for a quiet period. There are weekly seminar sessions which undertake to make aware the teachers by the senior teachers (tacit knowledge). Also, the school principal is also a senior teacher where coordinates the students and the staff for educational purposes.

For knowledge acquisitioning, the school is using mainly the library and archive files in teachers' rooms. There is a one IT teacher for the whole school to teach the IT fundamentals for both students and teacher separately. As the school's staff are enablers in knowledge sharing, it motives the teachers to teach the students well.

3. NEEDED KM INFRASTRUCTURE

According to the questionnaire held with the school principal, we were able to get the current processes that they follow as responses which helped to design the system in order to fulfill the major requirements. As a team, we participated for brainstorm and brainwriting sessions to get ideas about each team member to develop the required prototype.

Under a limited time, it became a challenge for us to implement the above system. As we are taught in the KM module, it became our goal to fulfil the requirements of the first six steps in KM Roadmap . When creating the blueprint, it became important to satisfy below 3 main requirements in the system.

- Develop the KM architecture.

- Incorporate user interfaces.

- Design high levels of interoperability.

Hence for designing the system, we used below main techniques to gather ideas of each member.

- Electronic brainstorming (through Teams).

- Nominal Group Technique (NGT).

When creating the prototype, we highly focused to fulfil the below expectations.

- **Simple and user-friendly interface.**

As the students and teachers are not much technically adhered, we had to think about the interface designing a lot. And without making the navigation more complicated, the idea came up to develop the system in a single page using HTML, CSS and JavaScript.

- **Types of documents and availability of documents.**

When developing a standard document management system, it is important to make sure of the supporting file types in the system when uploading. We enabled to upload the documents in PDF and DOCX for both teachers and students as initial steps. The teachers can upload assignments and quizzes for the students as well. Moreover, we had to think about the database(MySQL) storage scalability when

uploading the documents.

- **Document Sharing**

This feature helps a lot to sort the common problem that the students and teachers facing at the present. The special feature that we enabled in this application is the ability to share the study related materials among the students – students, teachers – students and teachers – teachers.

- **Class records and the subjects**

The document management system allows the teachers to share the teaching subjects and the classrooms that going to be held. These records can be updated at any time for the effectiveness.

- **Event Calendar**

Due to the pandemic, the school staff uses WhatsApp to make special announcements. We added this event handling calendar to the system where it can simply add the announcements and the events that is going to take place in futures for the easiness of the students as well as the staff.

- **Messaging**

We designed the feature of messaging where the students can reach a teacher to clear out doubts or for study related purposes.

3.1 Explicit knowledge, Tacit knowledge

- **Explicit knowledge**

When considering the explicit knowledge, it is a form where the knowledge is written and the ones who reads it can capture the knowledge. When designing the blueprint, we gathered various forms of explicit knowledge to make this project a success. We accessed lecture materials, forums and other knowledge written sources to get a clear picture of developing a KM blueprint. Also, when considering the schools explicit knowledge, we were able to communicate with the school's principle to see sample documents that they have used in school.

- **Tacit knowledge**

When developing the system, the tacit knowledge became a crucial factor to capture the knowledge of a proper Document Management System. We used our group members tacit knowledge a lot since we couldn't find any expert. In school's perspective, there are senior teachers where they share knowledge mainly through zoom meetings.

3.2 Gap

When considering the final outcome of the blueprint, we were able to fill the gaps of document management and Knowledge sharing in Kg/Wa Delgamuwa Primary School. The newly implemented system satisfies many numbers of requirements where the school management and the students can use the system in an efficient manner without any hesitation due to the ease of use.

3.3 Cost-benefit analysis to fill gaps and priorities

Component	Amount (LKR)
Direct Cost	
Total Developer Cost	**9,000**
Indirect Cost	
Internet Cost	**2,500**
Web Hosting	**1,500**
Electricity	**2,000**
Software Purchasing	**5,000**
Total	**20,000**

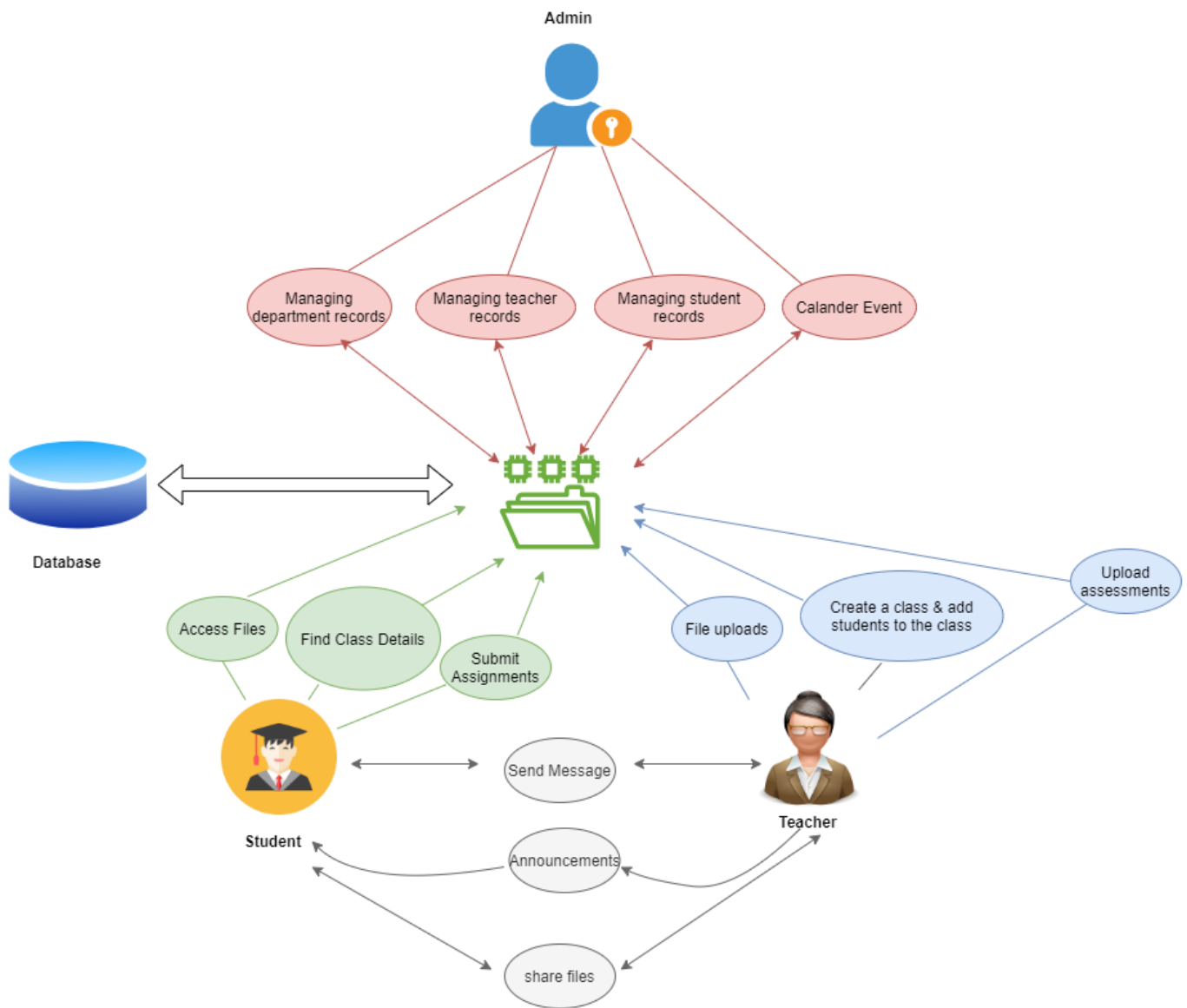## 4.   KMS BLUEPRINT (KM ARCHITECTURE)

Figure 1: KM Architecture Diagram

5.   DEVELOPED COMPONENT OF THE KMS

Given below are selected screenshots to give a clear idea about the development. Please refer appendices for more screenshots.

Login Page

Figure 2: Landing page

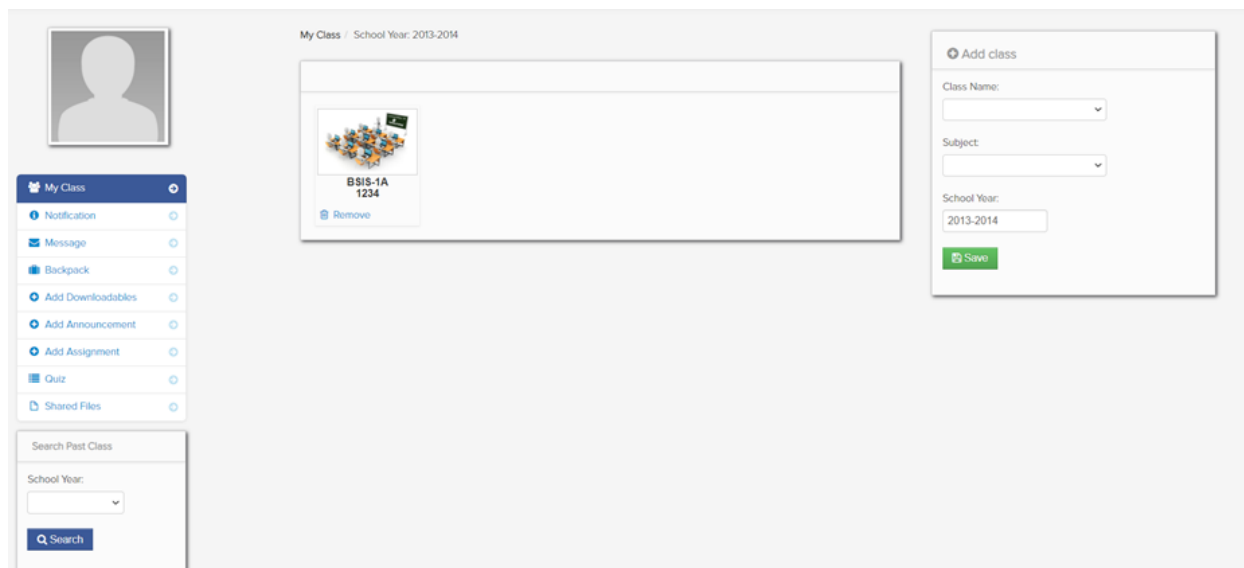## Student Interface

Figure 3: Student interface

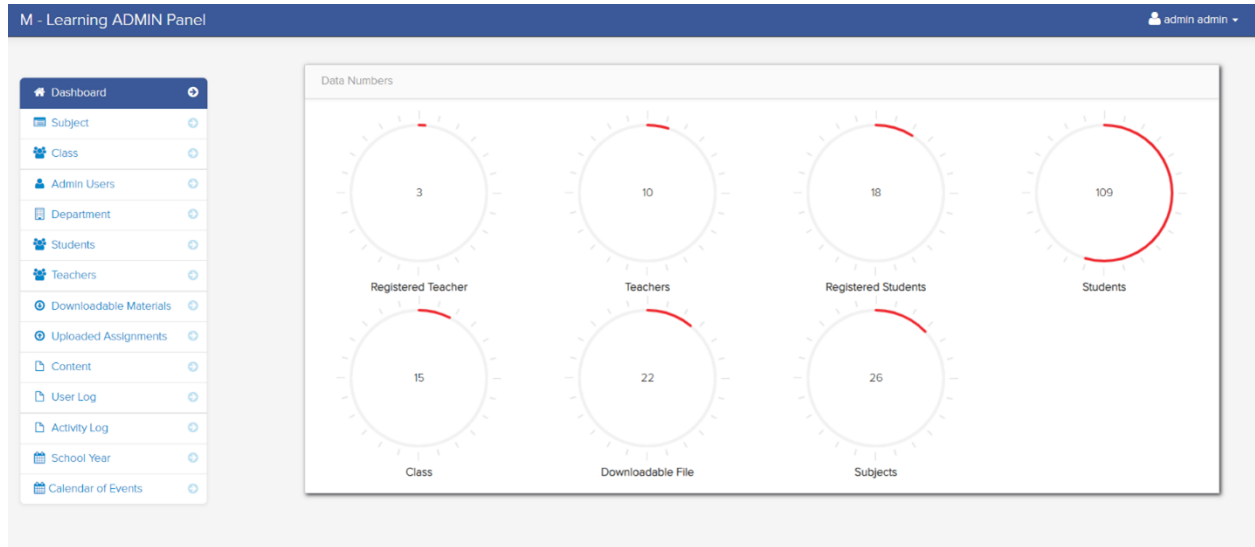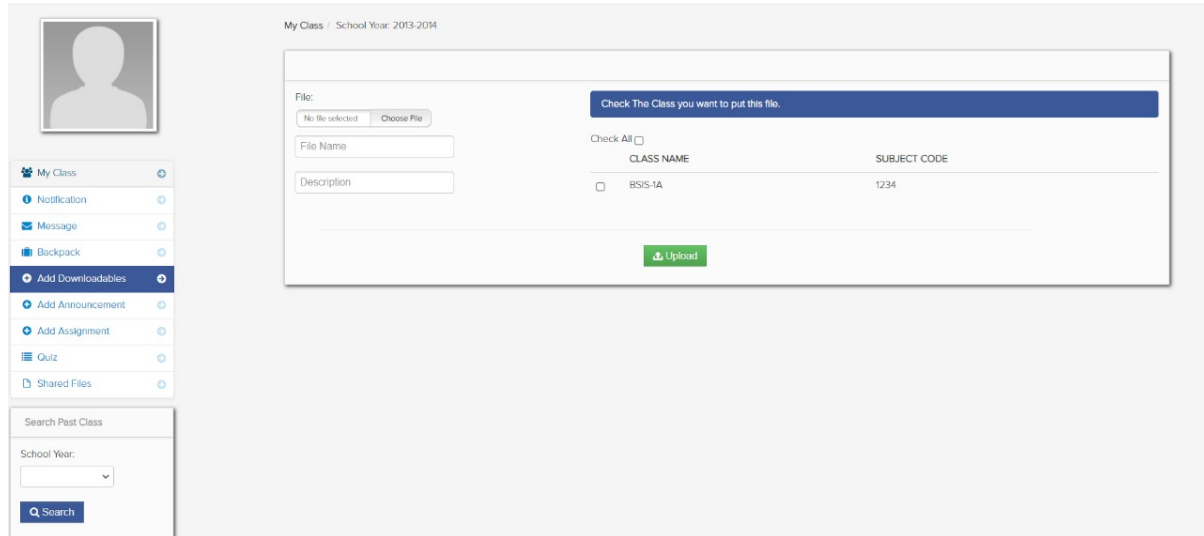## Teacher Interface

Figure 4: Teacher's dashboard

Admin Dashboard

Figure 5: Admin's dashboard

File uploading

Figure 6: File uploading

6. CONCLUSION

Knowledge management is an in-depth factor to consider when it comes to the organizations and institutions. As a developing rural school in Sri Lanka, Kg/Wa Delgamuwa Primary School students and staff have faced challenge of continuing a inconsistent education system due to the current pandemic situation. The document storage, sharing and management has become poor with the lack of technologies used. Hence it became our priority to the understand the gap where the productivity of the school hindered due to not having a proper Document Management. As a result, the developed Document Management System is having the possibility to strengthen and streamline the daily school – student tasks successfully by allowing the staff and the students to share the documents, information and many other knowledge-based materials via this application.

7. REFERENCE LIST

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[2] https://www.efilecabinet.com/what-is-a-document-management-system/

[3] https://www.ibm.com/topics/document-management

[4] https://www.openkm.com/

[5] https://www.docuvantage.com/what-is-document-management

8. APPENDICES.

Given below is a questionnaire carried out to understand the gaps and requirements of the selected educational institute.

Institute:

Kg/ Wa Delgamuwa Primary School

Address:

Kg/ Wa Delgamuwa Primary School, Delgamuwa, Tholangamuwa

Figure 7: Kg/Wa Delgamuwa Primary School

Objective:

- To determine the present gaps where the school possess in knowledge sharing.
- Developing the best suited blueprint that can fulfill the requirements.

1. **How many students and teachers are there in the school?**

   There are 98 students including 10 teachers.

2. **How does the students find important study materials?**

   We encourage them to refer the materials from the library.

3. What are the documents that the staff and management use?

Attendance sheets, leave sheets, timetables, student records, announcements, school letters etc.

4. How does the school staff improve skills and knowledge?

Weekly seminars and meetings are organized by the principle by co-ordinating the senior teacher.

5. How does the technology knowledge is shared for both students and teachers?

Currently we are having only one IT teacher.

6. With the pandemic, how does the teachers and students share documents?

We have our materials saved in a google drive and we send the relevant documents on student groups in WhatsApp.

7. How does the teachers and communicate?

We use WhatsApp as its easy for everyone.

8. Is there any way that the students can clear out the doubts after a class?

Yes. They have been asked to send their doubts on WhatsApp group chat. But it is not very practical as the teachers misses the messages sometimes.

9. How could a student get to know about the timetables when after any updates?

We are sending them using Microsoft excel while everyone can access through the shared link.

10. Do you think that things will ease up If the school is given a document management system where can share the knowledge among teachers and students?
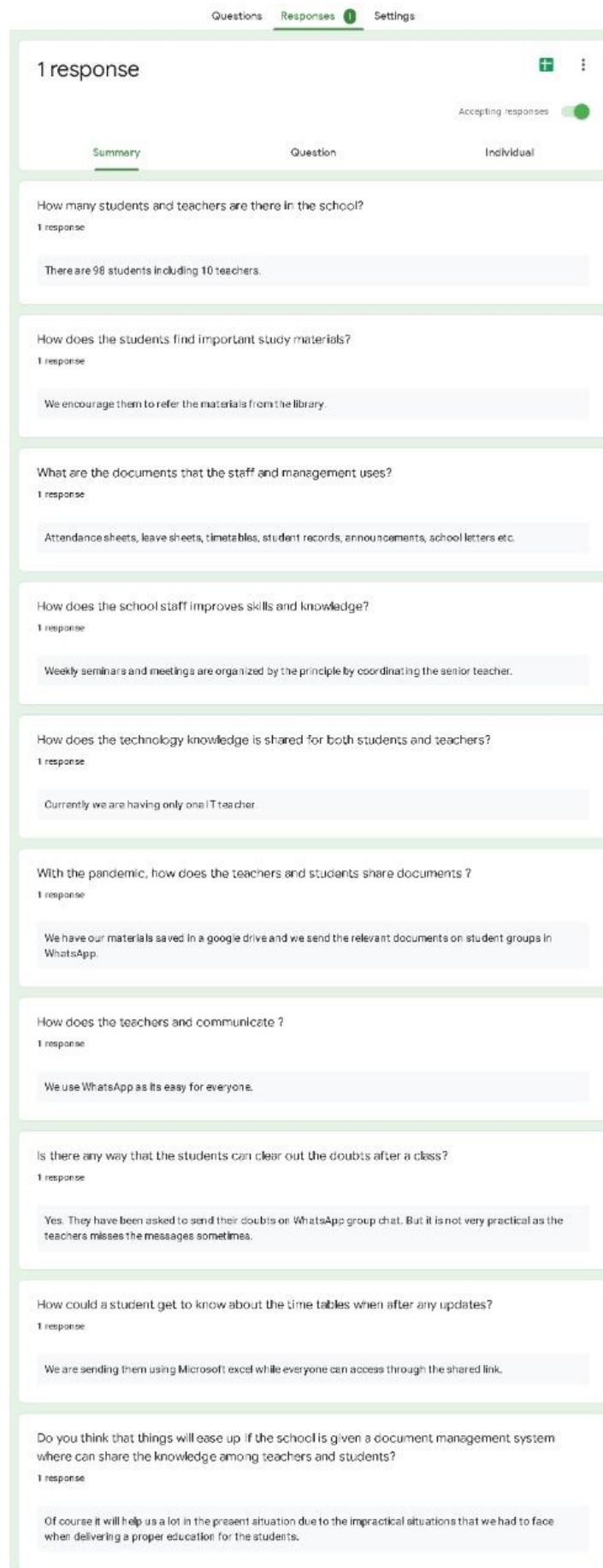
Of course, it will help us a lot in the present situation due to the impractical situations that we have had to face when delivering a proper education for the students.

Figure 8: Created Questionnaire

1 response

Accepting responses 🟢

Summary   Question   Individual

How many students and teachers are there in the school?
1 response

There are 98 students including 10 teachers.

How does the students find important study materials?
1 response

We encourage them to refer the materials from the library.

What are the documents that the staff and management uses?
1 response

Attendance sheets, leave sheets, timetables, student records, announcements, school letters etc.

How does the school staff improves skills and knowledge?
1 response

Weekly seminars and meetings are organized by the principle by coordinating the senior teacher.

How does the technology knowledge is shared for both students and teachers?
1 response

Currently we are having only one IT teacher.

With the pandemic, how does the teachers and students share documents ?
1 response

We have our materials saved in a google drive and we send the relevant documents on student groups in WhatsApp.

How does the teachers and communicate ?
1 response

We use WhatsApp as its easy for everyone.

Is there any way that the students can clear out the doubts after a class?
1 response

Yes. They have been asked to send their doubts on WhatsApp group chat. But it is not very practical as the teachers misses the messages sometimes.

How could a student get to know about the time tables when after any updates?
1 response

We are sending them using Microsoft excel while everyone can access through the shared link.

Do you think that things will ease up if the school is given a document management system where can share the knowledge among teachers and students?
1 response

Of course it will help us a lot in the present situation due to the impractical situations that we had to face when delivering a proper education for the students.

Figure 9: Responses for the Questionnaire

Figure 10: Events Calendar

Figure 11: Downloadable File Uploaded List

Figure 12: Add content

Figure 13: Assignment uploads

Figure 14: Added Subjects

Figure 15: Student List

Figure 16: Department List

Figure 17: Messages