Institut Teknologi Del

PRA-SIDANG final project-2
Team'15

Development of a Learning Management System (LMS) Application for Independent Study Students at Infinite Learning Based on a Website.

Dibuat Oleh Kelompok 15:

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Background

- Independent Study Issues at Infinite Learning
- Research Objectives
- Scope of Research
- Approach (Research Methodology)

Independent Study Issues at Infinite Learning

- Mentors have difficulty in providing information and access to materials to mentees.
- Confusion regarding the zoom link (meeting) to be used by mentors and mentees
- Difficulties experienced by mentees in ascertaining whether the assignment has been collected or not and no reminders regarding the assignment.

Research Objectives

- Design and implement website-based LMS applications that are easy to use, efficient and in accordance with user needs.

Scope of Research

- The application that is the object of study is a website-based online learning application that is used for independent study at Infinite Learning.
- The data used and processed is data on the number of independent study student participants, the material to be studied as well as data related to online learning, obstacles to Independent Study at Infinite Learning.
- The implementation stages use the Agile Software Development Life Cycle (SDLC) approach and usability testing using the System Usability Scale (SUS).

Approach (Research Methodology)

01 Agile Software Development Life Cycle (SDLC)

02 Evaluation Design : System Usability Scale (SUS)

03 Testing : Black Box Testing /UAT (User Acceptance Testing)

Agile Software Development Life Cycle (SDLC)

- Agile is a software development method that focuses on customer participation, rapid feedback, and delivery of usable software in a short time. It also encourages teamwork and adaptability in the face of changing requirements. Agile model stages: Planning, Analysis, Design, Implementation, Testing, Evaluation and Release.

Evaluation Design : System Usability Scale (SUS)

- System Usability Scale (SUS) is a testing tool developed by John Brooke to measure subjective usability in a computer system.

- The process of using SUS involves filling out a questionnaire by active users of the website-based application, followed by calculating the average score of all respondents. The SUS score results can classify the system's acceptance level into the categories "Acceptable", "Between Acceptable and Not Acceptable", and "Unacceptable". An SUS score above 68 is considered acceptable.

Testing : Black Box Testing /UAT (User Acceptance Testing)

- Black-Box testing is a testing method that focuses on the functional specifications of software by establishing a series of input conditions to test the program based on its functional specifications.

- User Acceptance Testing (UAT) is a process where end users directly interact with the system to ensure features meet their needs. This is the final stage in system testing after the development process is complete.

Analysis and Design

01 Problem Analysis on Independent Study

02 User Requirement Analysis

03 Analysis of Similar Online Learning

05 Current System

06 Target System

07 Use Case Diagram

Problem Analysis on Independent

- Mentors have difficulty providing information and access to materials to students (mentees) because:
  - There is no integrated application to provide information and materials.
  - Lack of technology skills of teachers.
  - Limited time to provide information and materials.

- No Reminders or Task Confirmations:
  - Difficulty ascertaining whether assignments have been submitted or not due to lack of reminders or remainders related to assignments.

- Difficulty in Accessing Materials:
  - Material is not stored in an easily accessible place.
  - The structure of the material is unclear or does not have features that make it easier for students to access.

User Requirement Analysis

In the development of a web-based Learning Management System, interviews have been conducted with mentors and mentees at Infinite Learning to find out user needs. This interview was conducted together with the mentors and mentees at Infinite Learning. After conducting interviews, the information obtained is used to classify user needs and formulate them in the form of user personas.

Current System

- During the Independent Campus program, there were ineffective online learning sessions where mentors struggled to provide information and material access to mentees.

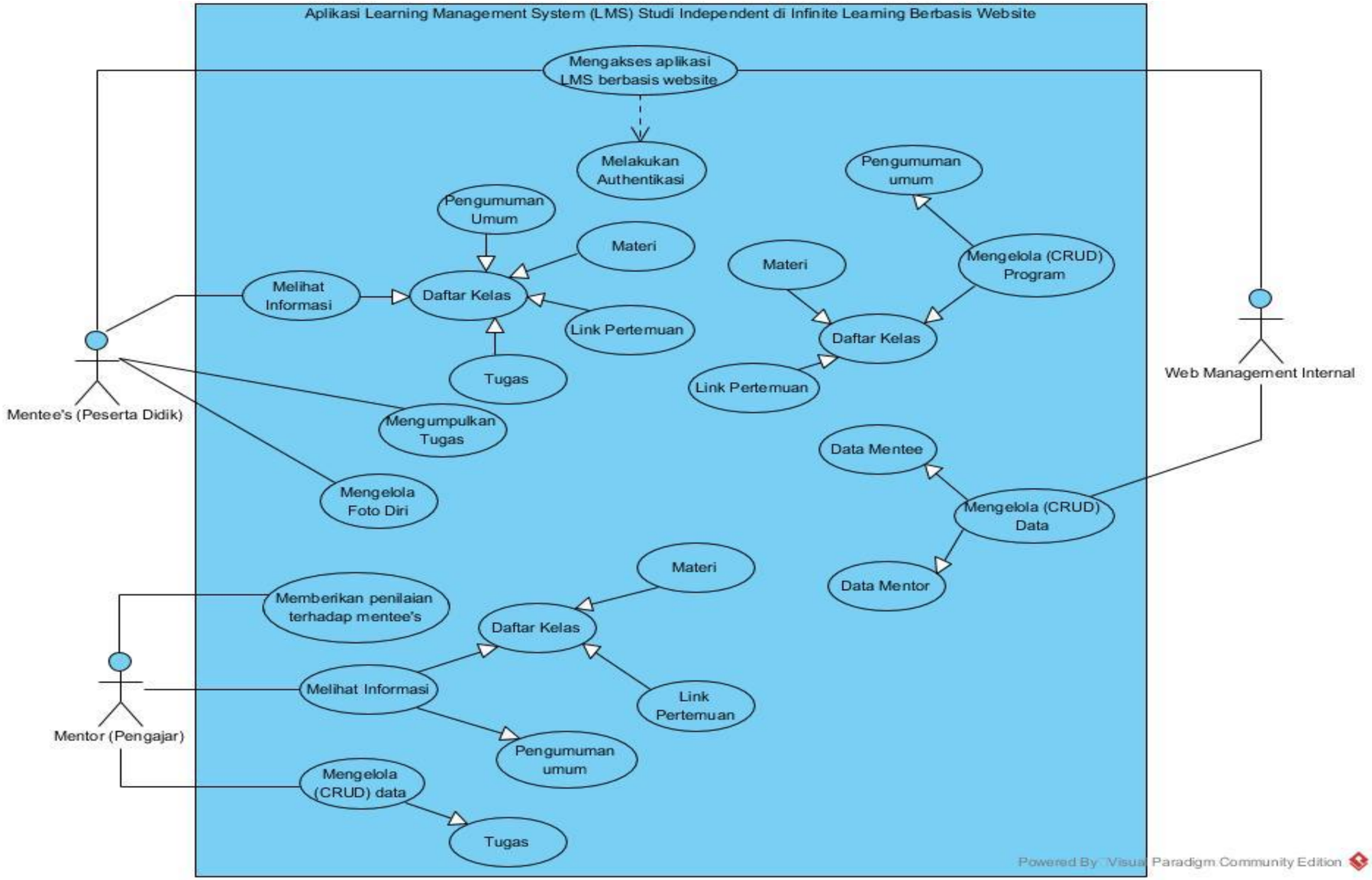
  Due to several reasons:

  1. Instructors don't have an integrated application to provide information and material access.
  2. Instructors lack skills in using technology, or they don't have enough time to provide information and material access.
  3. Mentees face difficulties in contacting instructors.
  4. Instructors don't have active phone numbers, active social media accounts, or sufficient time to respond to mentees' messages.
  5. Mentees struggle to ensure whether assignments have been submitted or not and lack reminders regarding given tasks.
  6. Confusion regarding Zoom meeting links, such as instructors not sending Zoom links on time, not sending them clearly, or lacking a system to manage Zoom links.

Target System

The target system to be developed is a website-based LMS application for independent study at Infinite Learning. The purpose of creating this application is to make it easier for mentees to access information, such as materials, meeting links, tasks sent by mentors, knowing task deadlines, and being able to view announcements on the website. Additionally, it aims to facilitate instructors (mentors) in accessing information and managing tasks and announcements to be shared by mentees.

User Case Diagram



IMPLEMENTATION

Implementation Constrains

1. The LMS application is a web-based application.

2. The web-based LMS application is mandatory for mentors who authenticate, manage tasks, and provide assessments for mentees.

3. The web-based LMS application is mandatory for mentees who authenticate, submit tasks, download materials and tasks, provide and view information available in the application.

4. The web-based LMS application is used by Internal Web Management (IWM) who will authenticate, manage (CRUD) announcements to be shared with mentees and mentors, manage (CRUD) materials, create accounts for mentees who have passed the registration selection, create mentor accounts according to the roles they oversee, and create meeting links to be used by mentors and mentees.

Design High Fidelity

Berikut Link Prototype Design:

- Role Web Management Internal (Admin)

- Role Mentor Infinite Learning

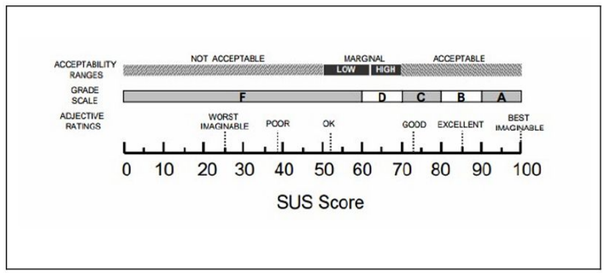
- Role Mentee Infinite Learning

Design Testing Results

No	List Pertanyaan	Presentasi hasil jawaban				
		STS	TS	N	S	SS
1.	Saya pikir saya ingin menggunakan sistem ini.	0%	0%	0%	57%	47%
2.	Menurut saya, sistem ini tidak terlalu rumit	0%	0%	3%	67%	30%
3.	Saya pikir sistem ini mudah digunakan	0%	0%	0%	60%	40%
4.	Saya rasa saya memerlukan dukungan dari orang teknis untuk dapat menggunakan sistem ini.	23%	60%	17%	0%	0%
5.	Saya menemukan berbagai fungsi dalam sistem ini terintegrasi dengan baik.	0%	3%	3%	80%	13%
6.	Saya pikir ada terlalu banyak ketidakkonsistenan dalam sistem ini	17%	50%	33%	0%	0%
7.	Saya membayangkan bahwa kebanyakan orang akan belajar menggunakan sistem ini dengan sangat cepat.	0%	0%	13%	60%	27%
8.	Saya merasa sistem ini sangat rumit untuk digunakan	27%	60%	13%	0%	0%
9.	Saya merasa sangat percaya diri menggunakan sistem ini.	0%	0%	7%	70%	23%
10.	Saya perlu belajar banyak hal sebelum saya bisa menggunakan sistem ini	13%	50%	30%	7%	0%

The data was obtained through questionnaire responses from 30 respondents, each consisting of roles namely Internal Web Management, Mentor, and Mentee.

Responden	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	JUMLAH	NILAI	Total
R1	4	4	4	2	4	2	4	2	5	2	33	27	67.5
R2	4	4	5	3	4	2	4	2	4	2	34	26	65
R3	5	5	5	1	5	1	4	3	4	2	35	29	72.5
R4	4	4	4	2	3	2	3	2	4	2	30	24	60
R5	4	4	4	2	4	3	4	2	4	2	33	25	62.5
R6	5	4	5	3	4	1	5	1	5	3	36	32	80
R7	4	4	5	2	4	3	4	2	4	3	35	27	67.5
R8	4	4	4	1	4	2	4	3	3	3	32	26	65
R9	4	4	4	2	2	2	3	3	4	3	31	23	57.5
R10	5	5	5	1	4	3	4	1	5	2	35	29	72.5
R11	5	4	5	3	4	3	4	2	4	2	36	26	65
R12	5	4	4	3	4	2	4	2	4	2	34	26	65
R13	4	5	5	1	4	2	5	1	5	1	33	29	72.5
R14	4	3	4	2	4	3	4	3	3	3	33	25	62.5
R15	4	4	5	1	4	2	4	1	4	2	31	29	72.5
R16	4	5	4	2	4	3	3	2	4	3	34	24	60
R17	5	5	4	2	5	2	5	2	5	4	39	31	77.5
R18	4	4	4	3	4	2	4	2	4	2	33	25	62.5
R19	4	4	4	2	4	2	5	2	4	3	34	28	70
R20	5	4	5	2	4	2	5	1	4	1	33	29	72.5
R21	4	4	4	1	4	2	4	2	4	3	32	28	70
R22	5	5	5	2	5	1	5	1	5	1	35	31	77.5
R23	4	4	4	2	4	3	4	2	4	3	34	26	65
R24	5	4	4	2	4	3	4	2	4	2	34	26	65
R25	5	4	4	2	4	3	4	2	4	2	34	26	65
R26	5	5	4	2	5	2	5	1	5	4	38	32	80
R27	4	4	4	2	4	2	4	2	4	2	32	26	65
R28	5	4	5	2	4	3	4	2	4	2	35	27	67.5
R29	5	5	5	1	4	1	5	2	4	1	33	29	72.5
R30	4	5	4	2	4	1	3	1	4	2	30	26	65
Total													68.0833



Based on the survey conducted through questionnaires, the score obtained is 68.0833. Referring to the usability criteria of the system, this condition is considered "Acceptable" because the acceptance score is at 68. From the results obtained, it can be said that user satisfaction with the usability of the system design is acceptable.

IMPLEMENTATION RESULTS

DEMO

Application Testing Results

Tabel Spesifikasi Pengujian Aplikasi

No	No Butir Pengujian	Butir Pengujian
1	TB-01	Pengujian masuk kedalam aplikasi
2	TB-02	Pengujian Tambah Pengumuman secara Umum
3	TB-03	Pengujian Ubah Pengumuman secara umum
4	TB-04	Pengujian Hapus Pengumuman secara umum
5	TB-05	Pengujian Tambah Course (Daftar Kelas)
6	TB-06	Pengujian Ubah Course (Daftar Kelas)
7	TB-07	Pengujian Hapus Course (Daftar Kelas)
8	TB-08	Pengujian Tambah Materi
9	TB-09	Pengujian Ubah Materi
10	TB-10	Pengujian Hapus Materi
11	TB-11	Pengujian Tambah Data Mentor
12	TB-12	Pengujian Ubah Data Mentor
13	TB-13	Pengujian Hapus Data Mentor
14	TB-14	Pengujian Tambah Data Mentee
15	TB-15	Pengujian Ubah Data Mentee
16	TB-16	Pengujian Hapus Data Mentee
17	TB-17	Pengujian Tambah Link Pertemuan(Meeting)
18	TB-18	Pengujian Ubah Link Pertemuan (Meeting)
19	TB-19	Pengujian Hapus Link Pertemuan (Meeting)
20	TB-20	Pengujian Logout Web Management Internal (WMI)
21	TB-21	Pengujian Tambah Tugas
22	TB-22	Pengujian Ubah Tugas
23	TB-23	Pengujian Hapus Tugas
24	TB-24	Pengujian Memberikan Penilaian terhadap Mentee's
25	TB-25	Pengujian Logout Mentor
26	TB-26	Pengujian Melihat Informasi
27	TB-27	Pengujian Mengumpulkan Tugas
28	TB-28	Pengujian Mengunduh Materi serta Tugas
29	TB-29	Pengujian Mengubah Foto Diri (Mentee's)
30	TB-30	Pengujian Logout Mentee

This testing is conducted based on documented functional specifications as listed in the Table, and the testing we have conducted has been "accepted".

Tabel Hasil Pengujian Aplikasi

No	No Butir Pengujian	Hasil Pengujian Tim Developer
1	TB-01	Diterima
2	TB-02	Diterima
3	TB-03	Diterima
4	TB-04	Diterima
5	TB-05	Diterima
6	TB-06	Diterima
7	TB-07	Diterima
8	TB-08	Diterima
9	TB-09	Diterima
10	TB-10	Diterima
11	TB-11	Diterima
12	TB-12	Diterima
13	TB-13	Diterima
14	TB-14	Diterima
15	TB-15	Diterima
16	TB-16	Diterima
17	TB-17	Diterima
18	TB-18	Diterima
19	TB-19	Diterima
20	TB-20	Diterima
21	TB-21	Diterima
22	TB-22	Diterima
23	TB-23	Diterima
24	TB-24	Diterima
25	TB-25	Diterima
26	TB-26	Diterima
27	TB-27	Diterima
28	TB-28	Diterima
29	TB-29	Diterima
30	TB-30	Diterima

Conclution

THANK YOU