

# TOWARDS A SIMPLE API FOR EXCHANGE OF EDUCATIONAL INFORMATION

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It is becoming more and more common for web application to open up their data and allow other applications to integrate their data in their own services. Common cases are the use of Facebook data in mobile phone apps, use of Google Maps data, and the Dutch railways opening up train scheduling data for everyone to use.

In higher education, the same trend can be observed: a number of institutions in the Netherlands is starting to offer their internal information on open interfaces. Examples are public information like course descriptions, university news items, and library catalogs, but also sensitive personal information such as students' grades and course progress information. Note that "open" in this sense does not mean that everyone had access to all information; obviously, students only have access to their own grades and personal information.

Mobile apps or third-party web applications can use the data to create mash-ups between different kinds of data, or create amazing and totally new functionality on top of such data. A great example is the Avans Alarm clock, which monitors a student's course schedule and automatically allows him to sleep late when no courses are scheduled in the morning.

Unfortunately, the universities that currently offer such APIs each have defined their own API using their own syntax. This makes it a lot of work to port a app built for a certain university to use the API that is in use at another university, thereby hindering uptake by third-party developers. If universities would all use the same interface, it would be much easier and cheaper to produce apps and web applications that reach large numbers of people.

To remedy this problem, SURFnet is working with a small group of universities and software vendors to define a standard API to exchange Open Education Data for Dutch universities. Although some standards for exchange of such education data exist, the uptake of REST APIs by the universities clearly shows that there is a need for a simpler API-standard, which is easy to use and "feels" like APIs that developers are used to, like those offered by Google, Facebook, and other cloud services.

The main use case for the API is the exposure and exchange of data from university back-end systems to third parties (mobile apps, portals, web applications, etc.). However, vendor systems can also use it to communicate with the universities' systems, or the university might opt to expose the vendor backend directly to the outside world.

We started out by identifying the top-10 of types of information that institutions want to open up to the outside world. Among those are course information, class and exam schedules, room availability, personal grades, and course history. For each of these types of information, we made an inventory of what data the

different existing APIs already offered, and of what data was available in the backend systems in use at the universities. Based on this, we designed an easy to use, REST/JSON-based API that is straightforward to implement by universities as well as application designers, and offers access to a rich set of student data.

While working on the specifications, we immediately implemented our ideas in a reference API and a fake-data backend. Further, we developed a reference app that uses the API to and displays it on a mobile device. The universities involved have also implemented part of the specification in APIs for their live systems, and are committed to using the standard for their outward-facing APIs. This hands-on approach allowed us to make sure the standards process was not simply a theoretical exercise, but could be easily applied to real-life systems.

Next steps are to check if the set of APIs we have defined so far cover all use cases of institutions and app developers. Furthermore, we will use it as a example for Dutch universities who are not yet offering their own APIs to show them the benefits of developing APIs and convincing them to open up their data.

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