Tutorial project

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1 Introduction

CheckYourSmile (CYS) is a web platform project for learning specialty vocabulary in foreign languages (eg IT English: networks / databases), led by Dr Nadia Yassine-Diab, where users can learn through a set of "serious" games. The objective is to provide a complement to face-to-face language courses in higher education courses, where few hours can be devoted to teaching specialty vocabulary, despite its importance for the professional integration of students . Note that one of the innovations of CYS is to offer a collaborative system to propose and validate lexical entries: thus, everyone participates in the construction of knowledge (cf. crowdsourcing).

The first CYS prototype was released in 2014 (currently online at www.checkyoursmile.fr). IDEX (Initiative of Excellence) funding from the University of Toulouse in 2016 made it possible to hire several developers, trainees and post-docs in order to develop the site; a new version was released in January 2017, including new games and new features. The platform is free and licensed under the Creative Commons license. The previous prototypes have already served us to demonstrate the concept and to propose a stable and functional version of the site which now includes 6 games that work on the 4 skills of learning a language (French as a foreign language and English for French). 'instant, Spanish). For more information, see the project's Facebook page, the Twitter channel, the You Tube account and the Linked in page.

Our objective is to obtain indicators on the plus-value of Check Your Smile in a university context and on the combinations of variables which make it possible to obtain the best results in order to improve the effects of the determined tool.

2 Materials

The subject aims to study a database acquired during 3 academic years (2016-7, 2017-8 and 2018-9). It contains the evaluation results of students of different UPS courses as well as details on their courses and on the particularities of the received language teaching (English or French TP, CMI engineering courses, use from CYS or not ...)

3 Methods

We applied statistical tests on data of both semesters (3 and 4 respectively)

Firstly, descriptive statistics was carried out to determine the most influential factors among considered variables. In this step, charts like "boxplot" and "interaction.plot" illustrated which variables should be more important than others.

Secondly, linear regression led to a linear formula to study how multiple variables affected on the progressions of students simultaneously including their mutual interactions. Model ANOVA pointed out the effect of 3 qualitative variables on the progression of students as a term of difference between 2 Snapshots. On another hand, model ANCOVA pointed out the effect of 3 qualitative variables and Snapshot1 on Snapshot2. By comparing the R^2 values, we maintained the model whose R^2 value is higher.

Thirdly, non-linear regression (decision tree) with the tree graph demonstrated how multiple variables affected on the progressions of students.

We calculated the cross-validation errors of those models to reach the proper models.

Developments were carried out in R.

References