Alturki and Aldraiweesh, (2021); Raza et al, (2021) The program known as the Learning Management System (LMS) is built on a web server. Using a personal local computer or the cloud to handle teaching and learning procedure in a program, whether academic or otherwise, without time constraints geographical location. Given that the majority of the LMS can be used as an online browser or as An application for users has unrestricted access. These days, there are a lot of LMS created by Capterra for usage by academic and industrial users, which have expanded the student body and made use of new learning modalities. As an example, These online learning environments helped and supported educators and learners in the online instruction and training program amid the most recent global lockdown as a result of the Pandemic COVID-19.

an LMS comparison based on the software usability analysis was presented by Kraleva et al. (2019). Three tools comprise this assessment method: one for learning ability, one for communication, and one for productivity. The LMS for businesses and academia uses these comparing criteria.

Alva et al.'s paper from 2021 examined Google Classroom, Chamilo, and Moodle. The comparison is predicated on Moodle because it is a popular platform. The comparison takes into account four indicators: i) personalization of earnings; ii) user support; iii) student tools; and iv) collaborative learning. Moodle is the best choice out of the three options under consideration for review, based on the standards put forth by Alva et al. (2021). An additional comparison is shown in (Momani, 2010), they looked into Blackboard and Moodle. 52 characteristics, broken down into 6 indicators, were put to the test: i) pedagogical; ii) learning environment; iii) teaching tools; iv) course design; v) management tools; and vi) software technical specification.

Kundi, G. M., Nawaz, A., & Khan, S., Kulshrestha, T. & A. Kant. Lopes, A. (2014) Some advantages of utilizing an LMS include: (i) centralizing e-learning resources and material; (ii) offering a prompt and efficient unrestricted access to course materials; (iii) simple tracking of students' achievement; (iv) lower costs associated with learning and development procedures; (v) shorter time required for learning and development; (vi) It allows for the quick and easy expansion, updating, and modification of online courses; (vii) and certain learning management system (LMS) solutions come equipped with the ability to include social learning into the curriculum.

Kralev, V., Kostadinova, D. (2019) An open-source or commercial learning management system (LMS) offers a flexible, dependable, and secure online learning environment. Its idea originated straight from the e-learning paradigm, which facilitates interactive connections between teachers and students to support reinforcement learning procedure. There are three different kinds of learning methods: mobile learning, remote learning, and e-learning. Each of these kind administers and manages the instructional process with the use of Internet resources. Through desktop, mobile, or cloud-based applications (Software-as-a-Service), learning should take place in real time and in real time, allowing students from all over the world to interact with teachers.

Sheeba, T., & Krishnan, R. (2019) Certain learning management systems (LMSs) employ machine learning principles, automated identification, social media, and user preference prediction to automatically adjust according to customer requirements, their functionalities.

Bharat, R., & Wang, Y. (2019) As a result, every LMS has unique components, features, and modules that can be customized. Course management, user management, communication tools, online exams, feedback administration, student assessment, machine learning, and security are a few examples of these types of models.

Nadirah, N., Kasim, M., & Khalid, F. (2016) There are currently a large number of commercial and open source learning management systems (LMS) accessible to the public; each offers advantages and disadvantages related to the online learning process. This is why it's critical that a potential consumer has solid guidance to help them make the right choice. It's important to choose your LMS wisely because some systems offer confusing user interfaces, hidden fees, ambiguous shared features, unsupported platforms, etc. Due to this, a comparative analysis between the common ones employing significant assessment criteria is required. Additionally, it's critical to compare LMS programs in order to choose the best one and learn about its advantages and disadvantages.

Dobre, I. (2015) divided the current LMSs into four groups: cloud-based, hybrid, open source, and proprietary. According to this report, adopting Moodle will boost the popularity of open source learning management systems by 20.1%, whilst using Blackboard will only raise it by 13.1%. Additionally, this study demonstrated that cloud-based learning management systems (LMS) have emerged as a viable option, particularly for businesses looking to abandon the hassle of setting up, maintaining, and safeguarding these services internally.

Poulovaa, P., Simonovaa, I., & Manenovab, M. (2015) examined four learning management systems (LMSs): Claroline, Moodle, Blackboard, and Enterprise Knowledge Platform TM. Evaluation criteria included cost, communication, course administration, blogs, survey, workshop, and virtual classroom, among others. The study's findings demonstrated that while Blackboard and EKP are commercial products with fees based on the number of users and the features necessary, Claroline and Moodle are both freely available. Furthermore, this study shows that 80% of the built-in tools in Blackboard and EKP are the same, which is more than in Claroline, which has fewer built-in tools. In all four LMSs, the communication tools were present.

Kraleva, R., Sabani, M., & Kralev, V. (2019) provided a comparison study of 36 LMS utilizing learning skills tools with the following features: productivity tools (uploading/downloading, security, Web-based technology, analysis of students' achievement, chat, forums, and mail messages), communication tools (chat, mail messages, and forums), and SCORM compliant material, assignments, gamification, and evaluation. This study indicates that every LMS under consideration supports the use of multimedia components, the creation and modification of lectures, as well as the creation of exercises and course assignments

Saule Kumargazhanova (2023) Although there are a lot of pre-made LMS solutions available, it might be challenging to develop LMS systems that satisfy all user requirements and have a flexible design. It is challenging to consider every need for the system's functionality when developing such systems. This paper suggests a method for creating a module-based, service-oriented learning management system. In addition, the user can create the required functionality based on services, processes, and objects, depending on the functionality. A finite set of modules is formed via a cluster technique.