General Purpose Data Ingestion Tool for Crop Variety Trials
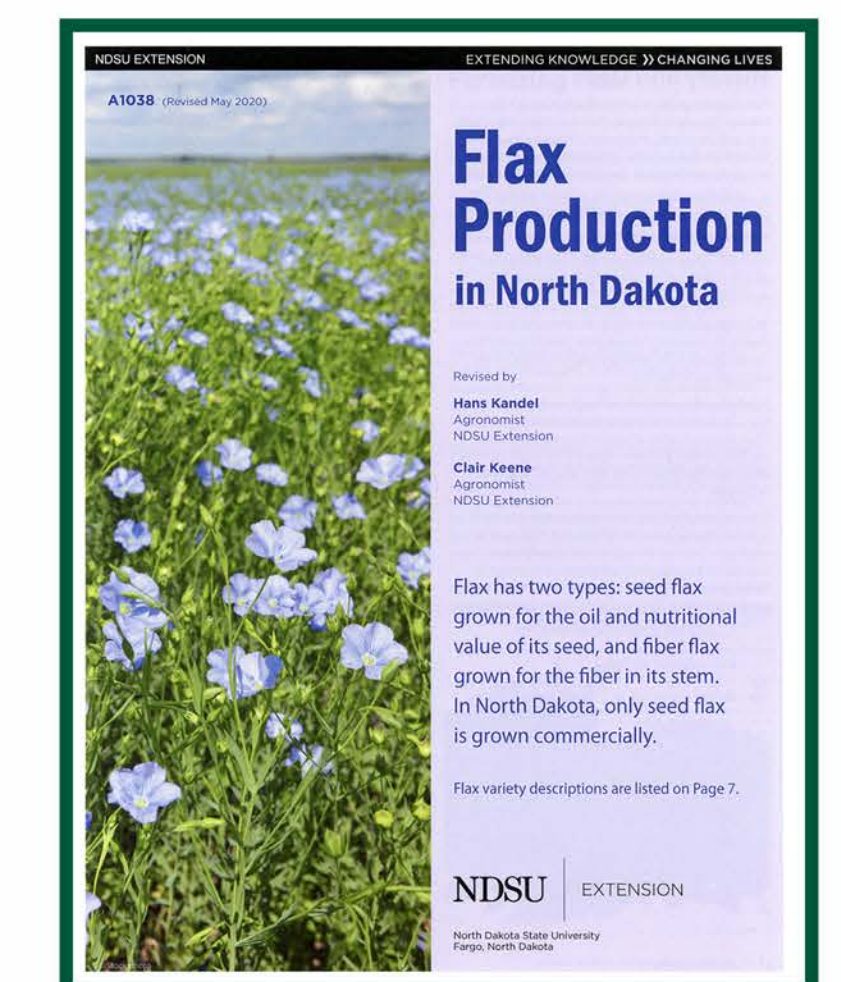
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Background

Hans Kandel

Flax Trial Report 2020

Meet Hans Kandel, an experienced NDSU Extension Agronomist with over 15 years of expertise in Plant Science. Hans is tasked with collecting Crop Variety Trial data from 8 Research Extension Centers (RECs) in North Dakota, covering up to 35 different crop types. For the next three months of the year, Hans dedicates his time to formatting and compiling this data to produce Annual Crop Variety Trial reports. These reports serve as a vital tool for local farmers and ranchers to assess the performance of various crop varieties.

Our goal was to develop an application that could not only streamline the data ingestion for the Variety Trial data from the RECs , but also be able to utilize that data to generate basic reports that compare crop traits from the ingested data. By reducing the time spent on data analysis, Hans can devote more time to educating local farmers and ranchers, improving their agricultural operations.

Ingest Data

To begin uploading Variety Trial data, the user must enter in the required metadata of crop type, year, and REC location. This information is used to help configure the correct format for the data to be transformed. Once the user has uploaded the file, they can then preview how the data was transformed, compared to the original data source. Optional metadata can also be added at this time. After review and submission, the original and formatted file are uploaded to storage.

File upload form and the feature to preview the transformed file during upload

Manage Data

Heading to the File Manager page leads you to a list of data that has previously been transformed and uploaded to the Azure Data Lake.

1. Download selected file as a JSON or a CSV
2. Edit file's metadata
3. Delete data including original and formatted

Technology

Front End

React Framework

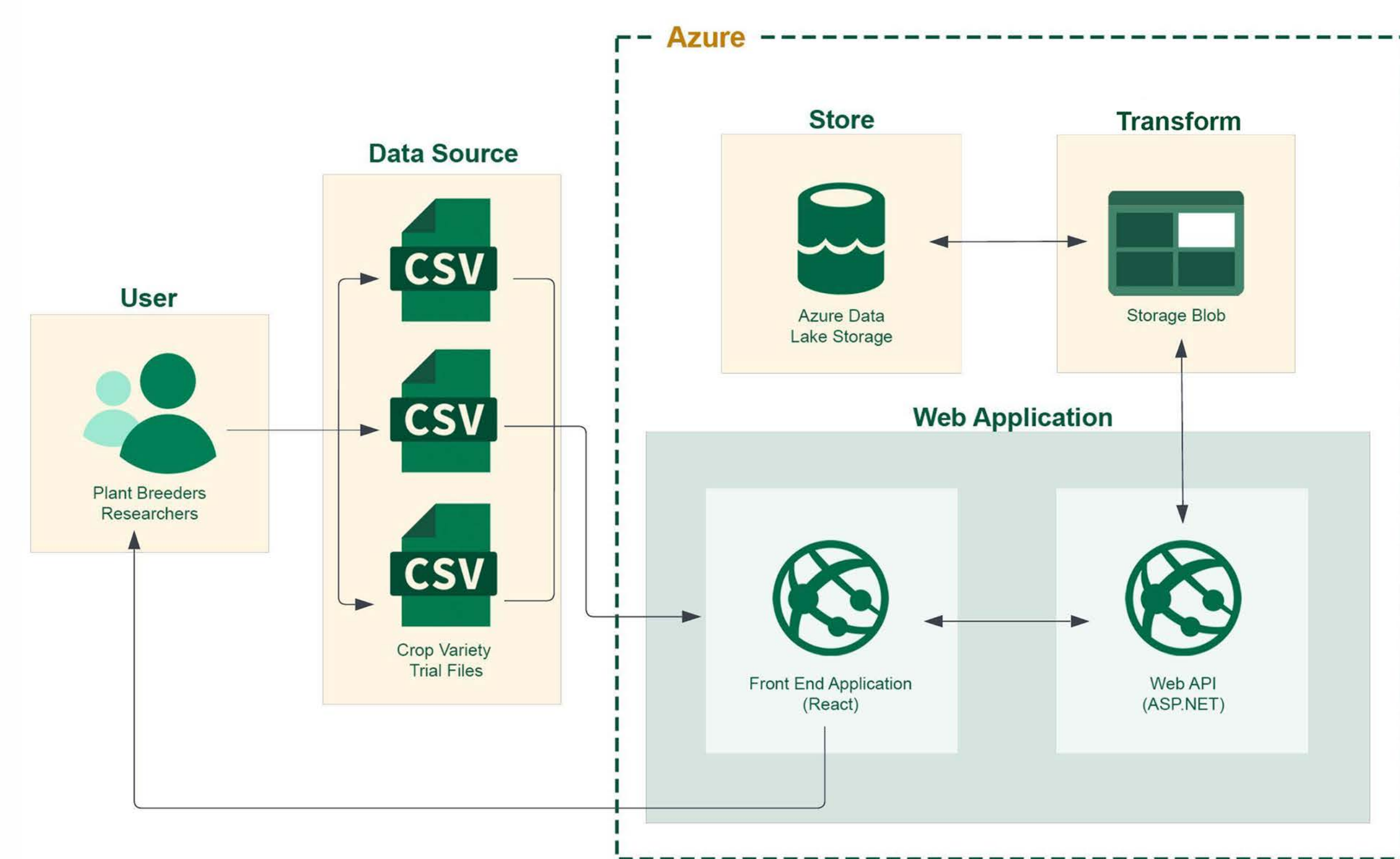TypeScript

Back End

ASP.NET

Storage

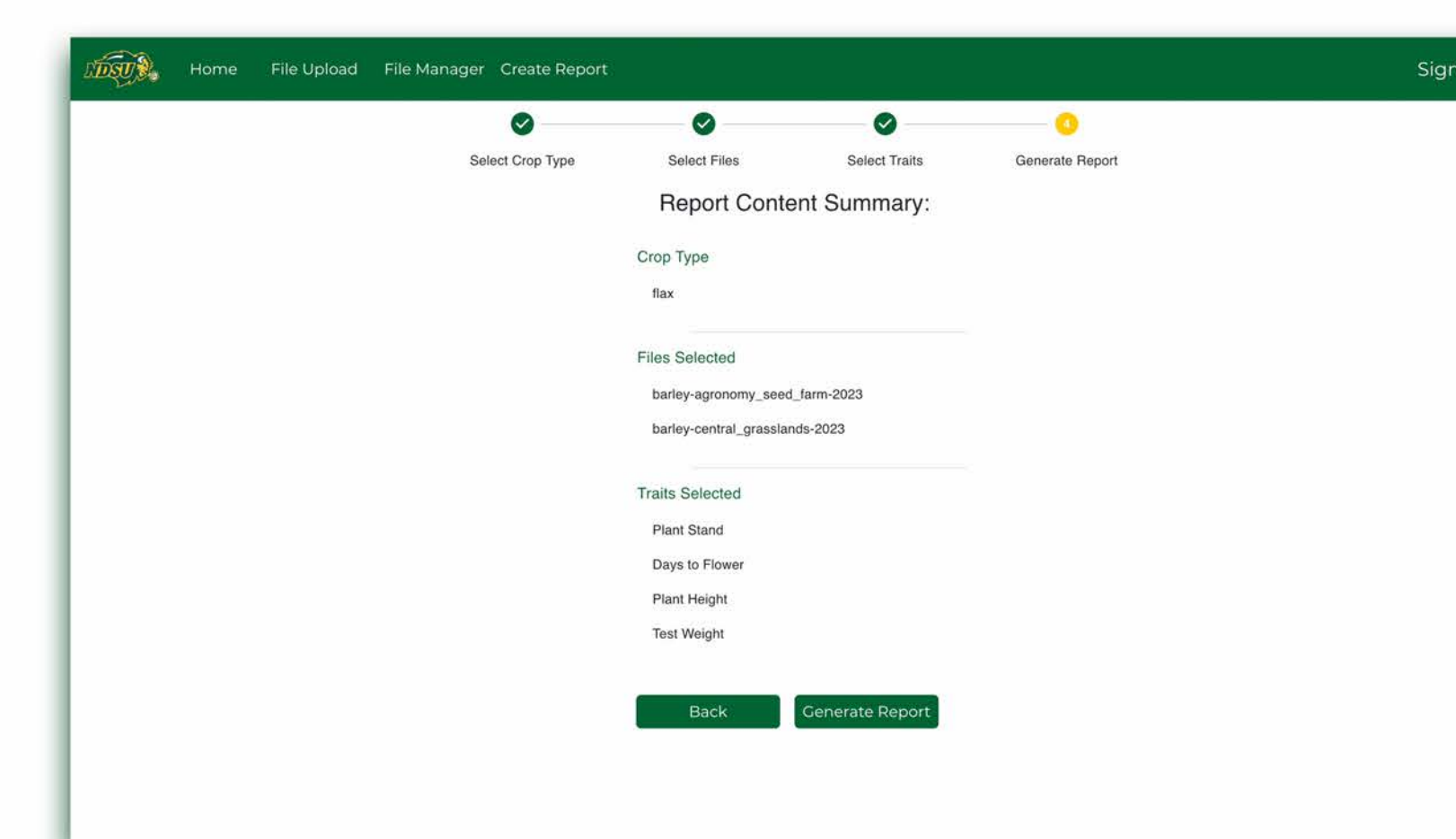Microsoft Azure Data Lake *

Hosting

Microsoft Azure

Application Diagram

Generate Reports

Generating reports is as simple as choosing a crop type, the variety trail data associated with that crop type, and selection of crop traits. When the selection is confirmed, the report is generated as a CSV that the user can download.

CSV Report generated by application with the Flax crop type and the traits Yield and Days to Flower