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## DEVELOPMENT OF A MOODLE VIDEO PLAYER PLUG-IN FOR USER INTERACTION ANALYSIS

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Moodle has a variety of plugins that provide various functionalities and extend the platform. This allows teachers and administrators to tailor the learning environment to the needs of their users. Therefore, Moodle plugins, especially video plugins, are very important because they allow them to collect user engagement metrics with videos. This data helps teachers analyze how students interact with the learning content, including how much time they spend watching, which parts of the video they watch, and when they pause or skip. The collected metrics can be used to adapt the learning process, helping teachers improve the content according to the needs of their students. For example, if certain parts of the video are frequently skipped, this may indicate the need for additional explanation. Teachers can also create detailed performance reports using analytics to help identify problem areas [1].

A video player plugin was developed to analyze user interaction with videos. The following programming languages were used to develop the Moodle plugin: PHP and JavaScript. Server logic was written in PHP, and JavaScript was used for asynchronous data exchange with the server [2]. Fig. 1 shows the process of installing the plugin into the Moodle learning environment of the Kyiv National University of Technology and Design.

### Plugins requiring attention

Cancel new installations (1) [Plugins requiring attention](#) 1 [All plugins](#) 442


Plugin name / Directory	Current version	New version	Requires	Source / Status
<b>Activity modules</b>				
 UVPlayer /mod/uvplayer		2024081260	• Moodle 2021051700	<b>Additional</b> <b>To be installed</b> <a href="#">Cancel this installation</a>

Figure 1 - Installing the plugin in the Moodle learning environment

Fig. 2 shows the plugin selection panel, among others, for inserting it into the page.

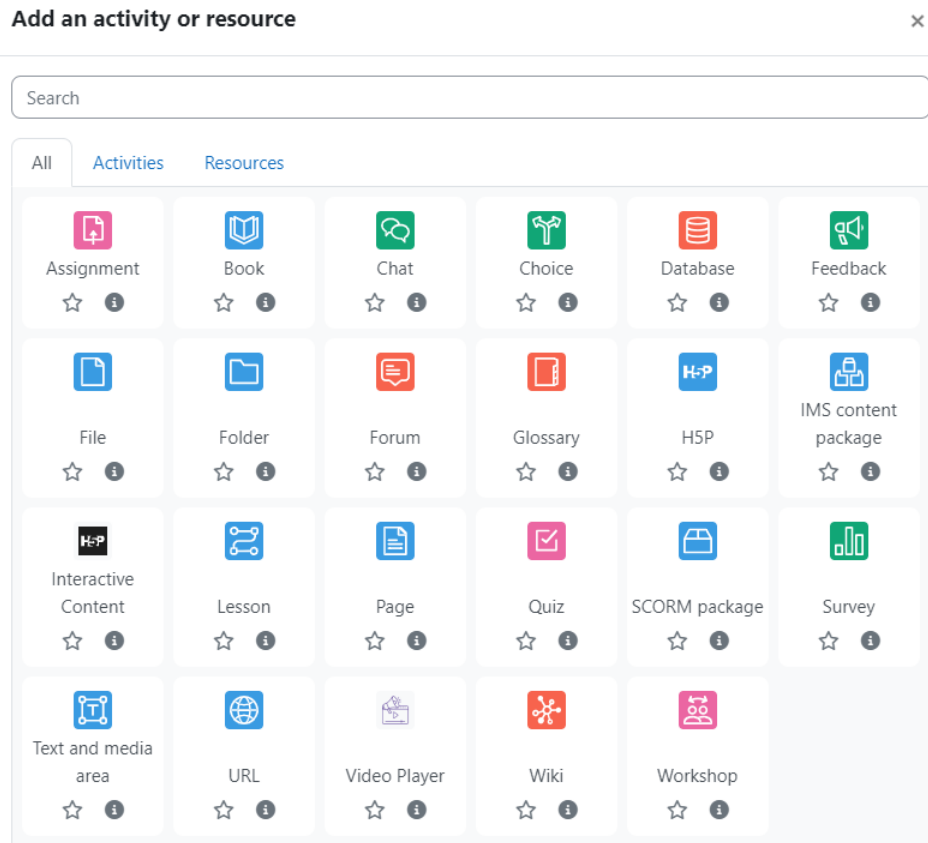


Figure 2 - Selecting a plugin for insertion into the page

The plugin allows the user to add a video by link, specify the title of the video lecture, and also set a detailed description including time codes for convenient viewing. Data on user interaction is stored in the database, the general table with data is presented in Fig. 3.

#	id	instanceid	userid	firstname	lastname	duration	playcount	pausecount	stopcount	completed	timecreated
1	1	0	2	...	...	1.0	2	3	1	1	1,723,549,360
2	2	0	2	...	...	1.0	2	3	1	1	1,723,549,405
3	3	0	2	...	...	1.0	2	3	1	1	1,723,549,409
4	4	0	2	...	...	3.0	2	3	10	1	1,723,549,861
5	5	0	2	...	...	5.0	2	3	10	1	1,723,550,034
6	6	9	2	...	...	0.35	2	1	1	1	1,723,550,445
7	7	9	2	...	...	0.22	2	1	1	1	1,723,554,204
8	8	4	4	...	...	0.09	2	1	1	1	1,723,554,257
9	9	4	4	...	...	0.18	2	1	1	1	1,723,554,397
10	10	4	2	...	...	0.7	6	5	1	1	1,723,554,791
11	11	6	2	...	...	1.06	7	6	1	1	1,723,555,011
12	12	7	2	...	...	20.55	1	0	1	1	1,723,556,443

Figure 3. Table with user interaction data in database

The general view of the interface with settings and configuration of the plugin from the teacher's side is presented in Fig. 4.

[C#](#) / [C# Lectures](#) / [C# Lecture 1 \(variables & types\)](#) / Settings

## C# Lecture 1 (variables & types)

[Video Player](#) [Settings](#) [More](#) ▾

### Edit settings

[Expand all](#)

Video Title 🔴

Description 🔴

Edit View Insert Format Tools Table Help

↶ ↷ **B** *I* 🖼️ 🎥 🎧 🎧 🎧 🎧 🎧 🎧 🎧 🎧 ...

First lecture in course about variables and data types.

p 9 words

Video URL 🔴

▾ **Common module settings**

Availability 🔴  ▾

ID number 🔴

Force language  ▾

Figure 4 - Settings and configuration of the video player plugin

The developed plugin is easy to set up and has an intuitive interface, which basically includes: the video title, description and link to the video from the YouTube platform. The data obtained helps to determine how actively students interact with the video content, whether they watch the video in full or in part. The obtained analytics allows you to identify problem areas and assess the level of student engagement and activity. Based on video viewing data, you can create models to predict success results. The collected data will allow you to create reports on student interaction with video materials [3]. This will help teachers and the administration of the educational institution in additional monitoring of the educational process. In the future, the plugin will be refined and improved according to the needs that will arise during its operation.

### References

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