

NAPP: Connecting mentors and students at Técnico Lisboa

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Abstract. In the past five years, a successful first-year mentoring programme at Técnico Lisboa’s Taguspark campus promoted by Núcleo de Apoio ao Estudante - Taguspark (NAPE-TP) was brought into play. Nevertheless, the relationship between mentors (mostly second-year students) and mentees (first-year students) tends to weaken after the first academic weeks of the semester. This problem can be addressed with the creation of a consistent and unique communication channel between all the parties involved in this programme. This work presents NAPP, a novel mentoring software solution for first-year mentorship programmes, that enhances the communication between mentors and mentees while providing study guidance tools for mentees. NAPP is composed of two key components, a cross-platform mobile application and a web application that is used as a high level performance analysis tool by the programme’s coordinator. These components were developed using state of the art technologies like the Ionic Framework using AngularJS, and the NoSQL databases CouchDB and PouchDB.

Keywords: Mentoring Program, Student Support Systems, Mobile Application, NoSQL Databases

1 Context

Núcleo de Apoio ao Estudante - Taguspark (NAPE-TP) ¹ main student support service is the mentoring programme. The main focus of this programme is the welcoming, integration and assistance of students that are admitted for the first time in Técnico Lisboa ², mainly first-year and international students, into academic life. In the Taguspark campus in particular, with the help of NAPE-TP’s mentors, mostly second/third year students, the newcomers get personalized assistance during their first steps in Técnico Lisboa’s academic life. Even though the programme is well organized, there is a recognized communication problem between the three parties involved on it: NAPE-TP, mentors and mentees.

¹ <https://nape.tecnico.ulisboa.pt/en/>

² <https://tecnico.ulisboa.pt/en/>

Therefore, there was a need for a software solution that supports the information flow between these parties and also integrates study guidance tools that help students throughout their academic life.

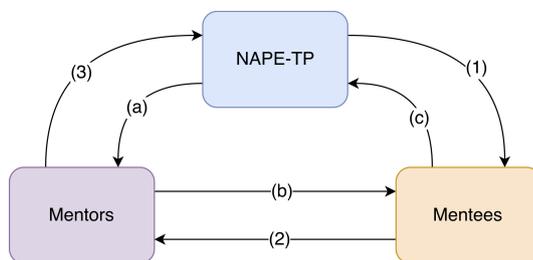
Looking at the related work on the topic of mentoring programmes, we paid special attention to MIT Sloan School Of Management ³ the mentoring programme that is based in the relationship between students and alumni. This programme is powered by Chronus [1], a software dedicated to support mentoring. Also, between other mentoring programmes, we could identify in TU Delft ⁴, there are two different mentoring programmes, one for first-year students and another for master students [2].

While MIT’s mentoring programme has a mentoring support software solution tailored for last-year students that are planning their career path, TU Delft’s has the same focus of NAPE-TP’s programme but without the technological support. Hence, NAPP is the first software solution to support first-year mentoring programmes.

1.1 NAPE-TP Communication Problem

NAPE-TP mentoring program is aimed at helping first-year students to achieve academic success and to support their integration within the first year. Figure 1 presents the information exchange between the three parties in the programme, namely NAPE-TP, mentees and mentors.

Fig. 1: NAPE-TP mentoring program communication channels for academic success and integration



In what concerns academic issues, the flow starts in direction (1) where NAPE-TP provides psychological and/or academic personalized support to mentees; in direction (2) mentees report their academic performance to the corresponding mentor; and in direction (3) mentors report their mentee’s grades to the NAPE-TP coordinator. Concerning academic integration, the flow starts at direction (a) where NAPE-TP invites and distributes mentors to all first-year students;

³ <http://mitsloan.mit.edu/>

⁴ <https://www.tudelft.nl/en/>

in direction (b) mentors provide academic and campus-related support to their mentees; and in (c) mentees report problems and give suggestions to NAPE-TP related with the mentoring program.

If a mentor reports a particular case of a mentee with poor academic performance (fail in three or more evaluations), the mentee will then be invited to an interview with NAPE-TP's coordinator in order to find a quick solution. Until now, the process of reporting mentee's grades to mentors is entirely dependent on the exchanging of e-mails between the two parties in communication channel (2), or oral communication in case there is a personal relationship. The part of the communication process is usually very delayed, and mentors have to pressure their mentees in order to get their feedback. The delay referred in (2) cascades to channel (3), leading to a desynchronised communication which results in the overburden of the programme's coordinator.

Moreover, the distribution referred in channel (a) is a manual process in which the NAPE-TP's coordinator matches every first-year student (300 students in total) with a mentor, from a pool of around 90 mentor-students. Analysing channel (b), the experience of several annual editions of the NAPE-TP mentoring programme indicates that a relationship of trust is not always possible to establish during the enrolment week. It also happens in direction (c) that NAPE-TP seldom receives any direct feedback on the mentoring programme from mentees, only from mentor's reports.

1.2 Proposed Software Solution

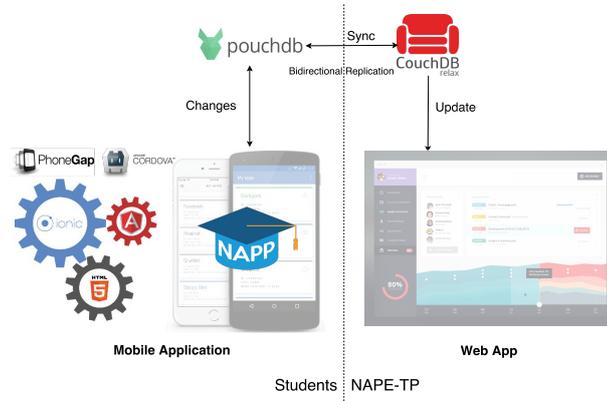
As described above (section 1.1), the main problem in NAPE-TP's mentoring programme is caused by undefined and inefficient communication channels used in both processes (see Fig.1). Although there was an attempt to improve the exchange of information based on emails and Slack, the programme coordinator always resorted to other methods to reach mentors and mentees because these were being used in an inefficient way. We propose now to divide the software solution in two components. The first is a mobile application, designed for mentors and mentees, that increases their engagement in NAPE-TP's mentoring programme through the implementation of well-timed and relevant push notifications [3]. This app also provides mentors with academic performance tracking reports of their mentees and key study guidance tools. The second component is a web application, which is designed for NAPE-TP's coordinator, that enables a high level view of the mentees' academic performance evolution and the mentoring activities carried out by mentors.

1.3 Solution's Architecture

NAPP's architecture is based mainly on three technologies: Ionic Framework, PouchDB and CouchDB (see Fig.2).

On the client side (student's side), the multiple NAPP mobile applications, built with Ionic Framework, are able to keep their local PouchDB database up-to-date even when the users are offline. On the server side (NAPE-TP's side),

Fig. 2: NAPP's architecture



NAPP web application provides access to the information on the CouchDB server that is synchronized with all PouchDB instances.

2 Conclusion and Further Work

It is our conviction that this framework modernizes the mentoring programme, reducing the number of manual processes that are still part of it, while increasing its impact and fostering the engagement of first-years students through a mobile approach. We present here a work in progress, the next step of which consists of the validation and the testing of the software solution, both in what concerns its impact in the communication between mentors and mentees, and its overall performance while on high load of usage.

3 Acknowledgements

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