Creating a Web App for Tracking ESG Performance on Farms

PURDUE UNIVERSITY® | The Data Mine

Samarth Badyal, Marina Beshay, Mia Bouska, Elijah Colwill, Raam Diora, Dakshesh Gupta, Ryan Newman, Arnav Patel, Evie Roth, Justin Song

HALDERMAN REAL ESTATE & FARM MANAGEMENT

Merge directives → **Create corresponding questions** → **Design web application to track and record responses** → **Assemble scoring mechanism** → **Test and receive feedback from farm managers** → **Implement feedback and develop application to be feature-complete**
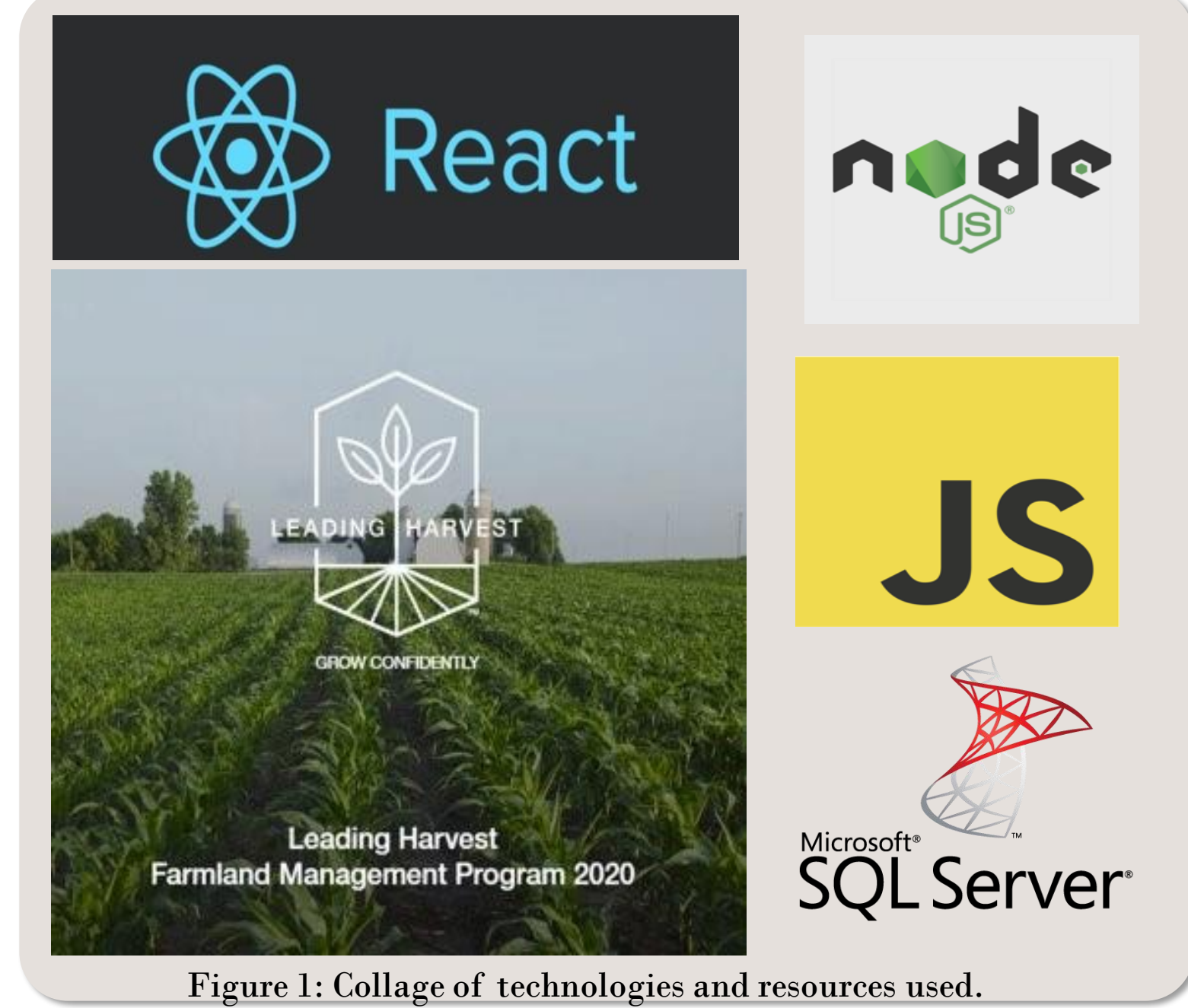
Introduction & Background

Halderman
- Farm management company
- Created designation for eco-friendly farms called Eco Elite
- Goal is to encourage sustainable practices
  - Long-term viability of the farm and operations enhanced as a result

Companies with strong ESG (environmental, sustainable, governance) performance typically achieve better stock performance, demonstrating how sustainable practices reflect positively on financials and customers.[1]
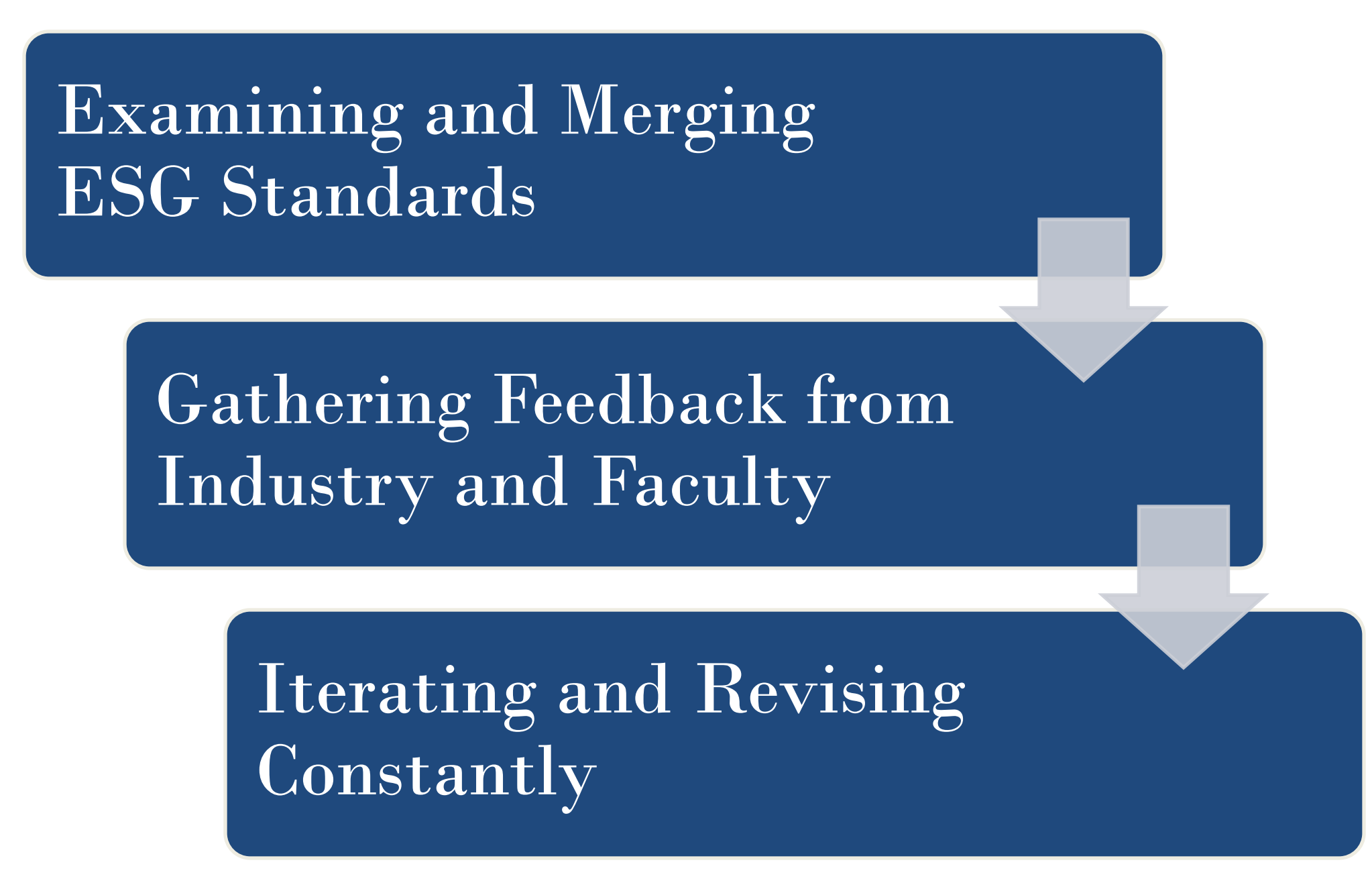
Eco Elite takes an ESG approach to protecting
- Resources on the farm and surrounding areas
- People engaged in managing and operating the farm, and the governance of the farm management.

Web App: Tools & Resources Used

Figure 1: Collage of technologies and resources used.

Directives and Scoring: Development Process

Examining and Merging ESG Standards

Gathering Feedback from Industry and Faculty

Iterating and Revising Constantly

Conclusion and Final Deliverables

- **Deliverable 1:** Sustainability standards and scoring system for Eco Elite Status.
  - Created by merging Eco Elite and Leading Harvest standards and collaboration with mentors.
  - Received industry feedback from Beck's Hybrids, local farms, and Halderman Area Managers.
- **Deliverable 2:** Web Application and Dynamic Form
  - Capable of adapting as standards change in the future
  - Dynamic question design that allows for questions to be updated by modifying the contents of a JSON file.
  - Detailed guidance of each questions with relevant resources, rubrics, and additional details.
  - User Authentication, log in and sign up, and a management page implemented.

Objectives

- Merge Eco Elite and Leading Harvest into a single cohesive set of standards
- Develop a user-friendly webapp to helps farms determine if they meet Eco Elite status
- Create an easier process for small farms to adapt sustainable practices and certify themselves as such

Final App and Directives Deliverables

Figure 2: Login page of webapp

Figure 3: Guidance page of webapp

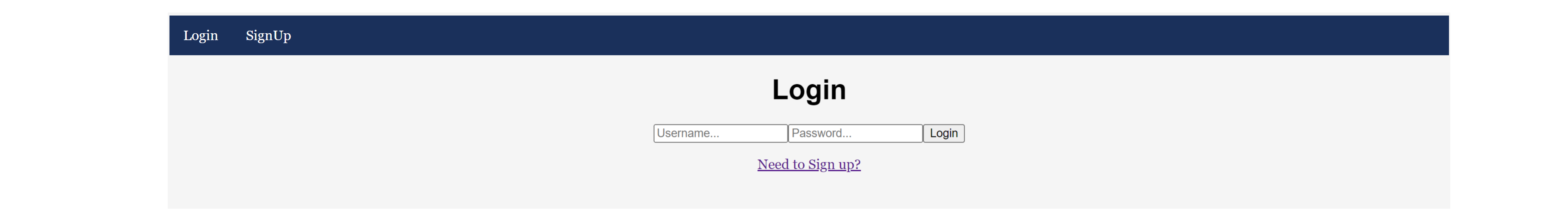
Figure 4: Form page of webapp

Next Steps

Some of our next steps include:
- Connecting to public/external databases for further verification.
- Exploring potential integration after the app infrastructure is built.
- Optimizing offline use by exploring integration with tools that would allow for offline saving of data or form progress to upload later.
- Auto filling form components and verification of the indicated practices.
- Further security for User Authentication.

Design Process

Our team organized two teams during the design phase to implement our objectives:

Master List Team
- Went through each directive in Eco Elite and Leading Harvest
- Created a list questions that needed to be included on the form

Styling Team
- Styled both the Halderman form and the guidance page for the web application
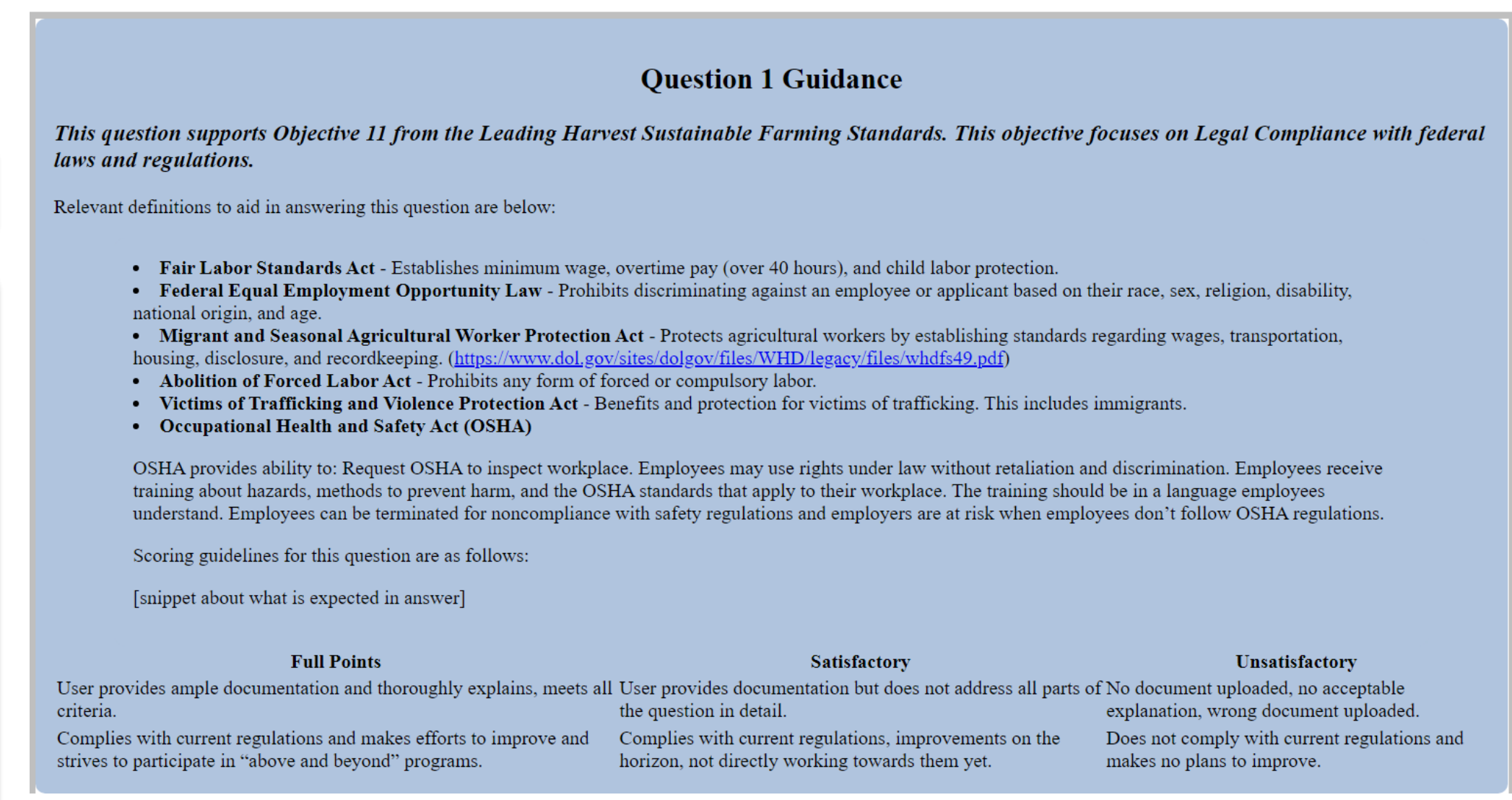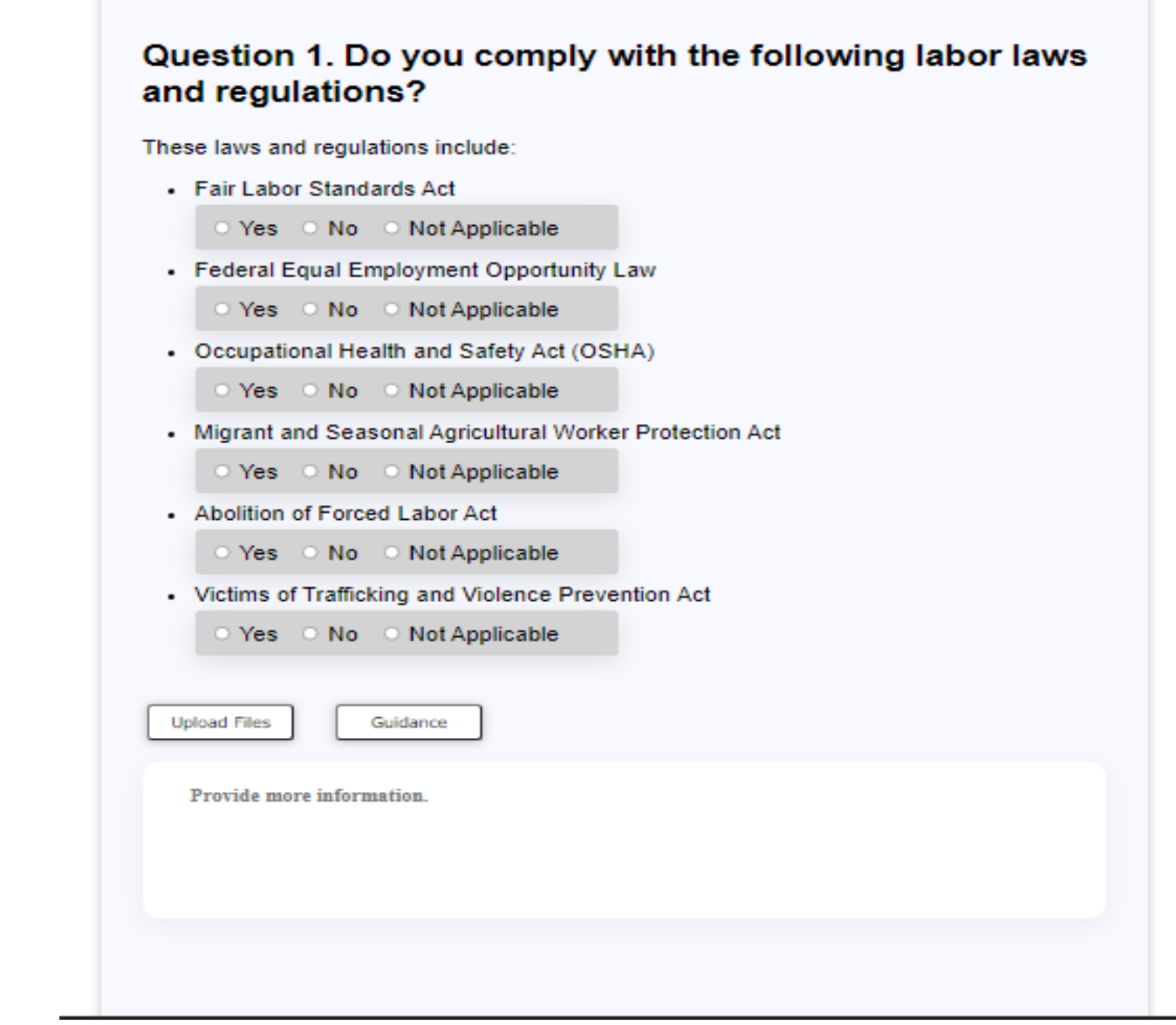- Created features asked by Halderman so the form looks visually appealing

References and Acknowledgments

We appreciate the Halderman Team (Howard, Deb, and Debbie), Michael Strasburger, Dr. Reeling, and the Data Mine Staff for all their help this semester.

[1] White, A. "Why Sustainability Ratings Matter." MIT Sloan Management Review.. 07 Aug. 2015, https://sloanreview.mit.edu/article/why-sustainability-ratings-matter/