

(RESEARCH ARTICLE)



ISKOOL-71: A personalized recommender web-based learning management system for learners and tutors

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Abstract

(COVID-19) The epidemic is the defining global health crisis of our time. The division that is still suffering lockdown in Bangladesh is education. Schools, colleges, universities, or even their private halls are the places where managing social distance is quite challenging. So, universal, classrooms are still locked down mostly. Alternatives are being proposed. Online activities are going on. We developed an online platform (ISKOOL-71). ISKOOL-71 is where motivated learners will come to learn the skills they need, to pursue the jobs they wish, to build things they want, and to lead the lives they deserve. Students will be offered the opportunity to do some close-to real-world projects curated by experts. These will help them gain future experience and portfolio. Our ISKOOL-71 is such a kind platform where students do their class online as well as offline. If any student misses the class for delay of electricity or internet later no problem at all, we design our system in such a way where students get the recorded class over there. ISKOOL-71 is the personalized digital education and learning center of the education system. This platform proposes to combine instructors and students adequately allowing instructors to follow the growth of individual learners and better facilitate their learning.

Keywords: Personalization; Recommender systems; Web mining; Online schooling; LMS

1. Introduction

ISKOOL-71 is a personalized learning platform, where learners do their class online as well as offline. If any student miss out the class for delay of electricity or internet later no problem at all, we design our system in such a way where students get the recorded class over there. ISKOOL-71 is the digital education and learning center of the education system. This platform proposes to combine instructors and learners adequately allowing instructors to follow the growth of individual learners and better facilitate their learning. Exams, tasks, discussions, and online workshops inspire interest and make learners engage in courses more. It comes with the most advanced personalized exam originator allowing instructors to set any kind of questions with the ability to set timed tests and follow the efforts of the students. With this, the instructors can manage the test quality and honesty of the test or examinations. The platform also is integrated with live class (e.g., Zoom, Google meet, Jitsi meet etc.) to take classes through online. With these many options, teachers can set questions to assess the students following Bloom's Taxonomy so that the teachers can easily identify what level of understanding they are at present and accordingly provide those further guidelines. All assessment results are accumulated automatically to a highly customizable grade book, which gives the teachers an overview of how each student is performing in the course. We will target the whole education institution and help them to continue their classes [1, 2, 3].

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1.1. Purpose

(COVID-19) The epidemic is the defining global health crisis of our time and the biggest challenge we have faced since World War II. The division that is still suffering lockdown in Bangladesh is education. Schools, colleges, universities, or even their private halls are the places where managing social distance is quite challenging. So, universal, classrooms are still locked down mostly. Alternatives are being proposed. Online activities are going on. We developing an online platform (ISKOOL-71). If any student misses the class for delay of electricity or internet then no problem at all, we design our system in such a way where students find the recorded class over there. ISKOOL-71 is the digital education and learning center of the education system. We will target the whole education organization and help them to continue their classes [4, 5].

1.1.1 Scope

The aim of this platform is to connect teachers and students, effectively allowing teachers to follow the progress of individual students and facilitate their learning. Exams, homework, discussions, and online workshops stimulate interest and push learners to take part in more courses.

1.1.2 Objectives

Our focus is personalization education through the contribution of high-quality learning possibilities that are available, adaptable, and affordable. Virtually anyone anywhere in Bangladesh with an internet connection and a purpose of self-learning can come to ISKOOL-71, study an array of skills, and start working to pursue his aspirations. The principal aims of the project are as follows:

- Personalized learning.
- Recommender system.
- Online schooling.
- An online-based ICT learning platform.
- Online advanced examinations systems.
- Live interaction (e.g., Zoom, Google meet, Jitsi meet, BigblueButton).
- File sharing and storing.

1.2. Tools Used

This project is an internet web development-based project. Used tools and technology are following bellows- HTML5, CSS3, JavaScript's, JQuery, PHP, MySQL Database and PHP Framework- Laravel 8.x.

1.3. Expected Outcome

ISKOOL-71 is where motivated learners will come to learn the skills they need, to pursue the jobs they wish, to build things they want, and to lead the lives they deserve. Students will be offered the opportunity to do some close-to real-world projects curated by experts. These will help them gain future experience and portfolio. The online courses will come not only from individuals but also from established organizations in various sectors - to provide the best quality education and recognition to the people of Bangladesh. Our goal is to grow exponentially and to engage and educate 1 million people by 2024.

Our mission is to even up education through the contribution of high-quality learning possibilities that are available, adaptable, and affordable. Virtually anyone anywhere in Bangladesh with an internet connection and a purpose of self-learning can come to ISKOOL-71, study an array of skills, and start working to pursue his aspirations.

1.4. Overview

There are 3 types of role in our project (ISKOOL-71) is following bellow-

- Learners
- Instructor
- Administration

The main possibilities available in this project are-

- Online e-learning platform.

- Online courses.
- Virtual classroom and live teaching.
- Live streaming integration (e.g., Zoom, Google meet, Jitsi meet, BigblueButton) for classes.
- Advance recommender quiz for courses.
- Online assignment.
- Live conferences.
- Free messenger.
- File Sharing & Storing.
- RTL support.
- Course certificate and download option.

In this project, learners get the chance to test the premium system education. They can complete any course from anywhere free of cost. They also can discuss any problem. The instructor can also share their educational skill with the students. Both learner and instructor can share their skills.

2. Background

2.1. Terminologies

Our platform is to even up education through the offering of high-quality learning opportunities that are accessible, flexible, and affordable. Virtually anyone anywhere in Bangladesh with an internet connection and a determination of self-learning can come to ISKOOL-71, master an array of skills, and start working to pursue his dreams.

2.2. Related Works

All over the world, there are so many websites on learning management systems, but they are not serving perfectly. In this case, we are here to concentrate on growing up the skills of our students in the best and friendly styles. Most of the institutions are using management systems, which is difficult and costly, and mostly focusing on academic purpose only, but we have well designed & facilitated academic management which providing the best education full free of cost to everyone. We have also focused on building up communication between students and instructors or users and instructors.

One of the advantages of our system is that any institute or any student can use ISKOOL-71 only through online registration. Some similar working sites are reviewed below:

2.2.1. Plural Sight

PluralSight works similar to Udemy but do not have a user-friendly interface. It may have good instructors but the offered courses are required for leaders or experts only and not for all students. The membership is also very costly and only for a month or a year but does not offer a lifetime membership.

2.2.2. Udemy

May Udemy has thousands of courses and instructors but with their system, anyone can apply to be an instructor. That means they may have so many instructors for all those courses but they have only a few quality instructors. However, all those poor courses prices remain the same as the other limited good courses. Moreover, Udemy does not offer official certificates.

2.2.3. Fedena

Fedena is an open-source school system programming site that usually deals with records. In diversity to the open forum with the specified rendition when it determines that, the open-source modification is insufficient in numerous highlights including stock, custom reporting, listing, and control.

2.3. Comparative Studies Analysis

From separate research, we have learned that innovations depend heavily on their acceptability. We tested several systems but initially focused on three representatives (table 1). The first one is the most popular representative of the commercial system - Udemy Learning LMS, the second one is PluralSight and the last one is Fedena. For their usability, we will present some feature-based comparative analysis on the default variables [4,6,7]. The study was conducted in e-learning Project e-learning frameworks.

Table 1 Comparison among Related Commercial Learning Systems

Features	ISKOOL-71	PluralSight	Udemy	Fedena
Data Migration	√	√	√	×
Customizable Reporting	√	×	√	√
Personalized Learning	√	√	√	√
Intuitive User Interface	√	×	√	×
Live Class	√	×	×	×
Multiplatform Accessibility	√	×	√	√
IP Blocking	√	×	×	×
Content management	√	√	√	√
Support for blended learning	√	×	×	×
Testing and assessment	√	√	√	×
Support Services	√	√	√	√

2.4. Scope of the Problem

We have handled many difficulties while working on the ISKOOL-71 LMS. Visit us and get conceptions on how the educative organizations of our country manage their administration or how they maintain their activities. Select which activities we will keep and which are more important. We have had many imperfections when we started developing the system, and we have had a lot of difficulty solving them.

2.5. Challenges

We have seen many (LMS) learning management systems that normally, conduct educational activities in the backyard but no work is done for ideas/communication builders between learners and tutors. Therefore, we took up the challenge of building ISKOOL-71. We had faced many problems when we working on this project. It was so challenging us to integrate live streaming (e.g., Zoom, Google meet, Jitsi meet, BigblueButton) integrations with our websites. We could not find any sources to integrate the live stream. Live streaming API sources were not available and we could not find anyone who can help us to integrate the live stream. Therefore, live streaming integrations were one of the challenging parts. We tried our best to overcome those issues.

3. Requirement specification

Software Requirements Specifications (SRS) is a classification of a package to be developed. It contains all the useful and non-functional specifications. It captures all the specifications and the system performance. SRS reduces the time and energy required by developers to attain the required goal and additionally reduces the event price. It encompasses all the conditions that decrease the event time, value, and additionally cut back the chance.

3.1. Requirement Collection and Analysis

Key requirements

3.1.1. Core Learning Tools and Course Management

- Registration & Enrollment
- Scheduling
- Inspection and exercise customization

3.1.2. Special Management and Development Tools

- Skill award and management
- Centralized social resources

3.1.3. Content Monotony and Maintenance

- Social learning
- Mobile learning
- Certificates

3.1.4. Technological Specifications

- Cloud-based or hosted solution
- Security
- Integration as well as different operations

3.1.5. Customer Support and Success

3.2. Resources Used to Develop and Improve the System

This project is an internet web mining development-based project. Used tools and technology is following bellows-

- HTML5- All page is designed by HTML layout.
- CSS3- All designing part cover by this.
- JavaScript generates JavaScript's-All validation responsibility and animation tasks.
- JQuery- Usually handles events, performs more active, many efficiencies, and adds Ajax support in web applications.
- PHP- All the logic is implemented in PHP.
- MySQL Database- SQL has been used as a database of the project
- PHP Framework- Laravel 8.x

Others Technology

- Google analytics and Facebook pixel support.
- Font awesome icon.
- Live Streaming.
- Google Drive video link support.
- RTL Supported.
- Payment Gateways –Stripe, PayPal, SSLCommerz.
- Bangladeshi Payment Gateways - SSLCommerz, bKash.
- Social Login.

3.3. Use Case Modeling and Description

Its easy-to-use diagram presents user interaction with the method that shows the connection between the user and the users connected in different uses. The image can be categorized for different types of users and for different uses of a method, and usually followed by other types of images. It was previously stated "images are the blueprints of your approach to use". The method applies a simplified and graphical description of what needs to be done. Due to their short nature, case diagrams can be a good conversation tool for stakeholders. The presentations try to mimic the real world and leave the partners to learn how the method is going to be designed. What was noticed was that the use case diagrams made the system plan more clearly to the stakeholders and they were "performed more efficiently than the class images". The purpose of the diagrams in use is simply to give a high-level view of the method and to pass on the terms of the general person to the stakeholders. Additional images and documentation can be used to give the system a fully functional and professional perspective.

3.4. Use Case Diagram for Learners

Figure 1 shows the use case for learners. A learner can do many things on this platform like- they can sign up, log in, view blog, enroll in course, view course, sign out, etc. Every learner can view our front design and visit the all courses. However, learners have to enroll first if they want to complete the courses also get access to all contents. Learners can enroll in any courses through the sign-up process. Then they automatically get access to every course. In addition, they can write a blog post to share their knowledge. After all, of the process, they can log out by clicking on the logout button.

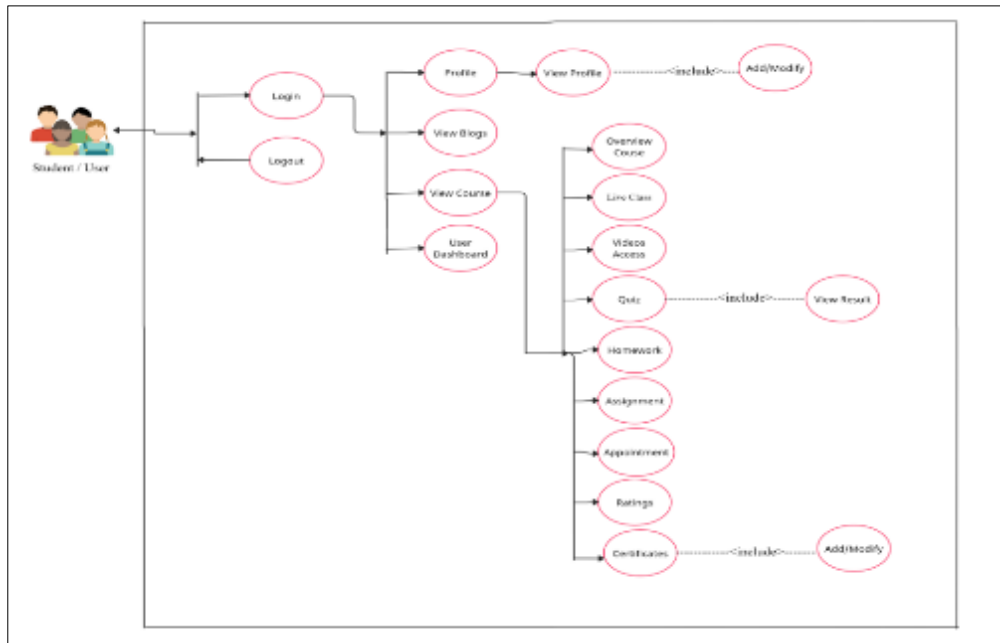


Figure 1 Use Case Diagram for the Learner

3.5. Use Case Diagram for Instructors

Figure 2 shows the use case diagram for instructors. An instructor can do many things on this platform like they can sign up, login, view blogs, write blogs, add the course, delete the course, modify the course, add live classes, delete live classes, modify live classes, take attendance, etc. Nevertheless, instructors have to login first. Before login, they should have an account on this web app and to create an account firstly, they have to complete the sign-up process secondly, they have to apply to become an instructor. Then admin will verify his account.

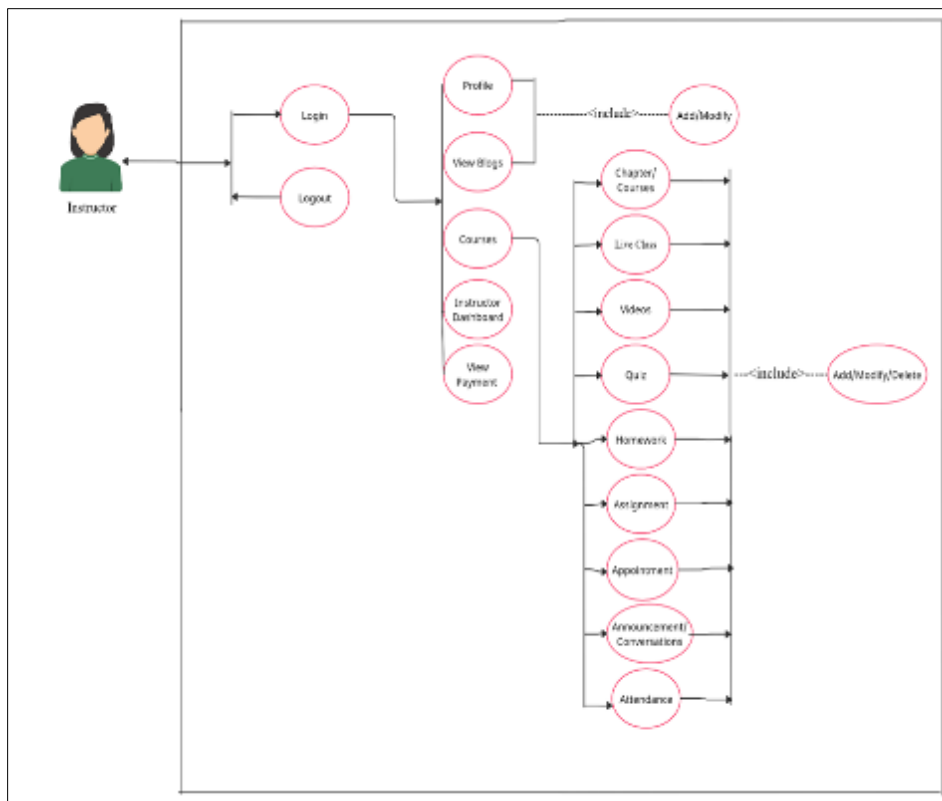


Figure 2 Use Case Diagram for the Instructor

3.6. Use Case Diagram for Admin

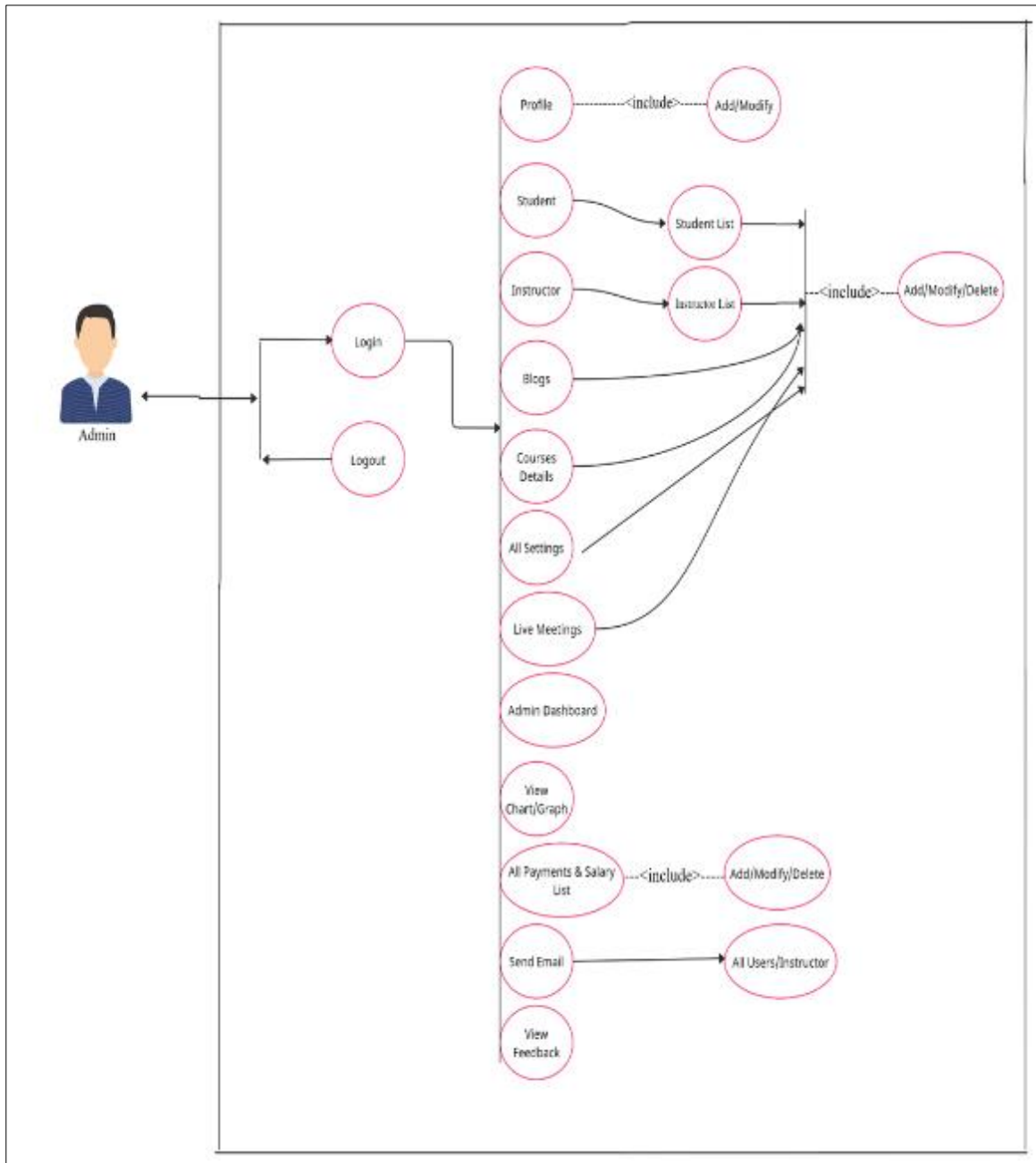


Figure 3 Use Case Diagram for the Admin

3.7. E-R Diagram

The ERD (Entity Relationship Diagram) is a graphical illustration of the database structure. In simple words, the entity-relationship diagram is a blueprint that can be used to create a database using a specific database management system RDBMS. We can compare this, with architectural drawings. An architect creates blueprints, before building a house. Similarly, database designers create different types of data models or database blueprints to visualize the database structure. At the database design stage, database designers prepare different data models to visualize the database structure. The E-R model is one of the data models called a conceptual data model used by the database designers to describe the database (figure 4)

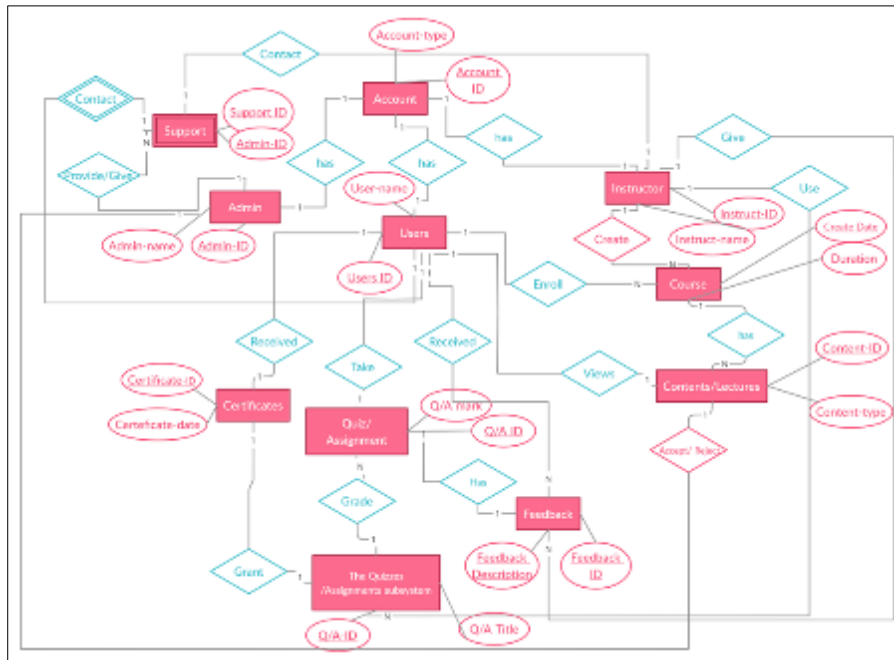


Figure 4 E-R Diagram

3.8. Data Flow Diagram (DFD)

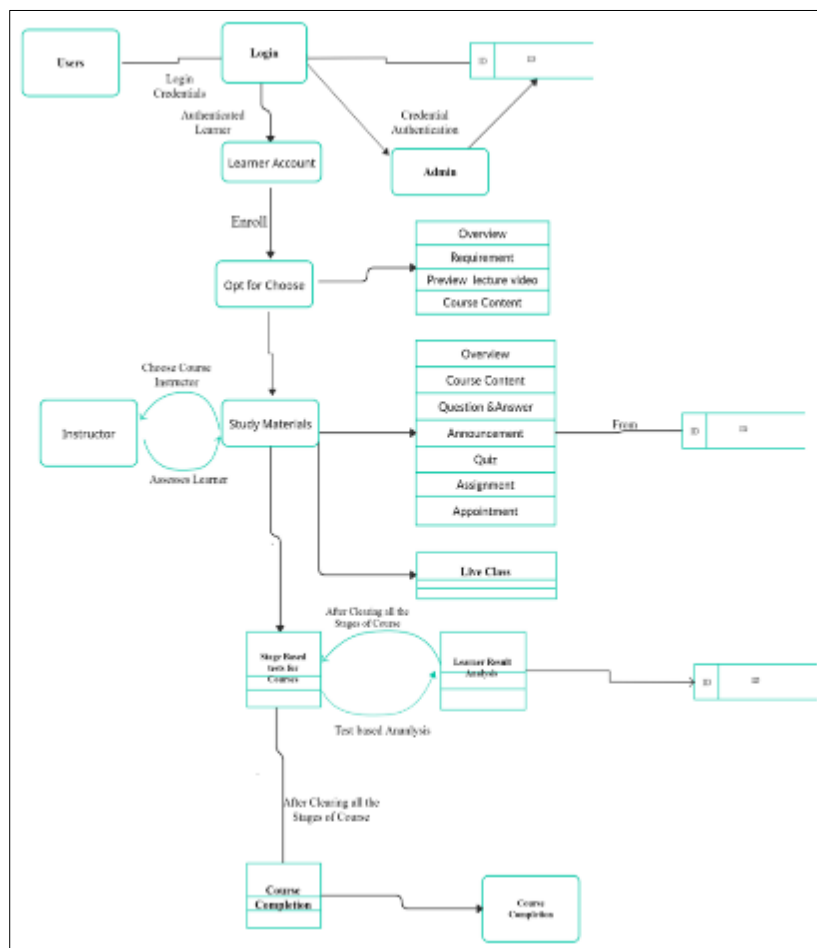


Figure 5 Data Flow Diagram (DFD)

4. Methodology of the proposed

4.1. Introduction

The (SLM) software lifecycle model is an approved model of what should be from the very beginning to the very end. The main purpose of the life cycle model is to define the sequence of different activities so that we know which activities should come first and which should be followed. A software life cycle model (also called a process model) is a graphic and diagrammatic depiction of the software life cycle. A lifecycle model presents all the activities required to enter a software product at its lifecycle stage. In other words, what the model will describe is what we should do next and how long we should continue to follow each model (figure 6).

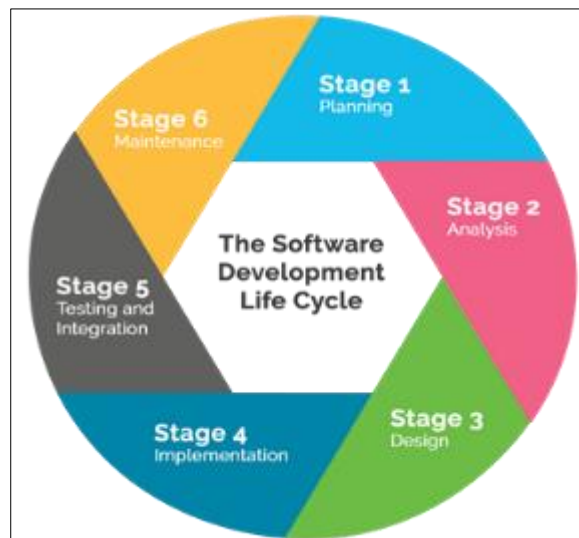


Figure 6 Software Development Life Cycle (SDLC)

4.2. Planning/Requirement Phase

The business analyst collects requirements from the client / client according to the client's business needs, documents the requirements of the Business Requirement Specification (BRS), and gives it to the development team.

Key requirement

- Core Learning Tools including Course Management
- Special Management and Development Tools
- Content Monotony and Maintenance
- Technological Specifications
- Customer Support and Success

4.3. Analysis Phase

Once the required collection is completed, the next step is to determine and document the output specifications and be approved by the customer. This is done through the Software Requirements Specification Document (SRS). The key people involved in this phase are the project director, business analyst and senior members of the team. The results of this episode (SRS) are software requirements specification.

4.4. Design Tools and Technology

High-Level Design (HLD) - This architecture develops the software product and is accomplished by architects and senior developers.

Low-Level Design (LLD) - veteran developers do it. It describes how each feature of the product should work and how each component should work. The results of this episode are high-level documents and low-level documents.

4.5. Implementation Phase

This is where we start creating software and writing code for the product. The results of this episode are source code documents and advanced products. The application of software design to code and form design is the most significant part of software. All sections of the software are implemented at this stage.

4.6. Testing and Integration Phase

If the software is intelligent, it's given to the test team. Once the QA has confirmed that the software is error-free, it moves on to the next stage, which is implementation. The results of this phase are qualitative and artistic testing.

4.7. Deployment and Maintenance Phase

The engineer does deployment/implementation. Once buyers start using the improved system, real problems will appear and need to address from time to time. Service level should be maintained in accordance with the agreement.

5. Design and database specification

5.1. Introduction

In this section, we will explain all front-end-design and back-end-design and implementation specifications. Build the whole thing we use two separate languages. We used- For front-end-design- HTML, CSS, JavaScript and library jQuery and for backend design-PHP, Laravel.

5.2. Home Page Design

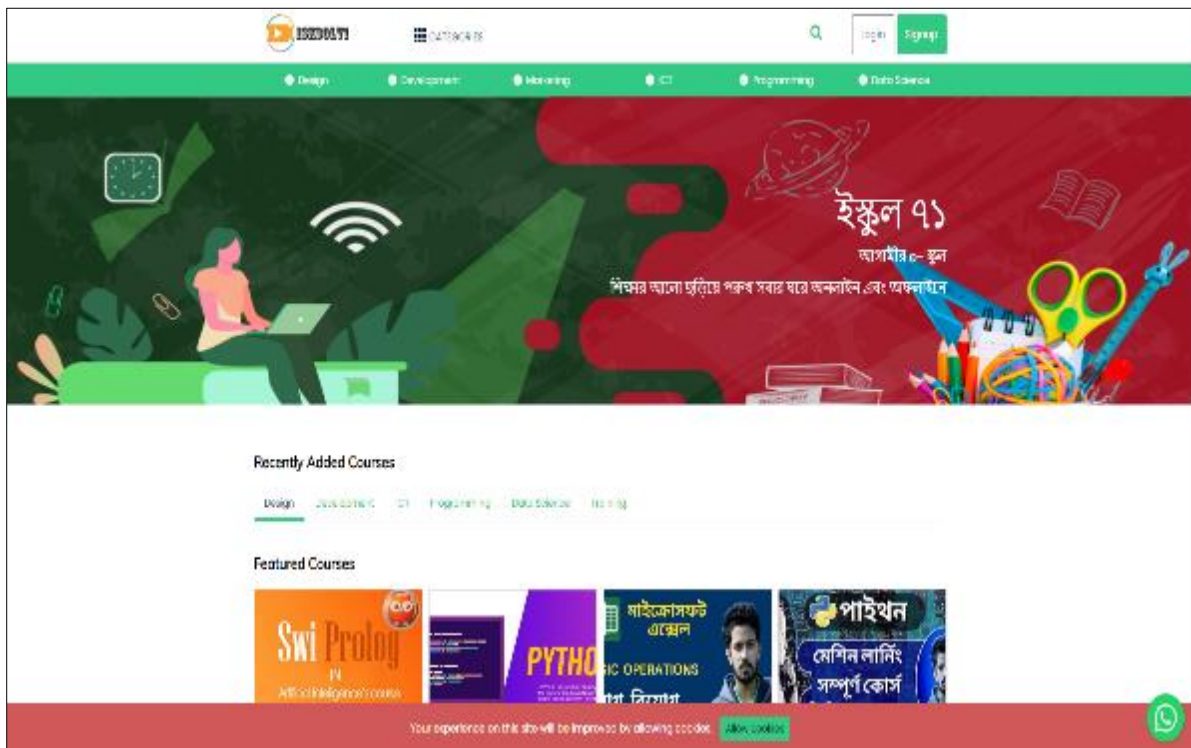


Figure 7(a) Home Page Design

5.3. Sign up Page Design

Sign Up and Start Learning!

[Continue with Facebook](#)

[Continue with Google](#)

First Name


Last Name

Email

Mobile

Password

Confirm Password


I'm not a robot 

[Signup](#)

By signing up, you agree to our [Terms & Condition](#), [Privacy Policy](#)

Figure 7(b) Signup Page Design

5.4. Login Page Design

[Back to home](#)  [Signup](#)

Log in to Your Account!

[Continue with Facebook](#)

[Continue with Google](#)

Enter Your E-Mail

Enter Your Password

Remember Me

[Login](#)

[Forgot Password](#)

By signing up, you agree to our [Terms & Condition](#), [Privacy Policy](#)

[Don't have an account? Signup](#)

Figure 7(c) Login Page Design

5.5. Database Configuration

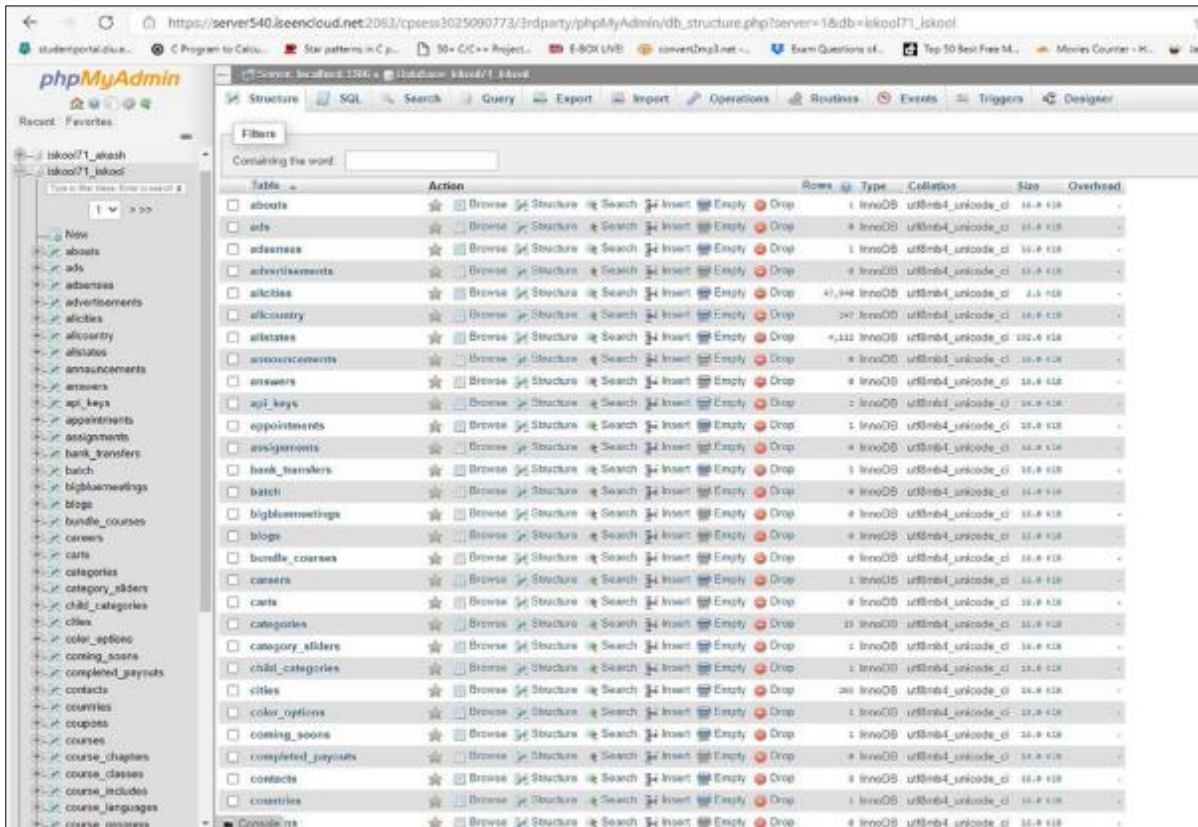


Figure 8(a) Access Database Tables

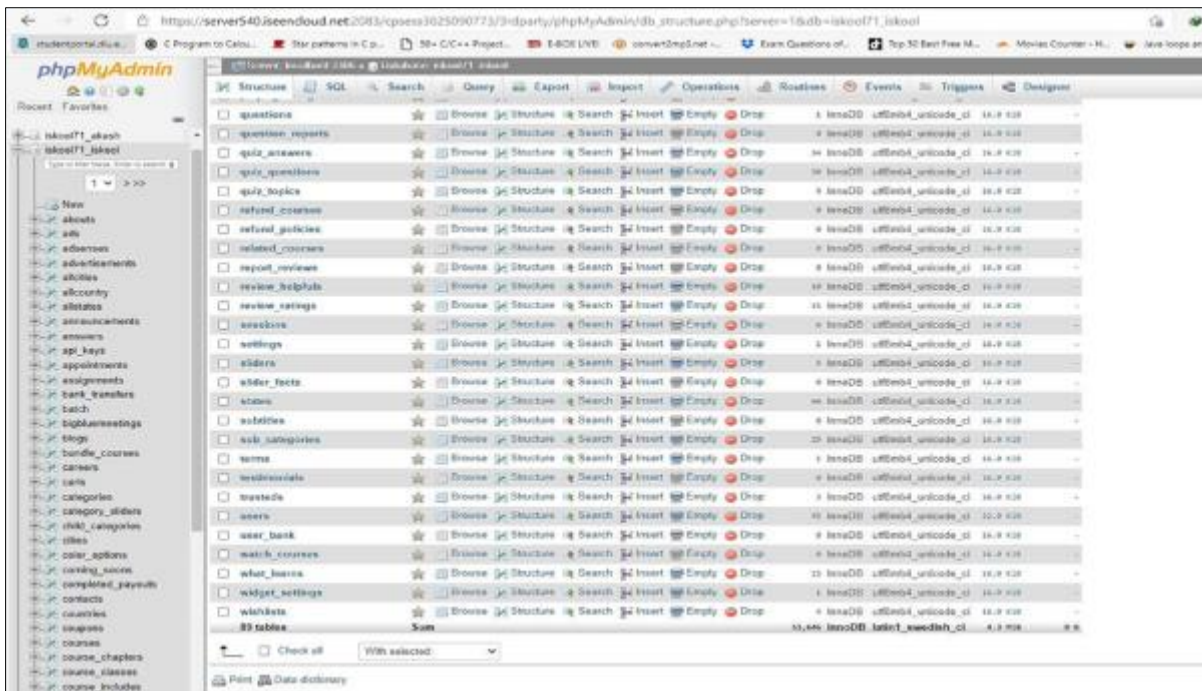


Figure 8(b) Access Database Tables

Showing rows 1 - 15 (15 total. Query took 0.8026 seconds)

Options	id	name	user_id	category_id	subcategory_id	chilcategory_id	language_id	title	short_desc	detail	requirements
[Edit] [Copy] [Delete]	2	5	5	5	17	1	(Bar "Laravel Framework", "Eng" "Laravel Framework"	(Bar "Laravel Admin Panel Help Manage Your Web St...	(Bar "ip style" "User styling border box, margin...	(Bar "PHP Extension"	
[Edit] [Copy] [Delete]	3	5	5	5	0	1	(Bar "Android Development"	(Bar "Learn Android App Development", "Bar "Learn...	(Bar "ip-Android software development to the pro...	(Bar "A 32-bit Computer"	
[Edit] [Copy] [Delete]	7	5	20	18	0	1	(Bar "Basic C Programming"	(Bar "Mother Language of Programming)"	(Bar "ip-Learn together clip-]"	(Bar "Lip"	
[Edit] [Copy] [Delete]	8	5	5	5	0	1	(Bar "Python Backend Development"	(Bar "python"	(Bar "ip-python-clip-]"	(Bar "lip"	
[Edit] [Copy] [Delete]	9	14	2	12	0	2	(Bar "Graphics Design]"	(Bar "ip-Graphic Design]"	(Bar "ip-Graphic Design]"	(Bar "Con"	
[Edit] [Copy] [Delete]	10	1	17	22	0	2	(Bar "C#PC GUI]"	(Bar "ip-Graphic Design]"	(Bar "ip-Graphic Design]"	(Bar "ip-Graphic Design]"	
[Edit] [Copy] [Delete]	12	34	20	14	0	2	(Bar "Web Logic Programming "Eng" "Introduction"	(Bar "ip-Introduction]"	(Bar "ip-Introduction]"	(Bar "ip-Introduction]"	
[Edit] [Copy] [Delete]	13	34	20	18	0	2	(Bar "C Programming]"	(Bar "ip-C Programming]"	(Bar "ip-C Programming]"	(Bar "ip-C Programming]"	
[Edit] [Copy] [Delete]	14	34	20	11	0	2	(Bar "Python "Eng" "Python for beginners]"	(Bar "ip-Python for beginners]"	(Bar "ip-Python for beginners]"	(Bar "ip-Python for beginners]"	
[Edit] [Copy] [Delete]	15	1	21	17	0	2	(Bar "Deep Learning with Keras and TensorFlow"	(Bar "ip-Deep Learning with Keras and TensorFlow"	(Bar "ip-Deep Learning with Keras and TensorFlow"	(Bar "ip-Deep Learning with Keras and TensorFlow"	
[Edit] [Copy] [Delete]	17	1	21	18	0	2	(Bar "Statistics & R Programming For Data Science"	(Bar "ip-Statistics & R Programming For Data Science"	(Bar "ip-Statistics & R Programming For Data Science"	(Bar "ip-Statistics & R Programming For Data Science"	
[Edit] [Copy] [Delete]	18	35	16	5	0	2	(Bar "General Practitioner (GP)"	(Bar "This is the first part of the General Practitioner"	(Bar "ip-Pharmacology is a branch of medicine an"	(Bar "ip-Pharmacology is a branch of medicine an"	
[Edit] [Copy] [Delete]	19	34	20	36	0	2	(Bar "R Programming "Eng" "Basics I]"	(Bar "ip-R Programming "Eng" "Basics I]"	(Bar "ip-R Programming "Eng" "Basics I]"	(Bar "ip-R Programming "Eng" "Basics I]"	
[Edit] [Copy] [Delete]	20	34	19	0	0	2	(Bar "Bank Operator in Call - Address, Sub"	(Bar "ip-Bank Operator in Call - Address, Sub"	(Bar "ip-Bank Operator in Call - Address, Sub"	(Bar "ip-Bank Operator in Call - Address, Sub"	
[Edit] [Copy] [Delete]	21	34	12	35	0	2	(Bar "Single Units (L1)N Basic "Eng" "Basic"	(Bar "ip-Single Units (L1)N Basic "Eng" "Basic"	(Bar "ip-Single Units (L1)N Basic "Eng" "Basic"	(Bar "ip-Single Units (L1)N Basic "Eng" "Basic"	
[Edit] [Copy] [Delete]	22	34	21	16	0	2	(Bar "Machine Learning With Python", "Eng" "Machine"	(Bar "ip-Machine Learning Tutorial (Basics) Machi"	(Bar "ip-Machine Learning Tutorial (Basics) Machi"	(Bar "ip-Machine Learning Tutorial (Basics) Machi"	

Figure 9(a) Course-based Table

Showing rows 0 - 5 (5 total. Query took 0.8014 seconds)

Options	id	name	name	job	email	mobile	gender	detail	file	image	file
[Edit] [Copy] [Delete]	1	5	Not Share	Elis	1988-05-28	notshare15453@du.edu.bd	01737154276	Female	I am a hard worker Akash bolle waji chaji bolle	15984623616e8a9d858947c78514527471.jpg	instructor
[Edit] [Copy] [Delete]	4	16	Aliya	Sultana	1997-04-10	aliya15453@du.edu.bd	01736949377	Female	This is Pina Software Student of Du,Bol Bolle Bolle	16004623616e8a9d858947c78514527471.jpg	instructor
[Edit] [Copy] [Delete]	7	7	Md.	Alam	1994-12-01	mdalambol15453@gmail.com	+0019616549657	Male	Sharing is who I am, and teaching is where I am at.	16011961708416e8a9d858947c78514527471.jpg	instructor
[Edit] [Copy] [Delete]	8	32	Ahmed	Saeed	0004-08-80	ahmed15453@du.edu.bd	01732401228		A Second Computer Science & Engineering graduate.	161158461692816e8a9d858947c78514527471.jpg	instructor
[Edit] [Copy] [Delete]	9	32	Rashed	Alam	0004-08-80	rashed15453@gmail.com	+0019616549657		Data Science Enthusiast Applying Data Science.	16117347234e8a9d858947c78514527471.jpg	instructor
[Edit] [Copy] [Delete]	10	35	S M	Muhammad	0004-08-80	sm15453@gmail.com	01648726325		Good Morning, Microsoft SQL server installed.	16119449110346781559.jpg	instructor

Figure 9(b) Course-based Table

The screenshot shows the phpMyAdmin interface for the 'allicities' table. The table contains 18 rows of data, each with columns for id, name, state_id, pincode, and updated_at. The data is as follows:

id	name	state_id	pincode	updated_at
1	Bombulbat	1	NULL	NULL
2	Geracharma	1	NULL	NULL
3	Port Blair	1	NULL	NULL
4	Rangol	1	NULL	NULL
5	Addanki	2	NULL	NULL
6	Advikaram	2	NULL	NULL
7	Adoni	2	NULL	NULL
8	Agantampudi	2	NULL	NULL
9	Ajaram	2	NULL	NULL
10	Akkadu	2	NULL	NULL
11	Akkarampalle	2	NULL	NULL
12	Akkayypalle	2	NULL	NULL
13	Akkudipalem	2	NULL	NULL
14	Alampar	2	NULL	NULL
15	Amalapuram	2	NULL	NULL
16	Amudalavalasa	2	NULL	NULL
17	Amur	2	NULL	NULL
18	Anakapalle	2	NULL	NULL

Figure 10 Article-based Table

The screenshot shows the phpMyAdmin interface for the 'assignments' table. The table structure is visible, but the result set is empty. The table structure is as follows:

id	user_id	instructor_id	course_id	chapter_id	title	detail	url	assignment_type	rating	created_at	updated_at
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Figure 11 Assignment-based Table

6. Conclusion

Nowadays it is very necessary to stay at home because of this COVID-19. So, that's why we cannot go out for education purposes or any other learning. So, if we still now depend on our analog base educational method. That would affected very badly in our educational life. So, that's why we need a virtual learning portal. I agree that already we have so many online platforms but I think that is not enough for personalized learning.

We need a higher quality full-personalized online learning platform. From this idea, we try to make this project. I believe that it will help our education sector so much. We also take part to develop the system because if in the future this project got some problems, we can update this project on learner's need.

Future Scope

Our future learning model and personalized support system will enable an unimaginable degree with our students and instructors. In addition, we will be with them at every stage of their learning graph: from the moment, the social media can answer a question on the Facebook page, to the moment the career-counseling team receives, the email any student has found a job or the knowledge they have acquired here started something new. Our priority is always to improve our students, and this flame will always inspire us to reach as many people as possible through the Internet for higher quality practical education.

Compliance with ethical standards

Acknowledgments

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Disclosure of conflict of interest

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References

- [1] Sun L, Tang Y, Zuo W. Coronavirus pushes education online. *Nature Materials*. 2020; 19(6): 687-687.
- [2] Paudel P. Online education: Benefits, challenges and strategies during and after COVID-19 in higher education. *International Journal on Studies in Education*. 2021; 3(2): 70-85.
- [3] Themelis C, Sime JA. From Video-Conferencing to Holoportation and Haptics: How Emerging Technologies Can Enhance Presence in Online Education? In *Emerging technologies and pedagogies in the curriculum*. 2020; 261-276. Springer, Singapore.
- [4] Chen T, Peng L, Yin X, Rong J, Yang J, Cong G. Analysis of user satisfaction with online education platforms in China during the COVID-19 pandemic. In *Healthcare* (Vol. 8, No. 3, p. 200). Multidisciplinary Digital Publishing Institute. September 2020.
- [5] Basilaia G, Kvavadze D. Transition to online education in schools during a SARS-CoV-2 coronavirus (COVID-19) pandemic in Georgia. *Pedagogical Research*. 2020; 5(4).
- [6] Themelis C, Sime JA. From Video-Conferencing to Holoportation and Haptics: How Emerging Technologies Can Enhance Presence in Online Education? In *Emerging technologies and pedagogies in the curriculum*. 2020; 261-276. Springer, Singapore.
- [7] Chirikov I, Semenova T, Maloshonok N, Bettinger E, Kizilcec R.F. Online education platforms scale college STEM instruction with equivalent learning outcomes at lower cost. *Science Advances*. 2020; 6(15): eaay5324.