COLLEGE OF INFORMATION TECHNOLOGY
UNIVERSITI TENAGA NASIONAL

STUDENT ACADEMIC PERFORMANCE SYSTEM

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by

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ABSTRACT

Student academic performance system is to evaluate student's academic performance in a different way. The current system is the manual way which is teachers having a lot of disadvantages and it consumes time and energy. Now this new system proposed has more advantages where it will detect the student's academic level status whether it is a poor student o proactive student. This system will detect performance of the students level in a such a way that the students will be given assignments and time will be taken in how fast they do the assignments.

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INTRODUCTION

1.0 Background

The purpose of this system which is called student academic performance system is to evaluate student's academic performance in a different way. The current system is the manual way which is teachers having a lot of disadvantages and it consumes time and energy. Now this new system proposed has more advantages where it will detect the student's academic level status whether it is a poor student o proactive student. This will help the teachers to focus more to the poor students so that they will success at the end.

1.1 Project Objective

Create academic system

To provide a effective information about a student's academic level in a school base on exercises for a particular subjects. To study current practise of student evaluate system in primary school in Malaysia and to identify problems of current system facing by teachers and school management .It applicable for students in standard three

1.2 Problem Statement

The current system which is conducted manually has many disadvantages. Teachers in the schools having problems to detach their students performance level in a correct way so that they can apply a solution to the poor student's .This system will detect performance of the students level in such a way that the students will be given assignments and time will be taken in how fast they do the assignments. This will give a solution to the teachers to mark their student's performance level in academic. Currently teachers cannot really see their students performance level due to some manually ways.

1.3 Project Scope

Our project purpose is to develop an effective academic system to all the schools which helps the teachers to evaluate and detach the student's performance a particular subjects in a school. The system allows a teacher of a primary school to identify the student grade whether poor or proactive for further action.

1.4 Overview of Project Scope

Area:

This system is specially made for all primary schools and also can be used at many teaching centers in Malaysia and it is applicable for subject mathematic.

1.5Users:

Used by the School Teachers in a particular school to evaluate their students and it applicable for students standard three.

1.5.1 Technical Scope

Project size

This explains the size of the System project from every angle such as the team size, the size of organizations involved in this project, project duration estimation and the programming effort involved to complete this project. All this project attributes are important for the success of the project in the future.

Attributes	Size
Team size	Small
Organizational departments	Small
Project duration	Small
Programming effort	High

Table 1: Project size attributes

1.5.2 Operational Scope

This explains the functional aspect of the system towards its environment. It explains how much this system will be able to solve problems in all schools from all angles.

Attributes	Scope
Problem solving	High
Take advantage of opportunities	Low

Table 2: Operational scope

1.6 Expected Benefit

The expected deliverable of this project mainly is to help those teachers and the managements of a school or teaching centers to get their students grade performance .The system fulfils and satisfied the user by detecting and showing the status of a student in a particular subject .This may help the teachers to easily identify the student's academic levels and may give more focus for poor students who needed. This benefits the teachers and the students as well in a school or in a teaching centers..

1.7 System Requirement

Development tools

- Hardware
    - Processor- Intel Pentium IV and above

- Minimum 1GB SDRAM, DDRRAM, RDRAM or higher.
- Minimum 40 GB hard disk

- Software
  - PHP
  - MySQL Database
  - Software will be added or removed based on project progress
  - Visual Basic

1.8 Time line

In the project development, having a good schedule is considered as one of the major element to guarantee the project will complete successfully on time. The schedule for this project is represented through a Gantt chart in APPENDIX 11.

1.9 Summary

This chapter covers a brief explanation of the system developed, the objectives and the scope, the problem statement, the requirement, and the project schedule. The next chapter which is the Literature Review will focus more on the research done to develop this system.

Chapter 2

RESEARCH AND LITERATURE REVIEW

2.0 Research Methodologies

Research has played an important part for an individual, organization or company in order to achieve a good quality standard for their project. The research methodology is referred to the systematic techniques or approaches that use by the system analysts or researchers. It is crucial to do research because it allows making a more insight about the project that we would develop later. By doing research, it will as well help us to get exposure about the strength and the weakness of the current system or about the system's that are similar with my project scope so the project that I will develop would achieve the desired objective.

There are many ways of collecting data, information and facts for the project. One of the way is that how I got some information on my project was from the internet. Internet could provide me with certain degree of information.

Other methodology that can be used on my project is books. Many people use books as their source of information because of the accuracy of the information. Most books are written down by experts on that topics or expertise of their area. From this the researchers

and system analysts can gain some knowledge about what is the criteria that can be related to the project.

2.1 Reviews on Several Development Methodologies.

Methodology is a framework for the activities, actions and tasks that are required to build high-quality software, such frameworks have evolved over the time, each with its own representation for framework activities such as communication, planning modeling construction and deployment. Each methodology that is available today, has its own advantages and disadvantages therefore not all methodology able to support a particular project, it depends on the type of the project, duration, requirements of the project, budget and other criteria. Developing team or individual whom have better understanding on the project is responsible to select the best methodology for their project.

Waterfall model, Spiral model and the **Rapid Application Development (RAD).**

2.1.1 Waterfall Model

Waterfall model is one of the methodologies that would best suit to develop a website. Waterfall model is also known as classic life cycle which suggest a sequential approach to software development that begins with Requirements definition and progress through system and software design, implementation and unit testing, integration and system testing and finally operation and maintenance , all of this phase are representation for framework activities such as Communication, Planning, Modeling ,Construction and Deployment.

Advantage of the waterfall model is the progress of every stage is as expected. The disadvantage of the model is the element of time and the cost estimation that is difficult and require of resource management flexibility.

This is the reason why waterfall model was been chosen.

- Easy to manage due to the inflexibility of the model – each phase has specific deliverables and a review process.
- It is driven that is documentation is produced at every stage .for example the document will be producing in sequence and easy for us to manage the document. The amount of resources needed to implement this process model is very minimal.
- It is because the waterfall methodology follows the order of the sequence works well where requirements are very well understood.

2.1.2 Why Waterfall

The waterfall methodology is very powerful. It simply states that the main thing is to think about what is being built, then establish the plan for how it should be built and then build it. It allows for a software engineering methodology which is more in alignment with hardware engineering methods and practices. Other than that, it forces a discipline process to avoid the pressures of writing code long before it is known what is to be built. The waterfall methodology also forces analysis and planning before actions are taken.

2.1.3 Rapid Application Development (RAD)

RAD (rapid application development) is a concept that products can be developed faster and of higher quality through Gathering requirements using workshops or focus groups Prototyping and early, reiterative user testing of designs the re-use of software components

- A rigidly paced schedule that defers design improvements to the next product version
- Less formality in reviews and other team communication

RAD approaches are mapped into the generic framework activities presented earlier. Communication works towards understanding the business problem and the information characteristics that the software must accommodate. Planning is essential as multiple software teams work in parallel on different functions in the system. Modeling are divided into three major category that is:

- Business modeling
- Data modeling
- Process modeling

Construction emphasizes on the use of pre-existing software components and the application of automatic code generation. The deployment establishes a basis for subsequent iterations, if required. Like any other process models, the RAD approach has drawbacks:

1. RAD requires human resources to create the right number of RAD teams.
2. The project would fail if the developers and customers are not committed to the rapid-fire activities necessary to complete the system in a abbreviated time frame.
3. If the system isn't properly modularized, the building of the necessary components for RAD will be problematic.
4. If there is an issue in the performance and performance is to be achieved through tuning the interfaces till the systems components, the RAD approach may not work.
5. RAD may not be appropriate when the technical risks are high.

2.2 System Development Life Cycle

The waterfall model is a sequential software development process, in which progress is seen as flowing steadily downwards (like a waterfall) through the phases of Conception, Initiation, Analysis, Design (validation), Construction, Testing and Maintenance. Figure 2.5.2 shows that the classic Waterfall model methodology, which is the first SDLC method and it describes the various phases involved in development.

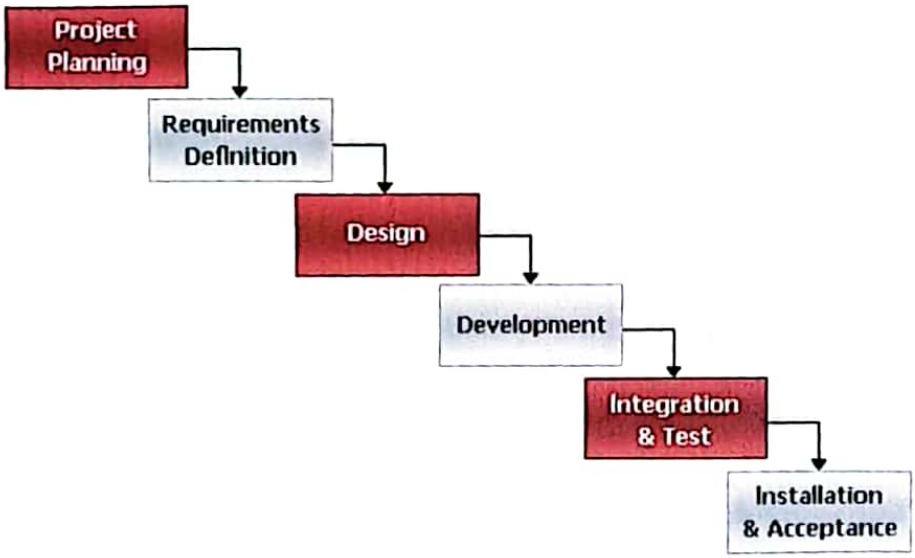


Figure 2.5.2 System Development Lifecycle

Briefly on different Phases: [11]

Planning

Project initiation takes place by refining the projects problem statement, objective and goal. Requirements are gathered from the related stakeholders those requirements are documented and kept securely for daily reference.

Requirement Analysis and Design

All possible requirements of the system to be developed are captured in this phase. Requirements are set of functionalities and constraints that the end-user (who will be using the system) expects from the system. The requirements are gathered from the end-

user by consultation, these requirements are analyzed for their validity and the possibility of incorporating the requirements in the system to be development is also studied. Finally, a Requirement Specification document is created which serves the purpose of guideline for the next phase of the model.

Implementation

Construction take place, in this phase software design which is obtained from the phase before this will be converted in to computer programs and computer databases. Coding computer instructions, data definitions, building databases and other activities needed to implement the design will be performed in this phase. Besides that, the program is translated into program unit, to undergo unit testing..

Testing

On receiving system design documents, the work is divided in modules/units and actual coding is started. The system is first developed in small programs called units, which are integrated in the next phase. Each unit is developed and tested for its functionality; this is referred to as Unit Testing. Unit testing mainly verifies if the modules/units meet their specifications.

Maintenance

The maintenance phase is usually the longest stage of the software. In this phase the software is updated to a different level:

- Documentation is produced at each phase of the cycle.
- Meet the changing customer needs in the projects.

- Can return to the previous cycle if there is any changes should be made.
- Adapt to accommodate changes in the external environment.
- Correct errors previously undetected in the testing phases.

2.3. Advantages of waterfall model

- Easy implementation due to the linear model approach Stages and activities are well defined.
- Helps to plan and schedule the project needed.
- Verification at each stage ensures early detection of errors or misunderstanding.
- Works well for many kind of projects.
- Easy to review and each phase has specific deliverable and a review.
- Well understood milestones and Easy to arrange tasks.

2.3.1 Disadvantages of waterfall model

The disadvantage of waterfall development is that it does not allow for much reflection or revision.

Once an application is in the testing stage, it is very difficult to go back and change something that was not well-thought out in the concept stage.

Alternatives to the waterfall model include joint application development (JAD), rapid application development (RAD), synch and stabilize, build and fix, and the spiral model

2.3.2RapidApplicationDevelopment(RAD)Model

RAD (rapid application development) is a concept that products can be developed faster and of higher quality through Gathering requirements using workshops or focus groups Prototyping and early, reiterative user testing of designs .

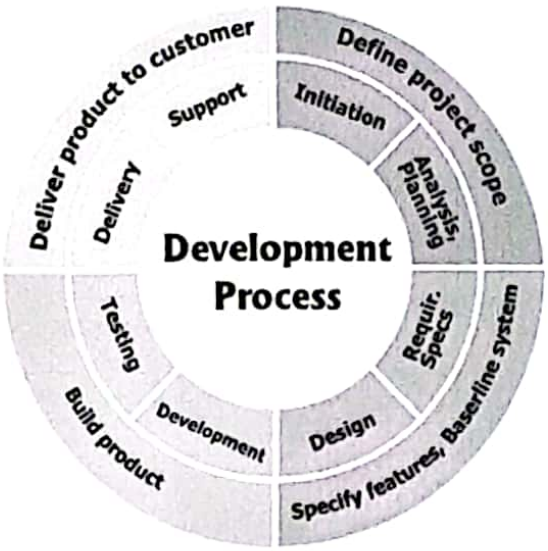


Figure 2.2.2 : RAD model

1. **Business Modeling:**

   Automated tools are used to facilitate construction of the software; even they use the 4th GL techniques.

2. **Data Modeling:**

   The info from the business modeling is then changed into a set of data objects to support the business. The attributes are identified and the relation between these data objects is ordered.

3. **Process Modeling:**

   The data objects defined in the data modeling phase are transformed to achieve the information flow necessary to implement a business function.

4. **Application Generation:**

   Many of the programming components have already been tested since RAD emphasizes reuse. This reduces overall testing time. But new components must be tested and all interfaces must be fully exercised

2.3 User Interface Design

Simplicity

A simple design would work, why complicate matters, with some not so useful functions.

Ease of Use

The easier user can use the system the better performance.

Order

There information should be nice and relevant as it should be in a proper order.

Consistency

The consistency of the system on traffic as there lot of users for the system. The system should provide consistent data as this is one of the most feasible factors that bring the idea of developing this system.

Accessibility

Make this system always working to give availability to all the users and make sure that the user can view all pages that they are authorized for and

Appropriate Technology

The appropriate technology that should be used to view the system and to develop the system as it would be as attractive as any other system that is out there.

2.3.1 Review of Possible Development Tools and Software.

In this area, the tools and software that would help to develop the student academic performance system. This is important as in order to know to know what tools and software that is suitable on developing the system.

2.3.2 PHP

PHP provides a comprehensive set of functions for working together with it. The combination of Apache, MySQL and PHP is good.

That doesn't mean that PHP can't work in other environments or with other tools. As we know, PHP are supported by an extensive list of databases and web-servers. The rise in popularity of PHP has collided with a change of approach in web-publishing. In the mid-1900's it has no problems to build sites, even relatively large sites. With the hundreds line of HTML codes pages, nowadays webmasters are making the most powerful of databases

tom manage their content more effectively and to personalize their sites according to the clients preferences.

The main features of the PHP [7]

Open Source codes

- PHP is an open source language and is freely available for user to use. The main community of open source PHP users provides technical support and is continuously improving updating the PHP functionalities.

Error message explained

- PHP provides high compatibility with leading operating systems and web servers such as thereby enabling it to be easily deployed across several different platforms.

Using remote files

- Provides file open and file close for the php developer

Improved Performance

The PHP complier includes features to optimize and improve the quality of compiled

code by reducing the size execution time of the code thus leading to better performance.

Debuggers

- Many debuggers are shown with PHP code developers to find and analyze the code for potential bugs and bottlenecks.

2.3.3 MySQL

MySQL can be built and installed manually from source code, but this can be tedious so it is more commonly installed from a binary package unless special customizations are required. On most Linux distributions the package management system can download and install MySQL with minimal effort, though further configuration is often required to adjust security and optimization settings.

Information stored in the MySQl[6] database is hosted on a web-server that can be accessed from any part of the world via the internet. This makes it a good tool for storing the information that needs to be updated over the time. Some examples that utilizes MySQL are web message bulletins or customer's shipping status.

Advantages of MYSQL

- Provides Good Scalability for the user
- High Good Performance can be used in the project
- High Flexibility can be obtained by the user

- Robust Transactional Support
- Good Web and Data Warehouse Strengths
- Strong Data Protection of a project
- Comprehensive Application Development for a project
- Ease management of a project
- Open Source code

Disadvantages of MYSQL

- MySQL will not support a very large database size as efficiently
- MySQL does not support ROLE, COMMIT, and Stored procedures in versions less than 5.0.
- Transactions in MYSQL are not handled in efficiently

2.3.4 Dreamweaver

Macromedia Dreamweaver allows its users to have a preview of websites in many browsers, provided that they are installed on the computers. Macromedia Dreamweaver also has several site management tools, such as the ability to search and replace lines of code or text by any parameters specified across the entire site, and also a feature for creating multiple pages with similar structures. Adobe Dreamweaver (formerly Macromedia Dreamweaver) is a proprietary web development application originally created by Macromedia, and is now developed by Adobe Systems, which acquired Macromedia in 2005.

Advantages of Adobe Dreamweaver

- Dreamweaver can be used by experienced developers to create a robust web site quickly.
- By using Spry Data and Java scripting to handle dynamic data, Dreamweaver replaces back-end databases.
- Dreamweaver can support both a JavaScript API and a Utility API.
- Dreamweaver 8 also offers tableless layouts for web pages.
- User may also directly edit the configuration files in the projects
- Basic image optimization may be accomplished within Dreamweaver and more advanced image processing may be accomplished through the close integration between Dreamweaver and Fireworks.

Disadvantages of Adobe Dreamweaver

- It is a complex program that's contents lack of codes.
- Dreamweaver has a confusing interface that may seem intimidating to new users.
- The user must switch between code views and various design views in order to optimize table construction.
- More space needed to write the codes.

2.4 Reviews on Types Of Surveys.

There are many method of surveying to be chosen as to make research about my topic. There are many methods in doing surveys. But to choose the one that is suitable for this project is the one of the trouble. This is important to make sure that the project meets the

goals and objectives and the users requirements. So, in order to get the best requirements, a suitable survey should be choose

2.4.1 Internet Exploring

The Internet is a global system of interconnected computer networks that use the standard Internet protocol suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic, wireless and optical networking technologies

2.4.1.1 Advantages of internet exploring

- The information is quite available to be accessed by anyone, anywhere, anytime.
- Services A variety of services are offered via Internet, for example job searching The site may provide links to other sites on the same topic or information.
- E-commerce E-commerce is the idea that is implemented for any form of commercial strategy or business transactions that entails transmission of data from one corner of the world to another.

2.4.1.2 Disadvantages of internet exploring

- It may be difficult for researchers to locate, especially if there are many similar websites.
- Site may be difficult to use if experience with the internet is limited.

- Spamming denotes distribution of unsolicited e-mails in large numbers. They are meaningless and they unnecessarily block the whole system The information on the site may not be reliable for the users.

2.4.1 Interviews

An interview is one of the methods of surveys that is designed in way that the person to ask the questions are very much important. An interview is a qualitative method of surveying. It would need more time to make an interview. Benefits of interview are, the person that is answering the questions is quite important related to the project topic.

2.4.1.1 Advantages of interview

- Yields a good percentage of returns
- Yields perfect sample of the general population
- Allow interviewer to explain or help clarify questions, increasing the likelihood of useful responses

2.4.1.2 Disadvantages of interview

- Requires more energy
- Interviewee may distort information through recall error, selective perceptions, desire to please interviewer.
- More confusing and complicated method.
- May sometimes involves systematic errors

2.4.2 Questionnaires

Questionnaire is a survey method that is not expensive to gather data from potentially large number of respondents. Questionnaire is quantitative method a survey. It could be

conducted by distributing the survey at the public places and could be done online as well. The questions in the questionnaire should be easy to be understand to the respondents. It also should be 1 or 2 pages only not more as more questions can bring undesired results.

2.4.2.1 Advantages of questionnaire [10]

- Less cost needed.
- Respondents input their own data, and it is automatically stored electronically.
- More Convenience for respondents.
- Less time is required
- Questionnaire can be performed even if they are very complex.

2.4.3 Observation

The observation method involves human or mechanical observation of what people actually do or what events take place during a buying or consumption situation. "Information is collected by observing process at work. There are six different ways of classifying observation methods whereby the participant and non-participant observation, observation in natural or contrived setting, disguised and non-disguised observation, structured and unstructured observations and the last one is direct and indirect observation.

2.4.4 Previous manual method

Previously all the schools using the manual way which is the teachers have to monitor all the students and at the end the teacher will evaluate the students according to their finals results. This method has a lot of disadvantages which means the teacher only can know

the student's academic level at the end of year when they take exams. Teachers having difficult to help those are weak in studies in the beginning of the year. The students have the advantage to improve their studies in the beginning and they can score more in their exams.

The currents system has more disadvantages and this gives more problems to the teachers in the schools and students as well. Manually evaluate system is difficult to bring up good students in a school .This new project applies all new features that helps the teachers and the students as well.

2.5 Summary

This chapter has explains about the methodology has been use and analyzing the pros and cons of each topic selected such as the methodology used the right development tools and the model is used for the project.

CHAPTER 3

METHODOLOGY & ANALYSIS

3.1 Introduction

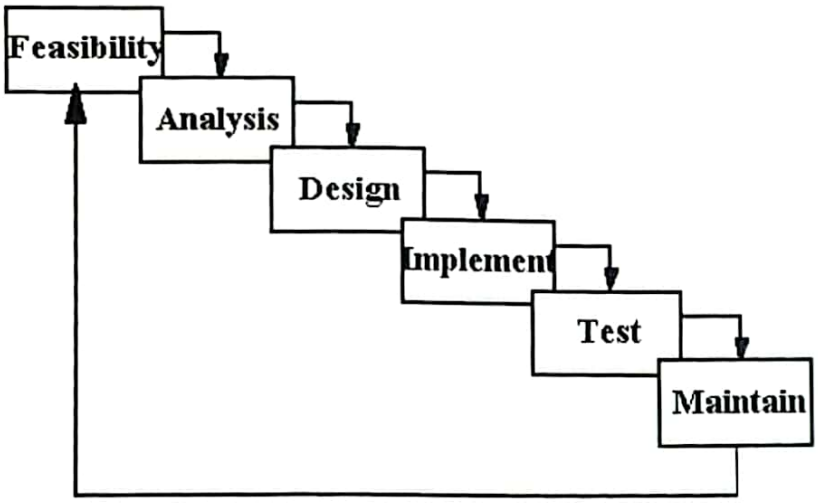
This chapter will mainly focus on methodology and the analysis of the research done from chapter 2. The analysis will include analyzing the advantages and disadvantages of each topic selected such as the methodology used, the correct development tools and data collection method that has been used. The result from the analysis can be use in developing the project to meet its goals and objectives. Besides that, this chapter will also discuss about the system functionalities, user requirements and system requirements.

3.2 Methodology

A methodology is a framework that is used to structure, plan, and control the system. This includes the pre-definition of specific deliverables and artifacts that are created and completed by a project team to develop or maintain an application. Each methodology has procedures, techniques, tools and documentation aids that help the system developer in his or her efforts to develop an information system.

3.2.1 Software Development Methodology

There are three methodologies such as prototyping, spiral and waterfall model. Once comparing the development methodology available, the waterfall model seems to be the finest and most appropriate model for this project. The waterfall model is a recognized methodology which many developers apply it particularly in those which involve systems. The waterfall model is not just flexible but it as well has the least constraints as compared to other development models.



Briefly on different Phases:

Feasibility

It is used to determine if the project should get the go-ahead. Under this phase a description of the project will be made and also at the same time determine the goals and objectives .

Requirement Analysis and Design

All possible requirements of the system to be developed are captured in this phase. Requirements are set of functionalities and constraints that the end-user (who will be using the system) expects from the system. The requirements are gathered from the end-user by consultation, these requirements are analyzed for their validity and the possibility of incorporating the requirements in the system to be development is also studied. Finally, a Requirement Specification document is created which serves the purpose of guideline for the next phase of the model.

Implementation

Combines elements of the system planning and systems analysis phases of the System Development Life Cycle (SDLC). Users, managers, and IT staff members discuss and agree on business needs, project scope, constraints, and system requirements. It ends when the team agrees on the key issues and obtains management authorization to continue.

Testing

Focuses on program and application development task similar to the SDLC. In RAD, however, users continue to participate and can still suggest changes or improvements as actual screens or reports are developed. Its tasks are programming and application development, coding, unit-integration and system testing.

Maintenance

This phase is virtually never ending phase. Generally, problems with the system developed come up after its practical use starts, so the issues related to the system are

solved after deployment of the system. Not all the problems come in picture directly but they arise time to time and needs to be solved; hence this process is referred as maintenance.

3.2.3 Rationale of Choosing Software Development Methodology

The waterfall development allows for departmentalization and managerial control. A schedule can be set with deadlines for each stage of development and a product can proceed through the development process and theoretically, be delivered on time. Development moves from concept, through design, implementation, testing, installation, troubleshooting, and ends up at operation and maintenance. Each phase of development proceeds in strict order, without any overlapping or iterative steps.

These are the reason why waterfall model was been chosen:

I. The advantage of waterfall development is that it allows for departmentalization and managerial control.

II. Each phase has specific deliverables and reviewed. So, it is easy to manage due to the inflexibility of the waterfall model.

III. Phases are processed and completed on time because the waterfall methodology follows the order and sequences.

IV. Development moves from concept, through design, implementation, testing, installation, troubleshooting, and ends up at operation and maintenance. Each phase of development proceeds in strict order, without any overlapping or iterative steps

3.3 Software Development Tools

2.3.3 MySQL

MySQL [5] is one of the relational database systems that used to store information. MySQL could store many types of information from something tiny as a single character to as large as a complete file. Although it could be accessed by most programming languages and it is often coupled with PHP as they can work together with ease

Information stored in the MySQl database is hosted on a web-server that can be accessed from any part of the world via the internet. This makes it a good tool for storing the information that needs to be updated over the time. Some examples that utilizes MySQL are web message bulletins or customer's shipping status.

2.3.3 PHP

PHP code in an script can query databases, create images ,read and write files, interact with other remote servers- the possibilities are endless. The output from the PHP code if combined with HTML in script results are send to the user's web browser, and thereafter it couldn't tell to the users that it uses PHP as it shows the HTML only.

3.4 Data Collection Techniques

For research purposes, the online survey and interview approach is chooses. The questionnaire of survey is posted i1 respondents have answered to the survey. The result of the survey taken and is shown at appendix I. Respondents input their answer and it is automatically stored electronically. Moreover, it is convenience for respondents

Data Gathering Techniques:

The online survey and interview approach was selected

Questionnaire:

Respondents input their own data, and it is automatically stored electronically.

More Convenience for respondents.

Less time used

Interview:

Allows face-to-face contact with respondents.

Provide opportunity to explore topics in depth.

Allow interviewer to brief or help to answer all the questions

3.5 System functionality

Student' Side:

View questions: Student s is able to view the questions that teachers have been uploading in the database. Students have to complete all the questions to finish the assessment given.

Choose Student Name: Students must choose their particular name before the proceed to the assessment.

Teacher' Side:

Update student info: Teacher s is able to update the database such as add, delete and update results. Teachers able to view student info such as name and classes.

Upload Questions: Teachers can upload questions with answers into exercise database.

View Results: teachers can view students' results

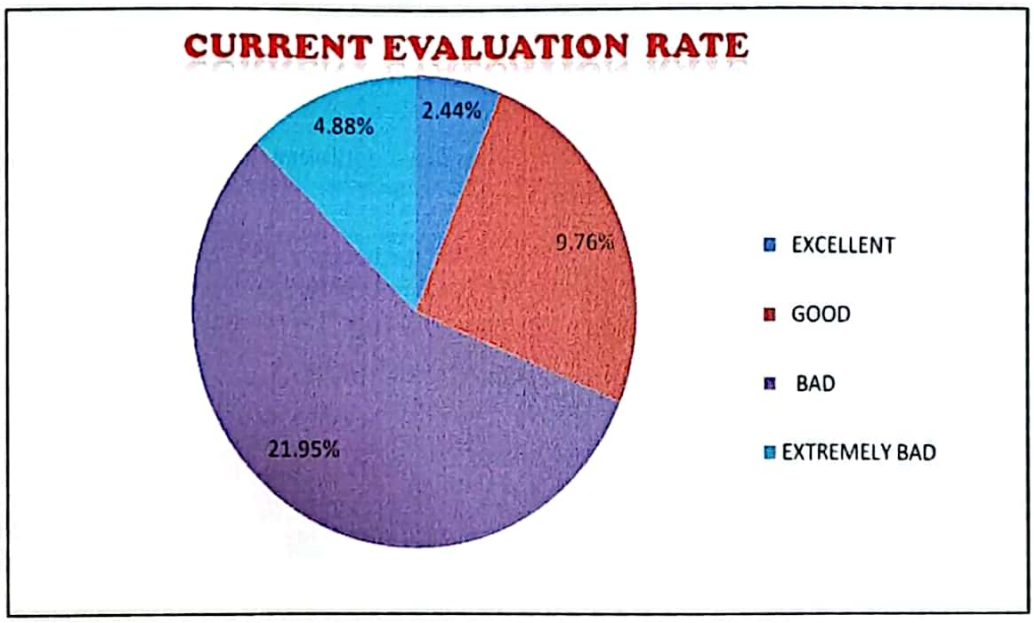
3.8 Data Gathering

3.8.1 Questionnaire result and findings

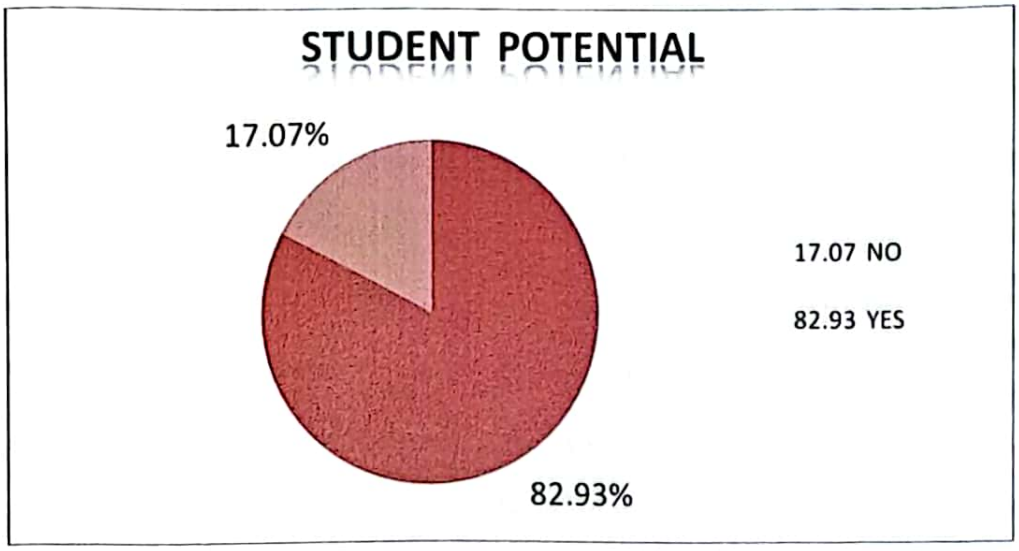
Survey title: Questionnaire on student performance

Total respondent: 41 respondents

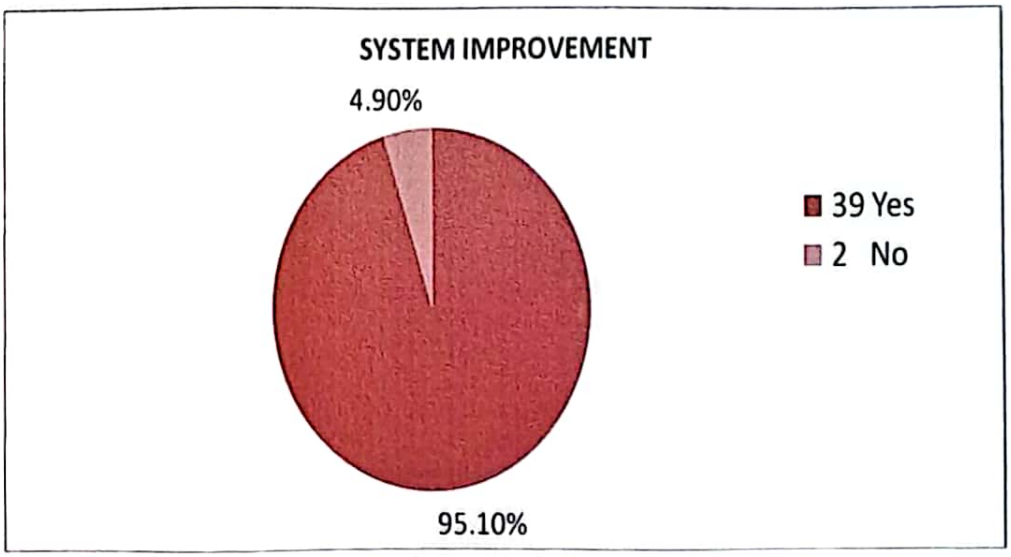
Online survey questions sample: Appendix I



Question 1: How you rate the current evaluation of school student academic system level.



Question 2: Will this new computerized will improve the current student potential in School academic.



Question 4: Do you think this is a systematic way to improve our current School academic evaluation system.

3.8.2 Interview result and findings

Interview title: student academic performance system

Interview duration: 30 minutes

Background: Interview has been conducted with a person who is a teacher in a school.

Interview questions with answer sample: Appendix II

Findings: She has highlighted that the current system should replaced with computerized evaluation system so that students can be given more intentions at the early stage. She strongly agreed that the current system needs more enhancements as it can produce a big positive impact to the current academic system.

3.10 Summary

This chapter has brief about the methodology has been use for this project and analyzing the advantages and disadvantages of each relevent topicselected such as the methodology used, the best development tool, data collection method. The overall design of the development of the project will explains in chapter 4.

Chapter 4

DESIGN

4.1 Introductions

This chapter explains the overall design of the development of the project. The design will include the structure of the system that will show the flow or layout of the system.

4.2 Proposed system

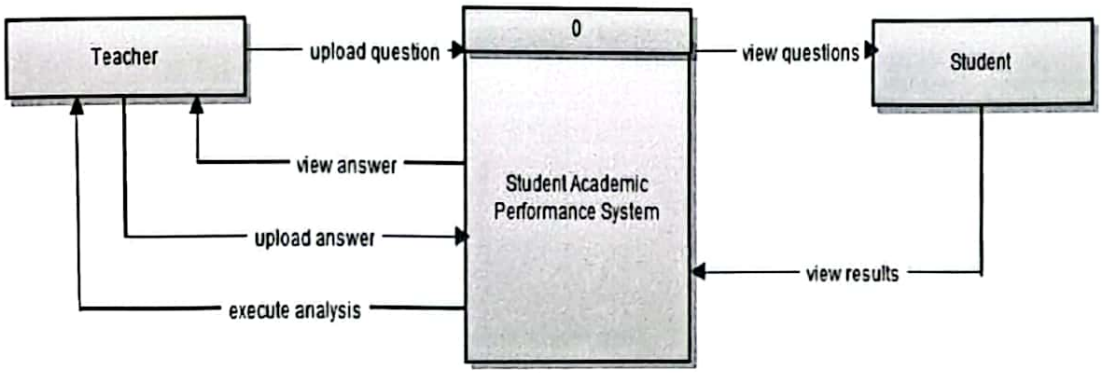
This is computerized system for school academic systems. It allows data to be kept systematically and update consistency. This system is school system where it detect schools students performance status in academic and generate results to the teachers .The results consists the current status of a student in academic.

4.3 Architectural Design

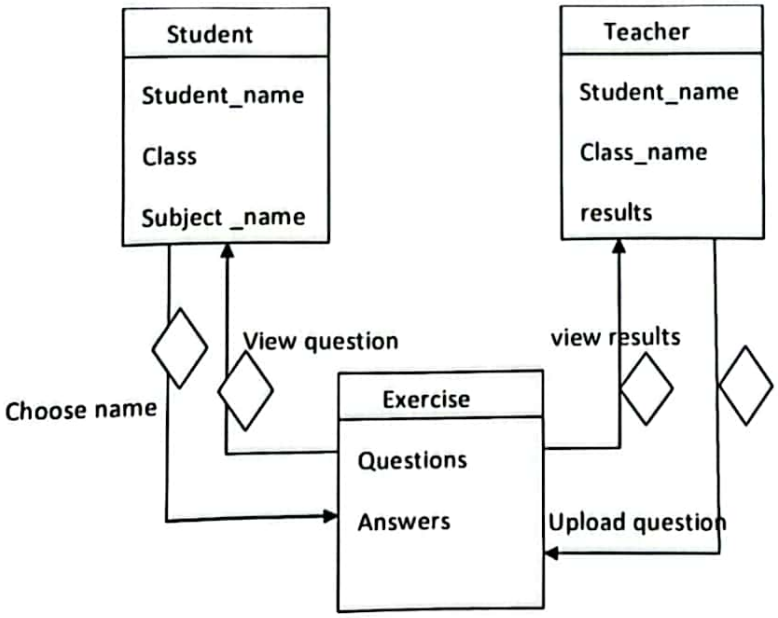
The system will have 2 external entities which are the teachers and the students in a school. The students will do the assessment given by the teacher and the results will be generated to teachers' database and teacher can view the results in the database. Teachers can update the student database and upload questions in the database.

A data flow diagram (DFD) is a graphical representation of the system flow of data through information system.

4.3.1 Context diagram

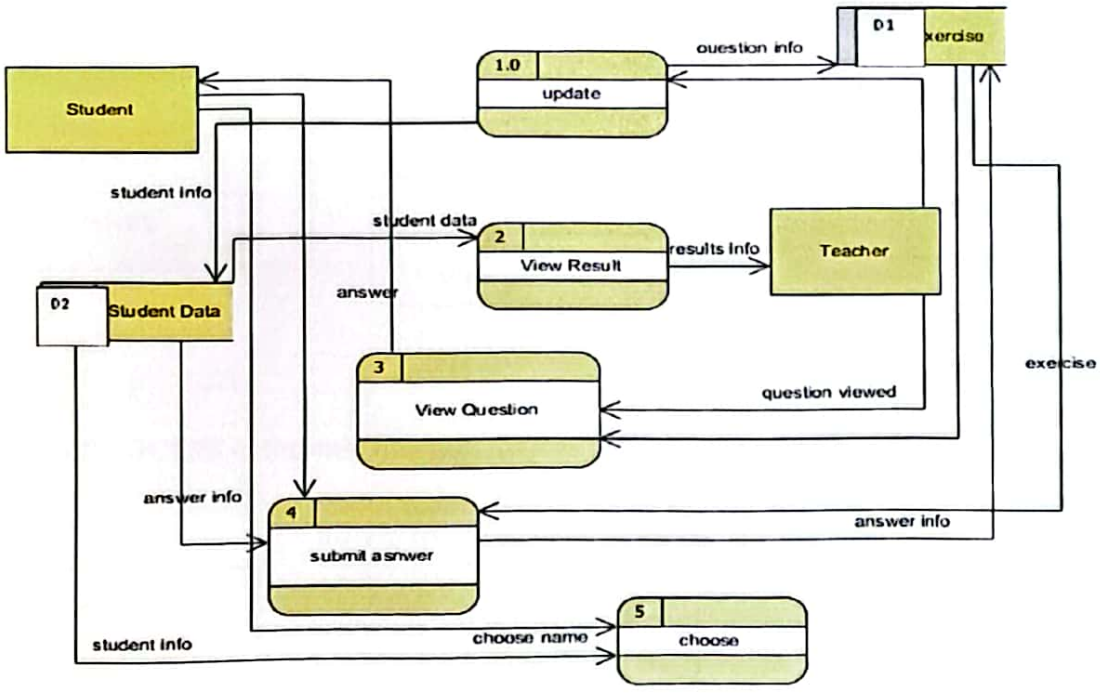


4.3.1.1 ERD



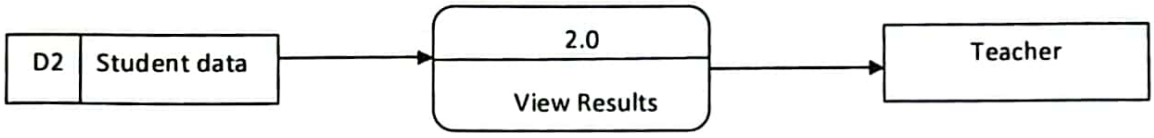
4.3.2 Data flow diagram (DFD)

A data flow diagram (DFD) is a graphical representation of the "flow" of data through an information system. It differs from the system flowchart as it shows the flow of data through processes instead of hardware. The DFD is designed to show how a system is divided into smaller portions and to highlight the flow of data between those parts .[1]

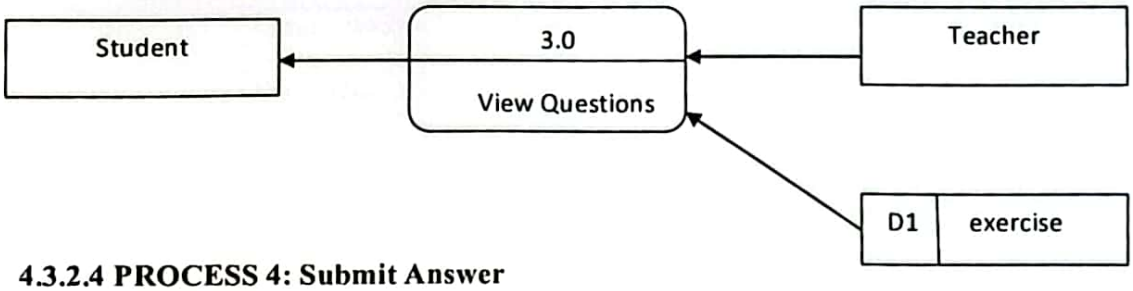


4.3.2.1 PROCESS 1 : Update

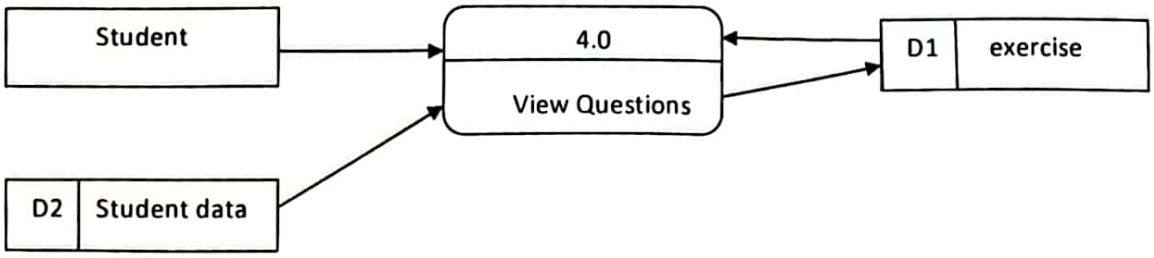
4.3.2.2. PROCESS 2: View results



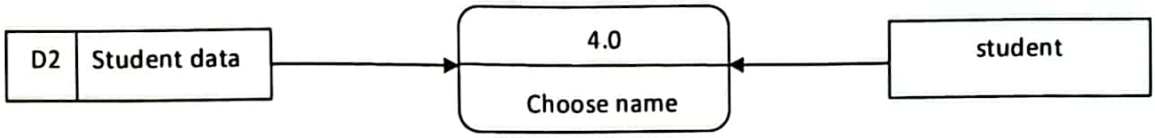
4.3.2.3 PROCESS 3: View results



4.3.2.4 PROCESS 4: Submit Answer



4.3.2.5 PROCESS 5 : Choose name



4.3.4 Data dictionary

The data dictionary [2] is an organized listing of all data elements that are pertinent to the system, with precise, rigorous definitions so that both user and system analyst will have a common understanding of inputs, outputs components of stores.

4.3.4.1 Table: student

Attributes	Description	Data Type	Length	Primary Key	Foreign Key
Username	Student's username	Varchar	8	No	No
Class	Class teaches by the teacher	Varchar	5	No	No
Subject	Subject teaches by the teacher	Char	15	No	No

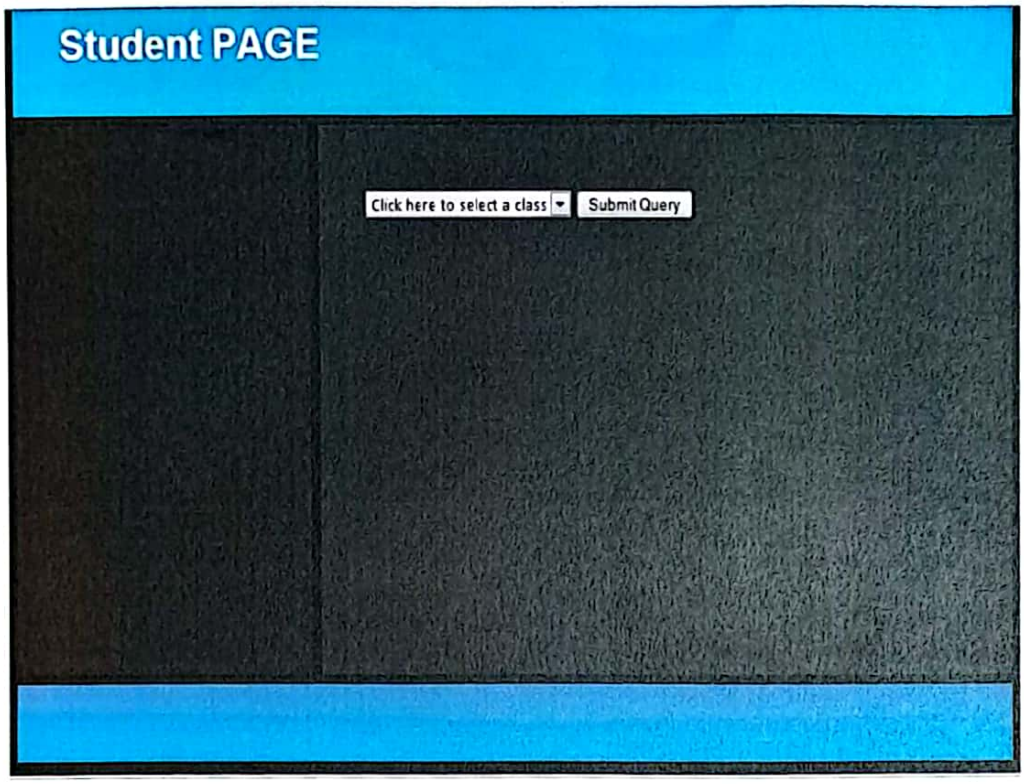
4.3.4.2 Table: exercise

Attributes	Description	Data Type	Length	Primary Key	Foreign Key
answer	Questions answer	Varchar	8	No	No
time	Time allocations	float	5	YES	No
Questions (photo, text)	Questions uploaded by teachers	Char	50	No	No

4.4 Interface Design

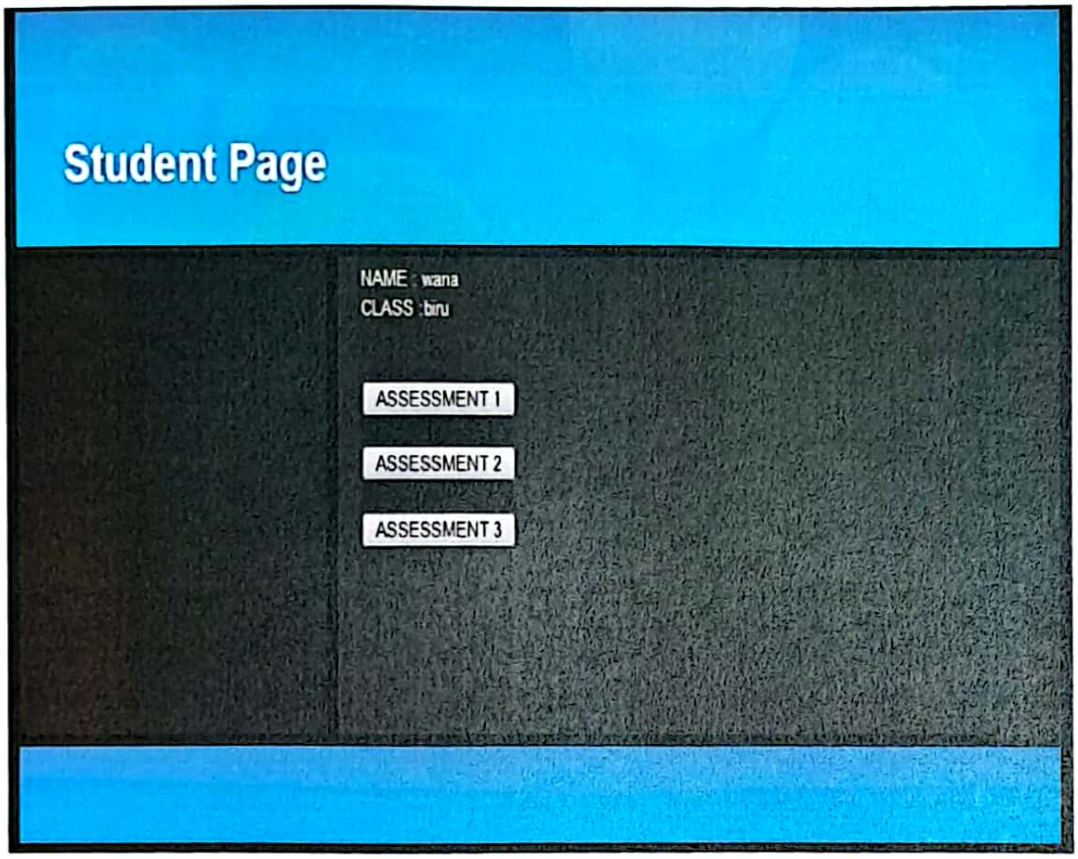
Storyboarding is the initial of an interface of the system. It is important because a storyboard depicts how the actual system will look like. A good interface and design can attract customers to use the system.

4.4.1 Main page



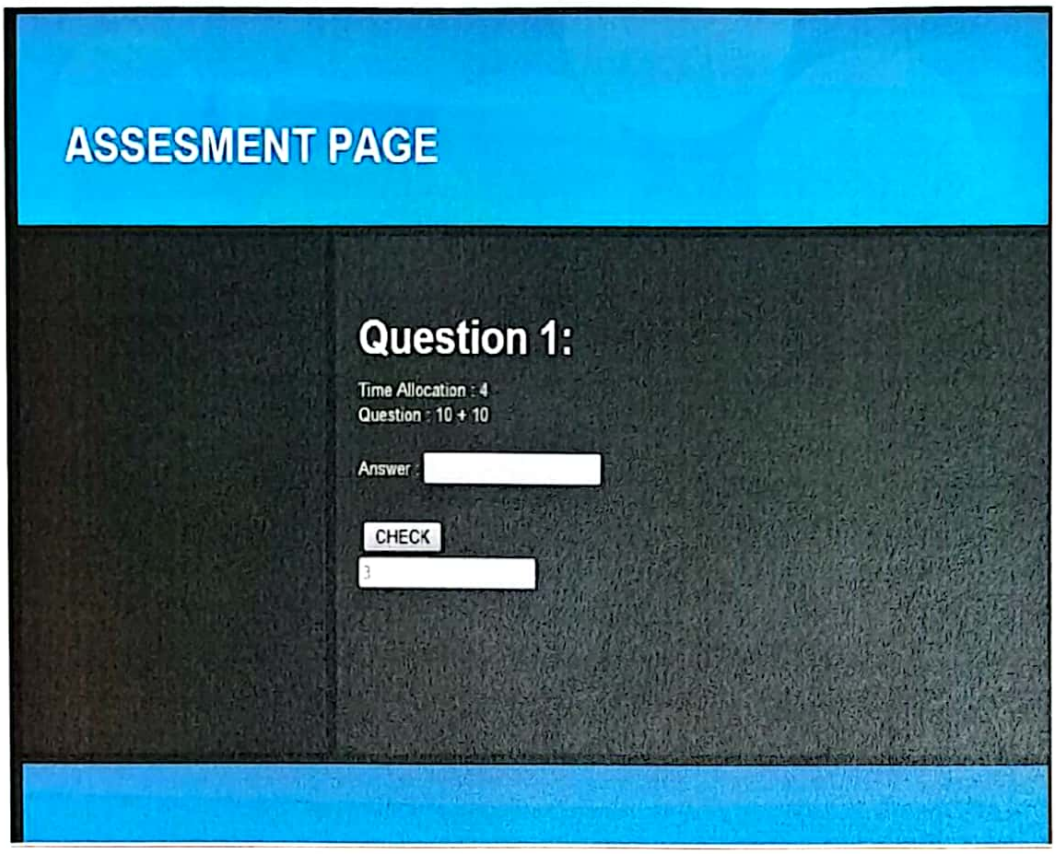
The main page is the first page that will be displayed in the system. This page is the most important page where students need to choose their name and class before students proceeding to the assessment. Therefore the system will generate the results according to the name and class chosen by the student in the main page. Teachers can view each student's results in the database.

4.4.2 Student assessment page



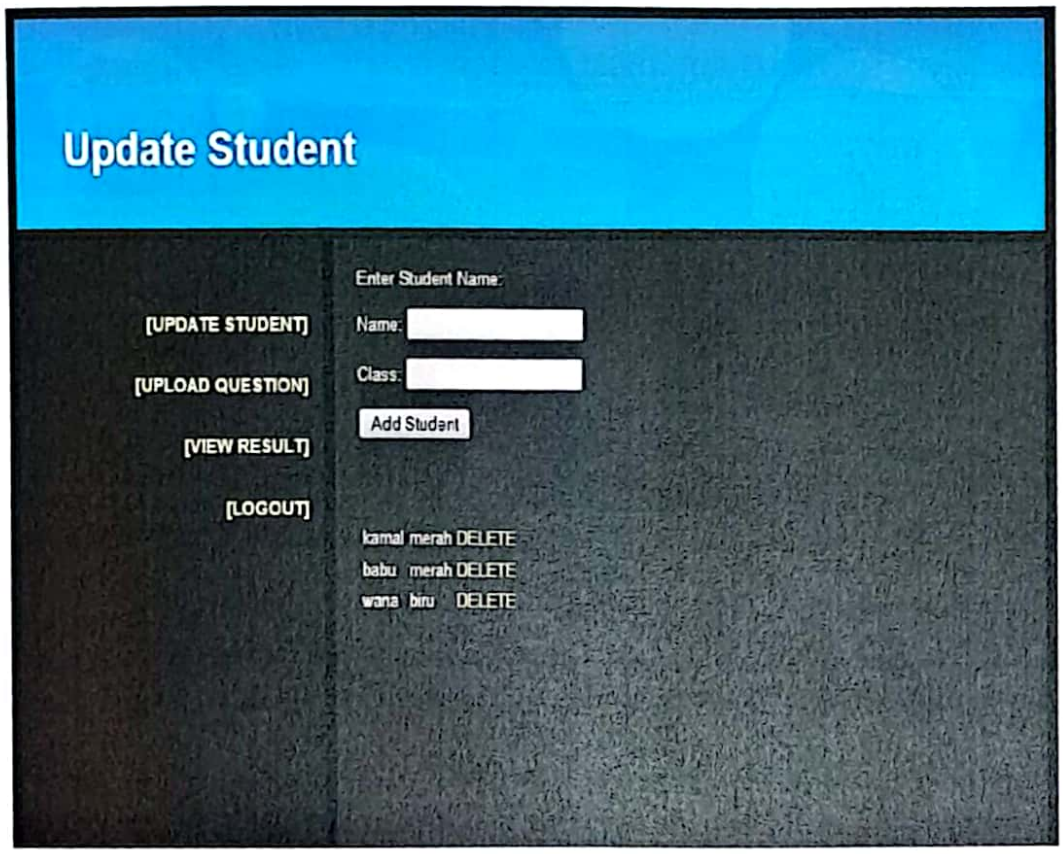
This page is the second page of the system where students have to click assessment to begin their assessment task. This page also includes the student's particulars like students name and class who going to do the assessment.

4.4.3 Assessment page



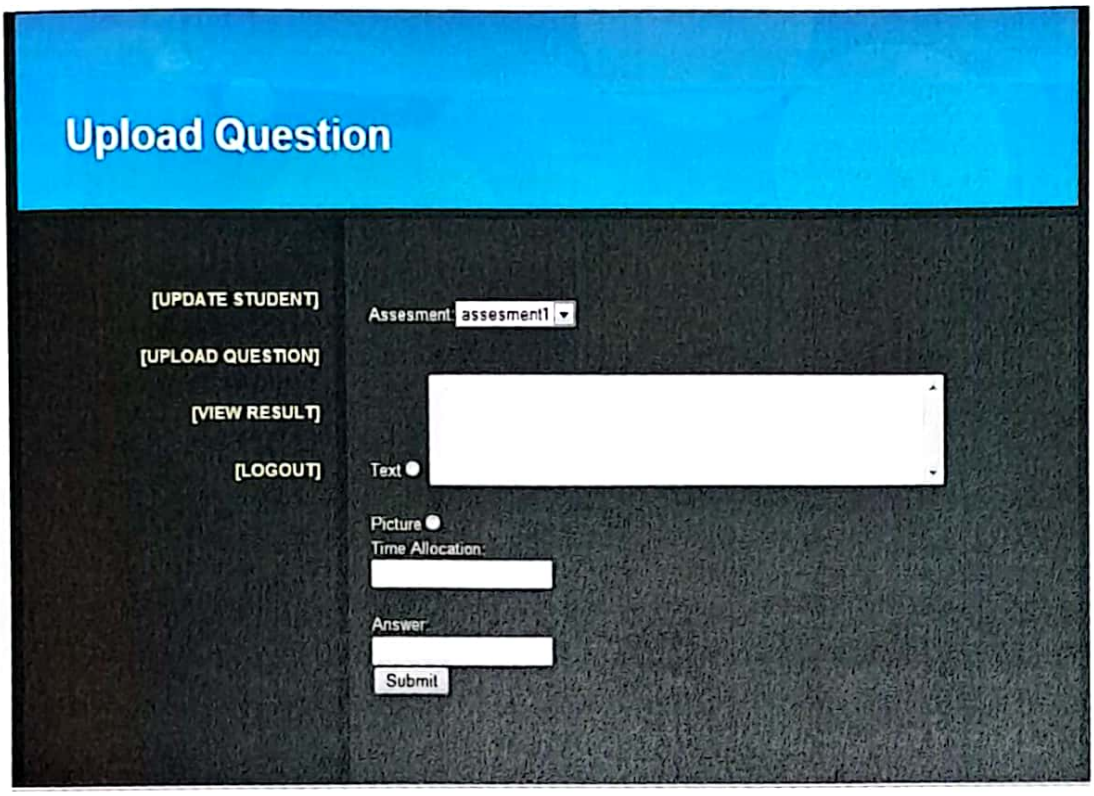
This is assessment page where students need to complete their work given by the teachers in time. This page also includes time taken by student to complete their assessment .after they finish they have to submit it and move to the next questions. They have to do the questions until they can get the correct answer and time will be taken for student to complete each questions.

4.4.4 Teacher page



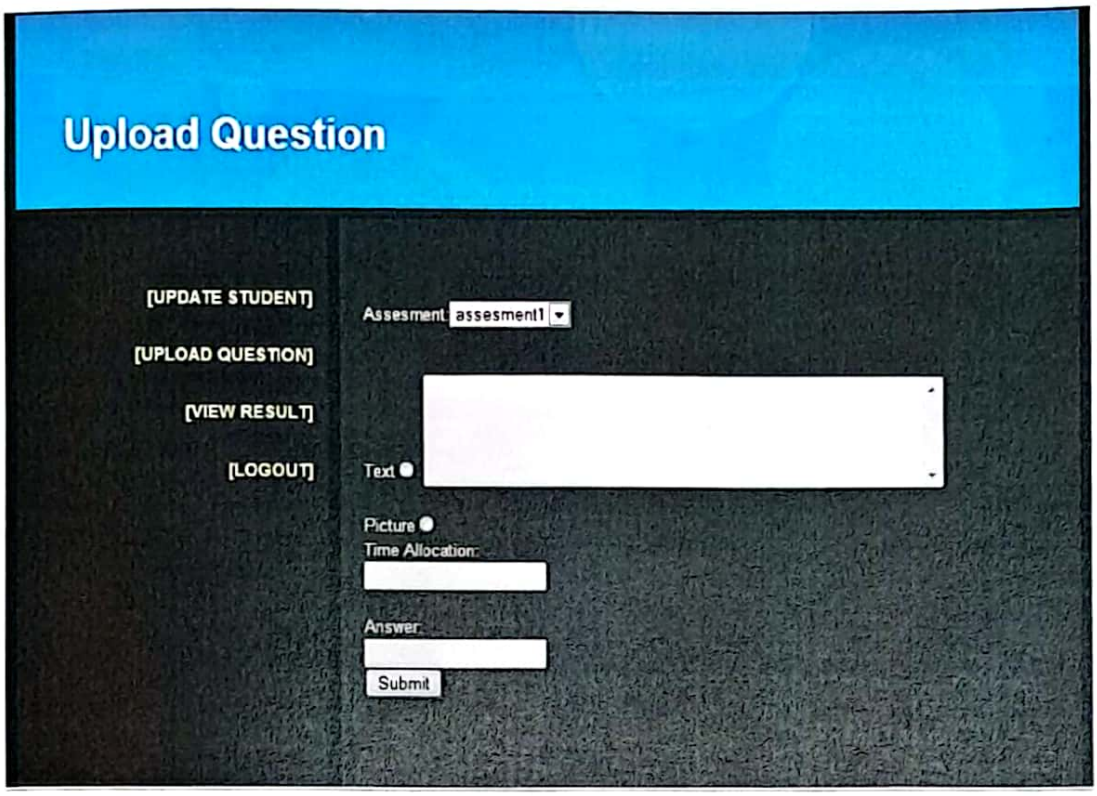
This page is teacher's page where teacher can update student's data in the database and view results. Teachers have to choose a particular student's name, class and the teacher can view and update the students' details in this page.

4.4.5 Upload page



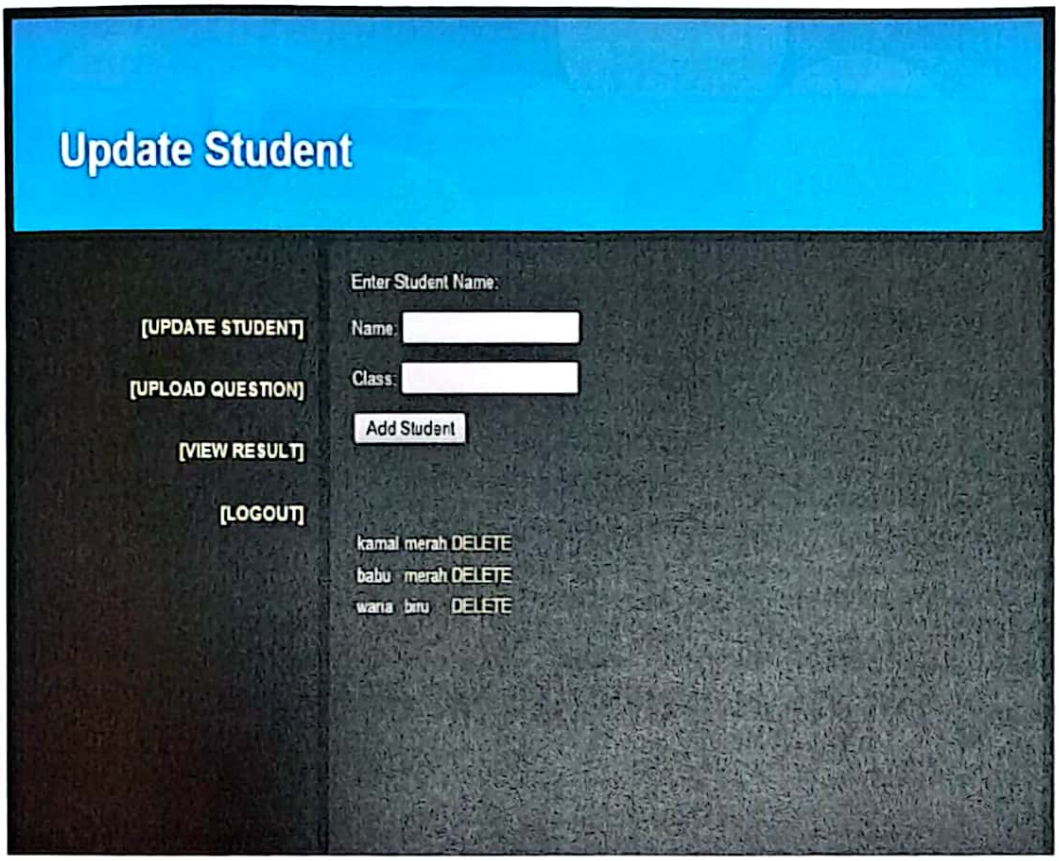
This is the page where teachers can upload their assessment questions .There are two kind of uploading which is photo uploading and text uploading .Teacher can choose one of it and upload the question according to it with the allocation time given for a particular questions. This page is for text uploading.

4.4.6 Upload page



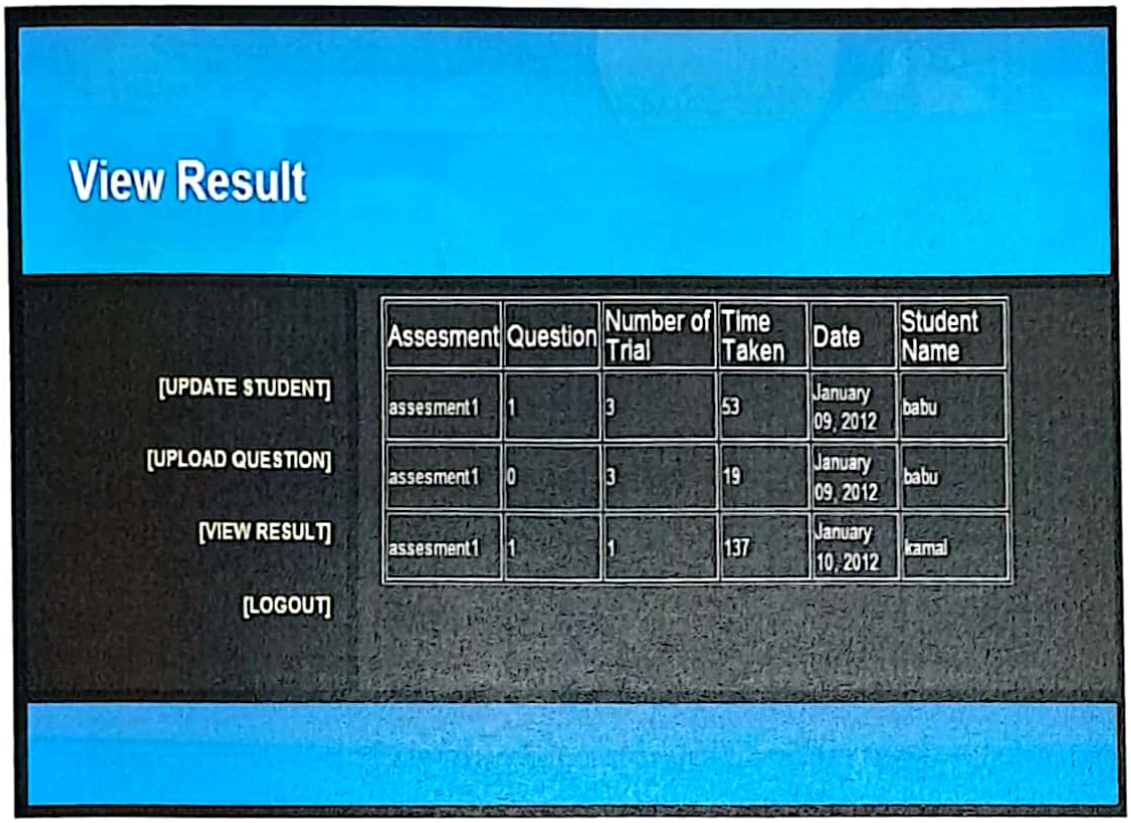
This page is photo uploading page where teacher can browse pictures and upload it with the answer and time allocations. The photos will be saved in the database as a question and teachers can edit it anytime.

4.4.7 Update page



Here is the page where teacher can update student's information like adding students name deleting students name. Teachers can delete student's info one by one and add student's info.

4.4.8 Results page



This page is the results page where all the results will be generated here with the questions taken by the student's , time taken to complete and total attempt to complete each questions.

4.5 Summary

In this chapter, the system design has been defined. The functionality of each function has been described and drawn into diagram. This is called as architectural design. This design can be a guideline for further development of the system.

CHAPTER 5

THE IMPLEMENTATION PROCESS / RESULTS

5.1 Chapter Review

This chapter describes the processes that were taken to complete the project compared to the initial plan of the project. It also highlights the goals that were tried to be achieved as well as major variations from the original plan. It also highlights about the strength of this system as well as its limitations and future enhancements.

5.2 Initial Plan

The initial plan was to introduce Student academic performance System as a system which requires a teacher to login to the system. A username and password will not be given to the teachers so that they can use it to logon to the system. They may use all the functions such as update student name, upload questions and view results without login. Students have to enter the system by choosing their name in the list and start doing their assessment .Results will be taken according to the time taken to complete the assessment and the total trial taken to complete each questions.

5.3 Implementation Results

The current student academic performance system has login system for the teachers to access the system in the school. The school management will provide a username and password to the teachers and the teachers can login to the system by using this username and password. There is logout functions provided so no other students or teachers can access the system after the teachers have logout. Students in current system must select their particular class in the class list and select their name in that class. If their name is not in the class they no allowed doing the assessment.

Students who have done the assessment once is not allowed to do again. A error message will pop up saying that only the first results is recorded. Student is not allowed to backspace to do the assessment again. Error will pop up.

5.4 Difference between Initial Plan and Implementation

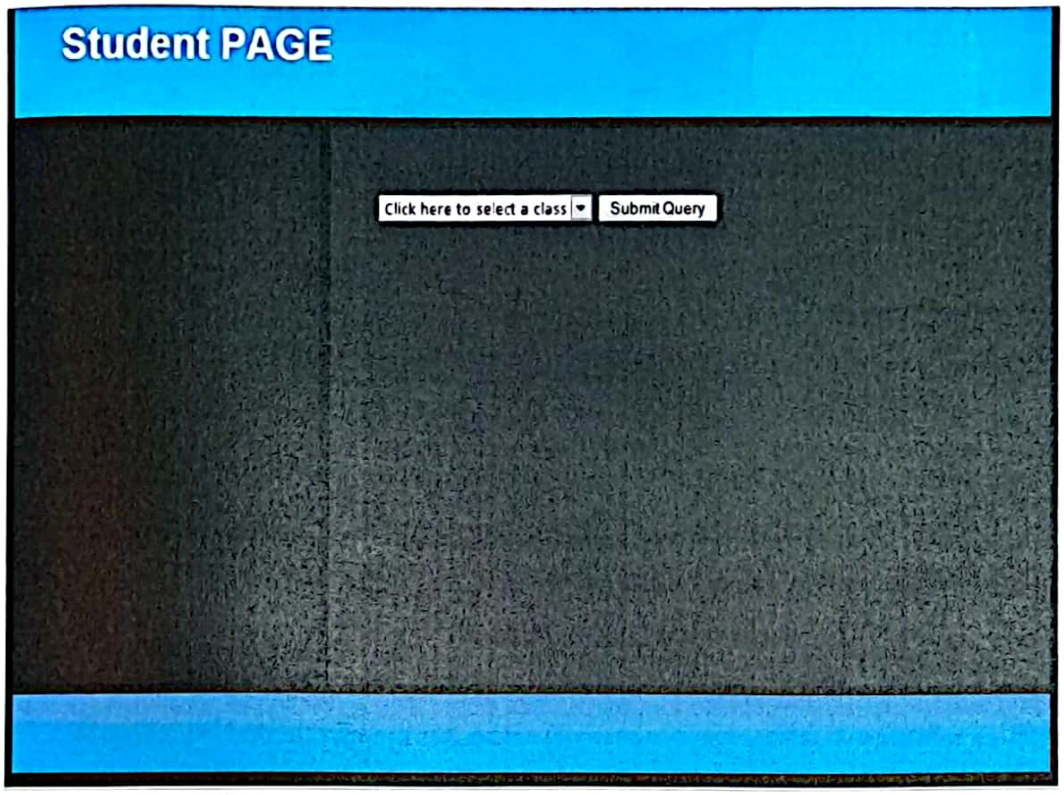
It was difficult to exactly follow the design plan as a lot of important features and functions were not included in the initial plan. Therefore there were a lot of changes made to the system. More sophisticated functions were developed. The table below shows the main difference between the initial plan and the implementation of student academic performance system:

Attributes	Initial Plan	Implementation
Login System	▪ There is no login for teachers.	▪ Username and password given to login.
Function of users	▪ Student- student just have to access and start doing the assessment.	▪ Student now have to select their class in the list given by the teachers ▪ They have to select their name in the list according to the class. ▪ If their name is not in the class they no allowed to complete the assessment.
Error message	▪ There is no error message generated in the system.	▪ Student is not allowed to backspace or redo the assessment. Error message will pop up.

Table : Difference between initial plan and implementation

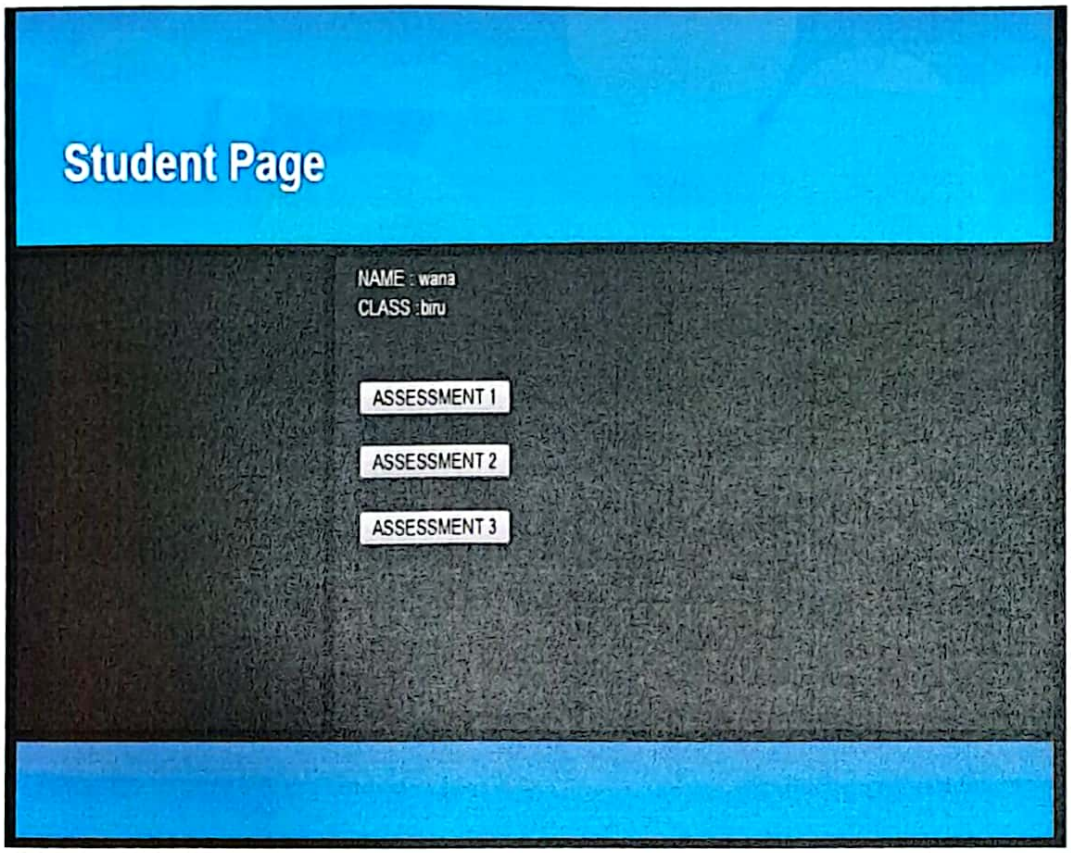
5.5 Interface

5.5.1 Main page



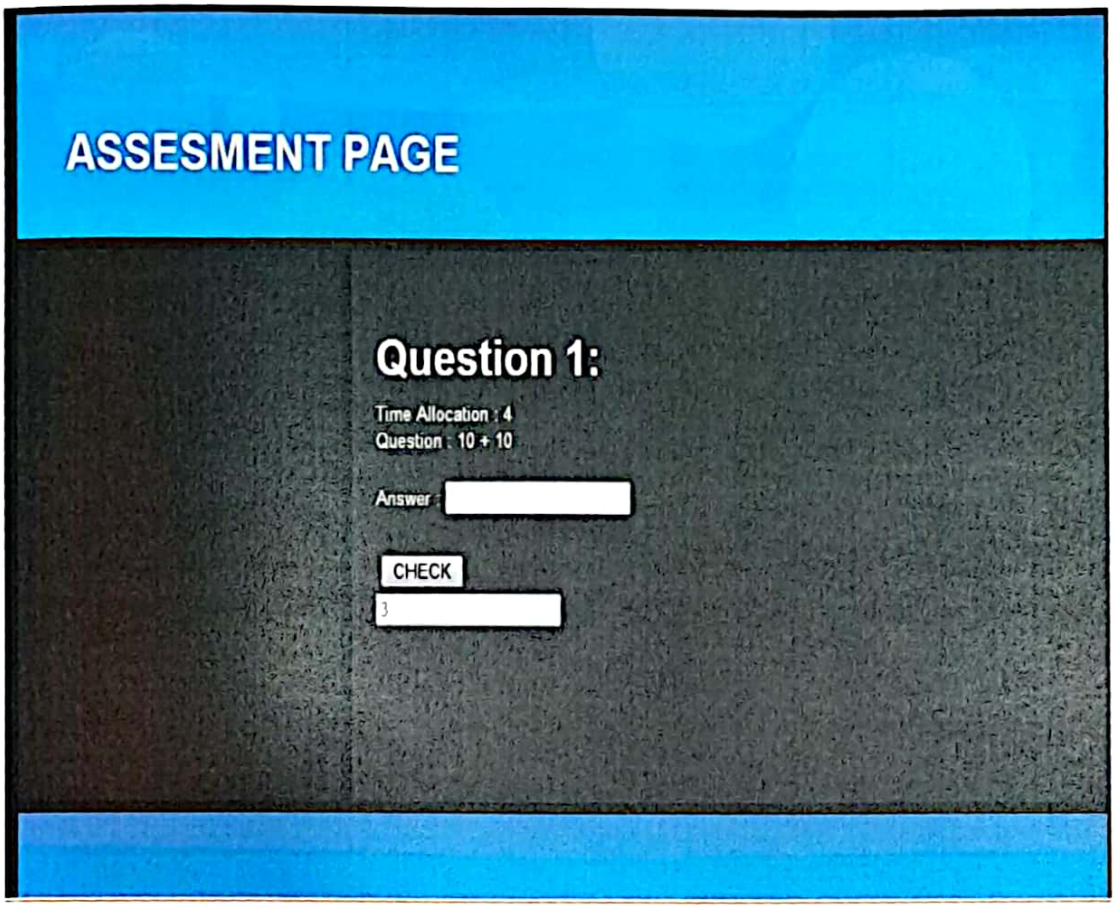
The main page is the first page that will be displayed in the system. This page is the most important page where students need to choose their name and class before students proceeding to the assessment. Therefore the system will generate the results according to the name and class chosen by the student in the main page. Teachers can view each student's results in the database.

5.5.2 Student assessment page



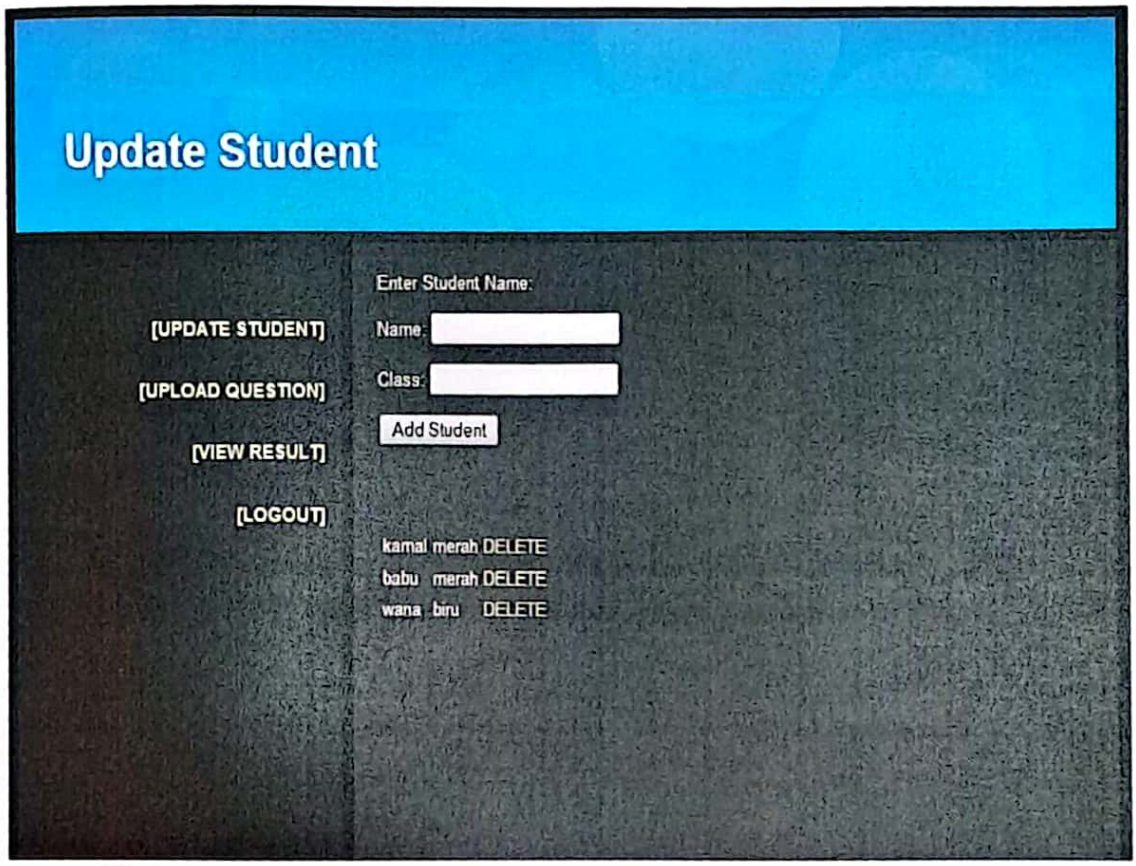
This page is the second page of the system where students have to click assessment to begin their assessment task . This page also includes the student's particulars like students name and class who going to do the assessment.

5.5.3 Assessment page



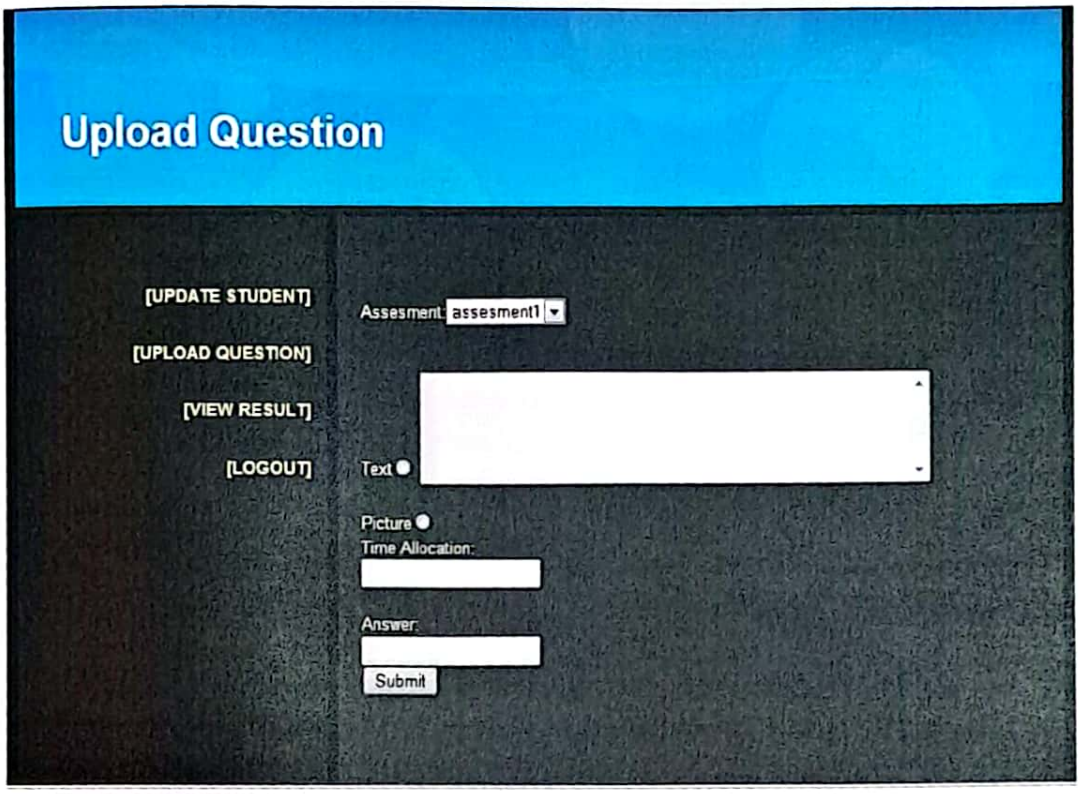
This is assessment page where students need to complete their work given by the teachers in time. This page also includes time taken by student to complete their assessment .after they finish they have to submit it and move to the next questions. They have to do the questions until they can get the correct answer and time will be taken for student to complete each questions.

5.5.4 Teacher page



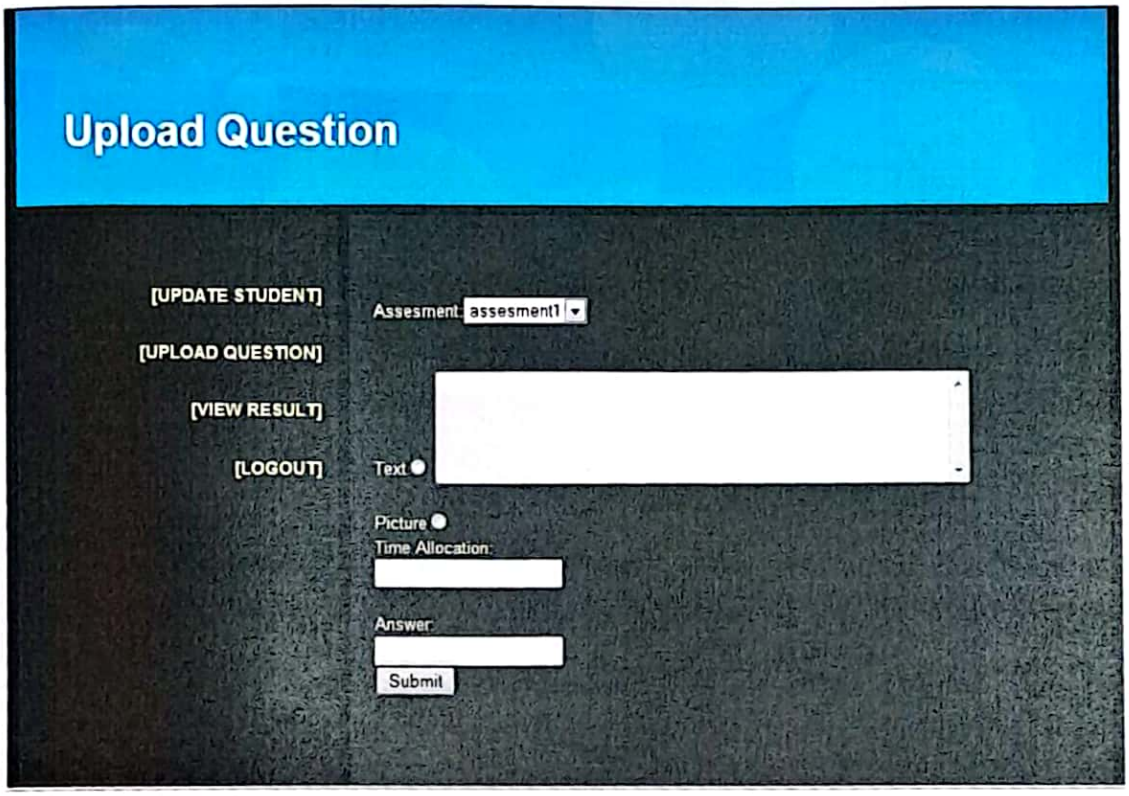
This page is teacher's page where teacher can update student's data in the database and view results. Teacher have to choose a particular student's name , class and the teacher can view and update the students details in this page.

5.5.5 Upload page



This is the page where teachers can upload their assessment questions .There are two kind of uploading which is photo uploading and text uploading .Teacher can choose one of it and upload the question according to it with the allocation time given for a particular questions. This page is for text uploading.

5.5.6 Upload page



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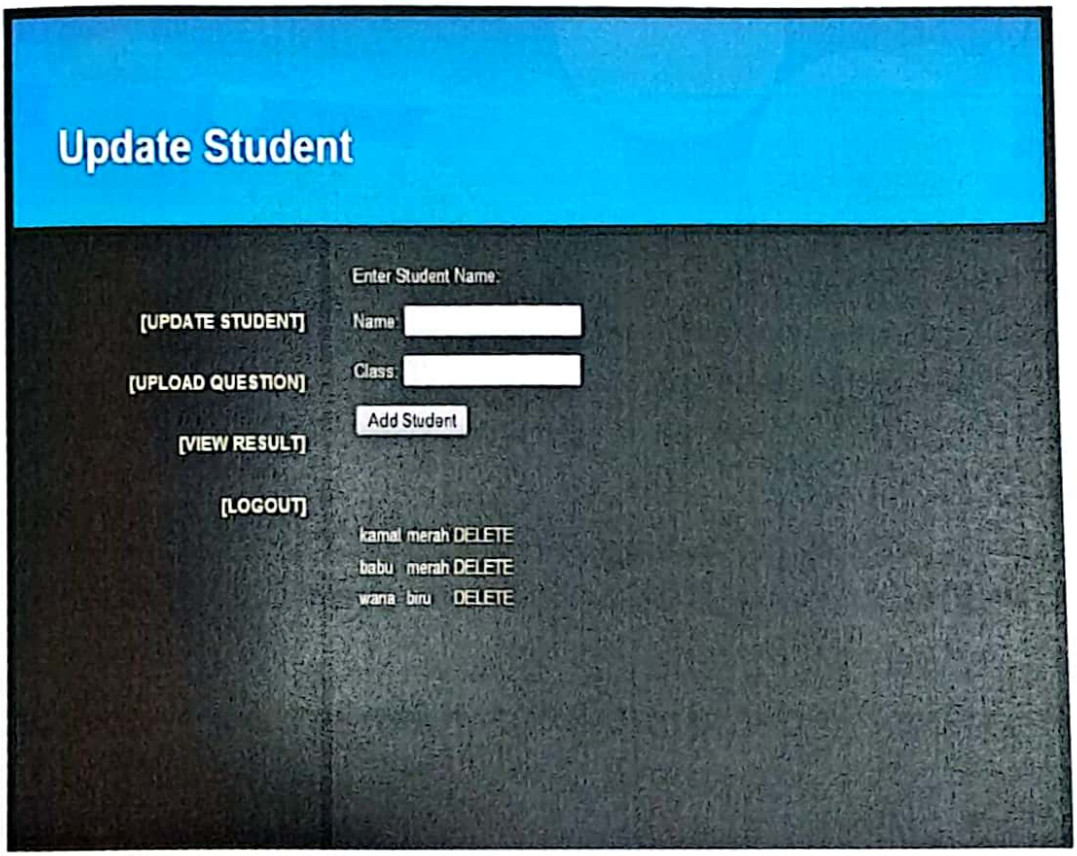
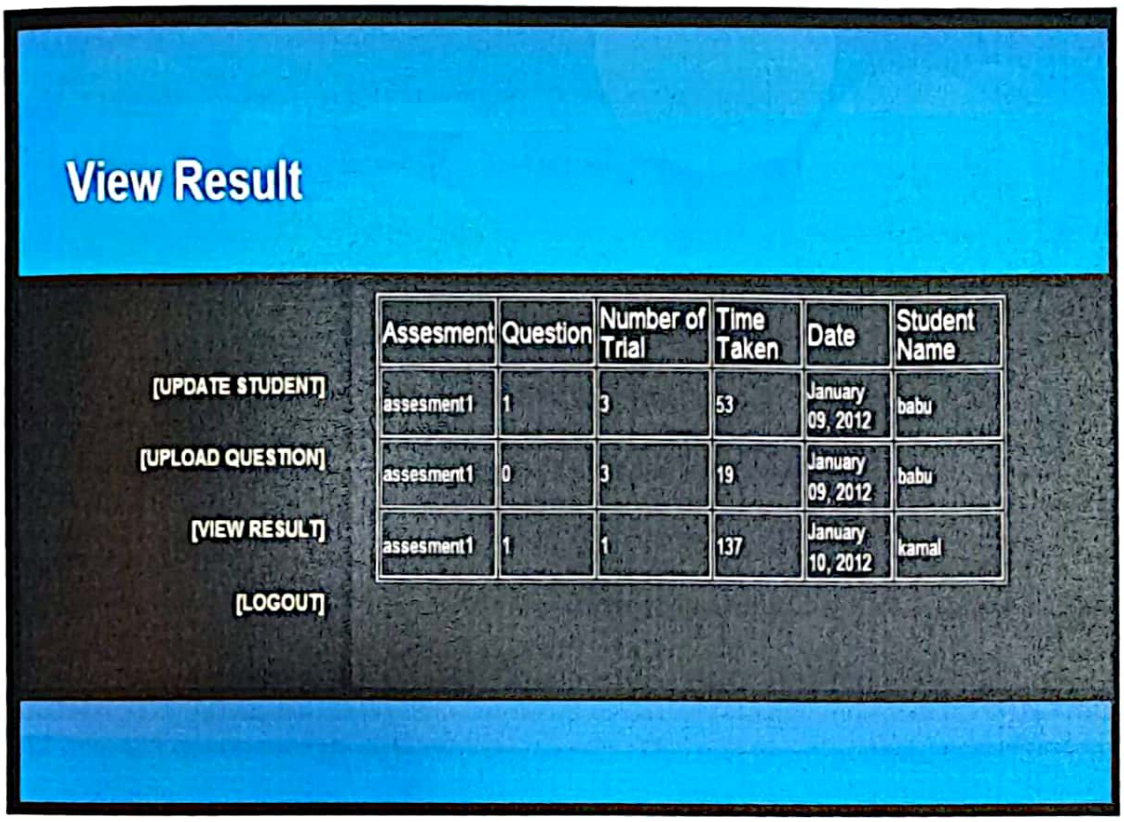
5.5.7 Update page



Here is the page where teacher can update student's information like adding students name deleting students name. Teachers can delete student's info one by one and add student's info.

5.5.8 Results page



This page is the results page where all the results will be generated here with the questions taken by the student's , time taken to complete and total attempt to complete each questions.

5.6 Strength of Student Academic performance System.

This system is mainly created to help all the students and the teachers in a school. This system provides effective information about a student's academic level in a school base on exercises for a particular subject. Student academic performance system is mainly to study current practice of student evaluate system in primary school in Malaysia and to identify problems of current system facing by teachers and school management .It applicable for students in standard three.

The current system which is conducted manually has many disadvantages. Teachers in the schools having problems to detach their students performance level in a correct way so that they can apply a solution to the poor student .This system will detect performance of the students level in such a way that the students will be given assignments and time will be taken in how fast they do the assignments. This will give a solution to the teachers to mark their student's performance level in academic. Currently teachers cannot really see their students performance level due to some manually ways.

This system is specially made for all primary schools and also can be used at many teaching centers in Malaysia and it is applicable for subject mathematic. Our project purpose is to develop an effective academic system to all the schools which helps the teachers to evaluate and detach the student's performance a particular subjects in a school. The system allows a teacher of a primary school to identify the student grade whether poor or proactive for further action.

5.7 Limitations and Future Enhancements

The project was completed as planned as there were lots of changes made to its system functions due to improvement of the system. Therefore a better version of the system was actually implemented in this project. All the main objectives of this project were fulfilled. However, due to time constraints, there are a few additional ideas that were not implemented in this system.

However, there are a few future implementation ideas of this project that would improve this System tremendously. To make sure that this project has all the required functions to its students and teachers and to provide a flexible and easy way to use the system. There will be more features will implemented in the future. Some of the functions that will be implemented in near future are such as creating a better interface for the user provide more functions to the system so that can make students and the teachers can benefit more. Functions like showing the student academic status like whether he s good o proactive in the system might be a big advantage to the school. For example after the students complete the assessments the system should generate his status for that assessment whether he is good or poor student.

CHAPTER 6

TESTING

6.1 Chapter Review

This chapter discusses about the ways of testing the software after it has been implemented. There are many different ways of testing done for Student Academic System and the results of these testing phases can be reviewed in this chapter.

6.2 Testing Objectives

System testing [8] is the task of evaluating the proposed system after it has been developed and implemented. The aim of system testing is to ensure that the system runs accordingly. This is in order to ensure the system accepts input and provides output. This is also the process where the justification is to know whether the system satisfied user requirements and interaction of the user with the system.

Besides ensuring the system runs properly, the developer has to assure that the proposed system overcomes the inefficiency of the legacy system.

6.3 Testing Scope

6.3.1 Unit / Module Testing

Unit testing or better known as module testing is the process of testing each code modules before it is being integrated with other modules. At this phase, inputs and outputs, data structures, boundaries and all independent paths in the module will be checked and tested. The matching within each module and the structure of them will be checked. The inputs involved in this section will be the back end such as programming language and the outputs will be the front end such as the messages that appear on the screen which can be viewed by user. The proposed Student academic System will be having two main sections, whereby each section will have different module and different function. At this phase, test will be conducted as a proof to the all paths in the system being error free. Besides that, by having module testing, undesirable results will be eliminated. At this phase, module test plan will be prepared and result will be jotted down.

6.3.2 Integration Testing [6]

Integration testing is the phase in software testing in which individual software modules are combined and tested as a group. It occurs after unit testing and before validation testing. Integration testing takes as its input modules that have been unit tested, groups them in larger aggregates, applies tests defined in an integration test plan to those aggregates, and delivers as its output the integrated system ready for system testing.

6.3.3 System Testing

This is process of examining the entire prototype system. It is done to determine whether there are defects regarding the functionality of the proposed Student Academic

Performance System. Each of the modules, functions, integrations and system will also be tested. This is to ensure the proposed Student Academic Performance System will be performing in effective and efficient conditions. System testing would involve issues such as interface failure, insufficient memory to process the specific task, security test to make sure that unauthorized personal cannot gain access System testing of software or hardware is testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements.

6.3.4 User Acceptance Testing

At the final phase of the testing plan, user will be gathered in order to test the usability of the system and the acceptation from users. Thus, the measurement of usability of the proposed Student Academic Performance System will be carried out. User testing will be done with the inexperienced users. This is because the proposed Student Academic Performance System will be used by some of the fresh or new users or computer illiterate users. During this phase, visual feedback on the user's responses will be taken into account for further analysis. Changes may be done to the proposed Student Academic Performance System if necessary and until it satisfies most of the requirement. At this phase, user test plan will be prepared and results will be noted down.

6.4 Testing Results

6.4.1 Module Testing Result

Date: 5th December 2011

Program Name: Login Module

Test Administered By: Shashi Raj Sai

Descriptions of Test Data: To test Teacher login and Teacher page

Actions	Expected Results	Actual Results
Enter Username and password	Text appears on screen	Text appeared on screen
Click Login	If no error, display Teacher's page	Teachers page is displayed
	If incorrect Login ID or password, error message displayed.	Error message displayed

Table: 6.4.1.1 Login module

Date: 5th December 2011

Program Name: Assessment page Module

Test Administered By Shashi Raj Sai

Descriptions of Test Data: To test to assessment page

Actions	Expected Results	Actual Results
Click assessment	assessment page appears	assessment page appeared
Click Delete	assessment list gets deleted	assessment list is deleted

Table: 6.4.1.2 Assessment module

User: Teacher

Date: 5th December 2011

Program Name: Upload Questions Module

Test Administered By: Shashi Raj Sai

Descriptions of Test Data: To test upload function

Actions	Expected Results	Actual Results
Click upload	Upload questions page appears	Questions uploaded
Click Delete	Delete page appears	Questions deleted

Table: 6.4.1.3 Upload page module for Teacher

User: Teacher

Date: 5th December 2011

Program Name: Add and delete student name Module

Test Administered By: Shashi Raj Sai

Descriptions of Test Data: To test add and delete function

Actions	Expected Results	Actual Results
Click add	Add student name page appears	Student name added
Click Delete	Delete student name page appears	Student name deleted

Table: 6.4.1.4 Add and delete page module for Teacher

6.4.2 System Testing Result

Student Academic Performance System **Quality Assurance Test**						
Date	20th December 2011					
Time Per Test	20 minutes					
Results: All test results were successful, system passed the quality assurance test						
Quality Attributes	**1**	**2**	**3**	**4**	**5**	**Comment**
Operability					✓	Ok
Ease Of Use				✓		Ok
Comprehensiveness		✓				Ok
Velocity				✓		Very fast
Security					✓	Acceptable
Descriptiveness				✓		Reasonable
Simplicity					✓	Clear-cut
Conciseness			✓			Good Enough
Level Of Consistency				✓		Ok
Legend	1- Very poor 2: Poor 3: Average 4: Good 5: Excellent					
Remarks	The system proved to be satisfactory to most users in terms of quality.					

Table 6.4.2 Quality assurance test

6.4.3 Usability Testing Result

Usability Test Results		
Date	20th December 2011	
Time Per Test	15 minutes	
Results: Tests conducted were successful		
Question	**Result**	**Response**
Was it easy to understand the overall structure and functions of the system	User rates the system 4 out of 5 on the scale	Good
Was it easy to understand the information displayed on the screen?	User rates the system 3 out of 5 on the scale	Very Good
Would you like to use the system on regular basis?	User rates the system 3 out of 5 on the scale	Average
Was its easy to make the system do what you wanted it to do?	User rates the system 4 out of 5 on the scale	Very Good
How would you rate the logic of navigation in the system?	User rates the system 4 out of 5 on the scale	Good
How would you rate the consistency of design in the system?	User rates the system 4 out of 5 on the scale	Good
Based on the learn ability of the system, is it easy or difficult to learn?	User rates the system 4 out of 5 on the scale	Very Good
Remark	The overall system was considered usable by the end user in terms of design and it's a user friendly application	

Table: 6.4.3Usability test results

CHAPTER 7

CONCLUSION

7.1 Outcome of Project 1 and Project 2

The main objective of this project is to study current practice of student evaluate system in primary school in Malaysia. Developer has identified problems of current system facing by teachers and school management and developer has come out with a solution that can solve the problem. Developer has proposed computerized student evaluation system in to enhance selected problems.

During the development of the system with just a limited knowledge of programming and system development, system developer found out that continuous learning and hardworking are the main success factor for the development of the system. After the system has been completed the system developer has improved himself in PHP coding by making a research in the internet and asking from friends and lecturer about the coding. Skills to use MySQL also have improved drastically. By implementing this system to schools there are many benefits gained by both students and the teachers. This project mainly is to help those teachers and the managements of a school or teaching centers to get their students grade performance .The system fulfils and satisfied the user by

detecting and showing the status of a student in a particular subject .This may help the teachers to easily identify the student's academic levels and may give more focus for poor students who needed. This benefits the teachers and the students as well in a school or in a teaching centers It provide a more systematic way for teachers to monitor the student's academic performance level throughout the year.

However, there are a few future implementation ideas of this project that would improve this System tremendously. To make sure that this project has all the required functions to its students and teachers and to provide a flexible and easy way to use the system. There will be more features will implemented in the future. Some of the functions that will be implemented in near future are such as creating a better interface for the user provide more functions to the system so that can make students and the teachers can benefit more. Functions like showing the student academic status like whether he s good o proactive in the system might be a big advantage to the school. For example after the students complete the assessments the system should generate his status for that assessment whether he is good o poor.

As the final conclusion, this system has gives a new way o a better way for the teachers to evaluate the students in the school. All the students is the school can benefit more and their academic level might change drastically in the future. This academic performance system may give a big impact to all the schools in the future. In the future there might be a big change in the academic level in a school o any teaching centers.

7.2 Problems encountered.

Within the duration of this project, some problems were encountered .the constraints and limitations faced are:

- The difficulties in choosing the most suitable development model due to the lack of knowledge.
- Limited information about the current existing school performance system.
- Difficulties in managing time to complete each phase of the project. Since it is a individual project the developer has to motivate herself to complete the project within the timeline given and achieve objective.

Although there were some problems faced in writing this document but each of these problems were considered as a challenge to improve further and to enrich he knowledge in developing systems.

7.3 Future work/suggestions for project 2

To make sure that this project has all the required functions to its students and teachers and to provide a flexible and easy way to use the system. There will be more features will implemented in the future. Some of the functions that will be implemented in near future are:

- Create a better interface for the user
- Provide functions that can make students view their results also.
- Provide more functions

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Appendix A: System Requirement Specification (SRS)

SOFTWARE REQUIREMENTS SPECIFICATION

for

Student Academic Performance System

Version 1.0

Prepared by Sujendran a/l K.Manoharan

Universiti Tenaga Nasional

December 29th, 2011

TABLE OF CONTENTS

1.0 Introduction

1.1 Purpose of the document

This document is produce to specify the client's requirement in to the system. This is including the scope, functionalities, problem description, general constraints, user requirements, functional requirements and non-functional requirements.

1.2 Scope of project

Our project purpose is to develop an effective academic system to all the schools which helps the teachers to evaluate and detect the student's performance a particular subjects in a school. The system allows a teacher of a primary school to identify the student grade whether poor or good for further action.

1.3 Intended User

There will be two level of user of this system:

- User(student)
- Teacher

1.4 Problem Statement

The current system which is conducted manually has many disadvantages. Teachers in the schools having problems to detect their students performance level in a correct way so that they can apply a solution to the poor students .this system will detect performance of the students level in a such a way that the students will

be given assignments and time will be taken in h0w fast they do the assignments. This will give solutions to the teachers to mark their student's performance level in academic. Currently teachers cannot really see their students performance level due to some manually ways.

1.5 General constraint

This system only can run on personal computer (PC) or laptop, not on the embedded system such as hand phone or PDA.

2.0 Overall Description

2.1 Product Perspectives

This product requires the user to complete the assessment in time given and the results will be uploaded in the database. Teachers will view the database for the reference so that they can know which student is weak and proactive student in a particular class.

- Operating System: Microsoft Window 2000, XP, Vista or equivalent.
- At least 500MB of RAM
- Intel® Core™ 2 Duo CPU (Processor)
- At least 3GB available hard disc space

Server

- Operating System: Microsoft Window 2000,XP,Vista or equivalent.
- At least 500MB of RAM
- Intel® Core™ 2 Duo CPU (Processor)

- At least 3GB available hard disc space

2.2 Functionalities

2.2.1 User's functionalities

Users only can choose their name in the system and also required to do the assessment given according to steps given. They also required submitting the assessment after they finish completing the assessment.

2.2.2 Teacher's functionalities

There are 3 main functions for the teacher:

- Update data in the exercise database
- View results in the database
- Upload student data in the database

3.0 User Requirements Definition

3.1 Services

3.1.1 User's services

Function Name	Description
Search Function	The students have to search for their name due to start the assessment..
View Function	Students can view the questions in the system where all the questions will be uploaded by the school teachers.

3.1.2 Teacher's services

Function Name	Description
Update data	The teachers will upload data in the database such as questions in form of text and photos for the students to complete the assessment.
View results	Teachers can view the results of each students in the class in the database where it consist of student name , class, assessment taken, time taken to complete and much more.
Upload student data	This function allows the teachers to update student data in the database. Teachers can update student name like add name and delete name of a student of a class.

3.2 External Interface requirement

3.2.1 Software Interface

A very simple but attractive interface will be used in this system. To run the system, the user can view it through:

- Microsoft Windows 97, 2000, Me, XP, Vista, Windows 7 – Operating System

3.2.2 Hardware Interface

- Personal Computer (PC)/Laptop
  - Mouse
  - Keyboard
  - Display Screen
- Random Access Memory (RAM) - 1GB
- Intel® Core™ 2 Duo CPU – Processor
- Hard disc space - 5GB available

3.3 Other non-functional requirement

3.3.1 Product requirement

- Hypertext Preprocessor (PHP)– Open source server side scripting language that can be used to generate dynamic and interactive web pages
- MySQL – This database software is for keeping the information of the words and the synonyms.

3.3.2 Safety requirement

The system shall not permit operation of updating details unless the updates is done by an authorize person.

3.3.3 Availability

System availability is the time or place where the system is ready to be used by the users The system should be able to maintained and used for 24 hours and the system should be accessible by all Malaysians.

3.3.4 Usability

Usability is the system support of the execution of user task and ease on user to use the developing system.

The system should have very friendly interface that allow user to easily learn on how to utilize the system in an optimum level. Besides that, the steps involved to perform functionality should be easy for the user to memorize the steps. Not only that, the efficiency of the system should be in the best possible manner.

3.3.5 Reliability

Reliability is the capability of the system to work correctly without being aborted or encounter error.

User would tend to rely on the system in several ways such as data backup, publicity and data integrity the system should be able to serve the user as they wanted and those backup files existence should be secured.

3.3.6 Visibility

Visibility is more to the interface of the system, where the user should be able to easily see the fonts, screens and others.

User would be able to easily interpret the interface of the page and colors and page settings should be able to maintain the emotion of the user in a calm and normal manner.

3.3.7 Reusability

The system should be able promote reusability where the part of the system can be reused for other parts or any future system. This would allow the developer to save some costs.

3.3.8 Interoperability

The system should be able to run in different operations system and different browsers without any errors and failure. Besides that, the visibility of the system should not affect if the system being built runs in different operating system or browser.

APPENDIX 11 : GANTT CHART

ACTIVITIES	W1	W2	W3	W4	W5	W6	W7	W8	W9	W10
1)										
2)										
3)										
4)										
5)										
6).										
7)										
8)										
9										
10)										
11)										

COMPLETED TASKS

REMAINING TASKS TO BE COMPLETE

APPENDIX 111

SAMPLE OF QUESTIONNAIRE

GENDER: MALE ☐ FEMALE ☐ AGE: ____

1) How you rate the current evaluation of school student academic system level.

- ☐ Excellent
- ☐ Good
- ☐ Bad
- ☐ Extreme bad

2) Do you think this is a systematic way to improve our current school academic evaluation system?

- ☐ Yes
- ☐ No

3) Will this new enhancement will give a big impact to the student academic level?

- ☐ Yes
- ☐ No

4) In the future will this kind of system will be implemented in school academic?

- ☐ Yes
- ☐ No

5) Can this new system make a different in student's academic level in the future?

- ☐ Yes
- ☐ No

APPENDIX 1V

INTERVIEW QUESTIONAIRES

1. What kind of question standard 3 students preferring?
2. How are the current results for standard 3 students after final exams?
3. What are the procedures you have done to evaluate students?
4. What are the problems of the current traditional system that you have been using?
5. Any suggestion of adding any functionality? State.