

DEVELOPING ADDITIONAL FEATURES INTO ILIAS LEARNING MANAGEMENT SYSTEM

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Original scientific paper

Electronic learning (e-learning) has changed learning and teaching design round the world, it have been advanced by educational institutes with large efforts. Learning Management System (LMS) is one of the significant web based invention to e-learning platform. One of the LMS is ILIAS, which is a web based LMS, advanced by using best open source technology PHP, MySQL and Apache is used as web server. ILIAS is sophisticated in German but it also supports multiple languages including English. The aim of the research is to learn more about ILIAS, examine ILIAS to search for missing feature in ILIAS. Thus, the goals of the study will be writing codes to add three missing features to ILIAS. Those features are: Date filter for e-mails, Move E-mails to Folders by Drag and Drop and Text formatting editor for message content.

Keywords: *Electronic learning, Learning Management System, ILIAS, Open-Source Systems*

1 Introduction

The field of e-learning systems has received significant study interest over the past few years. More specifically, many web-based learning systems (E-Class webpage, 2007; Moodle webpage, 2007) have been advanced, aiming at being ubiquitously obtainable and therefore simplify a user's learning by saving time [1],[2]. For such web-based learning systems research has suggested different architecture approaches and employment of distinct components to contribute a system's personalization and to make up the architecture of the system [3],[4]. E-learning programs developed by educational institutes with great efforts and vast sum of money [5],[6]. Many institutions pay attention to e-learning systems that function a significant role in their knowledge management activities [7]

E-learning is commonly demonstrated as the intentional use of electronic instruments such as television, computer and including the delivery of content via audio (or video tape), internet, intranet, and so on for learning. Among of these e-learning environments, web based technologies offer various interactive applications like virtual communities of practice, forums, wiki or 3D virtual world [8],[9].

Learning Management System (LMS) is one of the significant web based invention to e-learning platform that blend in-class education and online teaching during the learning operation [10],[11].

There are many learning management systems, one of them is ILIAS, which is a web based learning management system, advanced by using best open source technology PHP, MySQL and Apache is used as web server [12],[13]. ILIAS is sophisticated in German but it also supports multiple languages including English [14]. The ILIAS LMS platform is a media which serves as the classroom repository for the reading materials and related course-work such as the course syllabus, and related course content, while ILIAS is the official platform for classroom communication [15],[16].

There are already some filters available in the ILIAS mail system (sender, Subject, Body, Attachments). However, with more and more E-mails arising over the years, students might also need a date filter to find what they are looking for, also Sorting E-mails in the ILIAS mail

system is not very convenient, moving a mail to a folder affords four clicks (checking mail – opening menu – choosing folder – clicking "Execute") which is quite a lot, Formatting a text can draw the reader's attention to a specific part of a text also emphasize important information. There is several options for adjusting text, including font, size, and color also adjusting the alignment of the text to change how it is displayed on the message. To compose a new E-mail by using ILIAS's mail system, you will not find the above attributes, so, the goals of the study will be writing codes to add three missing features to ILIAS. Those features are: Date filter for e-mails, Move e-mails to Folders by Drag and Drop and Text formatting editor for message content. to reach these goals several steps has been done like installing ILIAS, Reading ILIAS's codes, Writing the codes for missing features, Testing the added feature and checking out for bugs.

2 Methodology

ILIAS LMS is a wide information platform, has many important features but it lacks for using more than one feature at the same time. As a result for long search to find important missing features in ILIAS, finally found at ILIAS's home page, which includes three main sections, these sections are:

- Using ILIAS
- Development
- Communities

From this page the three following suggested features were selected to be a main goal for this research.

To write the codes for those three features the following steps has been taken:

Step 1 - The Installation part:

To install ILIAS, it was need software like XAMPP (PHP - MySQL- Apache) to make the computer as a local host, this is as in ILIAS requirement in the Installation and Maintenance section in ILIAS's website, also installing extra tools like (zip, unzip, Image Magick Display, notepad++ for code editing).

Step 2 - Reading ILIAS's codes:

To read ILIAS’s code first of all the software must be running, then trying to find the codes of ILIAS that related to mail module, discover the database and tables related to mail (mail table in database) to add the codes of missing features in the right position.

Step 3 - Writing the codes for missing features:

ILIAS is a web based platform for coding these features the following programming languages were used:

- HTML
- PHP
- MYSQL

Step 4 - Testing the added feature and checking out for bugs:

Testing the developed copy of ILIAS with the new features manually by using the computer as a local host to allow users access the software and using the developed features. Because ILIAS is a platform used by students, after completing the programming side of the added features a survey has been applied and answered by Firat University's students to know the effectiveness and usefulness of the added features in saving time and improving usability.

The students had answer the questionnaire in two ways, by fill out the questions form on Google drive and a hard copy of the questionnaire.

For this survey SPSS 16.0 software has been used, installed on a personal computer with window 7 as an operating system to determine the result of the survey.

In SPSS software a frequencies analysis has been used as a method for determining the survey results.

3 Result Analysis

To discover what effective result has the added features into ILIAS LMS, a questionnaire with many questions was prepared, those questions have been answered by 73 students from Firat University/Technical College/Software Engineering Department in Turkey after using ILIAS including the added features.

- Result of the First Question

The first feature included adding a date filter to ILIAS’s E-mail system.

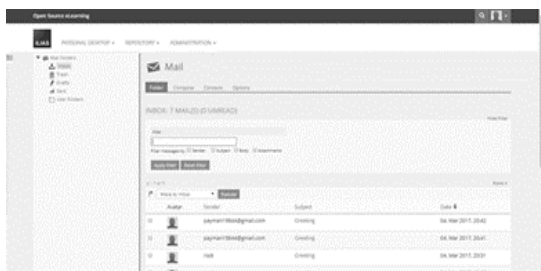


Figure 1. shows ILIAS’s mail system before adding date filter for E-mail.

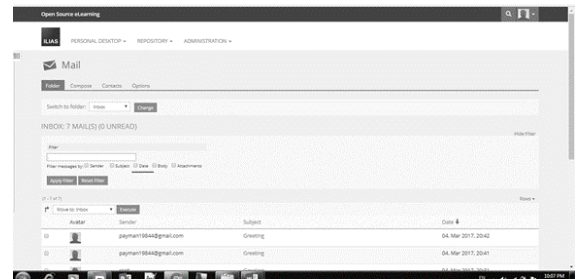


Figure 2. shows ILIAS’s mail system after adding date filter for E-mail.

The first question of the survey and its result are illustrated in the following:

Question1/Do you think by using the date filter in searching for a specific E-mail will make your search easier and faster?

Table 1. The percentage of the students’ answer about the first question.

	Frequency	Percent	Valid Percent	Cumulative Percent
No	3	4.1	4.1	4.1
Yes	70	95.9	95.9	100.0
Total	73	100.0	100.0	

The above question has been answered by 73 students, 4.1 percent of the student answered by (No) and 95.9 percent of them answered by (Yes). This result shows that the large number of the students thought by adding a date filter to ILIAS’s E-mail system, this addition will increase and facilitate the usability of this platform.

- Result of the Second Question

ILIAS enable its users to move E-mail to a folder by these steps (checking mail – opening menu – choosing folder – clicking "Execute").

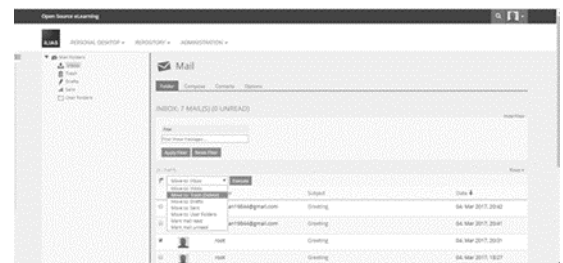


Figure 3. moving E-mail to a folder by several steps.

To know the time that those steps is taking to move any E-mail, the following question has been answered by 73 students.

Question2/How much time do you need to move E-mails to a folder by these steps (checking mail – opening menu – choosing folder – clicking "Execute")?

Table 2. The percentage of the students' answer about the second question.

	Frequency	Percent	Valid Percent	Cumulative Percent
1 sec	1	1.4	1.4	1.4
2 sec	6	8.2	8.2	9.6
3 sec	15	20.5	20.5	30.1
4 sec	14	19.2	19.2	49.3
5 sec	37	50.7	50.7	100.0
Total	73	100.0	100.0	

As a result, according to the answers of the students 50.7 percent of the student thought that these steps take about 5 seconds.

- Result of the Third Question

The second added feature is moving E-mail to a folder by drag and drop, the following figures shown how this process has been done.

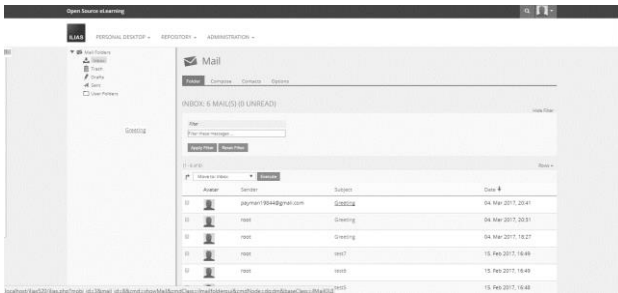


Figure 4. moving E-mail to a folder by drag and drop.

The students have answered a question about the total time that needs to move an E-mail to a folder by drag and drop feature, the result was as illustrate in the following table.

Question3/How much time do you need to move E-mails to a folder by drag and drop?

Table 3. The percentage of the students' answer about the third question.

	Frequency	Percent	Valid Percent	Cumulative Percent
1 sec	10	13.7	13.7	13.7
2 sec	40	54.8	54.8	68.5
3 sec	15	20.5	20.5	89.0
4 sec	5	6.8	6.8	95.9
5 sec	3	4.1	4.1	100.0
Total	73	100.0	100.0	

40 students from 73 which is equal to 54.8 percent have selected 2 seconds as a total time for moving an E-mail to a folder by drag and drop, this result shows that the drag and drop feature takes less time than the old way which takes about 5 seconds to move an E-mail to a folder and that is a good way to save time for student.

- Result of the fourth Question

The following answers of the students about a question which method is faster way to move E-mails, proves that drag and drop is a faster way to move E-mail to

a folder than the old way which include many steps for moving E-mails.

Question4/Do you think that moving E-mails to folders by drag and drop is faster way than the old way which needs the following steps (checking mail – opening menu – choosing folder – clicking "Execute")?

Table 4.The percentage of the students' answer about the fourth question.

	Frequency	Percent	Valid Percent	Cumulative Percent
No	4	5.5	5.5	5.5
Yes	69	94.5	94.5	100.0
Total	73	100.0	100.0	

69 Student from 73 which equal to 94.5 percent thought that drag and drop is a faster way to move E-mail to a folder than the old way for moving E-mails.

- Result of the fifth Question

Formatting a text can draw the reader's attention to a specific parts of a text, also emphasize important information. There is several options for adjusting text, including font, size, and color also adjusting the alignment of the text to change how it is displayed on the message.

To compose a new E-mail by using ILIAS's mail system you will not find the above attributes, therefore a text formatting editor has been added as a third addition feature.

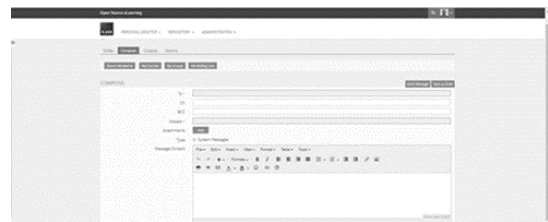


Figure 6. ILIAS's E-mail composing page after adding a text Formatting editor.

To know whether adding this features is effective or not, a question about this feature has been answered by the students, and the result demonstrated in the table below.

Question5/Do you find adding Text formatting editor for the message content useful?

Table 5. The percentage of the students' answer about the fifth question.

	Frequency	Percent	Valid Percent	Cumulative Percent
No	1	1.4	1.4	1.4
Yes	72	98.6	98.6	100.0
Total	73	100.0	100.0	

The question has been answered by 73 student, 72 of them which equal to 98.6 percent thought that adding a text formatting editor feature is necessary to improve the usability for composing a message.

4 Conclusion

ILIAS is a powerful Open Source Learning Management System for developing and releasing web-based e-learning. The software was developed to reduce the cost for using a new media in education, further training and to ensure the maximum level of customer influence in the implementation of the software. ILIAS is published by ILIAS open source e-Learning under the General Public License and free of charge. Internal E-mail in ILIAS is using for communication with other users and to receive notifications from the forums and the courses. Students can use internal E-mail feature to E-mail groups and individuals. It supports the delivery of internal mails to external E-mail addresses as well. There are already some filters available in the ILIAS mail system (sender, Subject, Body, Attachments). However, with more and more E-mails arising over the years, students might also need a date filter to find what they are looking for, so that a date filter feature has been added, by adding a date filter to ILIAS's E-mail system, this addition will increase and facilitate the usability of this platform.

Sorting E-mails in the ILIAS mail system is not very convenient, moving a mail to a folder affords four clicks (checking mail – opening menu – choosing folder – clicking "Execute") which is quite a lot, to save time and to keep your inbox tidy, drag and drop feature has been added as an alternative to the old way for moving E-mails.

Formatting a text can draw the reader's attention to a specific part of a text also emphasize important information. There is several options for adjusting text, including font, size, and color also adjusting the alignment of the text to change how it is displayed on the message.

To compose a new E-mail by using ILIAS's mail system, you will not find the above attributes, therefore text formatting editor has been added as a third addition feature.

Future work in this area will include further work on Sorting of Mail According to Courses and Groups .At present the user of ILIAS can sort their mails according to Sender, Subject and Date. For people who are active in many different courses, it would be great to have a way to filter mail according to courses, so that only mails which belongs to a certain course will appear.

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