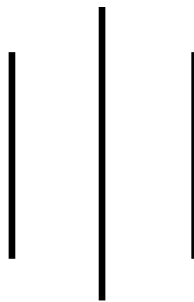# LA GRANDEE INTERNATIONAL COLLEGE

Simalchaur, Pokhara Nepal

A Project Proposal

On

"SCHOOL MANAGEMENT SYSTEM"

Submitted to:

Bachelor of Computer Application(BCA) Program

In partial fulfilment of the requirements for the degree of BCA under

Pokhara University

Submitted by:

Name:	Course	Semester	P.U. Registration Number
Sajeet Gurung	BCA	4th	2019-1-53-0129
Nischal Pokhrel	BCA	4th	2019-1-53-0124
Kiran Sunar	BCA	4th	2019-1-53-0116

Date:12/09/2022

ABSTRACT

This project is on **"School Management System"** aiming to provide automation support of a school. It Reduce complexity through automation of student and teachers function and it helps to improve Management reporting, maintaining capabilities. Here is some feature salient features:

The title of the project is School Management System to computerize the school. The front end used is ASO.NET with Visual Basic.NET. The back end used is SQL Server. In this project there are several modules such as Data Entry module, Data Records module. These modules are further divided in to sub modules. That is class setup, student setup, Add expense, Expense details, Examination setup and exam details are in Data Entry module. Student Details, Teacher Records, Student Attendance, Employee Attendance, fees Record are in the data records modules. These modules give way in managing the organization efficiently. So, this project helps in efficient management of human resource inside the organization. Also, it consumes less time consumption. The main and important benefit of this proposed system is that it is very much user friendly and accurate. So the employees and the administration feel so much comfortable to work with it. Also in all the modules the regularly updated information are very much useful when they are extracted.

Acknowledgement

The satisfaction that accompanies after the successful completion of any task will be incomplete without mentioning the people whose ceaseless and relentless cooperation, constant guidance and encouragement made this project possible.

We are grateful to our project supervisor and faculty teacher **Mr. Rishi Saran Khanal** and **BCA** coordinator **Mr. Ramesh Chalise,** for the guidance, inspiration and constructive suggestions that helped us in the preparation of this project.

We are also appreciative among each other and have understood that teamwork, the designation of the task per the skillset one portrays, constant synchronisation and monitoring of progress and instilling new knowledge and skill is imperative for the success of any given work.

Sincerely,

Sajit gurung

Nischal Pokhrel

Kiran Sunar

Declaration for

"HOTEL MANAGEMENT SYSTEM"

Student's Declaration

We hereby declare that we are the only authors of this work and that no sources other than the listed here have been used in this work.

Sajit gurung (PU exam Roll no) :2019-1-53-0129

Nischal Pokhrel (PU exam Roll no) : :2019-1-53-0124

Kiran Sunar(PU exam Roll no) : :2019-1-53-0116

Progarm: BCA 4th Semester

Date: 12/09/2022

Supervisor's Declaration

I hereby recommend that this project entitled "**SCHOOL MANAGEMENT SYSTEM**" is done under my supervision by **Sajeet Gurung, Kiran Sunar and Nischal Pokhrel** during their 4th Semester in partial fulfilment of the requirements for the degree of **BCA** under **Pokhara University** is completed to my satisfaction and be processed for final evaluation.

Mr. Rishi Saran Khanal

(Project Supervisor)

Date : 12/09/2022

Letter of Approval

We certify that we have examined this report entitled "**SCHOOL MANAGEMENT SYSTEM**" and are satisfied with the project defence. In our opinion it is satisfactory in the scope and qualify as project in partial fulfilment of the requirements for the degree of **BCA** under **Pokhara University.**

_____   _____   _____

(Supervisor)   **Examiner**   **(Program Coordinator)**

                                                              Mr. Ramesh Chalise

Er. Rishi Saran   Date:____ / ____ / _____
Khanal

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1.Introduction

The title of the project is "School Management System". This project will handle whole the activities of the school. SMS has most of the facilities that a modern school requires to computerize its day-to-day jobs. It provides facilities to keep the records of students, attendance, fee, teaching, and non-teaching staff with all their required details along with all required transaction handling. It has facilities to generate various types of reports, which are required by the management during normal business operations to operate the business effectively.

The scope of school management system is very vast. It includes; efficiency of the institution, securing benefits of the school through practical measures, clarification of the function of the school, co-ordination of the educational program, sound educational planning, good direction, efficient and systematic execution. It provides close collaboration and sense of sharing responsibilities, organized purpose and dynamic approach. Any organization plays a vital role in the life if human being. It plays different functions like; brings efficiency, guide pupil to receive right direction from the right teachers, brings co-ordination of the student-teacher-parents society. It provides well defined policies and programs, favourable teaching learning situation, growth and development of human beings, make use if appropriate materials, effective development of human qualities execution of the programs, arrangement of the activities, efforts for attainment of the objectives.

Altogether, there are three members in our group they are; Nischal Pokhrel, Kiran Sunar, and Sajeet Gurung. So, we have divided our tasks into 3 portions whereas introduction, development, problem statement, Gantt chart, and flowchart were done by Sajeet Gurung, background study, requirement document were done by Nischal Pokhrel, likewise, DFD, objectives, testing done by Kiran Sunar. After, performing feasibility and requirement analysis it determines whether a development project has a reasonable chance of success. It helps to determine the input and output of the system. It also determines the technology and skills necessary to carry out the project. Implementing our system in the environment in a digital method is important because of following ways: such as, the software information will be divided into different frames, which will make users easy to search for any category they want, there will be different frames for student provided with their respective information.

2.Problem statement

To help promote students achievement and success, schools must have access to complete, accurate, and timely information about students. One of the benefits of automated SMS is that the student record system will simplify retrieval of required information and is a great instrument for school improvement by taking measures from the information acquired. Despite the use of automated SMS, the government schools in Addis Ababa are using paper based documentation system for performing various tasks and the school administrators apply their knowledge of hit and miss approach in scheduling classes and courses (preparing the timetable) which wastes manpower and much time unnecessarily that does not utilize the current technology.

Transcripts of students are prepared manually by the record officer and teachers. Report cards are produced by the home-room teachers. Attendance of students is recorded by the home-room teachers. In order to control absentees and know the number of days that a student has been absent from the school during the school days the attendance officer has to collect the attendance slips from the corresponding homeroom teachers and compile it which is also a time taking process. In addition to that retrieving records of students who have graduated couple of years ago has been a difficult task and the manual system also has difficulty of producing different reports which are required by the stakeholders such as teachers, administrators or officials from kebele and kifle-ketema.

Teachers may want to associate a student with his parent or emergency persons for disciplinary measures which need searching of the students record in the record office. It has been difficult to search a record from thousands of such records and observed that students can take any person claiming that he/she is their parent or emergency person which creates problem in control of students.

Due to the inefficiency of the current manual system, the need arises to automate SMS in order to efficiently handle students' attendance, to produce transcript, report cards and the various reports satisfying users and customers and to produce timetable which can schedule courses for teachers and classes of students.

2.1 Opportunity Cost

The main problem that we have faced while making this project is Opportunity cost and also we have invest sometime for nothing which may cause incompletion of the project but at last not the least we have solved this problem and we are able to finish this project at time. The code became more complex due to file handling system and string which create minor mistakes during coding that also shows warning persistent in the project like string modification error output errors. The output was not as perfect as we thought it would be, login problems was the main problem and the output was log in as a both admin and employee enhance confusion in project.

2.2 Technical Problem

we also have some technical problem. The code became more complex due to file handling system and string which create minor mistakes during coding that also shows warning persistent in the project like string modification error output errors. The output was not as perfect as we thought it would be, login problems was the main problem and the output was log in as a both admin and employee enhance confusion in project.

2.3 Features plausibility

We cannot build such features in the given frame.so, the plausible modules will be underdeveloped and may not appear in the beta version. And, our assignment to make certain features lacked some adapt skills related to programming. The project lacked some feature because there were many issues during programming i.e., testing and coding but the team tried their best. The project is a simple but the projects lack some advance feature and complexity. Some feature like security is not well developed in the project which may caught disappearing of files.

3.Objectives

This project is based on the RDBMS technology; the main objectives of this project is to computerize the manual system and reduce the time consumption. In other words we can say that our project has the following Objectives :-

❖ Make all the system computerize.

❖ Reduce time consumption.

❖ Reduce error scope.

❖ All system management are automated.

❖ Centralized database management.

❖ Easy operations for operator of the system.

❖ No paper work requirement.

❖ To record all of the student academic information for future reference and enhancement and to update and search student information include personal information, result and performance

❖ To record student attendance and notify.

4.Background Study

Education system forms the backbone of every nation. And hence it is important to provide a strong educational foundation to the young generation to ensure the development of open-minded global citizens securing the future for everyone. Advanced technology available today can play a crucial role in streamlining education-related processes to promote solidarity among students, teachers, parents and the school staff.

Education is central to development. It is one of the most powerful instruments for reducing poverty and inequality and lays a foundation for sustained economic growth. With this aim currently our government has given special emphasis to the educational sector and school improvement activities such as continuous professional development for teachers, training and upgrading teachers and capacitating schools with manpower and materials are among the major actions which have been taken in both primary and secondary schools. In order to facilitate and simplify these actions one of the major Tool is to have automated school management system.

School Management System (SMS) consists of tasks such as registering students, attendance record keeping to control absentees, producing report cards, producing official transcript, preparing timetable and producing different reports for teachers, parents, officials from kebele or kefle ketema education bureaus and other stakeholders.

Automation is the utilization of technology to replace human with a machine that can perform more quickly and more continuously. By automating SMS documents that took up many large storage rooms can be stored on few disks. Transcript images can be annotated. It reduces the time to retrieve old transcripts from hours to seconds. However, the school system in the government schools of Addis Ababa is not automated and the record officers generate transcripts and reports manually and the school administrators use their experienced knowledge of miss and hit approaches to prepare timetables.

The project is titled "SCHOOL MANAGEMENT SYSTEM". This package once developed will help the school to manage various details pertaining to its students. This will help accounts department in maintaining the details related to the fee and basic details like their security deposits, conveyance and etc, it will also help management or we can say administration department in maintaining Students basic details as well as

keeping a check on fees details. This package is basically developed for the authorities of the school to make their task easier or we can say this package automate their tasks like maintaining Students personal details, marinating cash details, printing of receipts. This package helps the administrative and accounts department in maintaining the students personal and fees related details.

Modules of the system:

1. Student details.
2. Teachers information
3. Student result.
4. Notice board.
5. Class allocation
6. Attendance all

5.Requirement Document

The system is development to help the department maintaining the all details of a school, earlier the records Where maintained manually, with the help of this system the concerned departments will be able to improve the productivity, reduce the time, cost factors associated with the system. The automation of the system will help the organization in proper maintenance of the record, less manpower, less man-days, less cost, proper and accurate functioning.

The basic need for the system was to automate the whole procedure of maintaining of student details, earlier it was all done manually. By developing this system lot of burden was removed from the department, which was maintaining Students details. It improved the efficiency, reduced the cost, and reduced the time need to do the work manually. With the help of this system the past details of the students can assessed and reports can be generated on this Details.

In brief we can say this system was required to automate the processing of Students details, which was done manually before the development of the system. Earlier all the information/ data pertaining to the students was maintained manually or we can say it was on paper, hence it created a problem for the organization /school, how to manage it properly. With the help of this system the organization/school is able to maintain the data properly and accurately.
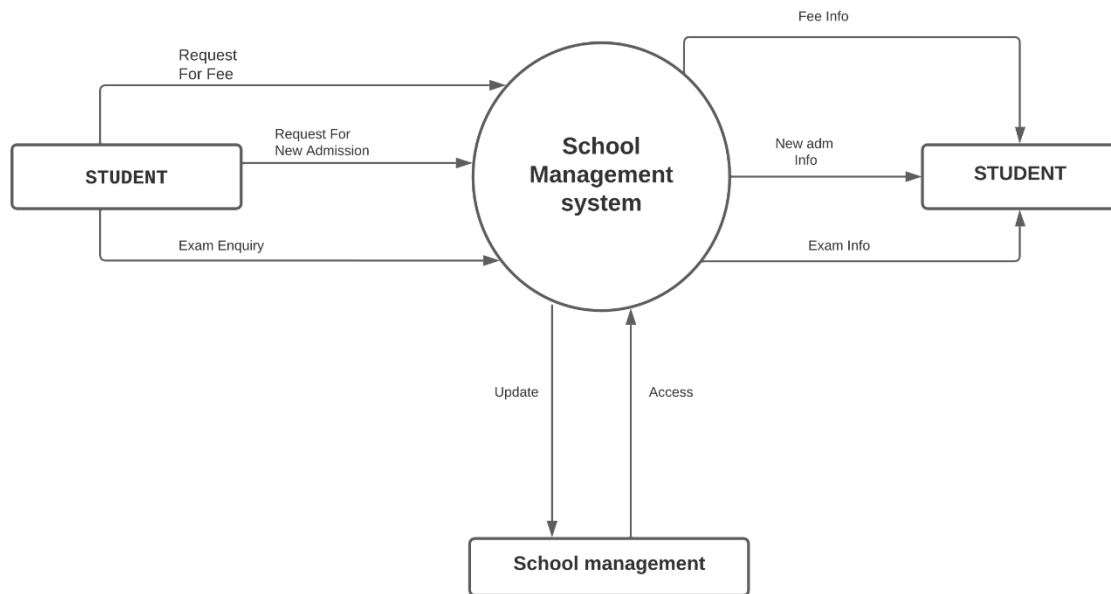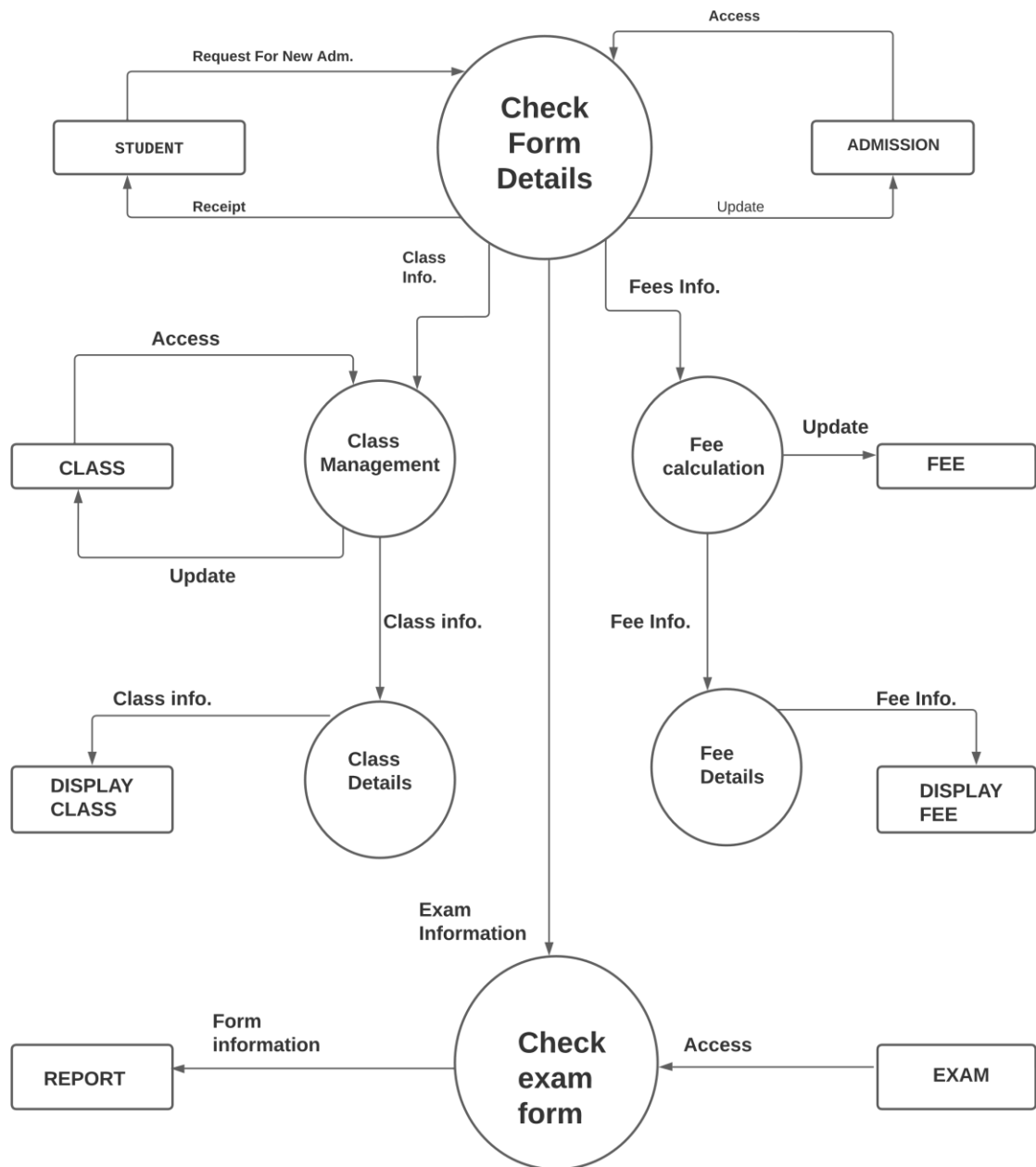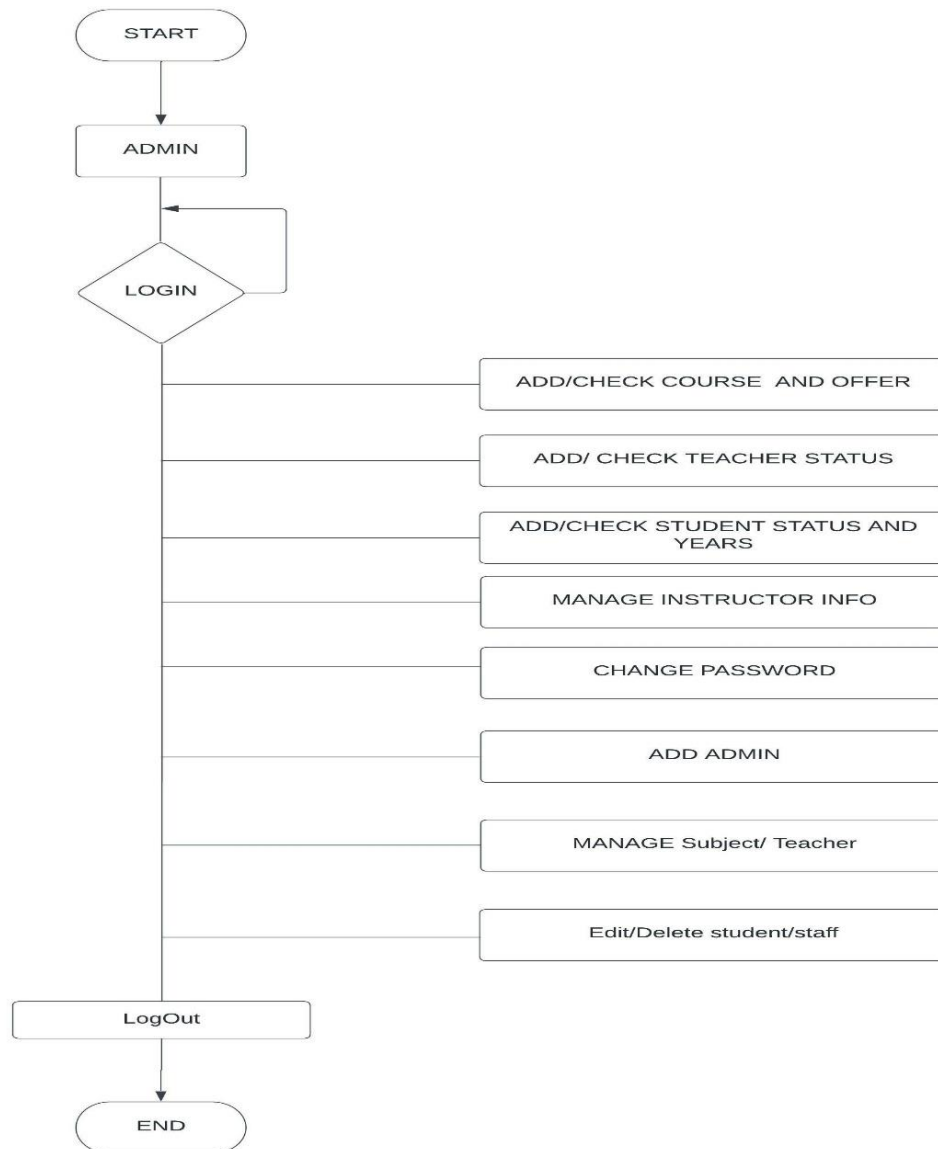
6.1 Data Flow Diagram (DFD):

Fee Info

Request
For Fee

Request For
New Admission

STUDENT

School
Management
system

New adm
Info

STUDENT

Exam Enquiry

Exam Info

Update

Access

School management

FIG: '0' LEVEL DFD

DFD LEVEL 1:

FIG: '1' LEVEL DFD

6.2 Flowchart:

START

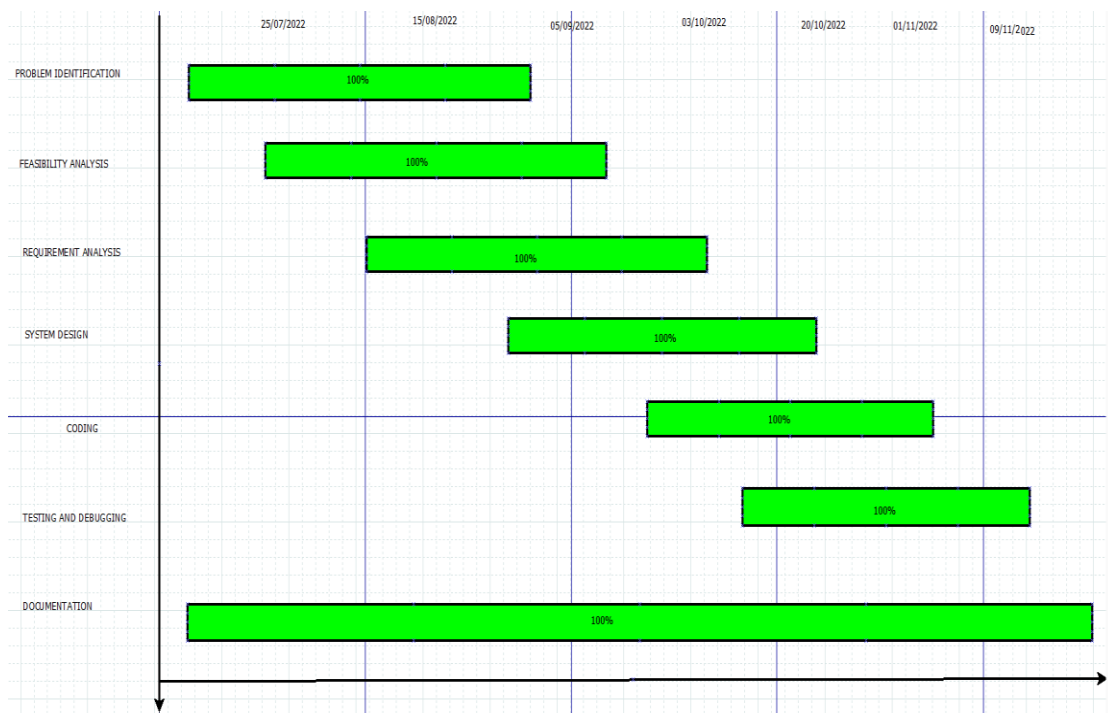↓

ADMIN

↓

LOGIN

ADD/CHECK COURSE AND OFFER

ADD/ CHECK TEACHER STATUS

ADD/CHECK STUDENT STATUS AND YEARS

MANAGE INSTRUCTOR INFO

CHANGE PASSWORD

ADD ADMIN

MANAGE Subject/ Teacher

Edit/Delete student/staff

LogOut

↓

END

7. Gantt chart

Fig: Gantt chart of Hotel management system

8.Development

Here, development refers to the waterfall model. The waterfall model is a classical model used in system development life cycle to create a system with a linear and sequential approach. It is termed as waterfall because the model develops likewise, a systematically from one phase to another in a downward fashion. This model is divided into different phases and the output of one phase is used as the input of the next phase. Every phase has to be completed before the next phase starts and there

is no overlapping of the phases. The Development Phase features a key step in the project: system construction. The previous phases lay the foundation for system development. the following phases ensure that the product functions as required. To complete the Development.
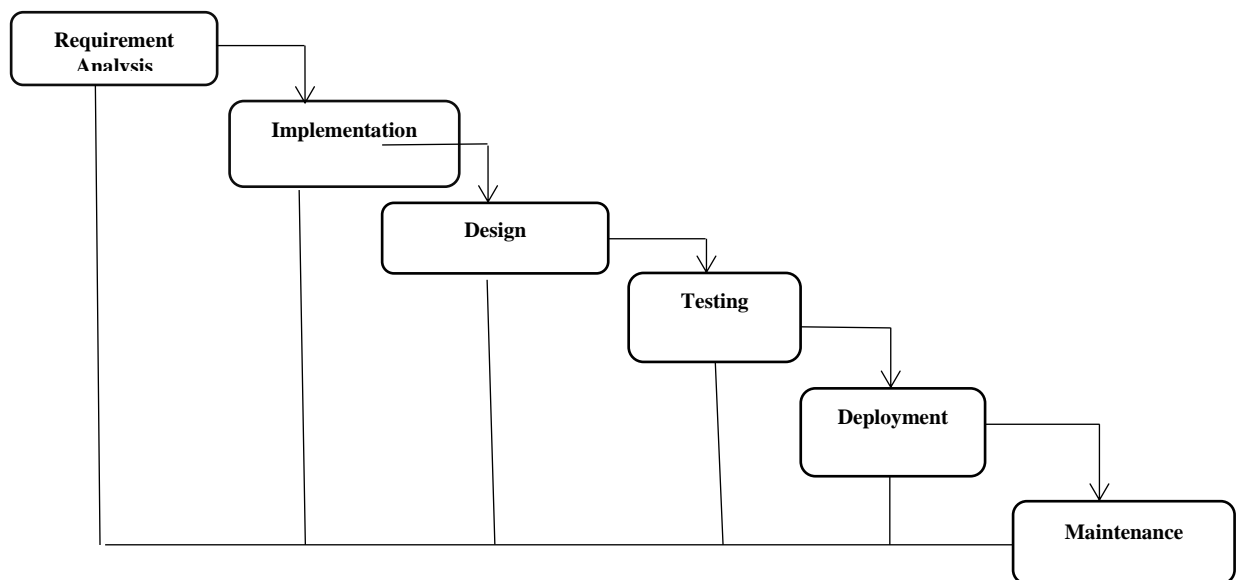

Fig: Waterfall model for School Management System

The sequential phases in waterfall model are:

i. Requirement analysis:

Track student performance and progres :- This will help them to track the loop holes and help students grow in the right direction. Keep a check on student attendance :- This will help teachers makes sure that the students are on time and do not engage in proxy marking. Availability of the exam schedule at regular intervals :- School Management System should come up with a section where exam can be scheduled on a monthly basis or small assessment test on a weekly basis. Help in two way interaction with students as well as their parents, New room facility feature to boost school's recognition.

ii.Implementation:

The input of this stage is the High level Design documents and the Low level Design documents. The developers will start coding or developing the software in this stage. They will do the Unit Testing once the development will be completed. The Project Manager will divide and allocate the work among the developers. The developers will be frequently communicating with the System Analysts or the Business Analysts for clarifications. The output of this stage will be a software product which can be compiled and working.

iii.System design:

The Analysis and Design is the second stage of the Waterfall model. The requirements which are available in the form of the Software Requirement Specification (SRS) document is analyzed in this phase. It is design to help schools to manage academic and administrative activities seamlessly. It provides a complete set of features including managing admissions and fees activities, staff management, curriculum and time table management and performance reports.

iv.Testing:

Testing is the process by which we can make sure that the software is running without errors. The input of this stage is the software module. The testing can be broadly divided into two- Black box and white box. Black box testing means testing the functionalities of an application and White box means testing the internal design & structure of the application.

v.Deployment:

The school management system approach was created to make data tracking easier for both parents and administrative personnel. This method helps faculty members manage their schedules and communicate with one another about students. A well-designed school management system assists in minimizing the staff workload, saving time for both students and instructors, saving costs, and improving data security.

vi.Maintenance: In this phase, there is a process of changing, modifying and updating software to keep up with customer needs. Software maintenance is done after the product has launched for several reasons including improving the software overall, correcting issues or bugs to boost performance.

9.Testing

In methodology we will make sure that we follow the testing paradigm, or software testing life cycle when we test a prototype or module .TLC stands for software Testing Life Cycle . STLC is a sequence of different activities performed by the testing team to ensure the quality of the software or the product. The main Motive behind Testing is that the tester or developers must be able to understand the client's requirement , and thoroughly inspect the modules to create a positive and negative tests cases. STLC is an integral part of Software Development Life Cycle (SDLC). But, STLC deals only with the testing phases.

- STLC starts as soon as requirements are defined or SRD (Software Requirement Document) is shared by stakeholders.
- STLC provides a step-by-step process to ensure quality software.

```
┌─────────────────────────┐
│  Requirement analysis   │
└─────────────────────────┘
            │
            ▼
    ┌─────────────────┐
    │  Test planning  │
    └─────────────────┘
            │
            ▼
      ┌──────────────────────┐
      │ Test case environment│
      └──────────────────────┘
            │
            ▼
        ┌────────────────────┐
        │ Environment setup  │
        └────────────────────┘
            │
            ▼
          ┌──────────────────┐
          │  Test execution  │
          └──────────────────┘
            │
            ▼
            ┌────────────────────┐
            │ Test cycle closure │
            └────────────────────┘
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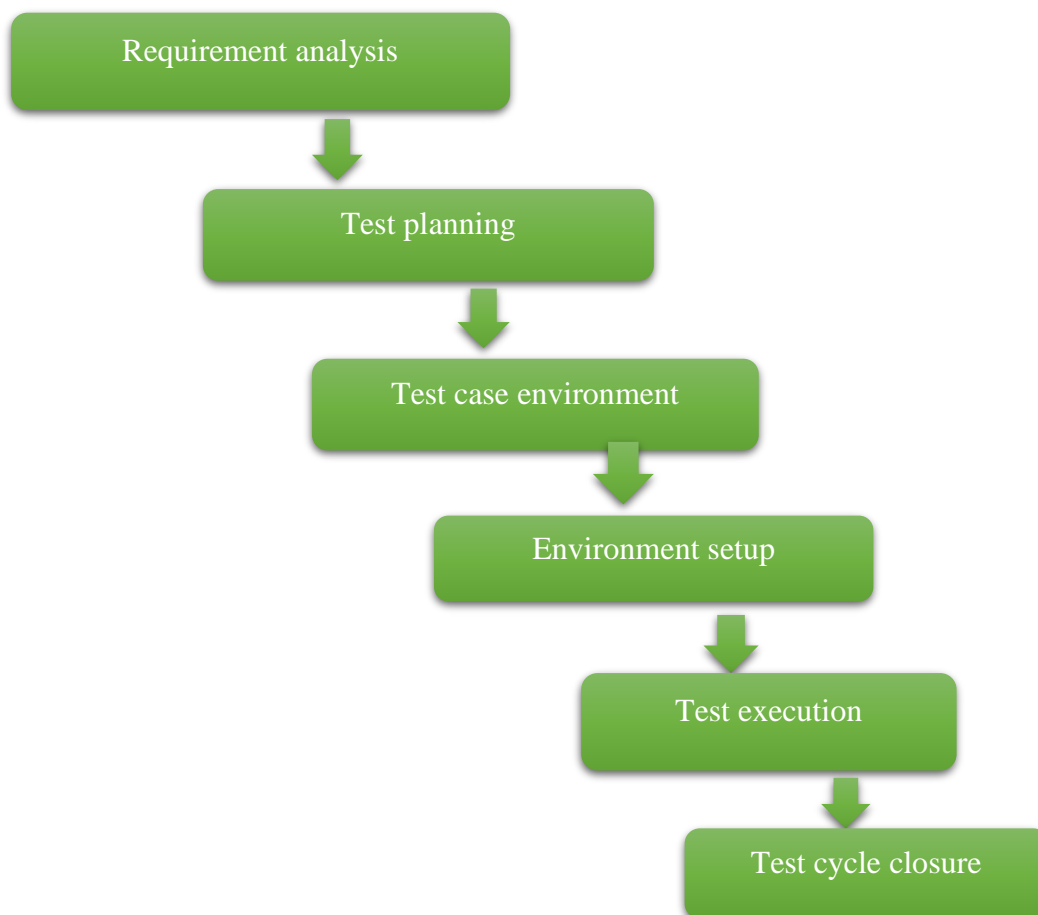
Fig: Software Testing Life Cycle

PHASES OF STLC

i.Requirement analysis: In the first phase, the STLC team understands the feature requirements, mainly what is there to be a tester? If necessary, the testing teams can also consult at this point with stakeholders to gain more clarity on the requirements. The requirements can be functional/non-functional and the decision to automate testing is also evaluated at this point.

■ Entry Criteria: client requirements, acceptance criteria, and intended product architecture to be documented.

■ Exit Criteria: aim for a requirement traceability matrix (RTM) and decision of automation.

ii. Test planning or execution: This phase includes a test strategy being implemented and defined in the testing plan. Also, the effort and cost of the testing team are estimated at this stage. This stage will only commence once the requirement gathering is completed.

■ Entry Criteria: report the test strategy being used.

■ Exit Criteria: have an approval on the test plan (risks and costs).

i.Test case designing: During this phase, test cases are created. Each case defines test inputs (e.g., data), procedures, execution conditions, and anticipated results. Test cases should be transparent, efficient, and adaptable. Once all test cases are created, test coverage should be 100%. Any necessary automation scripts are also created during this phase.

■ Entry Criteria: approval of timelines to execute the test plan.

■ Exit Criteria: approval of test cases and automation scripts if being used.

iii.Test environment setup: In a fourth phase, testing environment is configured and deployed to allow tester to test the feature. Once the environment is successfully deployed, testing can be performed to ensure the environment is working with the intended functionality and would also provide confidence in testing the new feature.

■ Entry Criteria: have a system design and project architecture defined.

■ Exit Criteria: have a working QA/Testing environment set up to run test cases.

iv.Test Execution: In the fifth stage, the test cases generated at the phase three are put into action here. Your expected results can be used to compare the actual results. The actual results could also be used as a baseline. You can also report back all yours interesting findings such as bugs report to the developing teams.

■ Entry Criteria: have all the previous steps completed especially the exit criteria.

■ Exit Criteria: test execution and results to be documented to report them back.

v.Test cycle Closure: In the last stage of STLC, a test result report is generated. The report should contain the entire process of testing the new requirements such as the analysis between the expected outcome and the actual outcome, whether the objectives were met or not, the time taken to test the feature, costs, test coverage and the most important thing of all whether you found any defects and details about it. Once testing is completed, matrix, reports, results are documented

■ Entry Criteria: test results and logging from all previous phases

■ Exit Criteria: delivered planned deliverable and approved test closure test summary report.

Test steps:

Test cases

Test case no.1	Test case	Test case steps	Test data	Results
001	Login verification	1.Selected the option to check login.	id: admin pw: pass	Login successful with the respected username and password.

| 002 | Data accessing | 1.Enter your id and password. 2.Entered. | Accessing records of student. | Accessed (successful). |
| 003 | Accessing selected information | 1.Login to system. 2.Enter required information. | Accessing selected information as admin. | Accessed (successful). |

Fig; Test Case

User Acceptance Testing (UAT), also known as beta or end-user testing, is defined as testing the software by the user to determine whether it can be accepted or not. This is the final testing performed once the functional, system and regression testing are completed.

No.	Acceptance requirement(USR)	Critical (DEV)		Test Results(DEV)		Comments(USR)
		Yes	No	Accept	Reject	
1.	The login system should ensure security	Affirm.		Affirm		The system is felt secured.
2.	The results must be correct for inventory	Affirm.		Affirm.		The results were correct
3.	Exit option must be shown		deny	Affirm		Exit option was shown

Fig: User acceptance Testing

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10.Future Enhancements:

        Today, the market place is flooded with several school management options for school and colleges to choose from. A variety of innovative products and services are being offered spoiling customer for choice. School management system is no more a privilege enjoyed by managers and employees. In the last couple of years, the growth of IT industry has been phenomenal as more have started discovering the benefits of using this platform. Therefor we will Made this system live and provide software as service (SAS) in future.

12.Conclusion

In this project, we developed an automated school management system that facilitates the various activities taking place at schools.
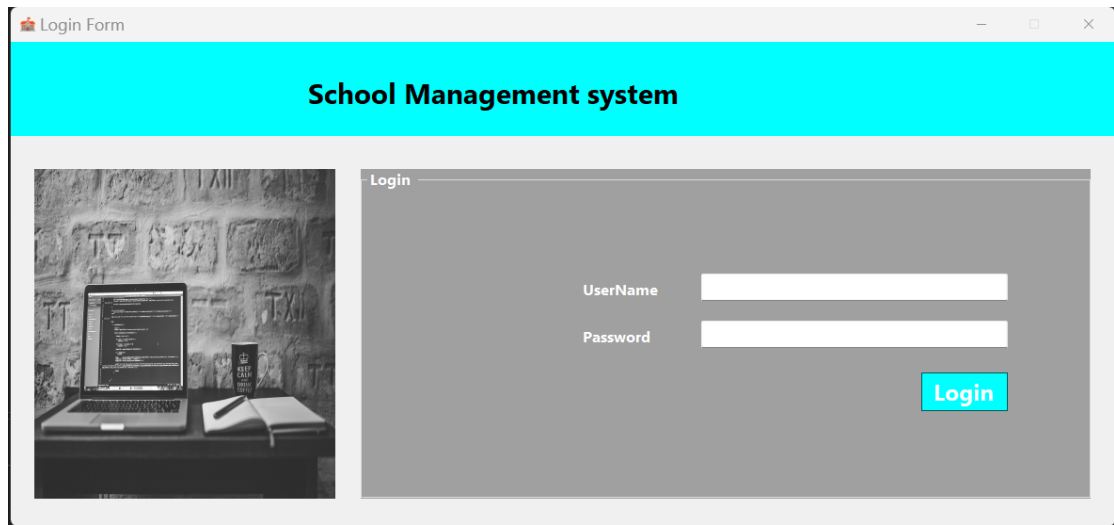
The system developed in the project consists of windows and web applications. These are two different applications on the same database. The windows application takes most of the activities such as offline student registering, transcript and report card generation and producing the timetable. The web application facilitates attendance recording by the homeroom teachers and to view reports, to view status of students by students, teachers and parents.

Our solution of the timetabling problem is very simple. Data structures are used to implement the timetable designed. The scheduler selects a subject-teacher from the database, retrieves all the classes assigned to the teacher, calculates the load of the teacher which cannot be greater than the maximum load and selects one of the days randomly based on the number of lessons of the subject, searches a free appropriate time slot and assigns the slot to the lesson. The scheduler repeats the process until the load of the teacher becomes zero and all the teachers in the database are visited. Finally the result generated is stored in a database.

The prototype has been tested with data from Kokebe Tsebah Secondary School. It has been shown that the system effectively registers students along with parental information, easily retrieves information about a student and generates the required reports such as transcript, report card and timetable. In addition to generating a feasible master timetable it produces a timetable for each teacher. Further more it has been shown that the web application of the system helps attendance recording by the homeroom teacher and parents can view the status of their children using the Internet or Intranet of the school.

13.Annex

Login page

Add Student page

Enter exam form