**Learning Management System (LMS) Development**

**Project Report**

**1. Introduction**

Learning management System (LMS) is a software application for the administration, documentation, tracking, reporting and delivery of educational courses. It helps the instructor deliver course material to the students, administer tests and other assignments, track student progress, and manage record-keeping. Proposed LMS in this project is mainly focused on online tests delivery but support a range of other uses; it will act as a platform for fully online exercises evaluation system.

This project is expected to deliver a flexible, easy to use and secure online portal that will replace WIMS and PL learning management systems which are not fulfilling the current online student evaluation requirements of the university.

The new LMS will facilitate professors with dynamic graphical reports of student evaluation in form of charts, interactive illustrations and will allow students to attempt exercises through a user friendly platform and communicate with professors by easy to use messaging system which are lacking in the currently available systems.

**2. Technology and Framework**

**2.1. Python**

Python is an interpreted high-level programming language for general-purpose programming. It provides constructs that enable clear programming on both small and large scales.

Python features a dynamic type system and automatic memory management. It supports multiple programming paradigms, including object-oriented, imperative, functional and procedural, and has a large and comprehensive standard library. These features have made python a powerful scripting language and highly flexible; definitely what we were looking for our project.

**2.2. Django Framework**

Django is a free and open-source web framework, written in Python, which follows the model-view-template (MVT) architectural pattern.

Django's primary goal is to ease the creation of complex, database-driven websites. Django emphasizes reusability and "pluggability" of components, less code, low coupling, rapid development, and the principle of don't repeat yourself. Python is used throughout, even for settings files and data models. Django also provides an optional administrative create, read,

update and delete interface that is generated dynamically through introspection and configured via admin models.

Some well-known sites that use Django include the Public Broadcasting Service, Instagram, Mozilla, The Washington Times, Disqus, Bitbucket, and Nextdoor. It was used on Pinterest, but later the site moved to a framework built over Flask.

**D3.js**

**3. Project development segmentation**

**3.1. Front-end Design**

**3.1.1. Work done**

Designed fully responsive dashboard for teachers which has all the necessary things mentioned in the interviews. By including responsive pi charts and bar charts we succeeded to make dashboard more attractive and user friendly.

**3.1.2. Work to be done**

Following teacher portal subpages are planned to be designed:

* Login page
* Charts detail pages, consisting individual student exercise reports.
* Exercise creation form.
* Report page for running and completed tasks.
* Students messages page along with a messages popup form in dashboard.
* Detailed report pages for student statistics (number of enrolled students in each course; conducted tests and number of students took tests).
* Profile page

**3.2. Programming**

**3.2.1. Work done**

**3.2.2. Work to be done**

**3.3. Back-end**

**3.3.1. Work done**

Django is a powerful content Management System that has the ability to build tables in the back-end for the project.

This feature allowed us to create the back-end by providing the table columns in the file.

**3.3.2. Work to be done**

**3.4. Documentation**

**3.4.1. Work done**

**3.4.2. Work to be done**

**4. Proposed Features**

**5. Conclusion**