

Cloud Computing System to Record Academic Performance in Real Time

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System Information, Automatic Reports Generation, Academic Performance Analysis.

Introduction:

During the last years it has implemented the “Nueva Escuela Mexicana” program in Mexico. The purpose of the program is that students apply their knowledge to change social and material context, coexist in solidarity, respect looking for welfare for everyone (Secretaría de Educación Pública, 2020). The program has six political public lines to operate: education with quality and equity, content and activities to learn, dignification and revaluation of the teacher, governance of the education system, educational infrastructure and financing and resources (Arroyo Ortiz, 2018).

Objectives:

This paper focuses on contributing in the line “revaluation of the teacher”, mainly to achieve the reducing administrative work objective.

Methods:

The first endeavour was using online spreadsheets to record attendances, home work delivery and final grades with Google Spreadsheets Service (Cuenca Lerma, 2021). The advantage of that platform is that the spreadsheet is structured according to the official grading format, hence, teachers generate automatically official reports and students check their progress in a different and unique document in real time.

Nevertheless, the principal problems with that implementation are charging time, user interface adaptation, data protection, etc. Therefore, web technologies are used to mimic the online spreadsheets platform with a WebApp. It is proposed as a Distributed Computer System that uses a client-server architecture (Xu, 2015).

Server storage of all the information of students, teachers and subjects using a MySQL database. The client requests are processed with PHP 7 through an REST API with PHP SLIM (Agocs and Goff, 2018). Data is encapsulated with JSON ontology and encrypted with a SHA-256 protocol. Moreover, official grading formats are generated using PhpSpreadsheets API.

Clients communicate with the server using CURL API. Data is visualized with Bootstrap API, in consequence the user interface is adaptive and will run without problems in smartphones, computers, tablets, etc.

Results:

The system is implemented at the Colegio Agustín de Hipona in Coatzintla, Veracruz, Mexico. That institute is one of the most important schools in the north of Veracruz state. Offers education services of kindergarten, elementary school, middle school and high school. That comprises basic and middle higher education in Mexico.

The teachers were surveyed to find out their experience of use. The results showed that more than 50% agreed at least that known technologies are used, the user interfaces are intuitive and the times to consult the academic performance are reduced. Therefore, teaching administrative work is reduced.

Conclusions:

With the webApp administrative work is reduced because students check their notes everywhere and everytime, teachers track academic performance per class and school authorities will analyze statistics to enhance the decision - making process. Besides it is contributing to achieve the fourth objective

“quality education” of the sustainable development goals of the UN and to develop the Mexican software industry.

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