

Jabulani School Simulation Portal

Client - Gretchen McAllister,
NAU Associate Professor

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Faculty Mentor - Ana
Steinmacher

Background

The Value of Classroom Diversity

- Diverse classrooms of students means recognizing that everybody is unique in their own way.

Creativity and Confidence

- Studies show that students can go further and concentrate better with people of different backgrounds working in the same environment.
- Diversity training for teachers in practice exists, but is flawed and can be improved upon in several areas.



Dr. Gretchen McAllister

Associate Professor

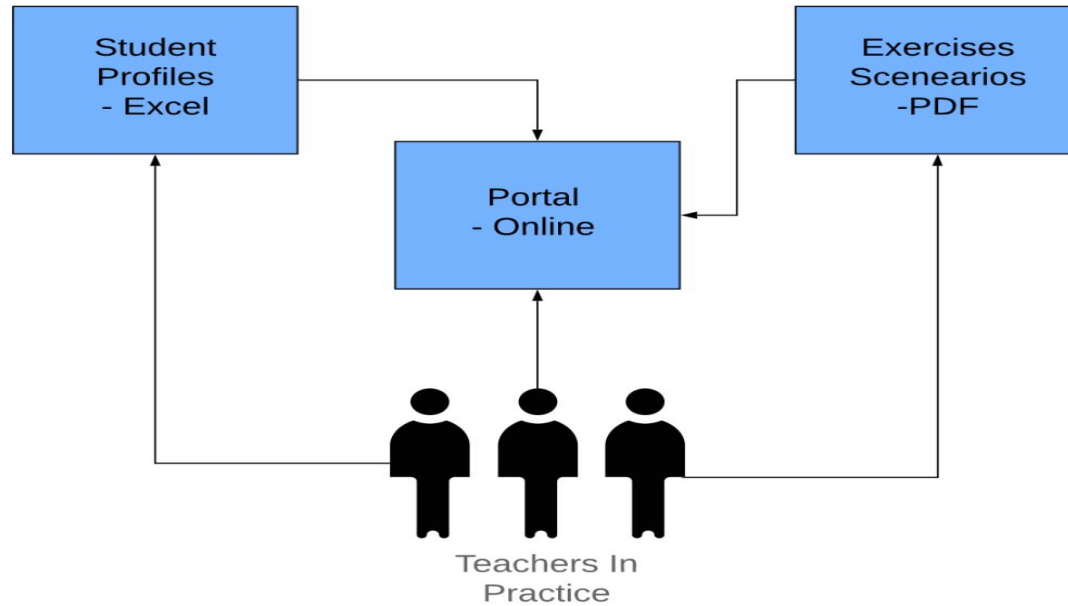
College of Education

Siswati Word - Jabulani

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The Dream



Problem



Lack of realistic class simulators for teachers in practice

- Provide simulations for classrooms and students that might exist in the real world

Old portal exists, but is outdated and inaccessible

- No way to access old site due to credentials lost from previous NAU IT faculty

Jabulani School District

[Jabulani Elementary School](#) | [Jabulani High](#)

[Elementary Lounge](#) | [High School Lounge](#)

Welcome to Jabulani!

This page is the starting point for information about the District and about each of our schools, Jabulani Elementary and Jabulani High School. Explore our District site!

Teaching at Jabulani

Interested in teaching at one of the Jabulani Schools? Click on either of the Application links below to fill out an online application to teach at our district.

[Elementary Application](#)

[High School Application](#)

You will be notified of your status by e-mail.

Jabulani High Students Pack New Computer Lab



Thanks to a federal grant, Jabulani High School opened a new computer lab last month. Students are flocking to the lab to use the latest multi-media software programs installed on every machine.

The new lab is also open on week-ends to provide hands-on access to students without home computers.

Visit our schools.

Click on the buttons below to go to each school web site.

[Jabulani Elementary](#)

[Jabulani High School](#)

Report Cards

Find out how we're doing. Click on the link below to view our School Report Cards.

[Elementary School](#)

[High School](#)

Solution Overview

Jabulani School Simulation Portal (JASS)

- Simulate virtual classrooms with virtual students
- Targeted customization for every teacher in practice
- Flexible data options for profiles and classrooms

Welcome to the Jabulani School Simulation Portal

This website is under construction

Please check back in May of 2019 for the official launch of this software.

[Credits](#)

Solution Requirements — Functional Requirements

- **FR1** — Administrator vs. Teacher-in-training Site Features
- **FR2** — Modifiable Virtual Classrooms
- **FR3** — Interactive Database
- **FR4** — Learning Module & Activities Use/Creation

Solution Requirements — Performance Requirements

- **NFR1** — Accessibility
- **NFR2** — Usability
- **NFR3** — Reliability
- **NFR4** — Maintainability for Future Refinement
- **NFR5** — Secure User Authentication

Class Prep

- **Create Virtual Classrooms**
 - Add Virtual Profiles
- **Create Learning Modules**
 - Add Activities

Create 'NAU Classes'

- **Create NAU Classes**
 - Add Virtual Classrooms
 - Add Learning Modules
 - Enroll student accounts

Interact with Students

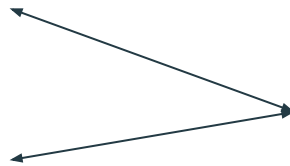
- Customize visibility of student profiles when students view Virtual Classrooms
- Track student progress
- Write a dashboard message to students in any NAU class



Virtual Classrooms



Learning Modules



'NAU Class'



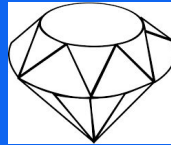
Students
(Teachers in training)

Architecture Overview

PostgreSQL Database



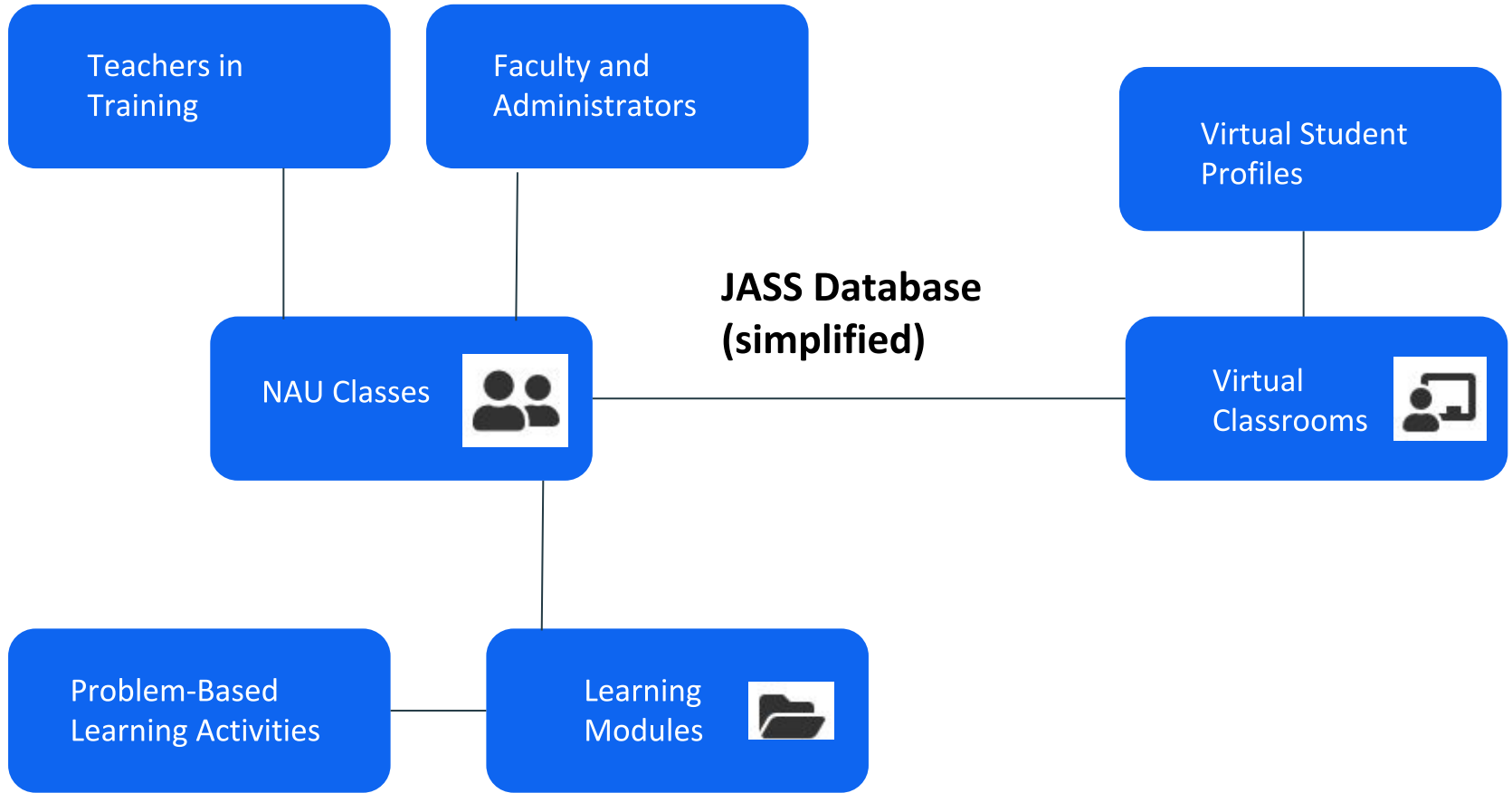
Ruby on Rails Framework



Front-End Technologies and Various Libraries

HTML, CSS, Javascript and various other frameworks and libraries like:

- Bootstrap
- will_paginate gem
- Devise gem



Solution - Modern Web Design

- Cluttered, confusing outdated layout and design -> Modern, simplistic design is clean and navigable

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[High School](#)

Jabulani School Simulation Portal

Welcome, Admin 123! [Sign Out](#)

Notice: Signed in successfully.

Menu

- View My Profile
- Update Profile
- Virtual Classrooms
- Learning Modules
- NAU Classes

Dashboard

How goes it, Admin? This is your personal dashboard.

Account Type: Local administrator

Privileges: Manage faculty and students...

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Solution - Separate Account Types

Jabulani School Simulation Portal

Sign In 

Email

admin@test.com

Password

.....



Remember me

Log in

[Sign up](#)

[Forgot your password?](#)

- Super administrator accounts
- Local administrator accounts
- Faculty accounts
- Student teacher in practice accounts

devise
||| |||

JASS Home Page

Jabulani School Simulation Portal

Sign In

Sign Up

Welcome to the Jabulani School Simulation Portal

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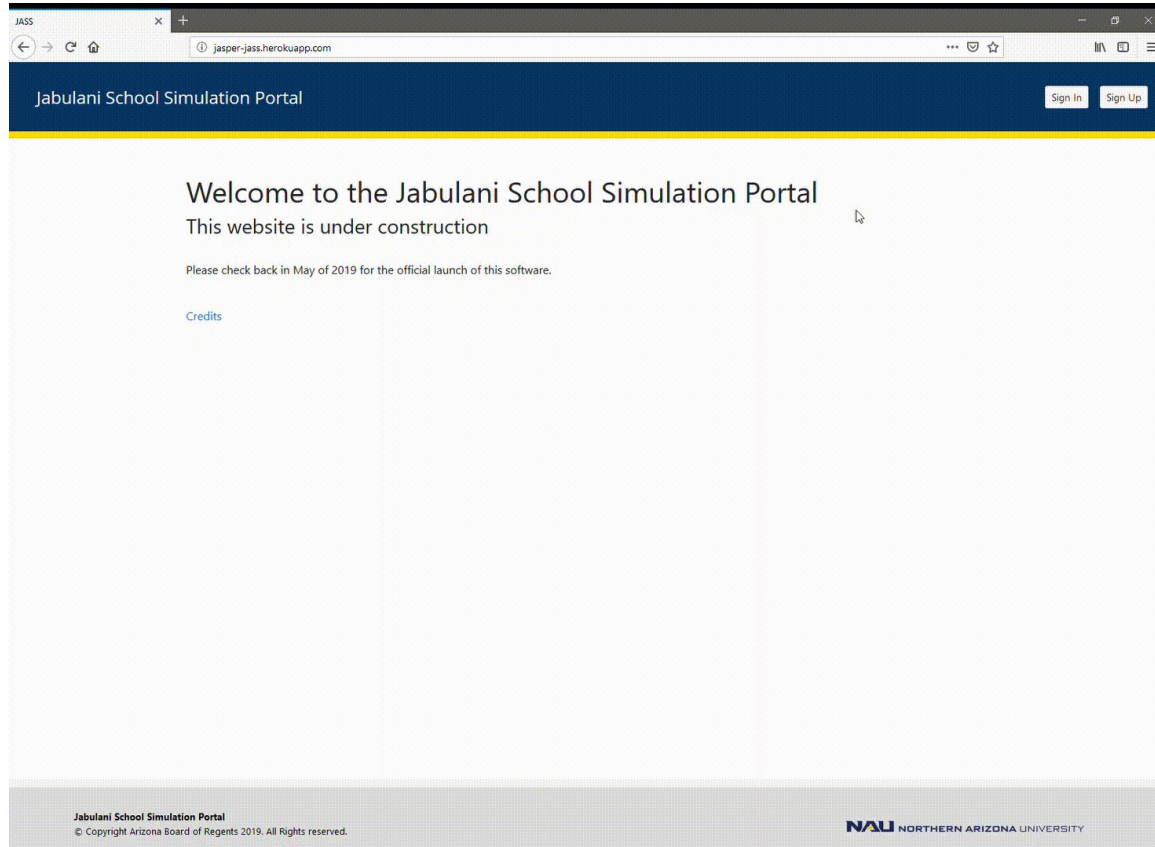
[Credits](#)

Jabulani School Simulation Portal

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Administrator Log In



The screenshot shows a web browser window with the URL `jasper-jass.herokuapp.com`. The page title is "Jabulani School Simulation Portal". In the top right corner, there are two buttons: "Sign In" and "Sign Up". The main content area features a large heading "Welcome to the Jabulani School Simulation Portal" followed by the text "This website is under construction". Below this, a message states "Please check back in May of 2019 for the official launch of this software." and a link for "Credits" is visible. The footer contains the text "Jabulani School Simulation Portal © Copyright Arizona Board of Regents 2019. All Rights reserved." and the "NAU NORTHERN ARIZONA UNIVERSITY" logo.

Jabulani School Simulation Portal

Sign In Sign Up

Welcome to the Jabulani School Simulation Portal

This website is under construction

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[Credits](#)

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Administrator Builds a Virtual Classroom

The screenshot shows a web browser window with the URL `jasper-jass.herokuapp.com`. The page title is "Jabulani School Simulation Portal" and the user is logged in as "Admin 1234!".

Menu

- View My Profile
- Update Profile
- Virtual Classrooms
- Learning Modules
- NAU Classes

Dashboard

How goes it, Admin? This is your personal dashboard.

Account Type: **Local administrator**

This account is managed by: Super Admin 123 (superadmin@test.com)

New Faculty Sign-Up Key: **qJw2bCqx7BB9eP0G**

[Generate New Key](#)

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Administrator Adds a Learning Activity

The screenshot shows a web browser window with the URL `jasper-jass.herokuapp.com`. The page title is "Jabulani School Simulation Portal". The user is logged in as "Admin 1234!" and has a "Sign Out" button. The dashboard is divided into two main sections: "Menu" and "Dashboard".

Menu

- View My Profile
- Update Profile
- Virtual Classrooms
- Learning Modules
- NAU Classes

Dashboard

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Account Type: **Local administrator**

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[Generate New Key](#)

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Administrator Builds a NAU Class




Administrator Views an NAU Class

The screenshot shows a web browser window with the URL `jasper-jass.herokuapp.com/offerings`. The page title is "Jabulani School Simulation Portal" and the user is logged in as "Admin 1234!". A "Sign Out" button is visible in the top right corner.

Menu

- Back to Dashboard
- Build a NAU Class
- Manage NAU Classes
- Update Student Progress

NAU Classes 

Welcome to the NAU Classes landing page. This page will provide links for administrators and faculty to manage NAU Classes, including their name and description, the TIPs enrolled in them, the exercises they have, and the virtual classrooms associated with them. For TIPs, this page will have links for them to access the NAU Classes they are enrolled in.

In addition, this page will include a welcome message, contact information for help, and a link to a user manual.

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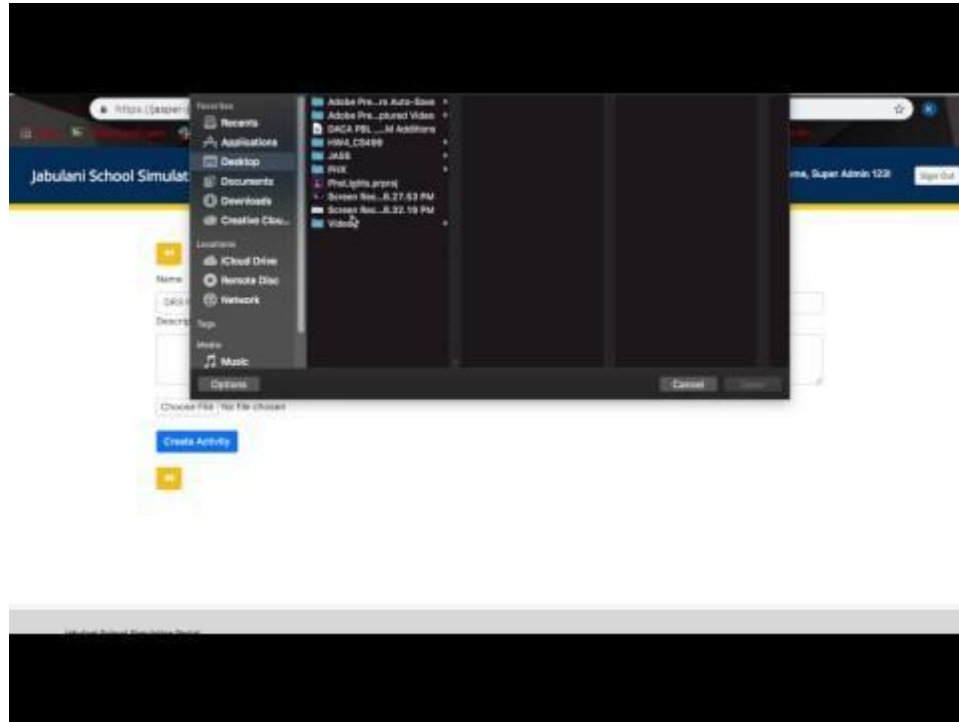
New Teacher in Training Enrolls in an NAU Class



Teacher in Training Views Assigned Features



Demo



Challenges & Resolutions

- Accessibility to users with disabilities
- Traits hiding feature
- Requirements Acquisition
- Label/Terminology choices (e.g Virtual Classrooms vs. NAU Classrooms)
- Balancing database flexibility with faculty permissions

Testing

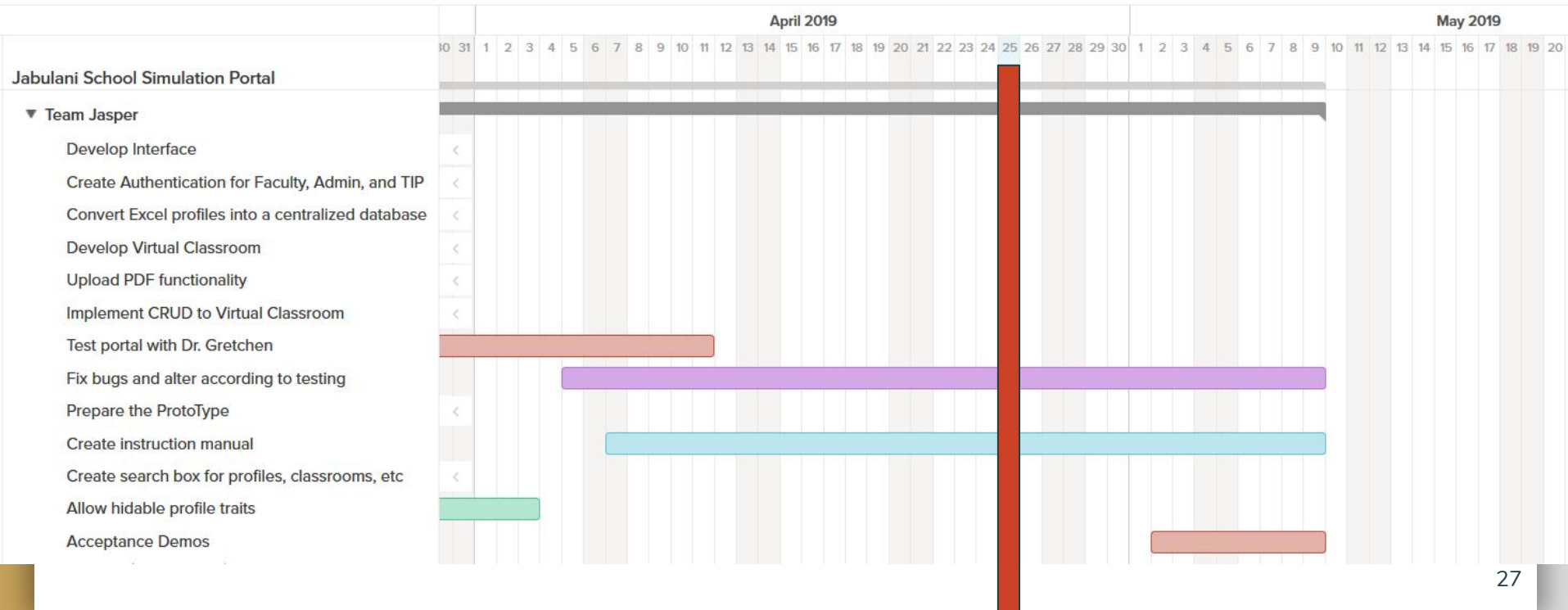
Usability Testing

- Usability assessment completed by the end-user in the presence of a moderator
- Subjects thinking aloud to provide accurate insight into process
- Attempt to complete a series of tasks that are specified in the system's user flow.
- Test subjects included varying degrees of technical backgrounds, ages, and teacher/student teacher status

Testing

- A moderator took note of the following:
 - How long did it take for the user to complete a task?
 - Is the application showing problems with functionality?
 - How satisfied is the user with the web application?
 - Is the user able to navigate the website without frustration?
 - Did they require a lot of clicks?

Spring Project Schedule

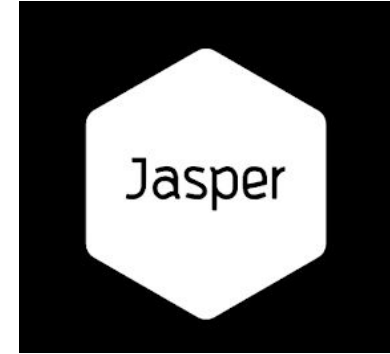


Future Prospects

- Virtual Reality
- Marketing to expand User-Interface
- CUI to expand database

Conclusion

- Developing Jabulani school simulation web portal
- Tool to supplement/simulate real-world classroom experience
- Main element is virtual classrooms with profiles and exercises
- Teachers-in-practice managed by faculty users



Contact Information: khn6@nau.edu

Team Website:

<https://www.cefns.nau.edu/capstone/projects/CS/2019/Jasper-S19/Project.html>

Please visit our poster session at CEIAS booth 11A