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**CS-255**

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**Module 2**

## Functional Requirements

| **Functional Requirement** | **Rationale for Requirement** | **Source(s), APA format** |
| --- | --- | --- |
| The Learning Management System (LMS) shall allow for multiple roles within the application, e.g., *Learners*, *Educators*, and *Administrators* | The system needs to allows for a hierarchy in the users’ interactions with the LMS. For example, you would not want a Learner to publish a lesson nor would you want an Educator to be able to delete the *enrolled students* database. | (Moodle, 2022) |
| The LMS shall have a Dashboard that is available to the Learners that provides a view of their individual progress | Learners will want a way to quickly see a summary of their progress. This allows the Learner to understand what they have accomplished, what they need to accomplish, and any other pertinent information in a single, readily accessible place. | (Moodle, 2022) |
| The LMS shall have a Reporting module | Educators will need the ability to evaluate large amounts of data or see a summary of data. For example, an Educator may want to know how many ‘A’, ‘B’, and ‘C’ exist within a current course, a past semester, or the previous 5 years. | (Moodle, 2022) |
| The LMS shall allow for plugin/snap-in support. | Expanding and customizing the LMS to a particular provider is better served when these capabilities are democratized. Allowing for plugins permits customization without the engineering team’s involvement. | (Moodle, 2022) |
| The LMS shall allow for user interaction through customizable means, e.g., forums, wikis, chats, or blogs | Engaging both the *Educator* and the *Learner* is important so that there is interaction between different Learners and the educator. Otherwise, either may withdraw due to a feeling of alienation. | (Westfall, 2022) |
| The LMS shall allow for Language Localization. | Allowing the LMS to conform to differing cultures and languages should allow Learners to be more comfortable and perform at higher levels. | (Mckee, 2022) |

## Nonfunctional Requirements

| **Nonfunctional Requirement** | **Rationale for Requirement** | **Source(s), APA format** |
| --- | --- | --- |
| The LMS server architecture shall be designed to be scalable | Learners and Educators will not want to be exposed to higher latency as the user-base grows. Moreover, users will not want to lose the ability to store data as the base grows. |  |
| The LMS shall have secure APIs | Security is important in such an application. Un-authorized API traffic could potentially delete databases, change grades, or seek to steal private data. |  |
| The LMS shall be portable by supporting open standards, e.g., SCORM | Portability is important to ease onboarding any training developed in other LMS or LCMS applications | (OpenLMS, 2022)  (Find an LMS, 2022) |
| The LMS shall have a Key Performance Objective (KPO) for uptime of no-less-than 99.5% | Learners nor Educators can be productive if the site is down when they connect. Each 0.1% of down time is worth 10 minutes in a given week. | (Leslie, 2022) |
| The LMS shall be upgradable | Upgrades to add new functions or improve security are a must and an Administrator should not have to fully uninstall the LMS and reinstall to perform this maintenance task. |  |
| The LMS shall be accessed through an internet browser | Internet access via a browser allows for users to engage the LMS from their laptops and mobile devices which enriches the user experience. | (Learn, 2022) |

## Assumptions

| **Assumption** | **Rationale for Requirement** | **Source(s), APA format** |
| --- | --- | --- |
| Users will have a valid email account at all times of use | An email will be used to identify individual users upon login. Moreover, the address must be valid for non-repudiation and other authentication needs. |  |
| Users have access to a web-capable device | Because mobility and accessibility are considered to be highly important the LMS will only be connected to via the internet, which forces users to have internet access. |  |

## Limitations

| **Limitation** | **Rationale for Requirement** | **Source(s), APA format** |
| --- | --- | --- |
| System will not be fully ADA compliant for blind users | Full ADA compliance means that the website is accessible for those with vision and hearing disabilities. For now, there will be no accessibility for users with vision disability. | (Caramela, 2022) |
| System will only be deployable in a web server and will not support FaaS and other server-less architectures | Server technology, customer owned or IaaS, is mature enough to handle the scalabilty needs. Moreover, a monolithic architecture, as opposed to FaaS, is more sustainable by this engineering team and reduces time-to-market. |  |

**Sources**

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