1. Introduction
   1. Purpose.

This document is a software requirement specification (SRS) for the addition of the ICampus lecture video bookmark and note system. This system is designed and implemented by Sungkyunkwan University's software engineering introduction team4, and through this document, the system is designed and implemented by analyzing and classifying requirements.

This document records requirements for features and development methods for bookmarks, notes that are included in ICampus' lecture system to assist the lecture. Since this feature is a sub-system of the ICampus lecture system, the development language, data transfer, storage format, and so on refer to the canvas open source in github. The main readers of the document may be students, TA, and professors of the software engineering introductory lecture, as well as others involved in using the feature in ICampus.

* 1. Scope

This system can be used for learners to set branches and enhance understanding of lectures, and for instructors to set the flow of lectures and to easily share additional explanations or references. The utilization of the system can give learners benefits such as increased learning efficiency and increased understanding of lectures, and it can easily elicit learners' interest in the lecture by quickly delivering examples or applied technologies to instructors.

* 1. Definitions, Acronyms, and Abbreviation

[Table 1] Table of acronyms and abbreviations

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| --- | --- |
| Acronyms&  Abbreviations | Explanation |
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[Table 2] Table of terms and definitions

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| --- | --- |
| Terms | Definitions |
| User | Who uses this system through ICampus. User types are divided into learners and instructors. |
| Instructor | Users who can modify lecture materials such as uploading/deleting lecture contents of ICampus. Professors and TAs of the course are applicable. |
| Learner | Users who are only allowed to access lecture materials in the lecture contents of ICampus. Includes students, auditor, etc. of the class. |
| Bookmark | A device for marking branches or writing notes in lecture video materials. User can optionally write a note. |
| Bookmark flag | If a bookmark is created, mark the location of that bookmark with a small flag in the progress bar of the lecture. Distinguish color between Instructor bookmark and learner bookmark. |
| Bookmark table | After bookmarks are created, bookmark table are created under the lecture video. You can expand and fold tables and modify and delete bookmarks, notes, and notes while the table is expanded. |

* 1. References

IEEE Std 830-1998: IEEE Recommended Practice for Software Requirement Specification.

<https://ieeexplore.ieee.org/document/720574>

SRS\_TEAM1: Introduce to Software Engineering, 2020 spring, team1.

https://github.com/skkuse/2020spring\_41class\_team1/tree/master/docs

* 1. Overview

This software requirement document consists of Introduction, Overall Description, Specific Requirement, and Supporting Information. Overall description defines the interaction of systems and related systems, and defines the perspective of system functions and users. In the following chapter, specific requirements specify specific interfaces and functional and non-functional requirements at actual use, and the evolution of future systems. The last chapter, Supporting Information, also contains information referenced in preparing this requirement specification and a table of document progress. The project was carried out with equal contribution from all team members. I hope you enjoy this document.

1. Overall Description
   1. Product Perspective

서비스에 대한 설명 (어떤 사람들을 위해 제공되었는지, 어떤 데이터 베이스 사용, 어떤 것을 제공하는지에 대한 )

* + 1. System Interfaces

시스템에 대한 간략한 설명(어떤 언어를 사용하는지, 각 데이터들이 어떤식으로 이동하는지)

어떤 언어들 : canvas-lms (ruby, js)

데이터베이스 : postgres

Communication : aws 호스팅 json 기반의 http protocol

* + 1. User Interfaces

사용자들이 어떻게 행동하고 어떤 결과가 나오는지, 관리자는 어떤 것들을 하는지

사용자는 동영상의 원하는 부분에서 북마크 만들기 버튼을 클릭해 북마크를 만들 수 있다. 거기에 필기도 작성을 할 수 있다. (pc 버전이랑 스마트폰 버전을 구분해서 작성)

수정, 변경, 삭제,

학생// 교수님 과의 차이점을 적어야겟죠? 교수님은 만들어서 공유 가능 하다는 점 추가

관리자 : 데이터베이스 생성 및 인터페이스 관리, 데이터베이스 정리

* + 1. Hardware Interfaces

프로그램을 돌리기 위한 최소한의 하드웨어 조건

* + 1. Software Interfaces

프로그램을 돌리기 위한 최소한의 소프트웨어 조건

4GB 이상의 서버를 사용해야 한다.

안드로이드 버전 5.0 이상

Internet explorer 에서는 제한사항이 생긴다

* + 1. Communications Interfaces

사용자 장치와 서버 사이의 통신

json 기반의 http protocol

* + 1. Memory Constraints

프로그램을 돌리기 위한 최소한의 메모리 조건

27MB 이상 용량 필요

* + 1. Operations
       1. System administrator

관리자는 어떤 일들이 가능한지

데이터 베이스 관리 (생성 값 지정)

인터페이스 수정

기간을 두고 데이터 베이스 내용 정리

* + - 1. User

사용자는 어떤 일들이 가능한지

교수자

* Make bookmark 북마크 만들기
* Jump to bookmark 해당 북마트 시간으로 이동해서 영상 재생
* Edit bookmark 북마크 수정 & 노트 작성 및 삭제
* Delete bookmark 북마크 삭제
* Bookmark tab 북마크 보기 & 플래그 보기
* Bookmark hide 북마크 숨기기 & 플래그 숨기기
* Share bookmark 북마크 공유

학습자

* Make bookmark 북마크 만들기
* Jump to bookmark 해당 북마트 시간으로 이동해서 영상 재생
* Edit bookmark 북마크 수정 & 노트 작성 및 삭제
* Delete bookmark 북마크 삭제
* Bookmark tab 북마크 보기 & 플래그 보기
* Bookmark hide 북마크 닫기 & 플래그 숨기기
* Professor bookmark tab 교수님 북마크 보기 & 플래그 보기
* Professor bookmark hide 교수님 북마크 숨기기 & 플래그 숨기기
  1. Product Functions
     1. ~~~ 만들어야 하는 기능
* Make bookmark 북마크 만들기
* Jump to bookmark 해당 북마트 시간으로 이동해서 영상 재생
* Edit bookmark 북마크 수정 & 노트 작성 및 삭제
* Delete bookmark 북마크 삭제
* Share bookmark 북마크 공유
* Bookmark tab 북마크 보기 & 플래그 보기
* Bookmark hide 북마크 숨기기 & 플래그 숨기기
* Professor bookmark tab 교수님 북마크 보기 & 플래그 보기
* Professor bookmark hide 교수님 북마크 숨기기 & 플래그 숨기기
* Clean bookmark북마크 정리
  1. User Characteristics
     1. System Administrator

The system administrator must be a person with sufficient knowledge of the ICampus system and database. System administrators must have majored in computer science or have sufficient training to handle networks and databases. It is also assumed that the system administrator has an ability to handle and resolve bookmark data problems when they occur. In addition, system administrators must have a basic software engineering ethic to prevent such data from being taken out or used for private purposes.

* + 1. User

The User referred to in this document is all person who use ICampus system, which is divided into instructor and learner. It is assumed that they all understand how to use existing ICampus and that they can learn these features quickly by receiving a brief user manual after feature updates.

* + - 1. Instructor

Instructor refers to a person who has permission to upload, modify, or delete materials in most of the subject article in ICampus, such as announcements and lecture content. This corresponds to the professor and TA of the subject.

* + - 1. Learner

Learner does not have permission to upload materials to most of the subjects in ICampus and can view materials uploaded by Instructor. This includes students, auditor.

* 1. Constraints

The system is designed and implemented based on this document. Basically, the following matters shall be followed, and other matters shall be governed by the developer in a way that does not deviate from the ethics of software engineering:

- When bookmarks are created or deleted, they shall be applied within 3 seconds.

- Reduce page load speed difference from existing to less than 1 second after bookmark function is added.

- It provides enough space to store bookmark data for all learners for at least one year.

- Made by considering system development costs, maintenance costs, and scalability.

- Optimize source code to reduce system efficiency and operating time.

- Specify the modifications accurately so that they do not violate the Canvas-lms license.

- Make all versions supported by canvas-lms compatible.

- All developments are open source based and should be made available on all devices that are not subject to operating system restrictions in Canvas-lms.

* 1. Assumptions and Dependencies

All systems in this document are designed and implemented as internal features of the canvas-lms system. Therefore, the system's constraints are the same as those of canvas-lms and its mobile application Learning-X. For PC versions, it is assumed to be available on search engines such as safari (MacOS 11.0 or later), chrome, and firefox, and other versions may cause login or video viewing problems. For mobile devices, it is assumed to be available in specifications that meet the Learning X application operating basics of iPhone iOS 13.0 or later, iPad OS 13.0 or later, and Android version 5.0 or later, and other versions may cause application usage problems.