



GREEN UNIVERSITY OF BANGLADESH (GUB)

Design and Development of a Learning Interface to Online Educational Background from Bangladesh's Perspective

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Declaration

We hereby declare that the work which is being presented in the project entitled, "Design and Development of a Learning Interface to Online Educational Background from Bangladesh's Perspective" in partial fulfillment of requirements for the award of degree of Computer Science and Engineering (CSE), Green University of Bangladesh is an authentic record of our own work carried out during a period from September , 2020 to June, 2021 under the supervision of Ms. Arpita Chowdhury ,Lecturer. The matter presented in this project has not been submitted by us to any other University or Institute for the award of any Degree.

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Certificate

This is to certify that the project entitled Design and Development of a Learning Interface to Online Educational Background from Bangladesh's Perspective Application has been prepared and submitted by Shipra Bairagi, Sumi Mohanta and Salman Hossain in partial fulfillment of the requirement for the degree of Bachelor of Science in Computer Science and Engineering on June, 2021.

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Abstract

Education is an essential factor in human civilization's growth. Students who are able to use their creativity and logical thinking to produce fresh and concrete types of ideas are said to be online learners. Our "Online Learning" interface is set up in such a way that a student can quickly find answers to their questions. This method can assist a student in moving away from a note-based curriculum. Based on their history, our system will reflect a user's output. Additional information will be provided by the system to assist a struggling student. Learners can take part in both the learning and the self-evaluation sections. Learners benefit from knowledge and videos found on the internet. If participants choose to engage in the question-and-answer segment or assess their abilities, they can use the testing section to do so. Based on their abilities, the system will generate and store their output. It is our goal to reflect a student's deficiencies to him in order for him to develop himself, enrich his thinking capacity, and imagine the inspiration of online education.

TABLE OF CONTENTS

Declaration	i
Certificate	ii
Acknowledgements	iii
Abstract	iv
List of Figures	viii
1 Introduction	1
1.1 Introduction	1
1.2 Comparison	1
2 Background & Motivation	3
2.1 Overview	3
2.2 Motivation	3
2.3 Background study of the problem	4
2.3.1 "Creative Education System at Secondary Level in Bangladesh: Teacher's and Student's Perspectives"	4
2.3.2 "Creativity and Education"	6
2.4 Existing System	9
2.4.1 10minuteschool.com	9
2.4.2 Srijonshil.com	10
2.4.3 ixl.com	10
3 Tools and Language	12
3.1 Overview	12
3.2 HTML 5	12
3.3 CSS	13
3.4 PYTHON	13
3.4.1 Easy to Learn	14
3.4.2 Productivity enhanced	14

3.4.3	Interpreted Language	14
3.4.4	Dynamically Typed	14
3.4.5	Free and Open-Source	14
3.5	Django	15
3.5.1	Advantages Of Django	15
3.6	Bootstrap	16
3.6.1	What is Bootstrap?	16
3.6.2	Advantages of Bootstrap	16
3.7	MySQL	17
3.7.1	Advantages of MySQL	17
3.8	Apache Web Server	19
3.8.1	Advantages of apache server:	19
4	Design and Implementation	20
4.1	Overview	20
4.2	System processes of "Online Learning Interface"	20
4.3	Flowchart	21
4.3.1	Flowchart for User	21
4.3.2	Flowchart for Authorized user	22
4.4	Use-case diagram of "Online Learning Interface"	23
4.4.1	Content and relationship:	23
4.5	Use case Model of "Online Learning Interface"	24
4.6	E-R diagrams of "Online Learning Interface"	25
4.6.1	Content and relationship:	25
4.7	Sequence diagram of "Online Learning Interface"	26
4.7.1	Content and relationship:	26
4.8	1-Level Data Flow Diagram (DFD)	27
4.8.1	Content and relationship:	27
4.9	Homepage	28
4.10	Class Selection Part	29
4.11	Subject and Chapter Selection Page	30
4.12	Learning and Testing Page	32
4.12.1	Learning:	32
4.12.2	Choosing Questions:	32
4.13	Question-Answering	33
4.13.1	Type of Questions:	34

4.14	Login and registration page of user	37
4.14.1	Registration Page:	37
4.14.2	Login Page:	37
4.15	Admin Dashboard	38
4.15.1	History Page	38
4.15.2	Result Page	39
4.15.3	Improvement Assessment Page	40
5	Conclusion and Future work	42
5.1	Overview	42
5.2	Conclusion	42
5.3	Some Limitations of our Interface	43
5.4	Future work	43
	References	45

List of Figures

4.1	User Flowchart	21
4.2	Authorized User Flowchart	22
4.3	Use-case diagram of Online learning interface	23
4.4	E-R diagram of “Our Online Learning Interface”	25
4.5	Sequence diagram of “Online Learning”	26
4.6	1-level data flow diagram of learning application interface	28
4.7	Home page of “Online Learning Interface”	29
4.8	Class selection page	30
4.9	Subject selection page	31
4.10	Chapter selection page	31
4.11	Learning from Video	32
4.12	Choosing Questions	33
4.13	Single text selection	34
4.14	Multiple text selection	34
4.15	Single image selection	35
4.16	Multiple image selection	35
4.17	Image informative question	36
4.18	write down appropriate answer	36
4.19	“Online Learning Interface” registration page	37
4.20	“Online Learning Interface” login page	37
4.21	History page	39
4.22	Subject-wise result	40
4.23	Improvement Assessment	41

Chapter 1

Introduction

1.1 Introduction

Learning interfaces are entry points into an area in which a person gains information and progresses to a certain stage of learning. The learning environment's cognitive artifacts, learning methods, and learning occasions are all examples of learning interfaces. It is reasonable to believe that a web-based learning environment will be useful to students.

The aim of this project is to create a learning interface for students based on their academic subject that allows them to learn, identify their strengths and weaknesses, and engage in actual creative learning. By reviewing a student's previous records, this interface can help a struggling student by providing additional features, connections, and information.

1.2 Comparison

Manual note-based learning and artistic learning have several differences. Online teaching makes studying more enjoyable for students, allowing them to learn more quickly and improve their results. In note-based learning, there is no imagination or invention, while innovative learning reflects education in a new manner. It portrays the same subject in a different way each time, making studying more enjoyable for students even though they are reading the same content.

Basic Comparison	Manual Learning	Our Online learning
Learning system	Both students and teachers follow classical book reading, guidebook, etc, and read some specific questions.	Our online learning interface allows a student to make a decision about what they need. If they want they can watch related additional youtube video that we've provided in our system..
Additional Features	There is no additional information or features in manual online learning.	We've provided additional features that will be provided some exceeding information on a related topic for learners. .
The assistance of a weak student	Sometimes weak students can't share their problems with anyone that's why they are memorizing without understanding.	A weak student can easily determine their lackings and our learning interface provides them additional features.
Progress Generation	Students can't check their progress or weakness in manual learning.	Students can check their progress or weakness via statistics that is generated in our system.
Objective	Students can't learn easily no matter where they are located in manual learning.	To help students learn easily no matter where they are located in our system.
Problem Statement	Self Assessment during learning is not monitored in traditional book oriented learning.	Self Assessment during learning is monitored in in our system.

Chapter 2

Background & Motivation

2.1 Overview

In this chapter, we will discuss the background study of the problem on this project, project scope, and objectives of this project. This project has some limitations and scope. All of these are analyzing in this chapter.

2.2 Motivation

Online learning is considered one of the best opportunity nowadays for professional grooming and learning and thus the number is increasing in every country. In our country almost 20 lacs students participate in the board examination per year in our country. About 75 lacs of 89 thousand students are directly connected with board Education.

In this situation of Covid-19, online learning is very necessary. Because now all our education system is suffering a lot. So online education is needed in any pandemic situation. so here is some motivation why we select this type of project:

- Slow learners are not getting any additional facilities to overcome their lacking in covid-19.
- In online education students have self-regulation and independence.
- Online education is needed in any pandemic situation.
- To help students learn easily no matter where they are located in this Covid-19.
- Gives flexibility to the learners in terms of time and locations.

- To help students learn easily no matter where they are lived in.
- Self Assessment during learning is not monitored in covid-19.

2.3 Background study of the problem

2.3.1 ”Creative Education System at Secondary Level in Bangladesh: Teacher’s and Student’s Perspectives”

Education is one of the basic needs of an individual who continues to restore a country. It allows a person to acquire a sense of good and bad and to extend this knowledge to every part of his life. Things in educational theory have been discussed in many places, from Socrates, Plato and Aristotle to 20 th-century figures such as Bertrand Russell, Jhon Dewey, R.S Peters, Israel Scheffler, and western philosophers, especially Augustine, Rousseau, Kant, Hegel, Mill, etc. How should expertise be assessed, updated or modified underlies the theory of education? Is there a right of all students to training, or can there be limits? If all students get the same instruction? Should schools play a role in the development of character for an ethical citizen for the state? (Peters, Thesar Locke, 2014). [1]

In educational theory, fundamental questions of education, such as educational objectives, indoctrination, spiritual and intellectual virtues, creativity, honesty and other educational matters have always been a place of inquiry (Siegel, 2010). In view of the philosophical point of view and, in the cognitive development of the human being, Article 17 of the Constitution of Bangladesh means the right of education and the States, the government shall adopt effective actions for the purpose of establishing for a certain phase an integrated, mass-oriented and universal system for education and forces all children remove illiteracy within a definite time.

The Online education system is one of the creations of the latest education policy in which radical changes were made in the examination system. Student evaluation is conducted based on their analytical ability and self-understanding. It helps teachers to interact with the children in ways that promote development and learning, foster children’s social competence, support children’s learning through play, create rich environments for learning, and forge strong home-school connections. Scholars from

creativity discourse raised concerns about the potentiality of schools, as they were supposed to suppress creative expression and privilege sameness (Beghetto Karwowski, 2018). The contentions behind the emergence of creative learning in Bangladesh are students are accustomed to the rote learning process (Shawkat, 2014), dependent on guide books and coaching centers (Chandan, 2016), limited to the practice of memorizing answers and obtaining marks in an exam-oriented system (Khan, 2012) while founding such system would encourage students to enhance their capacity of pondering and learn problem-solving approach in a given context[2].

The curriculum is directed towards examining students thinking capacity on four stages and these are knowledge, understanding, application, and advanced skill while proper modifications were undertaken in the content of syllabus and question pattern of National Curriculum and Textbook Board (NCTB). Research conducted on creative education system demonstrates that incorporating creative thinking skill in education is a crucial demand for developing countries and should be boosted from the early years onward (Craft, 1999) for embodying their incoming orientations towards materializing reforms in political, economic and cultural areas (Oral, 2006). Countries all over the globe have given priority in creativity development scheme in education for instance; Japan included it in school curriculum since Second World War, China considered creativity an important component since 2001, Singapore's Ministry of Education initiated 'Thinking Schools, Learning Nation' program as part of creative education (Shaheen, 2010). Compared to other developed and developing countries, the education system of Bangladesh is lagging to get in the race of innovative world where today's pupil is tomorrow's ingenious workforce. The inception of the creative education system since 2009 was an attempt to exit from a formal learning style to an imaginative and creativity-driven approach that can flourish youngsters exploring capability (Sathi, 2017). Though the introduction of an invention-based curriculum was a pre-requisite for nurturing students' capability development, the program is facing dense hardship at implementation from both teachers and students' sides[3].

As the aforementioned circumstances are prevailing in most of the primary and secondary schools of Bangladesh; and has become an urgency to sort out the struggles of the teachers and students' in coping with the system. So, this study finds a way to identify the problems which create barriers to succession on the creative education system. Policymakers will get help from the outcome of the study, bring requires modification to the existing limitations of the system; and fulfill the objectives of the creative system as well. The academicians will also be benefited from this study to find their shortcom-

ings, ways to teach, and properly able to set the creative question. The administrative body also finds the culprits who are responsible for question leaking based on teachers' and students' opinions. Above all, students, teachers, as well as relevant stakeholders of the country will be availed by this research.

2.3.2 "Creativity and Education"

Creativity is also characterized by unique and functional goods, I think that defining it in terms of processes makes more sense. In particular, imagination entails cognitive mechanisms that change the perception of the environment or its relationship to it.

A student's guidance can be a learning interface. The creative learning interface enables user-system interaction. This makes sense since the encoding and processing of information by imaginative people. Creative individuals are much more likely than needed to encode episodes of experience. This is inconvenient: More memory space is needed in each episode and the network of associations is richer. Certain of these partnerships are fake. On the bright side, there are those that can lead to new ideas which are useful or beautiful. There is also an agreement with imaginative spirits to pepper the earth. You can not see the forest for the trees, but you can create the next Mona [4].

To encourage educational innovation, any questions are addressed. To sum up, this involves addressing ambiguous issues, addressing the developing world and confronting an unpredictable future (Parkhurst, 1999). The economic argument may be the most powerful current policy argument. In order to help nations produce more employment, economic success (Davies, 2002), and to cope with increased competitiveness, the economic role of creative activity in economics is seen as vital (Burnard of 2006). This is why imagination cannot be "ignored or suppressed by education"

Another document which called for creativity in primary education was the National Primary Strategy for primary schools, Excellence and Enjoyment, (Hayes, 2004). The Office for Standards in Education (Ofsted) published this report in 2003 and in this, they identified creativity as "a significant factor in educational experience" (Jeffrey, 2005). This document, it is said, added a "conviction" that it is time for "a new, more

creative approach to curriculum planning and a greater emphasis on creativity for learning” (NCSL, 2004). There were also literature reviews on creativity supported by the Qualification and Curriculum Authority (QCA) and reports on the National Curriculum as well as a “criteria” for ensuring creativity was included in every subject (Jeffrey, 2005; Turner-Bisset, 2007). A website was established under the name of “Creativity: Find it! Promote it!” to enable teachers to find and promote creativity in the classroom (Burnard, 2006).

Scotland is one of four home countries in the UK. In the 1990s a number of policy documents and statements emerged for UK home countries which included creativity (Craft, 2001). In 1997 the White Paper, Excellence in Schools, referred to preparing people for the 21st century by recognizing their “different talents”. This was built upon by another report by the National Advisory Committee on Creative and Cultural Education (NACCCE, 1999) which spoke of equipping young children with skills required by employees (Craft, 2005). The NACCCE report acknowledged the UK government’s views that creativity “was relevant to schools” (Jeffrey, 2005). This increased interest in the topic, bringing it back “on the agenda in a big way” (Brundrett, 2007). These mentioned documents provided the “foundation” for the recent policy discussions (Craft, 2005) in which the British Government responded to “debates about creative...education to meet the economic, technological and social challenges of the 21st century” (Loveless, 2002) [5].

Linking between Creativity and Education:

Educators agree that they admire ingenuity, but they don’t necessarily give it priority. Teachers also have prejudices against innovative pupils, and they fear that creativity will ruin the classroom. They devalue the qualities of creative personalities including risk making, impulsiveness and individuality. They hinder imagination by insisting on information and obedience replication in the classroom. Why is the disconnection between the official role of educators against imagination and what occurs actually at school? How will teachers foster imagination in class in times of fast technical transition where human ingenuity is necessary and kids are overwhelmed and hyper-stimulated?[6]

This paper has outlined the various arguments given in the literature for the need for a couple of creativity and education. Also included has been the evidence from policy documents from various countries to indicate that practical steps are being taken to

make creativity part of the educational agenda.

In another stream of Bangladesh's education to cultivate the genius of students, the artistic education scheme is launched. This thesis aims to learn from teacher and student experiences about the opportunities and challenges in Bangladesh's innovative education environment at a secondary level. It is an investigation type that uses main and secondary information sources to identify the issues underlying the method.

We are leading in the 21st century which is based on Information Communication Technology (ICT). Each and every single item are updating based on ICT in our country, but it's really painful that we lag behind in education. Our education system has changed since 10 years ago, but still, we could not cope up with the new system. The students are doing well in the exam but the quality of their education is declining. We've to find out the problems behind it. It's easy for a strong student to continue their studies with the assistance of academic books, guidebooks, or teachers' lectures. But the difficulty is for weak students hence they can't easily understand as a strong student. Sometimes a student hesitates to share his weakness with his teachers or in class. As a result, he tries to memorize that topic without understanding. That's why the student's knowledge cannot get developed. These students are a major part of our country. These students need extra care and facilities that they never get from any academy. In this case, if an interface can be developed for the assistance of weak students, then the creativity of students can be exhibited [7].

We need to create a "skilled population" if nations are to respond to "economic needs" (Craft, 2005). This inevitably involves an increase in the level of educational achievement (Jeffrey, 2006). "But what are perceived to be educational achievement standards are said to alter (Wilson, 2005) and to be" reconceptualized ... [to] involve imagination" (Craft, 2001). "In view of this, educational systems are expected to undergo" a significant overhaul of finances, attitude, and understanding "so that creativity can be respected (Turner-Bisset, 2007). In order to value creativity (Turner-Bisset, 2007). There has been a change in educational policy around the world in reaction to such calls, and attempts are being made to combine imagination and expertise (Dickhut, 2003)[8]. The emphasis of "curriculum and pedagogy" is innovation (Wilson, 2005) and an "official plan" for school reform (Burnard, 2006).

Schools are seen as creative place for "good" pupils, so they can "not only increase their elites, but also masses of students" schools can do so (Walberg, 1988). Schools are seen as creative environments. It is said that creativity should be "fostered by the education system" from the very beginning (Craft, 1999) and primary and secondary education may be more relevant than university education for "national security and welfare" (Walberg, 1988). Primary education is seen as a crucial stage in the growth of children, shaping them for life. Primary education is about children discovering the joy of exploration, solving problems, becoming imaginative in writing, painting, music, improving their self-confidence as learners, and maturing socially and emotionally (DCSF, 2003), as well as giving them the necessary tools for learning.

2.4 Existing System

2.4.1 10minuteschool.com

10minuteschool.com is a learning interface for the students of our country. This interface provides chapter wise video of academic books of students. It also includes some questions and answers related to the topic. Students can learn via video link. This site provides subject wise progress.

Positive Features:

- It provides video on the specific topic of each chapter.
- Question-answering system.
- Smart book system
- Students are given some questions that are related to specific topics of each chapter of each subject. They can participate in this small exam and view their results.

Negative Features: 10minuteschool.com is a learning interface with a very low admin panel. It follows classical book reading. The changes are just to provide videos on a specific topic. But it doesn't show any creativity or technique to learn something new.

- This interface follows traditional book reading.

- It has not provided an e-book system on their site.
- The sites don't show any extra features for a weak student.
- Progress presentation of a student is not much satisfactory.
- It is an interface with a low admin panel. The site doesn't show any creativity or innovative ideas that can make a student creative.

2.4.2 Srijonshil.com

Positive Features:

- Learning, understanding, and applying Srijonshil system.
- Vast collection of visual lessons.
- The site shows the same questions in different ways.

2.4.3 ixl.com

ixl.com[9] is a learning website that is not organized for the academic purposes of our country. This website is actually designed for US students. The same subject is presented in various ways. This website allows students to practice graphically. For each issue of the subject there is a very good display of graphical images .

Positive Features:

- ixl.com is the website that is decorated for the students from pre-kindergarten to high school.
- It provides a graphical image to represent questions.
- The site shows the same questions in different ways.
- Multiple MCQ questions are presented to students to increase their thinking power.

- For students, the Real-Time Diagnostic doesn't feel like a traditional test! The questions are engaging, and it's a safe space for students to learn more about themselves and take an active role in their learning.

Limitation: ixl.com is a standard and innovative interface. It's a website that is organized according to the curriculum of America. The total site is decorated using the English version. There are huge dissimilarities between the academic curriculum of America and our country. It is not applicable and available for Bangladesh.

Chapter 3

Tools and Language

3.1 Overview

In this chapter, we will discuss the Tool and Language of this project. That is HTML 5, CSS , Python,Django Bootstrap and Mysql between each other part.

3.2 HTML 5

In our web view, we use Html5 for the user interface. For online viewing, HTML5 is the best choice. HTML 5 (formerly and widely spelled HTML5) is a stack that uses a markup-based pattern to describe the properties and behaviors of web page text. HTML 5 is the HTML standard's fifth and most recent main edition.[10], and subsumes XHTML. All our HTML file in this projects are in template folder. HTML 5.2 Recommendation by the World Wide Web Consortium (W3C), intended primarily for Web content creators and HTML Living Standard by WHATWG (a limited consortium of four browser vendors) intended primarily for browser developers, but it also exists as an abridged Web developer edition..

HTML 5 adds markup and application programming interfaces (APIs) for dynamic web applications, allowing for more interoperable implementations. It further extends, improves, and rationalizes the markup required for documentation, allowing for more interoperable implementations. HTML 5 is also a contender for cross-platform smart-phone applications for the same purpose, as it includes features designed with low-power devices in mind. A number of additional syntactic attributes have been added. To natively provide and maintain multimedia and graphical content, new video, pdf,

and canvas components were introduced, as well as support for scalable vector graphics (SVG) content and MathML for mathematical formulas. To improve the textual content of articles, new page layout elements such as key, part, article, header, footer, aside, nav, and figure have been introduced. New features have been included, certain elements and attributes have been removed, and others, such as a/, citation, and menu, have been updated, redefined, or standardized..

3.3 CSS

Our website is styled with CSS3. It has a high-level interface theme for online viewing. CSS (Cascading Style Sheets) is a term that refers to the presence of a text written in a markup language like HTML. CSS, like HTML and JavaScript, is a type of markup language.[11], It is a key component of the World Wide Web's infrastructure. CSS was created to separate presentation from text, including style, colors, and fonts. This separation would increase content accessibility, give the presentation characteristics specification more flexibility and power, and enable different web pages to share formatting by specifying the relevant CSS in a separate file. CSS code, and reduce the complexity and duplication of structural text. By separating formatting and content, it is also possible to view the same markup page in various formats for different rendering methods, such as on-screen, print, voice (via speech-based browser or screen reader), and on Braille-based tactile devices. All our CSS file in this projects are in statics/bloagapp folder. CSS also has instructions for alternate formatting while the text is read on a mobile computer. The name "cascading" derives from the priority scheme used to determine which style law applies when a feature meets more than one rule. This cascading priority scheme is predictable.

3.4 PYTHON

There is a lot of programming worldwide. However, Python is still the most widely used programming and web development language. As a result, we chose Python as the programming language for our website. Python is an interpreted, object-oriented, high-level programming language with complex semantics. Its high-level built-in data structures, together with dynamic typing and dynamic binding, make it very appealing for Rapid Application Development, as well as for use as a scripting or glue language to bind existing components together. Python's straightforward, quick to understand

syntax stresses readability and eliminates the costs of program maintenance. Python provides modules and bundles that promote the modularity of applications and reuse of code. Python interpreters and a complete standard library for all major platforms are readily available in source or binary form and can be distributed freely.

3.4.1 Easy to Learn

Python is a high-level language with an English-language syntax. This encourages you to learn and understand the code more easily.

Python is easy to pick up and learn, so many people recommend Python to beginners. You need less code lines compared with other major languages like C/C++ and Java to execute the same task.

3.4.2 Productivity enhanced

Python is a very fruitful language. Since Python is easy, developers can focus on the problem solving.

You don't need to waste too long studying syntax or actions in the programming language. You are writing less applications and doing better.

3.4.3 Interpreted Language

Python is an interpreted language, which means that Python runs the code line by line. It stops more performance if an error occurs and records the error.

3.4.4 Dynamically Typed

Python doesn't know the variable type until we execute a code. The data structure is automatically assigned during execution. The compiler would not need to worry about declaring variables and their data types.

3.4.5 Free and Open-Source

Python is subject to an OSI-licensed open-source licence. This ensures its use and delivery. The source code can be downloaded, edited, and even your Python version

distributed. This is useful for companies who want to alter their specific behaviors and use their version for development.

3.5 Django

We have multiple Framework in Python, but we choose a Best Framework, Django. Django is an MVT software framework used for web applications creation. It defines as a "battery-based" web platform that supports developers in writing smooth, powerful and reliable code with strength and simplicity. It is one of the most well-known web frameworks in the world, and still one of the most used. Instagram, Youtube, Google and even NASA use their website. So let's break it down some more and discover more.

3.5.1 Advantages Of Django

3.5.1.1 Fast:

This is designed to help developers create an experience as easily as possible. Django contributes to making it cost-effective as well as practical, from architecture to production. For developers relying mostly on deadlines, this makes it an ideal workaround.

3.5.1.2 Fully Loaded:

It works in a way which includes hundreds of extras for user authentication, content administration, RSS feeds, website maps and more. These aspects contribute entirely to the development of the internet.

3.5.1.3 Secure:

Developers are not responsible for errors in protection when doing so in Django. Any of the common errors are SQL injection, forgery of cross-site requests, clickjacking, and cross-site scripting. The user authentication system is the key to managing usernames and passwords effectively.

The benefits of the Django system meet the highest traffic demand. The busiest places therefore use this medium to meet traffic demands quickly.

3.5.1.4 Versatile:

The use of Django means all of this: content management, scientific computing networks and even major organisations.

3.6 Bootstrap

We use Bootstrap 4.0 for our build. It helps increase brand recognition, provides people with a platform for connection, approach, and exploration, and not just promoting a business. To serve an interactive service effectively, you can have a web page accessible on a variety of computers. Each has smart phones, tablets, notebooks, desktops and a steady increase in today's smartphone style and form factors. We may then use bootstrapping to resolve the issue of accessing websites or information on all these machines in an efficient manner.

3.6.1 What is Bootstrap?

Bootstrap is a front-end framework that allows interactive websites and mobile apps to be created. It is one of the most frequent front-end frames, and it can help create a website quickly and efficiently. It supports all major browsers and is fast to load sensitive web pages. Bootstrap includes HTML and CSS design models for various interface components to encourage web construct. We can quickly adapt to emerging patterns by upgrading CSS. Since the bootstrap itself is concerned with standard views of data, which can be later modified if anyone wishes, developers can concentrate on interaction components. Bootstrap is compatible with almost all recent browser versions of Internet Explorer, Google Chrome, Opera, and Firefox. It allows for reactive web design and dynamically adjusts the configuration of web pages, taking into account the device characteristics used.

3.6.2 Advantages of Bootstrap

The rate of growth is one of its major advantages. If you want to quickly build an app or website, you have to start using Bootstrap. It helps to save coding time rather than structuring code from scratch by including less of CSS features and precast code blocks. The ready-made Bootstrap themes help to meet the requirements on a faster course. Responsiveness: According to projections of CISCO, global mobile data traffic will increase about 11 times from 2013 to 2018. These statistics show that a sensitive

website for various mobile device types is required. Bootstrap has a sensitive interface and a 12-column grid layout to automatically modify the website to the appropriate screen resolution. The "responsive utility classes" feature of Bootstrap enables us to hide/show a certain content section of a given screen size.

Consistency: Consistency was the fundamental philosophy behind the launch of Bootstrap. Regardless to who works on it, the designer / producer promises maximum consistency.

In addition, through different browsers, the results function equally and the output stays the same. **Customizable:** Bootstrap makes it possible for developers to configure their websites according to their requirements. It has the facility to choose any function that is really necessary to build a personalized website. With this feature you can get rid of what you don't need. **Help:** Bootstrap aims to overcome issues quickly by means of an enormous support network. Bootstrap frequently publishes ongoing patches to solve some new issues. GitHub is currently developed, managed and operated by GitHub with more than 9,000 commitments and 500 contributors. Bootstrap is a superb device with rich features. It is the latest in innovation for responsive development and supports designing of websites and apps faster, easier and better[12].

3.7 MySQL

Django has a default database which is sql lite for database access. We face problems in this database, however, with large data access, so we choose MySql for data control. MySQL is the world's most popular open source database. With their proven efficiency, durability and ease of use, MySQL has become the leading database option for web-based applications, using profile web services such as Facebook, Twitter, YouTube, Yahoo! and many more. Oracle fuels MySQL imagination and offers new technology for next-generation power grids, the cloud, smartphone and embedded applications.

3.7.1 Advantages of MySQL

Data Security: MySQL is the safest and most secure web applications database management system in the world including WordPress, Drupal, Joomla, Facebook and Twitter. In specific if an e-commerce organization requiring regular money transfers, any enterprise would benefit significantly from data security and transactional processing support accompanying the new edition of MySQL. The Demand

3.7.1.1 Scalability:

MySQL offers an unparalleled scalability to allow consumers even in vast warehouses that stock terabytes of data to use a smaller footprint for highly integrated applications. On-demand flexibility is the star feature of MySQL. This open source approach enables the full customization of eCommerce companies with complex data database server requirements. Large height

3.7.1.2 Performance:

MySQL offers an unparalleled scalability to allow consumers even in vast warehouses that stock terabytes of data to use a smaller footprint for highly integrated applications. On-demand flexibility is the star feature of MySQL. This open source approach enables the full customization of eCommerce companies with complex data database server requirements. Large height

3.7.1.3 Round the Clock Uptime :

MySQL provides 24/7 uptime assurances and a wide variety of available options, including cluster servers with advanced applications and master/slave replication setups.

3.7.1.4 Comprehensive transactional Support:

MySQL tops the list of robust transactional database engines available on the market. With features such as complete atomic, consistent, isolated, durable transaction support; multi-version transaction support; and unrestricted row-level locking.

3.7.1.5 Complete Workflow Control:

MySQL leads the list of robust on the market storage motors. With features such as full nuclear, consistent, independent and durable transaction protection; support for multi-version transaction and unlimited locking of the range.

3.7.1.6 The Flexibility of Open Source:

All the concerns and issues with an open-source solution can be solved with MySQL's 24-hour service and start-up compensation. The safe handling and reliable implementations of MySQL are combined to ensure efficient transactions for large-scale projects. It

simplifies and eases maintenance, de-bugging and upgrades while maximizing end-user experience. Specifically .[13, 14].

3.8 Apache Web Server

For running our website, we use Apache Web server. Xampp is supplied. The tech foundation Apache has two database servers; Apache HTTP server and Apache Tomcat, a free software and open source. Since its inception in 1995, Apache HTTP is considered to represent about 55 per cent of the websites.

3.8.1 Advantages of apache server:

- The source code of Apache is free to all and no license is required.
- It can be modified to modify the code and also to correct errors.
- The opportunity to incorporate more features and modules is a favorite among techis.
- It is highly accurate and performs better.
- It can be installed easily.
- The modifications made are registered immediately without the server reboot.
- Apache can work on almost every OS such as Windows, Linux etc.
- It is regularly maintained and updated.
- Support for Apache web servers is an easy job as the technical support is accessible on many websites worldwide.
- The documentation of Apache is quite useful and is very extensive.
- The Apache web server allows several websites to run on the same server. They will create virtual hosts on the same server.

Chapter 4

Design and Implementation

4.1 Overview

The device design schematic of this project will be discussed in this chapter. We are still about databases, multiple databases and interrelationships. This chapter discusses the source code for the database for some of the design's core components. For programming implementation, we will explore some source code. And we'll be showing some special project screenshots in this segment. In reality, we are presenting the site, login page, learning section, review section, improvement section, the "online learning" registration page, online teaching system design and development and additional functionality for poor learners.

4.2 System processes of "Online Learning Interface"

To help understand what is required of the framework, the user specifications document is examined. How these standards are implemented is evaluated. The device physical components are configured and the operating environment in which it will operate is defined. Each when the admin updates the database, connect students to it via the device registration. Our framework can be learned from both registered and non-registered users. The discrepancy between our registered customer and our learning app is some extra functionality. Their progress report will verify what the machine can produce. Data would be saved on our system cache of a registered customer. This method allows students to read, to take the examination and to get their progress reports from the database. Whenever a user arrives, they will register alongside other related information in the database registration table. For certain particular functionality without

registration, users can still use the framework.

4.3 Flowchart

4.3.1 Flowchart for User

User flowchart diagram is a way of displaying how data flows in a system and how decisions are made to control events. Diamond symbol represents yes/no, with a separate line leaving the diamond for each response. To illustrate this, symbols are used. They are connected together to show what happens to data and where it goes. In user flowchart there are organized step-wise task of user. At first, user selects specific class then subject and then chapter. If users choose Learning they can see the video learning.

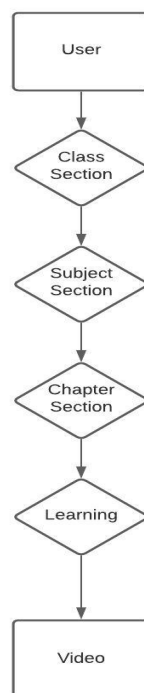


Figure 4.1: User Flowchart

4.3.2 Flowchart for Authorized user

Authorized user can access all section of our "Online Learning" interface. They can participate in medium and hard level questions. Registered user will have access video. They can see their performance. There are generated statistics for authorized user based on their performance. They can see their performance on subject-wise, chapter-wise, improvements using additional features from system etc.

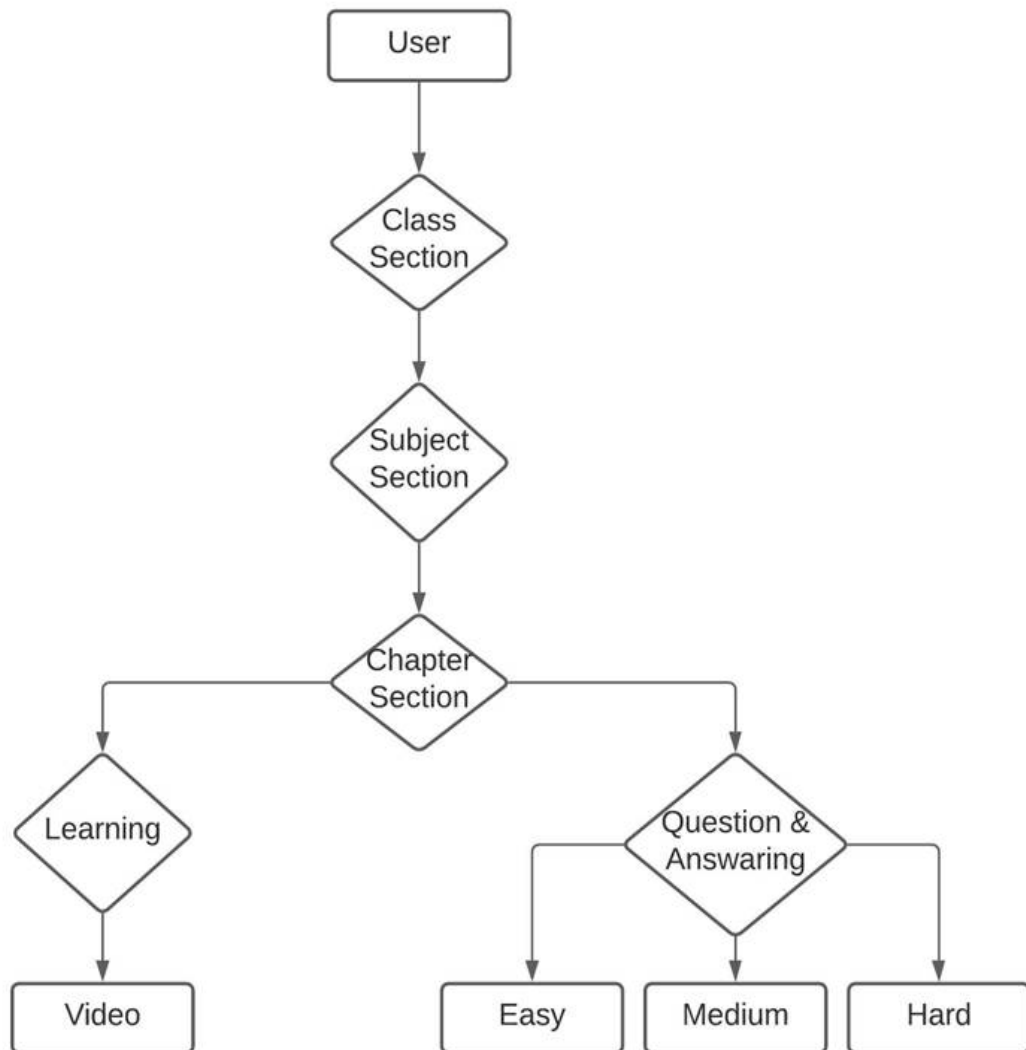


Figure 4.2: Authorized User Flowchart

4.4 Use-case diagram of "Online Learning Interface"

A basic case diagram is a display of a user's relationship with the device that displays the user's connection to the various cases of usage involving the user. A diagram for an application may describe the various machine usage styles and situations, and is often followed by additional diagrams. Either loops or ellipses are seen in the usage cases.

4.4.1 Content and relationship:

An User can face three section in our system. That is learning where he can learn from video. another is testing where he can test his ability in specific chapter whit MCQ questions. and self-judgment where he can judge his performance that he given.

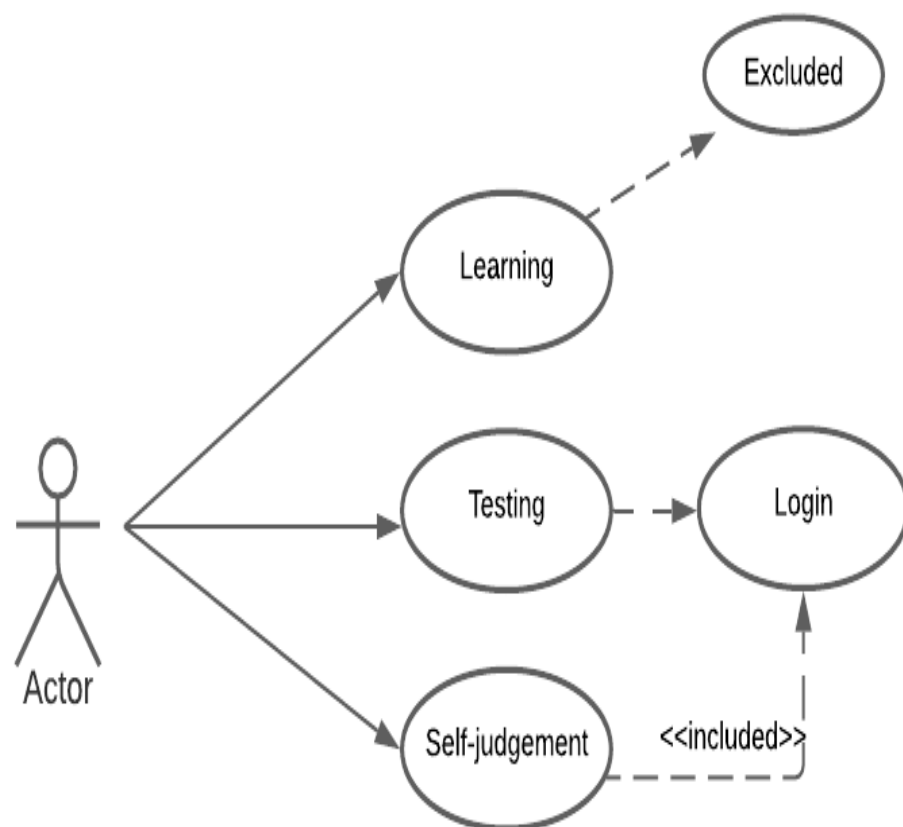


Figure 4.3: Use-case diagram of Online learning interface

A learning website should be user friendly so that user can easily access the site. User's attraction depends on the design of UI. We've created a simple and easy UI for user.

4.5 Use case Model of "Online Learning Interface"

To solve a problem, a use-case model is a model of how various types of users communicate with the system. At its simplest, a use case diagram is a description of the interaction of a user with the system that illustrates the relationship between the user and the various use cases in which the user is involved. The most significant elements of the model are: use cases, actors and their interactions

Actor	Use Case
Registered User	Login system (Email and Password).
User	Select class, subject, chapter. Then choose learn or question-answering part. Learning with additional features and participate in testing part.
Administrator	Generate and provide statistics for authorized user based on their skill.
Additional features for weak students	When any student's result is below the mark, the system will automatically show some additional features to help the student.

4.6 E-R diagrams of “Online Learning Interface”

This diagram is representation of entities and their relationships to each other, typically used in computing in regard to the organization of data within databases or information systems.

4.6.1 Content and relationship:

An student can select class from classes database. After selection class he will get some subject from related class and after selecting subject he will face the related chapter that he wants to test or learn after testing some question user can get his performance data.

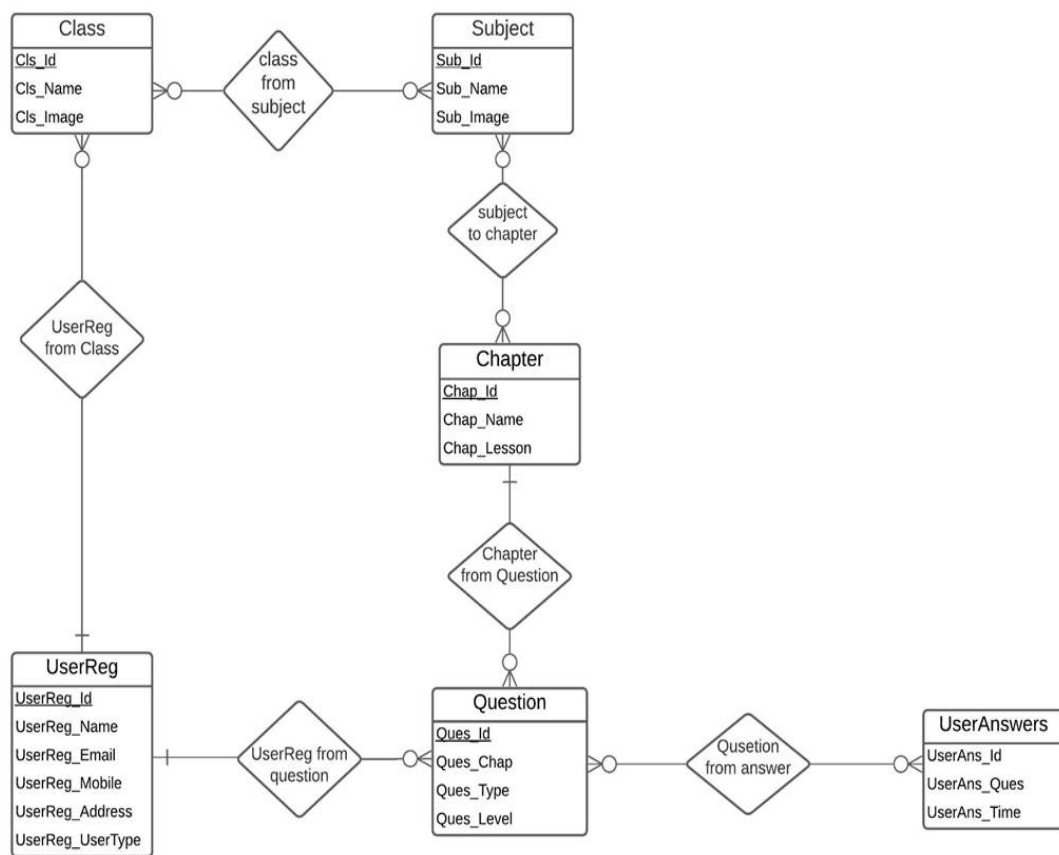


Figure 4.4: E-R diagram of “Our Online Learning Interface”

4.7 Sequence diagram of "Online Learning Interface"

A sequence diagram is a software engineering type of static structure schema that shows the method sequence data flow, its properties, operations, and the relationships between objects in the unified Modeling Language.

4.7.1 Content and relationship:

when an user wants to learn database will show learning component . and when an user want to test then system will show him his ans wrong or right

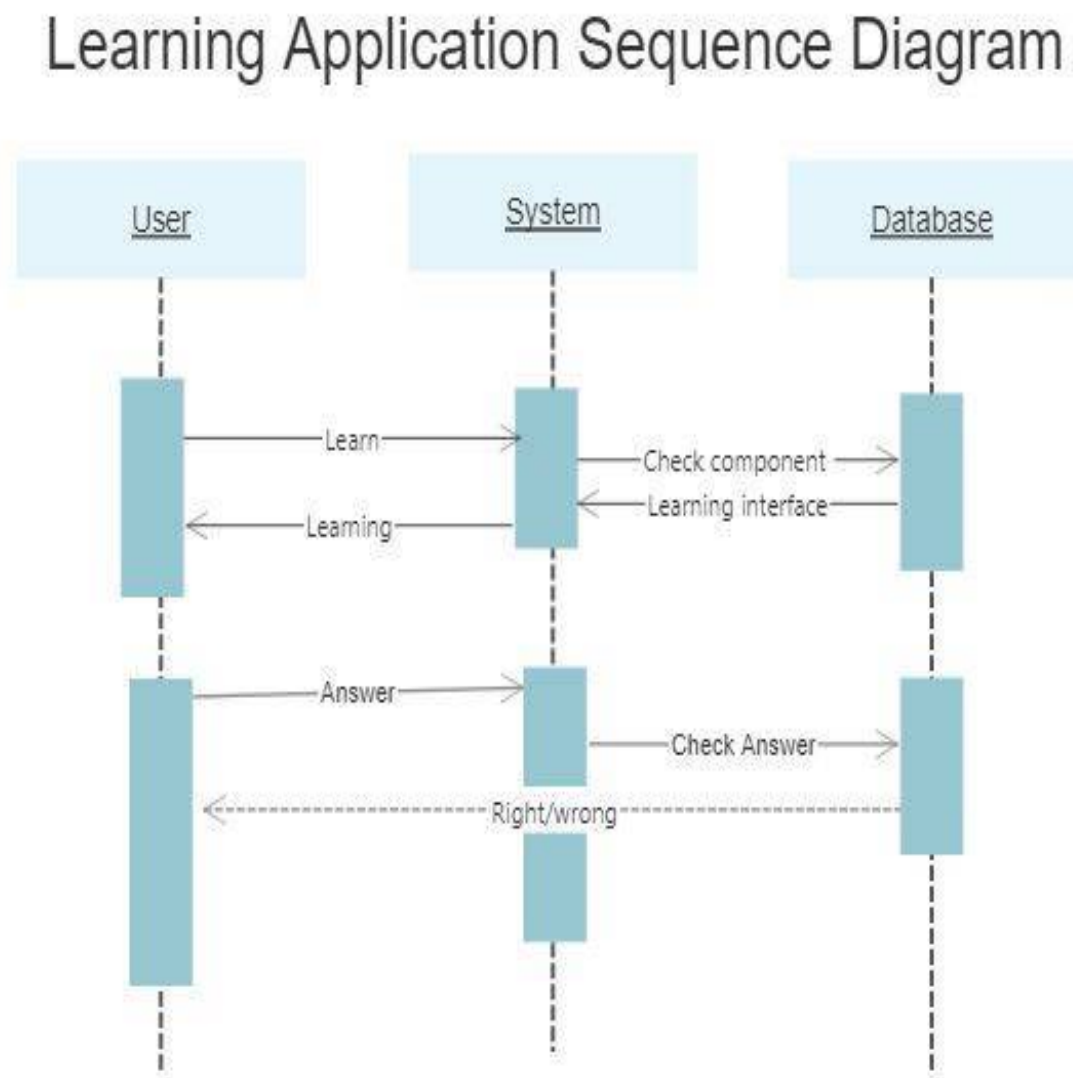


Figure 4.5: Sequence diagram of "Online Learning"

4.8 1-Level Data Flow Diagram (DFD)

A data flow diagram is a way to depict a system or process' flow of information. The DFD also provides information on the outputs and inputs of each individual and on the operation. A Level 1 DFD is more complete than a Level 0 DFD, but not as detailed as a Level 2 DFD. The main processes are divided into sub - processes which can then intimately be analysed and enhanced. The flow of data is seen in this diagram.

4.8.1 Content and relationship:

Admin can give authorization to a user to register in this system. Authorized student can learn and test both and see his performance. and teacher can upload question and learning component.

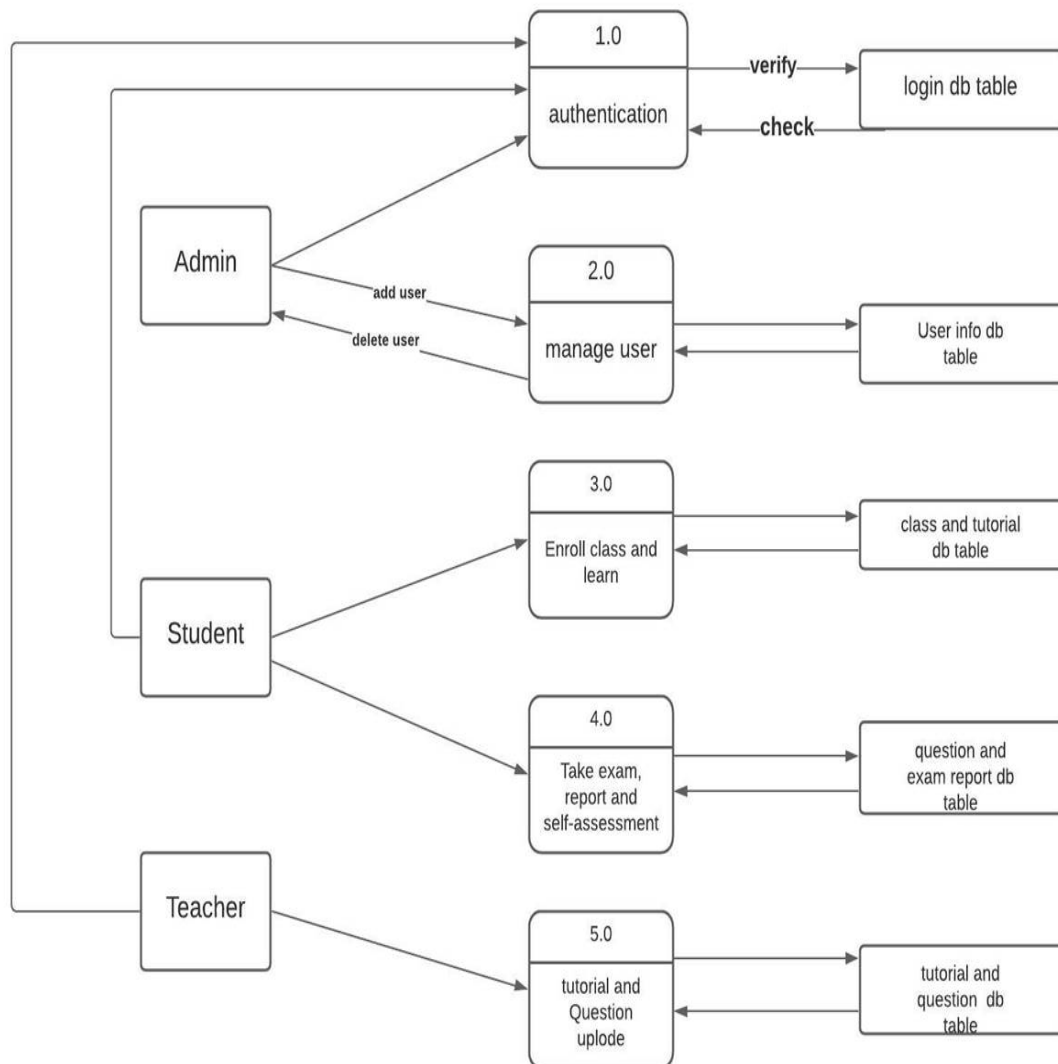


Figure 4.6: 1-level data flow diagram of learning application interface

4.9 Homepage

This is the first part of our project home page. Firstly the interface has login button for registered user and sign up button for new user. The interface has a slider to inspire learners for registration on advantage of registered user. Our project home page represent classes to select specific class from a group of class.

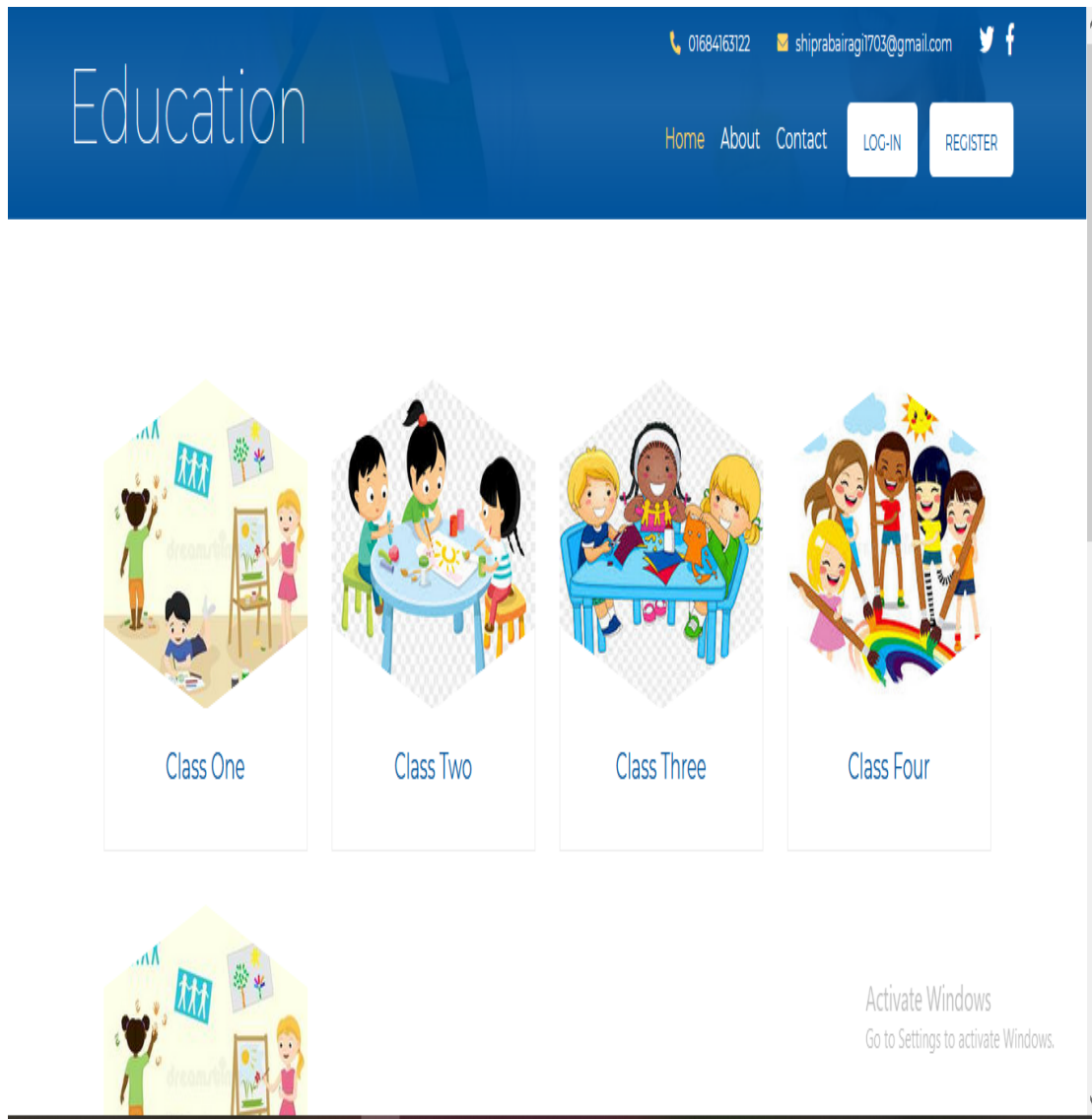


Figure 4.7: Home page of “Online Learning Interface”

Our project another part is footer. The footer represents what events will be added in future.

4.10 Class Selection Part

The class selection page is the part of Homepage. In this part user can select specific class which he/she want to read or participate on test.



Figure 4.8: Class selection page

4.11 Subject and Chapter Selection Page

This section will appear after selection of class that is on home page of our project. There are list of subject of selected class. Chapters are organized sequentially as a list of choosen subject. Learners can choose the specific chapter of specific subject what he/she wants to read or test.

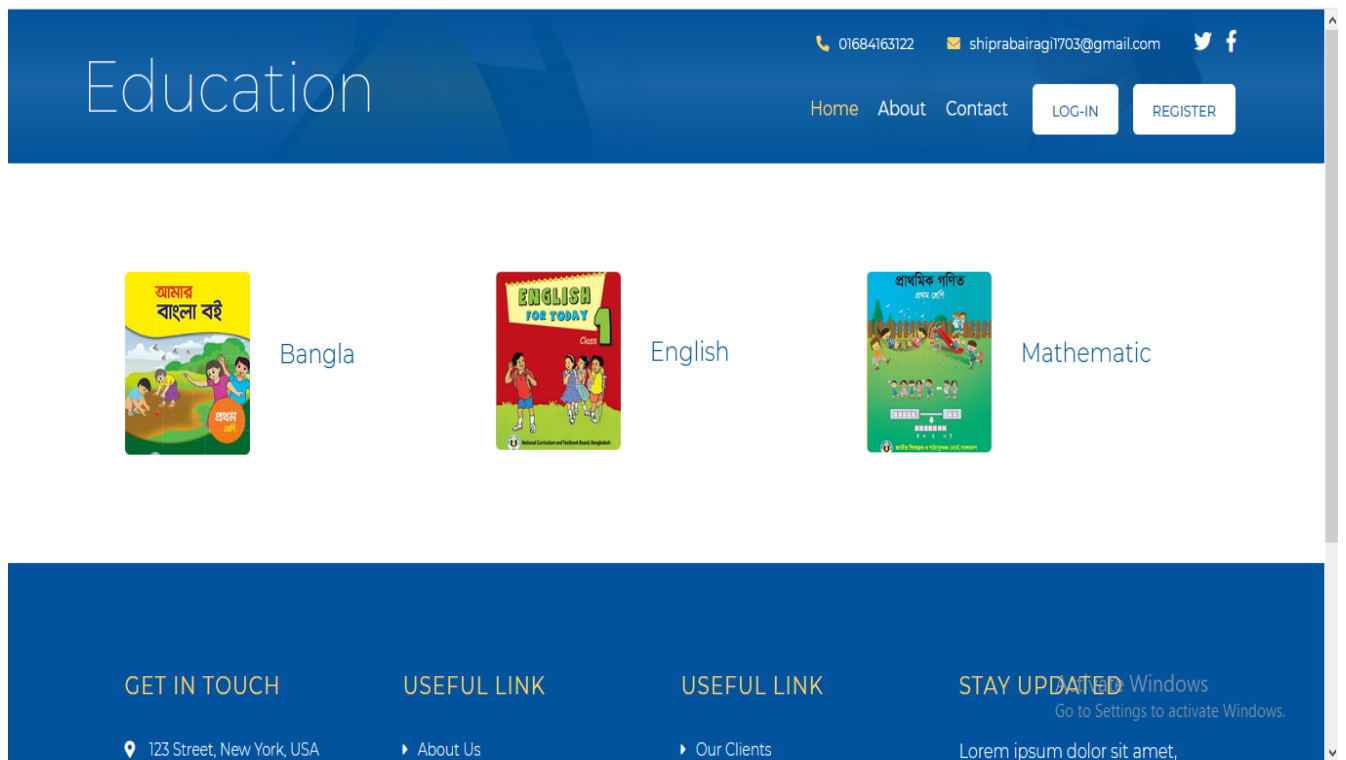


Figure 4.9: Subject selection page

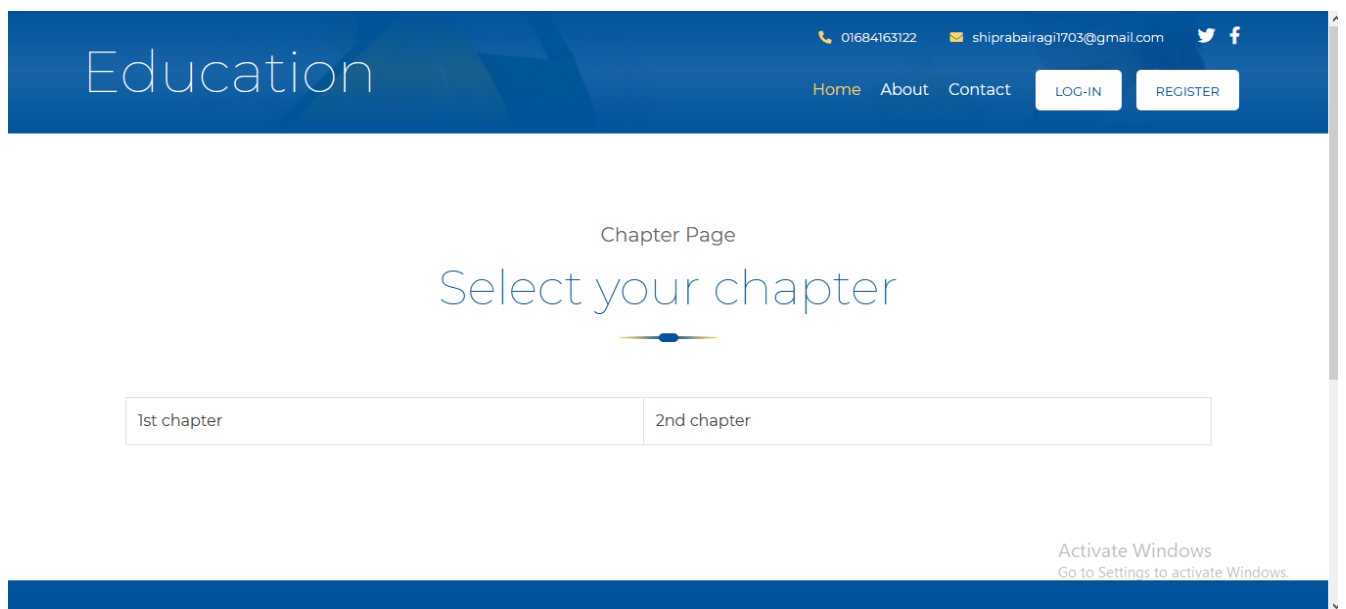


Figure 4.10: Chapter selection page

4.12 Learning and Testing Page

In this page learners can choose what they want to do. There are 2 section. One is for learning and another is for testing. The learning section has 3 section.

4.12.1 Learning:

This section is for all student who visit our application. They can see all video in related chapter.

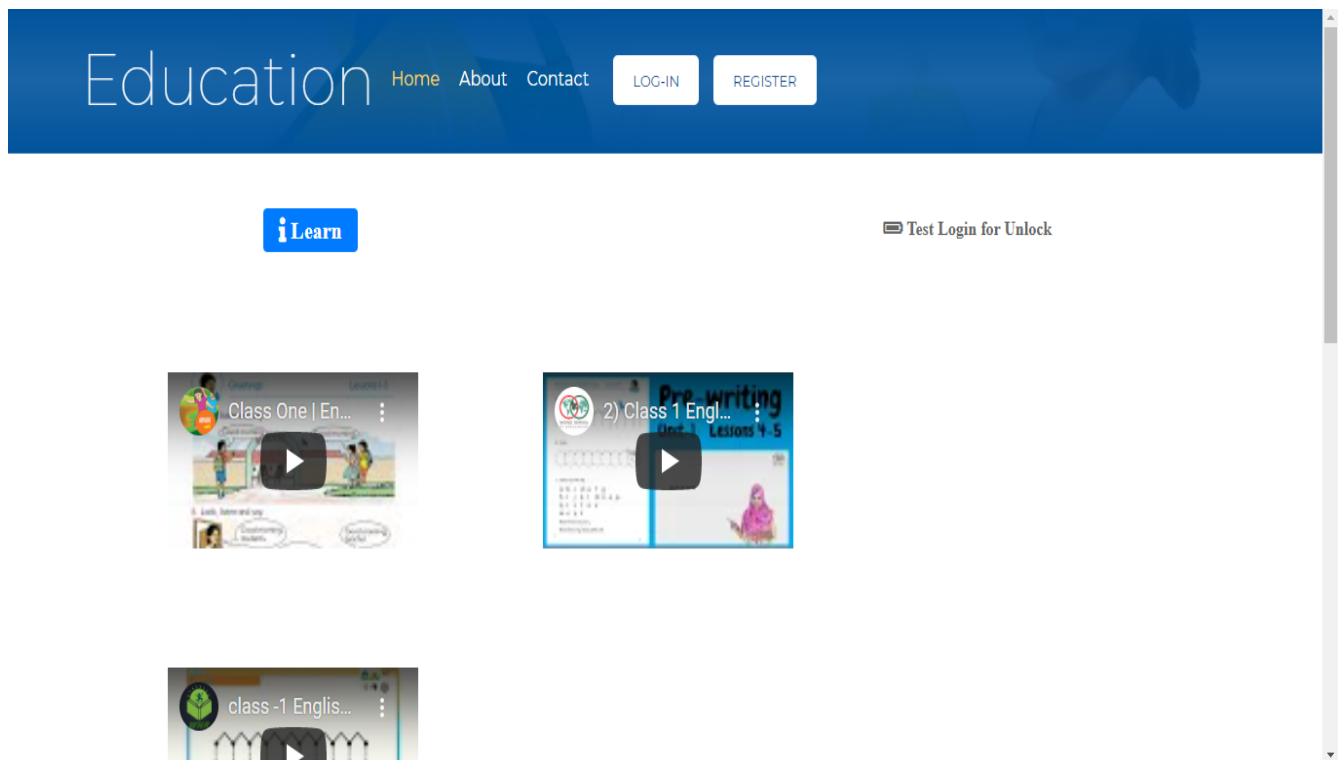


Figure 4.11: Learning from Video

4.12.2 Choosing Questions:

There are 3 categories of questions which is presented as easy, medium and hard.

- Easy: It's the primary level of testing section. Easy questions are unlocked for

both authorized and unauthorized users. The questions of this section are organized by very simple questions.

- **Medium:** It's the 2nd part of testing section. Only authorized user can participate in this section. In this section questions are organized a little harder than the easy level questions.
- **Hard:** It's the supreme step of measuring skills. This section is decorated with toughest questions that makes a learner confused . It is also only for authorized user.

The screenshot shows a web application for an online learning platform. The header is dark blue with the word 'Education' in white. It includes contact information (phone: 01684163122, email: shiprabairagi703@gmail.com) and social media icons (Twitter, Facebook). Navigation links include Home, About, Contact, LOG-IN, and REGISTER.

The main content area has a white background. On the left, there are three tabs: 'Basic' (selected), 'Test', and 'Learn'. Below the 'Test' tab, there are three columns of questions:

Basic	MID	Learn
1. What is your name? 4. When do you wake up ?	2. How old are you? 5. What is your father's name ?	3. What class do you read in ? 6. A for?

Below the questions, there is a dark blue footer section with four columns:

GET IN TOUCH	USEFUL LINK	USEFUL LINK	STAY UPDATED
<p>123 Street, New York, USA</p> <p>+012 345 67890</p> <p>info@example.com</p>	<p>About Us</p> <p>Our Story</p> <p>Our Services</p>	<p>Our Clients</p> <p>Clients Review</p> <p>Ongoing Project</p>	<p> Lorem ipsum dolor sit amet, adipiscing elit. Etiam accumsan lacus eget velit.</p>

Figure 4.12: Choosing Questions

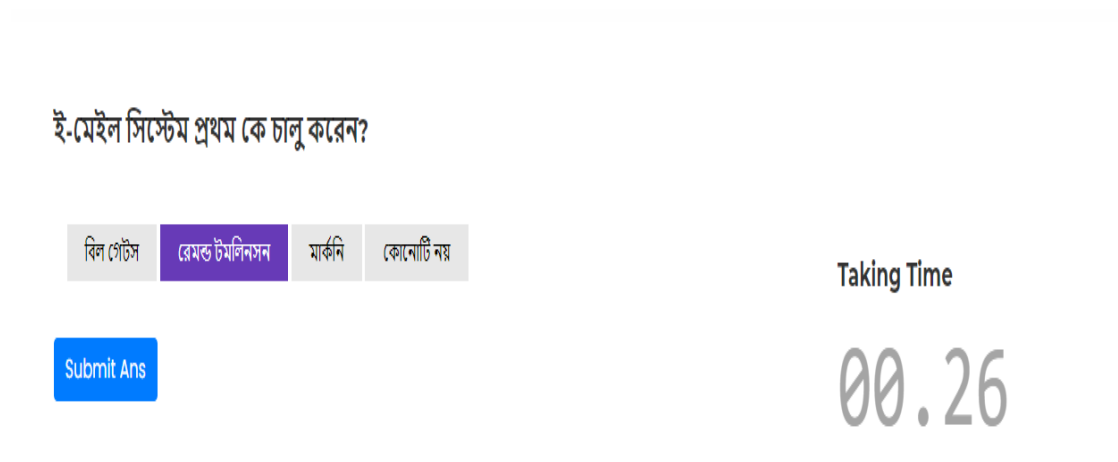
4.13 Question-Answering

This section is organized with different types of questions. Learner can participate in the test and the performance will be counted with answer submission time.

4.13.1 Type of Questions:

There are 6 types of questions in our Online Learning Interface.

- Single text selection: In this type of questions, user can select only one text option.



ই-মেইল সিস্টেম প্রথম কে চালু করেন?

☐ বিল গেটস ☒ রেমন্ড টমলিনসন ☐ মার্কনি ☐ কোনোটি নয়

Submit Ans

Taking Time
00.26

Figure 4.13: Single text selection

- Multiple text selection: In this type of questions, user can select multiple text option.



নদীর একেবারে উপরেই কার ঘর?

☐ গোসাঁইদের ☒ সুভার বাবার ☒ বাণীকর্ষ ☐ কোনোটি নয়

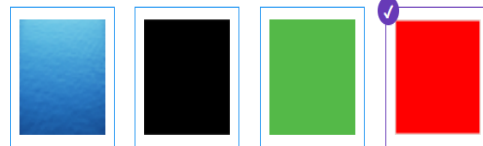
Submit Ans

Taking Time
00.07

Figure 4.14: Multiple text selection

- Single image selection: User can select only one image option in this type of question.

Which color is red ?



Submit Ans

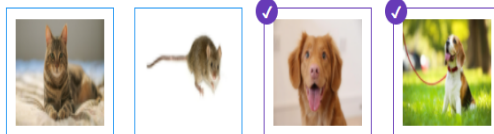
Taking Time

00.12

Figure 4.15: Single image selection

- Multiple image selection: User can select multiple image option in this type of question.

Which is dog ?



Submit Ans

Taking Time

00.05

Figure 4.16: Multiple image selection

- Image informative question: In this category of questions user have to choose answers from visualization of image.

How many cats here?



Taking Time

00.09

2 3 4 5

Submit Ans

Figure 4.17: Image informative question

- write down appropriate answer: User have to write down the direct answers in this type of questions.

ভানুসিংহ ঠাকুর কার ছদ্মনাম?

Submit Ans

Taking Time

00.08

Figure 4.18: write down appropriate answer

4.14 Login and registration page of user

4.14.1 Registration Page:

This is a new user section. If you wish to apply, the registration form must be filled out with the appropriate fields. After registration is completed, the user must wait for the admin approval.

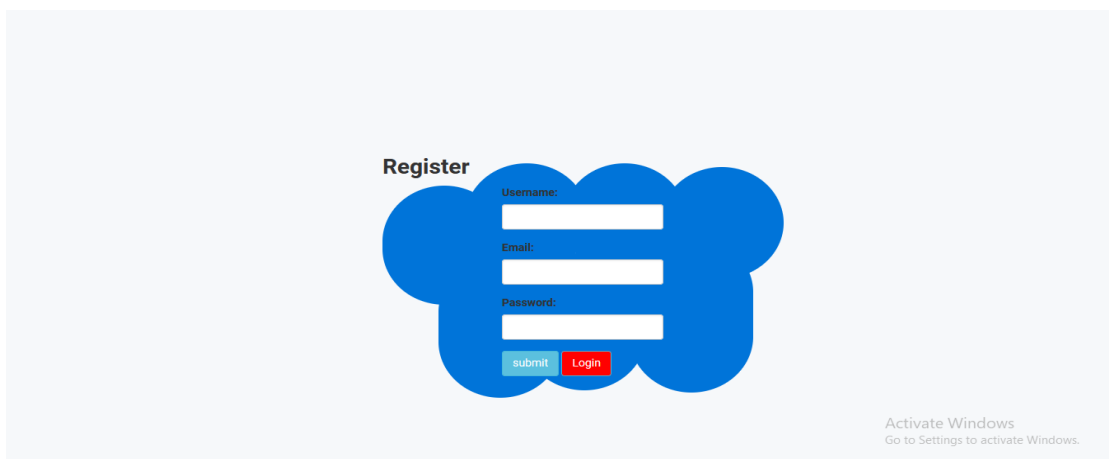
A screenshot of the 'Register' page from the 'Online Learning Interface'. The page features a light blue background with a large, stylized blue cloud-like shape in the center. Inside this shape, there are three input fields labeled 'Username:', 'Email:', and 'Password:'. Below these fields are two buttons: a light blue 'submit' button and a red 'Login' button. The word 'Register' is written in bold black text above the input fields. In the bottom right corner, there is a small text that says 'Activate Windows Go to Settings to activate Windows.'

Figure 4.19: “Online Learning Interface” registration page

4.14.2 Login Page:

After the admin panel has been approved, a user can access to the user login page by supplying their email and password

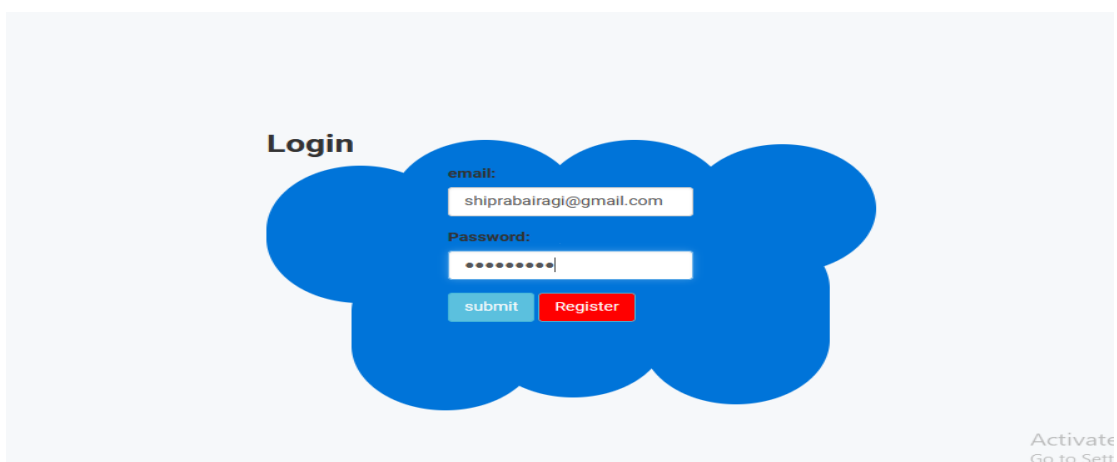
A screenshot of the 'Login' page from the 'Online Learning Interface'. The page features a light blue background with a large, stylized blue cloud-like shape in the center. Inside this shape, there are two input fields labeled 'email:' and 'Password:'. The 'email:' field contains the text 'shprabairagi@gmail.com'. Below these fields are two buttons: a light blue 'submit' button and a red 'Register' button. The word 'Login' is written in bold black text above the input fields. In the bottom right corner, there is a small text that says 'Activate Windows Go to Sett'.

Figure 4.20: “Online Learning Interface” login page

4.15 Admin Dashboard

Admin dashboard presents statistics of authorized users.

4.15.1 History Page

This section will generate and store of all information related with user's answers.

- Number of questions that have been answered.
- Questions which a Student answered.
- Questions from which subject.
- Questions from which chapter.
- Questions from which class .
- User's selected answer.
- Taken time of user to answer specific questions.
- The symbol for answered questions are right or wrong.

[Home](#)
[History](#)
[Result](#)
[Improvement](#)

Basic Example

It's just that simple. Turn your simple table into a sophisticated data table and offer your users a nice experience and great features without any effort.

Show entries

Answer No	Question	Class	Subject	Chapter	Answered	Wrong/Right	Take Time
1	What is your name?	Class One	English	1st chapter	Shipra	✗	00.01
2	What is your name?	Class One	English	1st chapter	Sumi	✗	00.03
3	What is your name?	Class One	English	1st chapter	Salman	✗	00.02
4	How old are you?	Class One	English	1st chapter	6	✓	00.04
5	What class do you read in ?	Class One	English	1st chapter	1	✓	00.03

Activate Windows
Go to Settings to activate Windows.

Figure 4.21: History page

4.15.2 Result Page

This page represents subject-wise result of users.

- How many question is answered by a user.
- How many answer is correct.
- How many answer is wrong.

- How many time is spent in this subject.

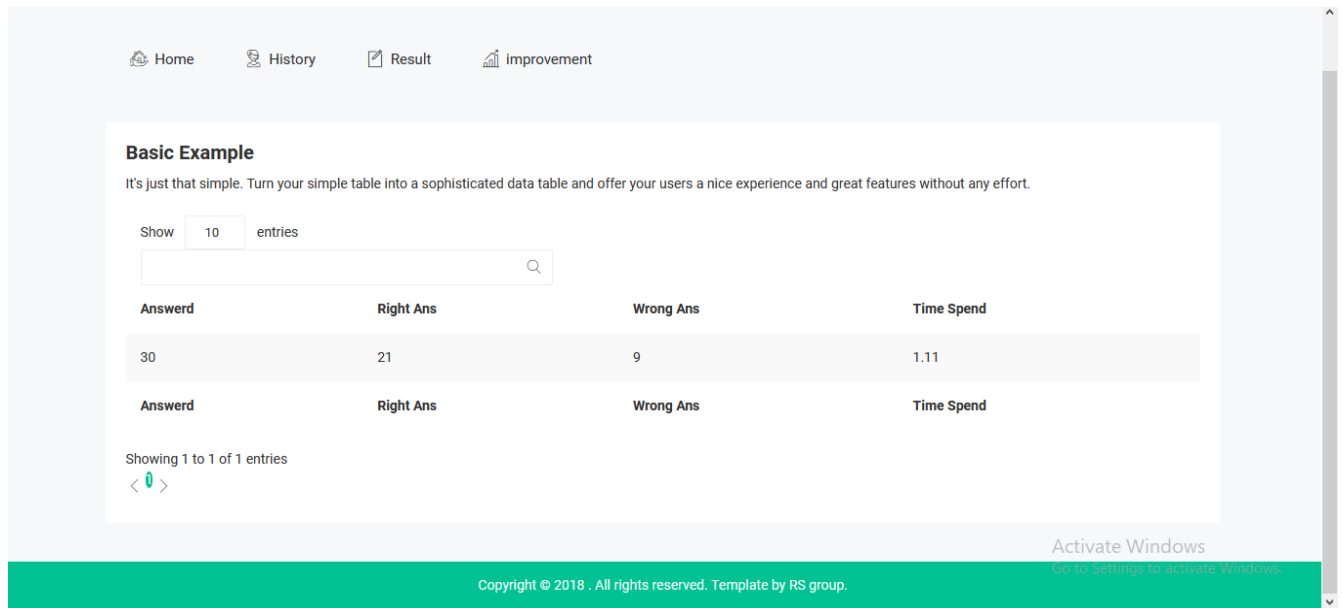


Figure 4.22: Subject-wise result

4.15.3 Improvement Assessment Page

This section is the representation of a user's improvement based on each chapter. It represents improvement via 3 categories.

- Percentage of user's improvement after 25 question answered.
- Percentage of user's improvement after 50 questions answered.
- Percentage of user's improvement after all questions Answered

[Logout](#)

[Home](#) [History](#) [Result](#) [Improvement](#)

Basic Example

It's just that simple. Turn your simple table into a sophisticated data table and offer your users a nice experience and great features without any effort.

Show entries

After 25 answerd	After 50 answerd	After All answerd
18	21	21

Subject No

Subject Name

Showing 1 to 1 of 1 entries

< 0 >

Activate Windows
Go to Settings to activate Windows.

Figure 4.23: Improvement Assessment

Chapter 5

Conclusion and Future work

5.1 Overview

A student is artistic, imaginative and self-dependent on the online learning interface. Our online education has a basic user interface such that users can handle the interface gently. This design shows the capabilities, limitation and efficiency of a device with or without more functionality. It's a learner support page. For poor students, it is a guideline. Our online learning interface is such that it removes the monotonous nature of conventional studies and promotes students.

5.2 Conclusion

Most students do not know what artistic learning really is in our world. Our **Online Learning Interface** online gives them a taste for creative online learning. Therefore our online learning interface is not arranged to help and direct learners by the academic curricula of the students of Bangladesh. We hope our websites will be of assistance to students. The UI has been attempted to be user-friendly, imaginative and artistic.

5.3 Some Limitations of our Interface

There are some limitations that we'll overcome in the future.

- This is an web base project so an Internet connection will be need to run it. Otherwise, the user will not be able to browse and access this application.
- We make this interface as the perspective of Bangla version students of Bangladesh not world wide.

5.4 Future work

In the future, we will add more details to our servers so that people can practice a lot. Our website is for Bangla students; we will even make it for our country's English medium students.

- We'll enrich our database so that students can get more scope to practice.
- We make this interface as the perspective of Bangla version students of Bangladesh. So, the whole system of this application represents Bangla. Next time we will make our website for the English version also.
- We'll try to make this application available for other device

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List of Acronyms

HTML	Hypertext Markup Language
XHTML	Extensible Hypertext Markup Language
CSS	Cascading Style Sheets
SQL	Structured Query Language
UI	User Interface
API	Application Programming Interface
DFD	Data Flow Diagram