



Problem and Purpose

Our Client: Dr. Erika Konrad

Professor at NAU who teaches technical writing courses for those who wish to go into journalism

Problems:

- Max out attempts on quizzes
- NYT quizzes covers common issues
- No other alternatives for the type of interactive quiz wanted

Abilities:

- Login privileges (students/professor)
- Create/edit quizzes based on curriculum
- Being able to see student's results

Architecture

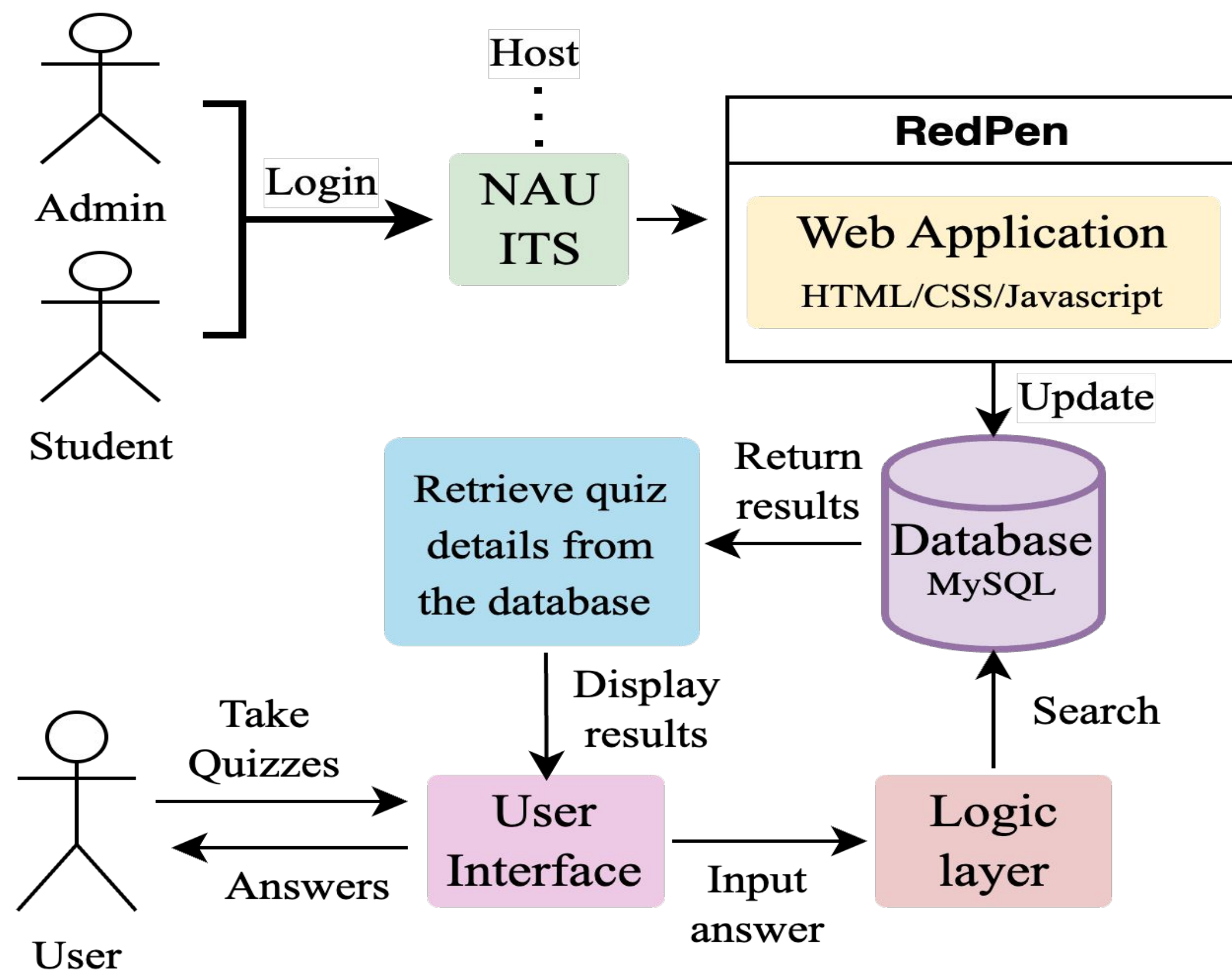


Figure 2. Architecture

Challenges

- **NAU ITS Outage**
Database was affected and halted development until the external server was created
- **Integration**

Solution Overview

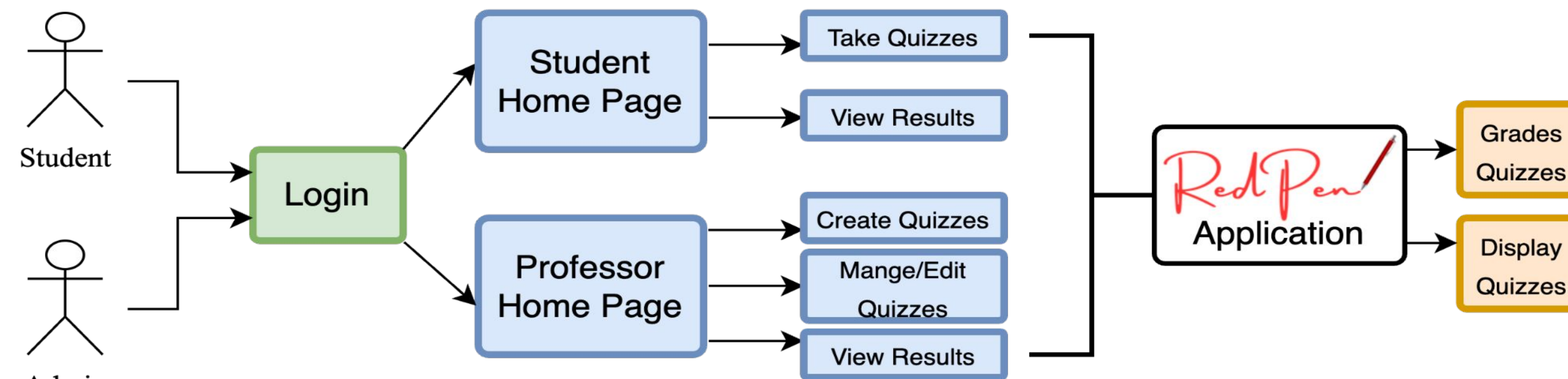


Figure 1. Overview of system

RedPen is an interactive quiz website. NAU students are able to take quizzes tailored to the learning objectives. No need to go to NYT Copy-Edit This Quiz..

RedPen is made up of five major modules: **Login Privileges, Database, Quiz Management, Data Access, and User Interface.**

RedPen contains these **Key Features:**

- See results immediately
- Easily download data
- Tag quiz items
- Free and easy to use



RedPen

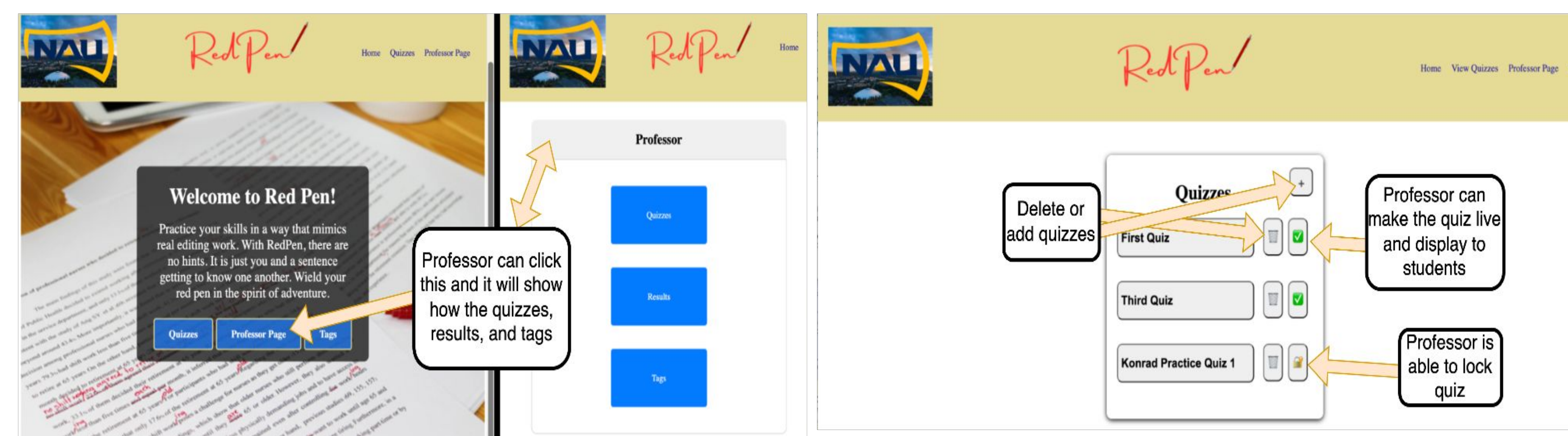


Figure 4. Professor Page Display

Figure 5. Quizzes Professor Side

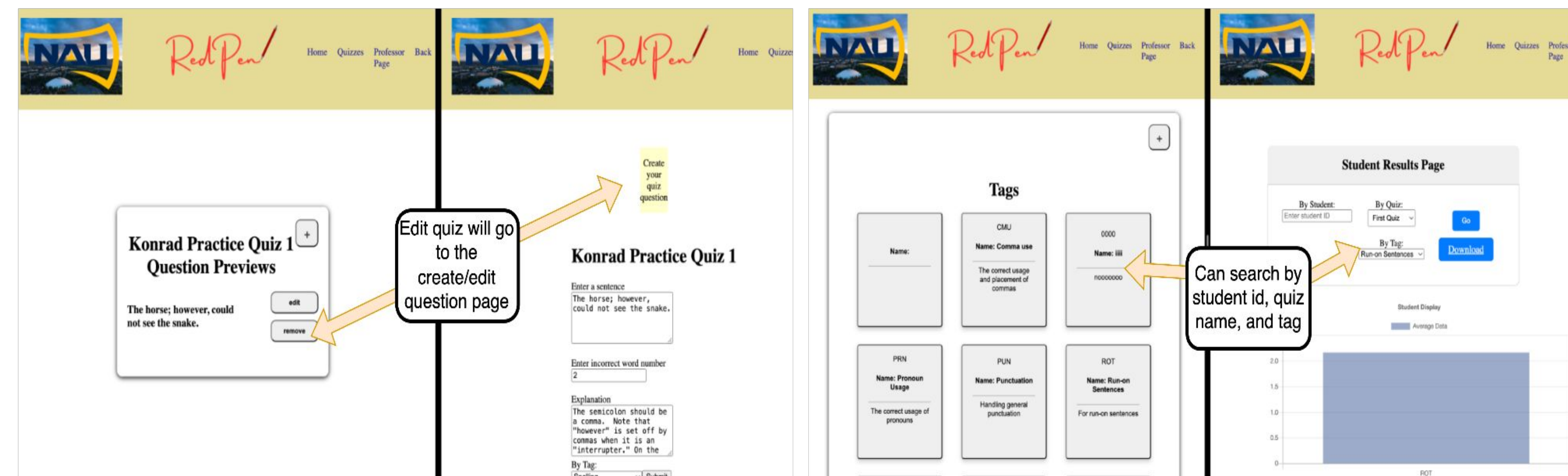


Figure 6. Quiz preview and editing/creating question

Figure 7. This is the tags page, which will help with tagging each question for certain styles

Figure 8. Student Results Page

Technologies

- **HTML/CSS:** Generate the beautiful & functional website
- **PHP:** Meet all functionalities to manage the database
- **Javascript:** Respond to user actions
- **MySQL:** Stores quiz information

Testing

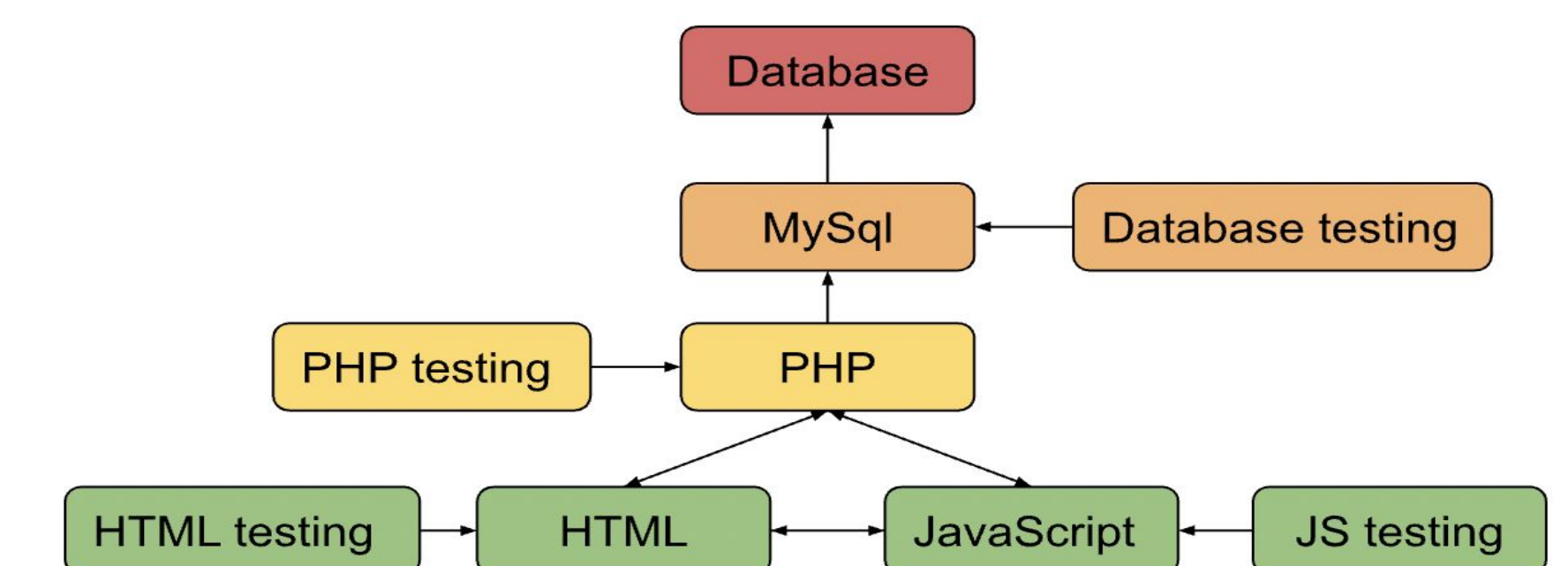


Figure 3. Integration Testing

Testing allows the application to grow based on feedback. here are the tests we ran:

- **Unit Testing**
Jest, PHPUnit
- **Usability Testing**
General user (NAU student and Non-NAU student); Administrative User
- **Integration Testing**
All 9 connections, listed in Figure 3

Future Work

- **Canvas Interface:** Integrate RedPen into the Canvas interface for automatic grading
- **Mobile App**

Acknowledgment

Thank you to Dr. Igor Steinmacher, SaiSri Muttineni, and Dr. Erika Konrad for giving us the knowledge and support during the development of project.