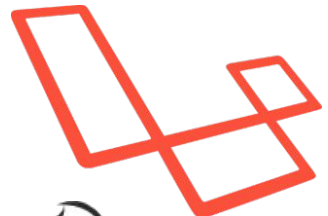
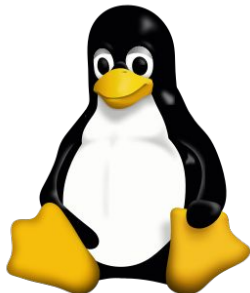


Engineering Advising & Flowchart System

Russell Feldhausen
Kansas State University

Goal:

- Replace current Engineering flowchart system
- Create new drag & drop interface for students
- Integrate other advising systems
- Build useful tool for Engineering advisors



Other libraries

- Axios (<https://github.com/axios/axios>)
- Fractal (<http://fractal.thephpleague.com/>)
- XavRsl Cas (<https://github.com/XavRsl/Cas>)
- dbConfig (<https://github.com/TerbiumLibs/dbConfig>)
- Doctrine DBAL (<http://www.doctrine-project.org/projects/dbal.html>)
- uniquewith-validator (<https://github.com/felixkiss/uniquewith-validator>)
- Laravel Routes Publisher (<https://github.com/themsaïd/laravel-routes-publisher>)
- AdminLTE (<https://adminlte.io/>)
- DevBridge jQuery Autocomplete (<https://github.com/devbridge/jQuery-Autocomplete>)
- Bootstrap DateTime Picker (<https://github.com/Eonasdan/bootstrap-datetimepicker>)
- HammerJS (<https://hammerjs.github.io/>)
- Summernote (<https://summernote.org/>)
- Web Animations (<https://github.com/web-animations/web-animations-js>)
- ...and many more dependencies!

Why Laravel?

- Own familiarity with Laravel and precursor (Symfony)
- Compatibility with existing CS systems
- Open source
- Most popular PHP framework (Dailyrazor.com)
- Large ecosystem of libraries and features

Major Features

- Advising Calendar (replaced phpScheduleIt / Booked)
- Admin Dashboard
- Group Advising Queue
- Flowcharts

Development Timeline

- June 2015: Tried Meteor (<https://www.meteor.com/>)
- July 2015: Flowchart Beta as SVG (Snap.svg.js)
- July 2015: Switch to Laravel
- August 2015: Courses from CIS 736 & Scheduler
- October 2015: Deploy scheduler to CS
- February 2016: Move to Require.js
- March 2016: Profiles and Group Sessions (React.js)

Development Timeline

- July 2016: Admin Dashboard & Soft Deletes
- November 2017: Upgrade from Laravel 5.1 to 5.4
- January 2018: Move from Require.js to Webpack
- January 2018: Move Group Session from React to Vue
- January 2018: Move from Bower to NPM
- January 2018: Add Editable Text Fields
- March 2018: Degree Plans & Flowcharts!

Major Code Features

- RESTful URLs & Routing (where possible)
- Separation of Concerns
- Modular JavaScript
- Use Laravel Features where Possible
 - Pusher events
 - Middleware for security, profiles, authentication
 - Database models & validation
 - Resource management & deployment

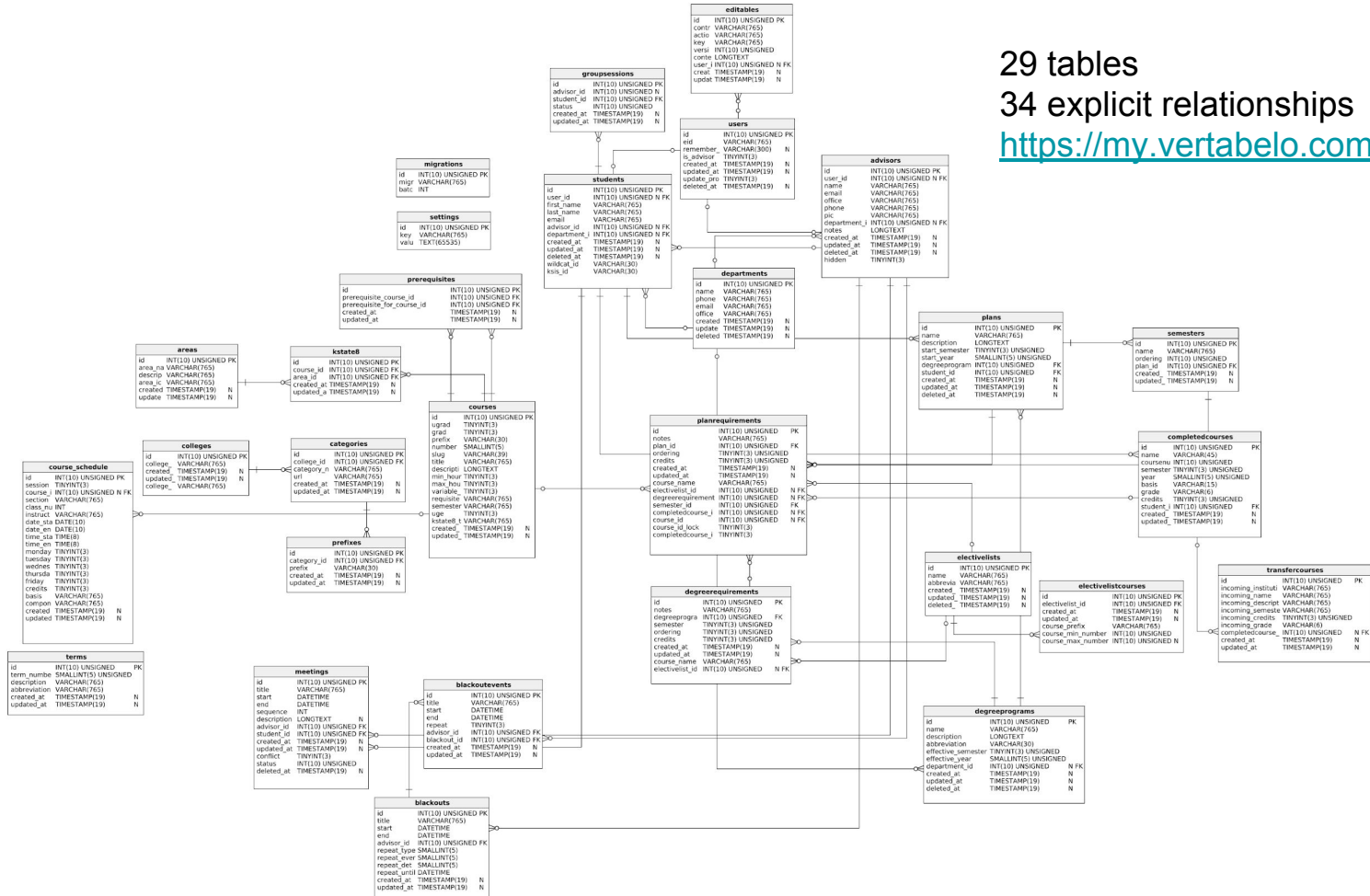
Major Code Features

- Only POST via AJAX
 - More responsive form validation errors
- Modern Iconography
- Responsive Mobile-First Design (with exceptions)
- Designed for Future Maintenance

Database Features

- Structure Defined in Code through Migrations
- Data Seeds for Testing
- Enforced Integrity Checks of Foreign Keys
- Enforced Uniqueness Checks
- Soft Deletes (where needed)
- Timestamped

29 tables
 34 explicit relationships
<https://my.vertabelo.com>



Demo!

<http://flowchart.russfeld.me/>

<http://flowchart.russfeld.me/auth/force?eid=russfeld>

Future Work

- Display Courses for Elective Lists
- Semester Scheduler Addon
- Admin Templates for Managing Catalog & Schedules
- Test system with CS Advisors
- Receive Official Data from KSIS & DARS
- Get Student Feedback on Flowchart Design
- Versioning System for Flowcharts?
- Machine Learning Projects on Data Collected?