
Centralization systeem

Carsten Sinke & Chris Witteveen

Candea College - 11 January 2016

Schooler

Schooler is released under the GNU
General Public License

Source code can be found at:

<https://github.com/CWMCDev/>

Schooler

<https://github.com/CWMCDev/Barend>

Introduction

For our ‘profile paper’ we wanted to solve one of the biggest issues at our school. Our school had decided to have multiple 3rd parties to distribute their information. Such as: ItsLearning, Zermelo, SomToday and their own website. In our and the view of other students we find this rather inconvenient. That’s why we want to solve this problem in a way that we centralize all these systems into one clear overview.

Getting the right information

Before we can get to work we needed to see what information we wanted to use. We stripped down the different platforms: As this is too much information to include in this short amount of time in our Platform, we chose to take only the most important information. The green bullets resemble the information we wanted to implement in our Platform. Here the stripped down version of the different sites:

Candea site:

- Klassenlijst
- Profiel
- Presentie
- Algemene Regels
- Cijferlijst/Examendossier
 - Cijferlijst (SomToday)
 - Examendossier
- PTA
- Examenregelement
- Interne info
 - Downloads
 - Ins & Outs
 - Schoolgids
 - Reglementen
 - Taakomschrijving mentoren
 - handleiding
 - verzuimprotocol
 - Dyslexiebeleid
 - Pestprotocol
 - Sociale mediabeleid
 - Tevredenheidssenquête
 - Medezeggenschap
 - MR
 - 't Can
 - Vertrouwenspersonen
 - Rouwkost
 - Keuzegids vervolgonderwijs
 - Praktisch
 - Lestijden
 - Vakanties
 - Spreekuren (schoolagent, schoolarts)
- Activiteiten
 - Mappen met foto's

Zermelo(zportal):

- Home
 - Welkom
 - Dagrooster
 - Wijzigingen van de week
 - Mededelingen
 - Toetsen en activiteiten
 - Mijn rooster
 - Weekrooster
 - Roosters van andere weken
 - Mijn lessen
 - Lessen van huidige dag
 - Mijn keuzepakket
 - Geen inhoud
- Rooster
 - Afspraken
 - Error melding
 - Roosteroverzichten
 - Roosters van leerlingen en docenten
 - Roosters van lesgroepen
 - Roosters van lokalen
- Koppeling
 - Koppel App
 - App code
 - ItsLearning
 - Werkt niet

ItsLearning

- Candeo College Dashboard
 - rooster melding
 - Info
 - Favoriete links
 - Nieuws
 - Digitale leermiddelen
 - Berichten
 - Gebeurtenissen
 - Vakken
- Vakken
 - Vakdashboard
 - Digitaal lesmateriaal
 - Belangrijke bestanden
 - Status en Follow-up
 - Niet in gebruik
 - Deelnemers
 - Deelnemeres
 - Kaartenlijst
 - Vakinhoud
 - “vak”
 - Studiewijzer
 - Werkportofolio
 - Elementen
 - Taken
 - Logboek
 - Leerdoelen
 - Beoordelingsprotfolio
 - Elementen
 - Categorieën
 - Exporteren
 - Mappen
 - Bestanden per Hoofdstuk
 - “Bestanden”
 - Projecten
 - Niet in gebruik
 - Agenda
 - Plannen
 - Studiewijzer
 - Zoeken

- 
- Office365
 - Outlook
 - Agenda
 - Personen
 - OneDrive
 - Taken
 - Word Online
 - Excel Online
 - Powerpoint Online
 - OneNote Online
 - Delve
 - Video
 - Sway
 - Home
 - Office installeren op meerdere apparaten
 - Postvak-in

Retrieving the Information

Backend

Zermelo:

Before we started this project we already had one where you could check your schedule called CCWeb. This project was our initial project and with our profile paper we wanted to go a step further with this.

For retrieving the schedule we already had a script based on CCWeb which had been built by Cas de Reuver.

Zportal - Retrieving the schedule

Key	Variable
Title	Set Token
URL	/zportal/settoken/:key
Method	GET
URL Params	Required key: String
Success Response	Example: Code: 200 Content { "token" "46q...asb014c7mo3kv"
Error Response	Example: Code: 403 Content {"error": "Deze code is niet correct"}

The table above represents the first step in retrieving the schedule. This first step is getting access to the Zermelo API. To get access we need a key, or a code. This code can be found on the Zportal site of Candea, the code is also used to make the Zermelo app work. Once the code is sent to our API, our API sends the code to the Zermelo API which then returns a token if the code is valid. This token will later be used to retrieve the schedule.

Key	Variable
Title	Get Schedule
URL	/zportal/schedule/:type/:id/:week/:token
Method	GET
URL Params	<p>Required</p> <p>type: String - must be one of following: student, teacher, room, class, subject</p> <p>id: String - must be a matching one to type</p> <p>week: Int</p> <p>token: String</p>
Success Response	<p>Example:</p> <p>Code: 200</p> <pre>Content: [{ "id": 162871, "start": 14488668800, "end": 1448869500, "subjects": ["wi"], "teachers": ["pfs"], "groups": ["k3b"], "locations": ["p151"], "type": "lesson", "remark": "", "valid": true, "cancelled": false, "modified": false, "moved": false, "changeDescription": "", "startTimeSlot": 1, "endTimeSlot": 1, "branch": "candea", "branchOfSchool": null, "created": 1448375540, "lastModified": 1448375540, "hidden": false, "appointmentInstance": 53058, "new": false }]</pre>
Error Response	<p>Example:</p> <p>Code: 403</p> <pre>Content: {"error": "The used code is invalid"}</pre>

After we have our token, we want to get the schedule. In this step we need to use the token we got from the first step. We also need to specify a type, id and week for the schedule. The type can be: Student, Teacher, Room, Class or Subject. The id must match the type, for instance:

- If type = Student, Id can be CC111748
- If type = Teacher, Id can be Anz
- If type = Room, Id can be S207
- If type = Class, Id can be V6.SCHK1
- If type = Subject, Id can be NETL

The list above is an example of what combinations there can be.

After we specified the type and id, we needed to tell what week we want the schedule off. We also need to give the token we got at step one. We then have the schedule in a JSON format as shown at Success Response.

Key	Variable
Title	Get Schedule
URL	/zportal/schedule/:week/:token/:user/:userToken
Method	GET
URL Params	Required week: Int token: String user: String Prefixing "CC" userToken: String - Token you get from portal auth
Success Response	Example: Code: 200 Content: [{ "id": 162871, "start": 1448866800, "end": 1448869500, "subjects": ["wi"], "teachers": ["pfs"], "groups": ["k3b"], "locations": ["p151"], "type": "lesson", "remark": "", "valid": true, "cancelled": false, "modified": false, "moved": false, "changeDescription": "", "startTimeSlot": 1, "endTimeSlot": 1, "branch": "candeia", "branchOfSchool": null, "created": 1448375540, "lastModified": 1448375540, "hidden": false, "appointmentInstance": 53058, "new": false, "dayOfWeek": "Maandag", "status": "aanw" }]
Error Response	Example: Code: 403 Content: {"error": "The used code is invalid"}

The table represents another way of retrieving the schedule. We now need the token we got at step one, we need to tell what week we want the schedule off and we need to specify a combination of user and userToken. This combination can be retrieved from the Auth of our API. This will be explained in the Student Portal section.

After we specified everything we can get the schedule, but this time won't only get the schedule. We also get the presence of the student integrated into the schedule. This can provide an easy way to see what lessons you missed.

Student Portal - Retrieving student information/grades/presence

Key	Variable
Title	Register
URL	/auth/register/:user/:password
Method	GET
URL Params	Required user: String Prefixing "CC" password: String
Success Response	Example: Code: 200 Content: { "token": "4DPTqkSNIPdvBZId2gwC3UFeJ8M" }

To retrieve the information from Candea's own site we use a authentication system. This system provides a safe way to manage a student's personal information such as their username and password combination. This system relies on tokens. These tokens are generated when a student enters their credentials. The combination of token and username can then be used. This secure system was developed by Milo Cesar.

Som Today

Candea uses a third party system called SomToday on their site. When we wanted to implement this, we went to the schools IT-department. We asked if we could use their API's, but they told us they could not do this because of security reasons. This was a huge setback for since we now needed to develop another system to retrieve the information from the site.

Key	Variable
Title	Get Grades
URL	/portal/students/grades/:period/:user/:token
Method	GET
URL Params	Required ‘period’: Int user: String Prefixing “CC” token: String
Succes Response	Example: Code: 200 Content: {"periode":1,"classes":[{"line":0,"title":"Nederlandse taal en literatuur","text":"NETL","grades":["9.4","8.4","6.8"]}]}

This first part of the SomToday integration is the grades of a student. We need to specify a user, token and period. A valid combination of token and username is necessary, we can get this combination with the auth. We also need to specify the period because there is more than one period on the list of grades. After we do this we will get all the students grades of the specified period.

Grades are shown in cijfers.php

Key	Variable
Title	Get Presention
URL	/portal/students/presentation/:user/:token
Method	GET
URL Params	Example: user: String prefixing "CC" token: String
Success Response	Example: Code: 200 Content: "presentie": [{ "week": "31", "dagen": { "Maandag": [{ "hour": 1, "status": "" }] } }]

The second part of SomToday is presence. This time we only need a valid combination of user and token. Once the request is sent, the response will contain the presence of the student. This contains the status of every hour sorted per day, which are sorted per week. We also use this system to integrate the presence into the schedule.

presence is shown in presentation.php

Key	Variable
Title	Get Class list
URL	/portal/students/classlist/:user/:token
Method	GET
URL Params	Required user: String Prefixing “CC” token: String
Success Response	Example: Code: 200 Content: { “classlist”: [{ “name”: “ Chris Witteveen “, “id”：“111748” }]}

The third part of SomToday is the classlist. We once again need a valid combination of user and token. With this part of the API we retrieve all students in the students mentor class. We not only gather the names but also the id's of a student. We do this because you can use the id's to see a persons schedule.

the classlist is shown in classlist.php

Key	Variable
Title	Get Profile
URL	/portal/students/profile/:user/:token
Method	GET
URL Params	Required user: String Prefixing "CC" token: String
Success Response	Example: Code: 200 Content: { "student": { "name": " Chris Witteveen ", "studentnumber": "111748", "class": "V6E", "birthdate": "28-04-1998", "phonenumbers": { "home": " 026-3117020 ", "mobile": " " } }, "adress": { "street": "Heilweg 36", "zipcode": "6932KJ", "place": "WESTERVOORT" }, "mentor": { "name": " A. Steenbergen ", "abbreviation": "Stn", "email": "a.steenbergen@candea.nl" }, "Profile": { "profile": "Atheneum NT-NG", "code": "0174", "abbreviation": "ATH-NTNG", "year": "4 5 6" } }

The fourth and last part of SomToday is the profile page. For this part we once again need a valid combination of user and token. We get all data from the profile page and put it into a JSON response as shown above.

The profile is shown in profile.php

Displaying the information

Frontend

Schooler

Schooler is our frontend and will display all the information we parse through our backend API.



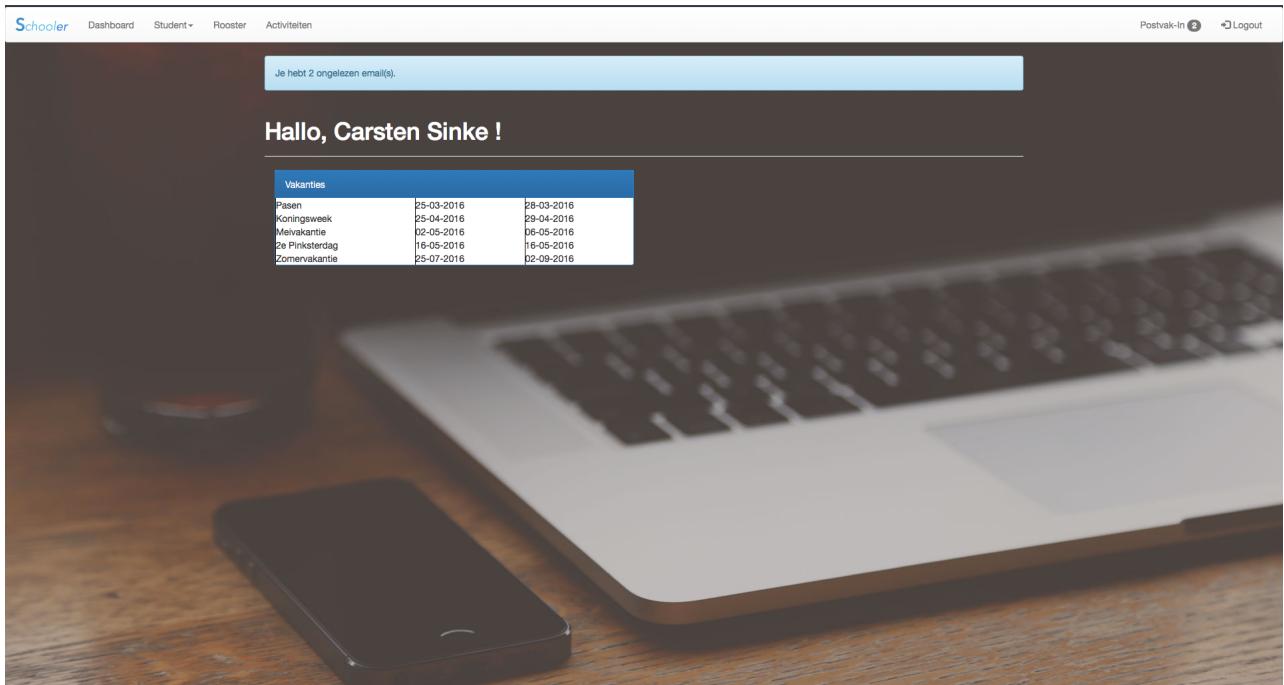
Please sign in

Leerlingnummer
Password

Sign in

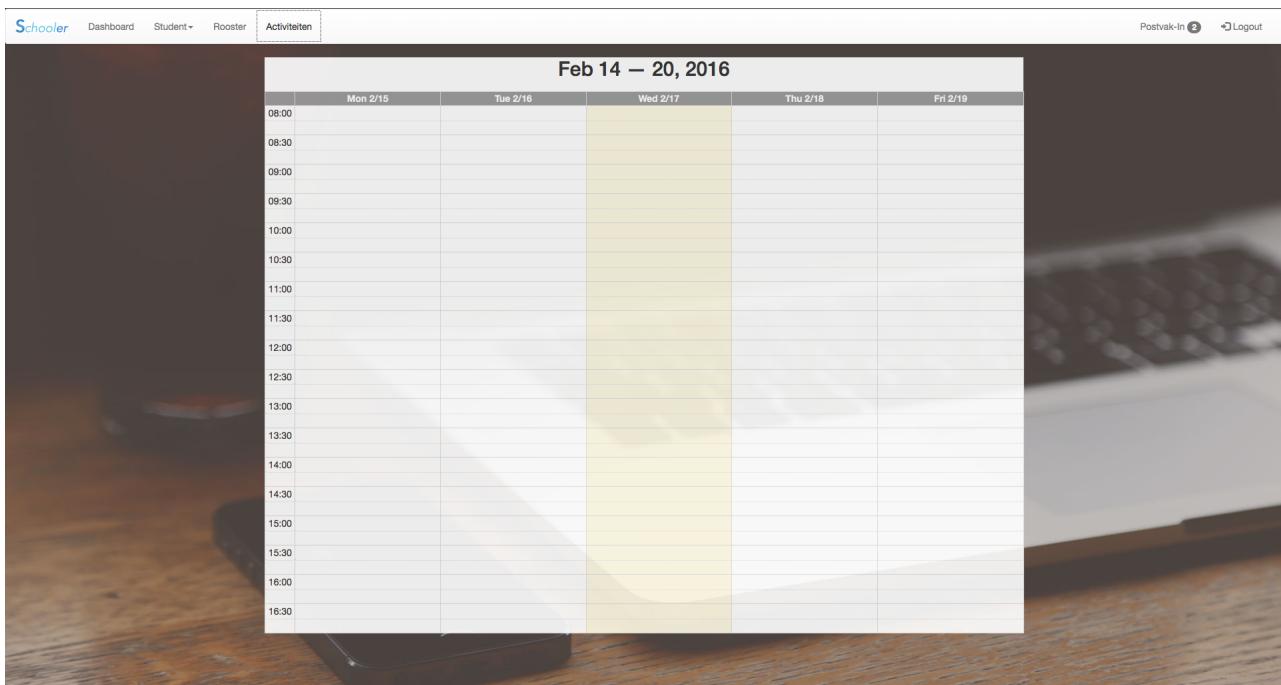
Index.php

Here you need to enter your credentials. These will be send to our backend. If the credentials are correct a token will be send back and you will be logged in.



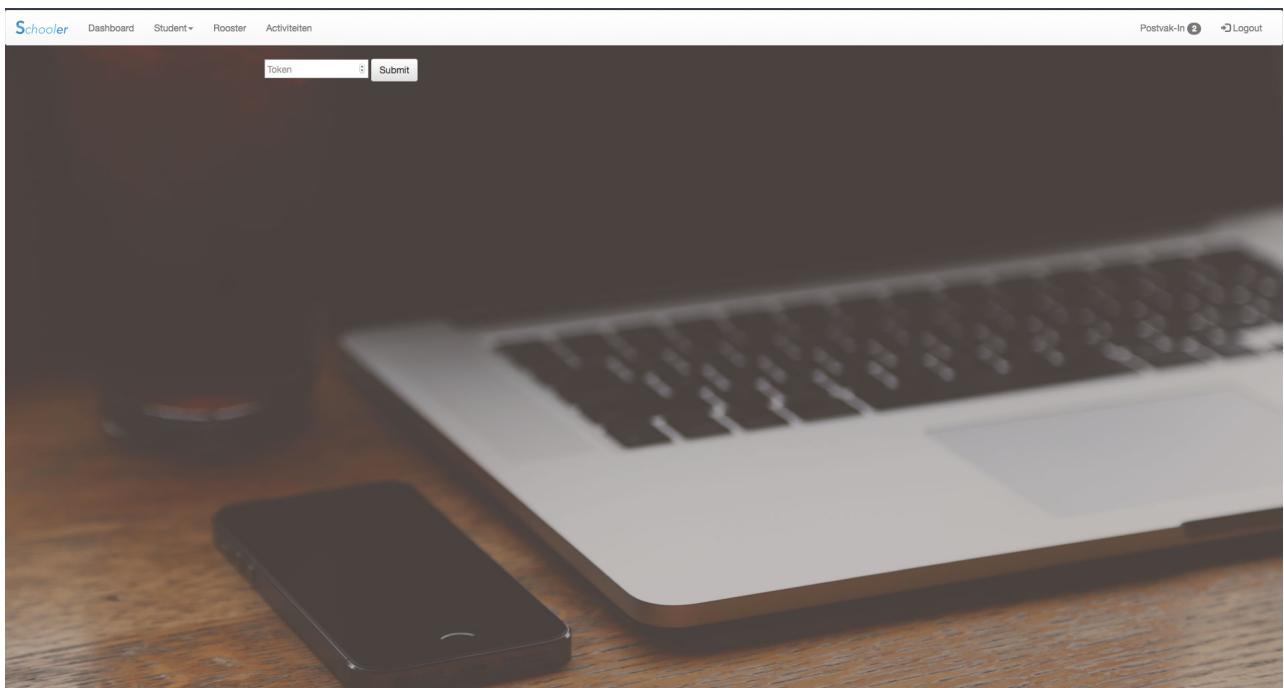
Dashboard.php

The dashboard will give you some basic information. At this point we did not implement much. Later we could add some other modules. At this stage we display your vacations and if you have any messages waiting for you in your inbox.



schedule.php

Here we display your schedule. In this image above we are still testing this. In the final release it is working.



schedule.php

Before we can display any schedule, we need to fill in a token from Zportal. It is shown above where you need to enter this token.

NETL	5.5	5.7	6.0						1 2 3
ENTL	6.2	6.0	7.0	6.1					
MAAT									
LO									
CKV									
RKT									
HACO									
comb HAVO									
WISB	6.2	7.3							
NAT	6.6	7.0	9.0	7.8	8.0	7.0			
SCHK	6.2	6.6	V						
BIOL	5.5	7.1	6.8						
IN	8.1	6.9	9.7						

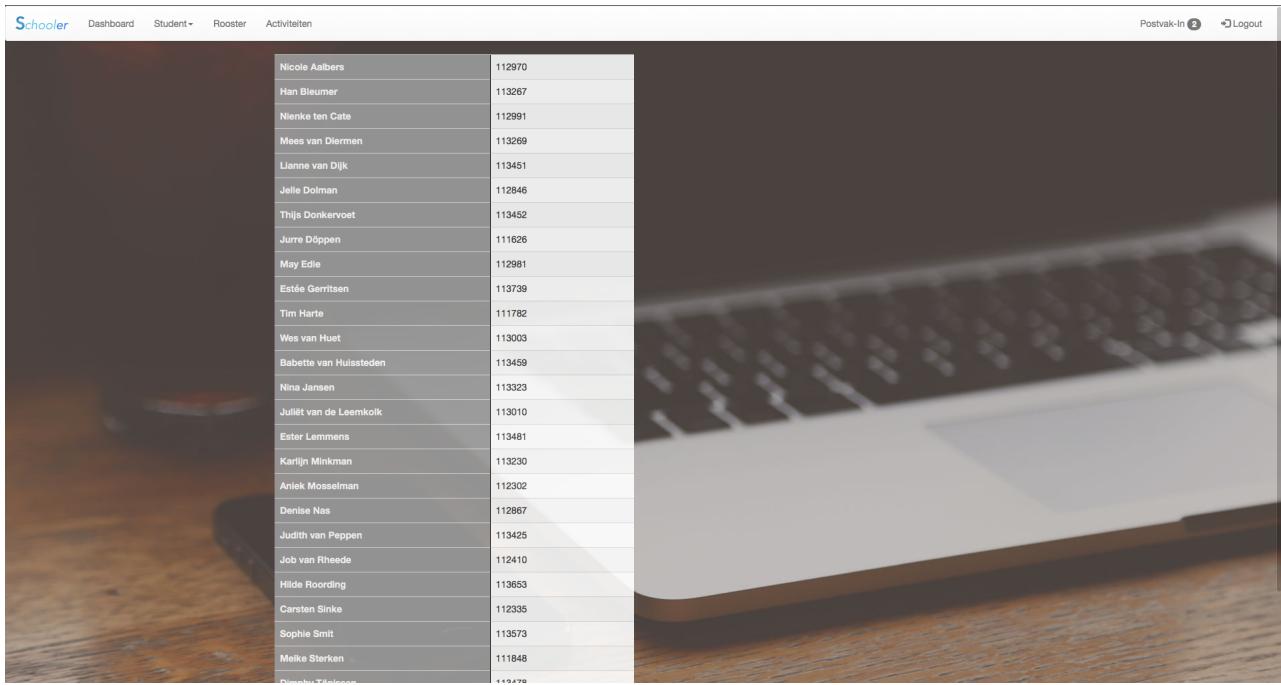
cijfers.php

In cijfers.php we display all the grades of a student of a certain period. The period can be chosen in the top right corner after which the new period will be loaded.

presentation.php

In presentation.php we display the presence of the student in each lesson. Here a list of abbreviations, meaning and color:

Abbreviation	Meaning	Color
Afw	Absent	danger (red)
GA	Permissible absent	success (green)
Mld	Warning-only	Warning (orange)
aanw	present	success (green)



Schooler	
Dashboard	Student
Rooster	Activiteiten
Nicole Aalbers	112970
Han Bleumer	113267
Nienke ten Cate	112991
Mees van Diermen	113269
Lianne van Dijk	113451
Jelle Dolman	112846
Thijl Donkervoet	113452
Jurra Döppen	111626
May Edie	112981
Ester Gerritsen	113739
Tim Harte	111782
Wes van Huet	113003
Babette van Huissteden	113459
Nina Jansen	113323
Juliet van de Leemkolk	113010
Ester Lemmens	113481
Karlijn Minkman	113230
Aniek Mosselman	112302
Denise Nas	112867
Judith van Peppen	113425
Job van Rheede	112410
Hilde Roording	113653
Carsten Slinke	112335
Sophie Smit	113573
Meijke Sterken	111848
Dimpay Tjalkens	1119470

classlist.php

In the classlist.php we display all students that are in your mentor class with their student id.

The screenshot shows a student profile page from the Schooler application. At the top, there's a navigation bar with links for Dashboard, Student, Rooster, Activiteiten, Postvak-In (with a help icon), and Logout. The main content area displays two tables of student information.

Leerlingnummer	112335
Klas	H5F
Geborendatum	08-06-1997
Telefoon privé	0316-282474

Straat	Bingerdenallee 1
Postcode	6921JN
Plaats	DUNEN

Mentor	E.S. Langelaan
Afkorting	Lnl
E-mail	e.langelaan@candea.nl

Onderwijsstype	Havo NT-NG
Code	0374
Afkorting	HAVO-NTNG
Leerjaar	4 5

profile.php

In the profile.php we display the profile content of the student.

```

14  <!DOCTYPE html>
15  <html>
16  <head>
17  <meta charset="utf-8">
18  <meta http-equiv="X-UA-Compatible" content="IE=edge">
19  <meta name="viewport" content="width=device-width, initial-scale=1">
20  <title>Schooler - <php echo($title); ></title>
21  <!-- Latest jQuery -->
22  <script src="https://code.jquery.com/jquery-2.2.0.min.js"></script>
23
24  <!-- Latest compiled and minified CSS -->
25  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap.min.css" integrity="sha384-1q8mTJOASx8j1AU+a5WDvNP12lkFfwEAa8h0DjZlpLegxh)WE1fgjWPGmkz7" crossorigin="anonymous">
26
27  <!-- Optional theme -->
28  <link href="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/css/bootstrap-theme.min.css" integrity="sha384-fLW2N01MqjakBkx3I/H9EahwpSfeNV63J5ezn3uZzapT0u7EYsXMjQ+0En5r" crossorigin="anonymous">
29
30  <!-- Latest compiled and minified JavaScript -->
31  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.3.6/js/bootstrap.min.js" integrity="sha384-sha384-0mSbjDEHialfmUBQp6A40rprq50VfW37PRR3j5ElqxssiyVq0tnepnHP9aj7xS" crossorigin="anonymous"></script>
32
33  <script src="scripts/sonic.js"></script>
34  <script src="scripts/loading.js"></script>
35  <script type="text/javascript" href="dashboard.css">
36
37  function readCookie(name) {
38      var nameEQ = name + "=";
39      var ca = document.cookie.split(';');
40      for(var i=0;i < ca.length;i++) {
41          var c = ca[i];
42          while (c.charAt(0)==' ') c = c.substring(1,c.length);
43          if (c.indexOf(nameEQ) == 0) return c.substring(nameEQ.length,c.length);
44      }
45      return null;
46  }
47  $(document).ready( function () {
48      var id = readCookie('id');
49      var token = readCookie('token');
50
51      var url = 'http://api.8t2.eu/mail/' + id + '/' + token;
52
53      $.ajax({
54          url: url,
55          dataType: 'json',
56          success: function(result){
57              var unread = result.unread;
58              if(unread==0){
59                  $("#mail-count").html(unread);
60                  $("#mail-count").removeClass('hidden');
61                  if(typeof updateUnread == 'function'){
62                      updateUnread(unread);
63                  }
64              }
65          }
66      });
67  });
68
69
70 </script>
71 <link href='fullcalendar.css' rel='stylesheet' />
72 <link href='scheduler.css' rel='stylesheet' />
73 <script src='moment.js'></script>
74 <script src='jquery.js'></script>
75 <script src='fullcalendar.js'></script>
76 <script src='scheduler.js'></script>
77
78 </head>
79 <body background="/images/background.jpg">
80 <!--navbar for all pages-->
81 <nav class="navbar navbar-default">

```

header.php + footer.php

In the header.php and footer.php we added the registration streams to authenticate you by the different platforms(Zermelo, Itslearning and Candea). We also included the navigation menu so it will be the same on every page.

Activiteiten is a redirected link to an earlier project. We believe that this is really handy due to the long waiting time of the school photographer.

The screenshot shows a dark-themed website for CCFoto. At the top, a header bar contains the text "CCFoto - Een CCWeb initiatief". Below this, the main content area has a sidebar on the left and a larger main panel on the right.

Left Sidebar:

- A blue "Home" link.
- A section for "2015" with dropdown menus for "Kerstgala", "Promnight", and "MACC Awards".
- A section for "2014" with a dropdown menu for "Kerstgala".
- A "Hosted by Cas." logo featuring a small photo of a person.

Main Panel:

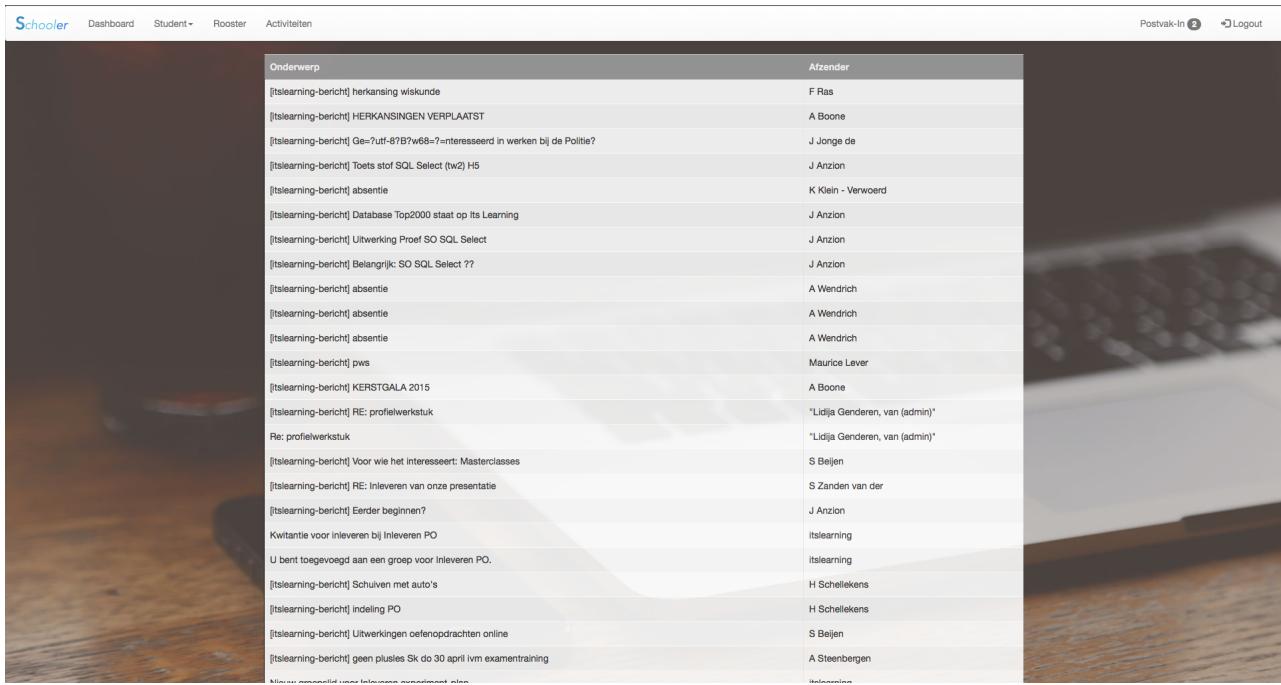
- 2015:** A list of events including "Kerstgala", "Algemeen", "Klassenfoto's", "Promnight", "HAVO/VWO", "MACC Awards", "Donderdag", and "Vrijdag".
- 2014:** A list of events including "Kerstgala", "Algemeen", and "Klassenfoto's".

Text at the bottom:

Foto's gemaakt door SLV
Candeia, Iris Bakker, Jip van
Stuijverberg, Marioes Brugman,
Rick Verschuur en Amy Hengst

Activities

Activiteiten is a redirected link to an earlier project. We believe that this is really handy due to the long waiting time of the school photographer.



Onderwerp	Afzender
[itslearning-bericht] herkansing wiskunde	F Ras
[itslearning-bericht] HERKANSINGEN VERPLAATST	A Boone
[itslearning-bericht] Ge=?utf-8?B?w68=?=interesseerd in werken bij de Politie?	J Jonge de
[itslearning-bericht] Toets stof SQL Select (tw2) H5	J Anzion
[itslearning-bericht] absente	K Klein - Verwoerd
[itslearning-bericht] Database Top2000 staat op Its Learning	J Anzion
[itslearning-bericht] Uitwerking Proef SO SQL Select	J Anzion
[itslearning-bericht] Belangrijk: SO SQL Select ??	J Anzion
[itslearning-bericht] absente	A Wendrich
[itslearning-bericht] absente	A Wendrich
[itslearning-bericht] absente	A Wendrich
[itslearning-bericht] pwa	Maurice Lever
[itslearning-bericht] KERSTGALA 2015	A Boone
[itslearning-bericht] RE: profielwerkstuk	"Lidija Genderen, van (admin)"
Re: profielwerkstuk	"Lidija Genderen, van (admin)"
[itslearning-bericht] Voor wie het interesseert: Masterclasses	S Beijen
[itslearning-bericht] RE: Inleveren van onze presentatie	S Zanden van der
[itslearning-bericht] Eerder beginnen?	J Anzion
Kwitantie voor inleveren bij Inleveren PO	itslearning
U bent toegevoegd aan een groep voor Inleveren PO.	itslearning
[itslearning-bericht] Schulven met auto's	H Schellekens
[itslearning-bericht] Indeling PO	H Schellekens
[itslearning-bericht] Uitwerkingen oefenopdrachten online	S Beijen
[itslearning-bericht] geen pluishes Sk do 30 april ivm examentraining	A Steenbergen

mail.php

In this image above you can see how we have displayed the information. On the left the subject and on the right the sender. Due to the limited time we did not had the time to output the full contents of the emails.

Summary

In the end it really was an instructive profile paper. Before we started this project we said that we wanted to keep it small. We started off strong. We made a trello board with a checklist to remind us what we still needed to do. At first we were doing great, but as time went by we noticed a few hick ups. Those were due to the fact that our school didn't want to give us access to their API's to retrieve the information we needed. This process of asking for that information took us about three and a half months with the final result that we needed to parse the full site to get ours to work. We did not anticipate this result and this led to a huge setback on our schedule. To finish this project in time we really needed the help of some other people. Therefore we'd like to thank Milo Cesar, Kurt Stam and Cas de Reuver for helping us out on our almost impossible job. The final project took a total of 250 hours with the help of our friends.

This project is still a live project. The latest source code can be downloaded via the links at the front page.

Logboek

maandag 2 feb: keuze partner, onderwerp, profielvak en begeleider

maandag 23 feb: Formuleren hoofd/deelvragen

maandag 2 maart: radboud Universiteit

maart - juni: Onderzoeksfase, plan van aanpak en onderzoek uitvoeren.

vrijdag 17 juli: Resultaten uitwerken

Hoofdvraag:

In hoeverre kunnen we de digitale communicatie verbeteren d.m.v. het centraliseren van school systemen?

Deelvragen:

1. Wat zijn de voor-en nadelen van het centralisten van systemen?
2. Hoe kunnen we de veiligheid van de gebruikers gegevens garanderen?
3. Welke groepen en op wat voor manier hebben deze baat bij het centralisten van deze gegevens?
4. Welke digitale middelen kunnen we gebruiken om deze gegevens aan de doelgroepen te brengen?
5. Op welke manieren kunnen we deze digitale middelen implementeren rekening houdend met eerder gevonden resultaten(in een App/ Dashboard)?

september, oktober, november: Definitieve versie + voortgangsgesprek

Sept 05: Carsten is begonnen met het vragen naar toeing tot API's van ItsLearning. (took more than 2 months before final answers, check in every week if there were any updates)

Oct 02: Voortgangsgesprek: API

Oct 08: Carsten navrageren van Som API manager Vos. (Took more than one month for final answers, i check in every week for new updates)

Nov 19: Barend:Chris Initial backend commit + first bug fixes (big part from earlier project by Cas de Reuver

Nov 20: Barend: Chris did not make it clear what he was doing
Nov 21: Barend Chris, added some workarounds

Nov 22: Barend: Chris did not make clear what he was doing

Nov 23: Barend: Added presence

Nov 24: Barend: Username handling fix and Deploy script by Milo Cesar

Nov 25: Barend: Schedule added, local host fix

Nov 26: Barend: Chris was fixing son pretty print

Nov 27: Barend: Debugging

Nov 28: Barend: Milo added debug endpoint and made memory more efficient.

Dec 01: Barend: Sort function was added

Dec 02: Barend: Student portal added, Licence added, Cas de Reuver removed unnecessary code.

Dec 03: Barend: Removed crashing code, updated htaccess, redirect all non endpoint to index, include token in URL

Dec 04: Barend: Grades endpoint added and workaround empty cache by Milo Cesar

Dec 08: Barend: Added parse time, Presence integrated with schedule

Dec 11: Barend: Cammelcase, classlist integration, (Milo Cesar: UTF8 decode names, added Unicode decoding), added setcookie

Dec 12: Barend: Added login path

Dec 13: Milo Cesar did some authentication and token improvements.

Dec 14: Barend: Milo Cesar forced token on all endpoints

Dec 15: Chris didn't make it clear what he was working on

Dec 26: Main and sub questions are not necessary any more

Dec 27: Barend: Server debugging by Milo Cesar

Dec 29: Barend: Carsten Sinke added vacation data

Jan 02: Barend added profile path and added period to grades

Jan 09: first front-end commits, implemented: log-in interface, header + footer, License, profile page, grades

Barend: Milo Cesar removed salt and ditto some speed improvements, some changes for login to schedule by Chris Witteveen

Jan 10, Front-end: Presence, schedule, mail, token(to secure passwords), some header updates and navbar updates.

Jan 11: Front-end: fixed navbar and viewport for mobile support

Barend: Added Itslearning support