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CSLINC - Development of a National Outreach VLE

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ABSTRACT

Over the last year an online learning platform has been developed and piloted to the Irish second level education system allowing both students and teachers to participate in introductory computing modules. This poster will outline the development of the registration process of a system that is capable of managing potentially 728 schools, 1000+ classrooms and one million students (the entire Irish second level school system). CS_{LINC} is an online student virtual learning environment for computing consisting of several modules built by academics and industry leaders and disseminated to schools through Moodle, our selected virtual learning environment. While Moodle has a certain amount of automation and user management built-in, this poster will present the initial design considerations and the automation process developed to allow for school centered mass registration on Moodle. This is of value to other CER educators who may consider developing such a system and enrollment process. Future work will consist of a detailed publication on the development process.

1 DEVELOPMENT PROCESS

Moodle, is an open-source learning management system (LMS) and was the chosen LMS for this project as Moodle is used by educational institutions and corporations, as well as individual teachers and trainers and is a popular choice for distance education courses. It was selected as the VLE recently received WCAG 2.1 Level AA accreditation for accessibility, is open-source with multiple plug in options and has known code base support. The following sections will provide an overview of the design decisions we made for registering schools and teachers onto our system (see Figure 1 for the high level architecture diagram).

Student, Teacher and School Sign up. While Moodle has a user friendly interface, creating classes, and linking students and teachers to them is not trivial. A registration system was developed from scratch to address this. This removed the Moodle specific digital literacy requirement for teachers to set up classes and students on CS_{LINC}. We asked teachers to upload a list (CSV file using HTTPS) of students names, passwords (Based on feedback from the teachers, it was requested that the teachers issue the passwords and that students are not able to reset them. This is so that if a student forgets their password, it can be easily retrieved. These passwords are not specific to individual students and are not intended to be personal

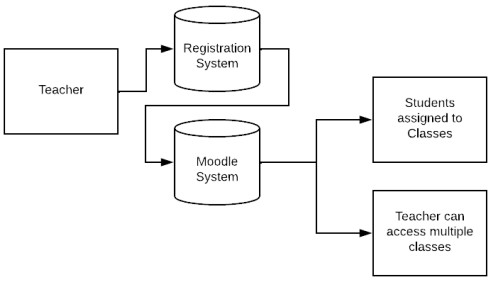

Figure 1: Example of category and course structure

in nature.), the class they belong to and the modules they would like to take. From here, we generate usernames and store them in a central GDPR compliant cloud system that the teachers could then log in and view student credentials in case the student or teacher lost their credentials.

Class creation on Moodle. There are currently 12 modules that are offered through CS_{LINC}. With these 12 courses, we create a base course. When a school registers for CS_{LINC}, we clone the base category and create new categories (virtual classrooms) for the school. To do this we developed a unique Moodle plugin which takes the data from the could system that teachers register on as previously mentioned, to generate cloned class requirements.

Student Registration. Given that there are thousands of students to be registered into hundreds of classes, we utilised Moodles' Bulk User Upload function where we generated the upload file from the cloud system. This meant we were able to automatically upload students into the desired categories and courses related to their teachers and schools.

Teacher Registration. Teachers are registered onto Moodle and will receive an email with their credentials which change on first login, a list of classes and courses that are registered to that school and passwords for those courses. These are all unique to the individual school so no teacher can accidentally enrol into a different class in a different school or within their school.

2 PILOT AND FUTURE WORK

Currently we have 15,000 students and 250 schools registered on the system for the pilot. The overall design and process worked well, however, there are some tweaks needed, which includes additional training and interface work to make the first step, registering on the bespoke cloud system more intuitive. Some teachers had difficulty in generating the format required for the CSV file. These lessons learned will be presented on the poster and in future work.

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