Project Summary:
A web application which will replace the current NWGG desktop application. The web application will be used to record the stores of commodities in different districts and warehouses along with data about the loads being unloaded at the warehouse. The application will be operated by a scale operator.

The application must record lot data. A lot is typically 1:1 with a field the farms harvest. Lot required data includes lot number, who produced the crop, state of origin and commodity type. Optional lot data includes commodity variety, landlord, FSA farm number, lot open date, lot close date, and additional notes for the lot. The operator must be able to create new lots. The application is responsible for generating a unique lot number. The operator is responsible for inputting the following data: who produced the crop, state of origin, commodity type, commodity variety, landlord, FSA farm number and additional notes. The operator must be able to close a lot. The application will record the open and closure dates for lots. The operator must be able to edit all input data. Producer, commodity type/variety and state are selectable values only. The operator can't input whatever data they want in these fields.

The application must record weight sheet data. Weight sheets are specific to a lot. Required weight sheet data includes what weight sheet type (inbound/transfer), what lot the weight sheet(not necessary for transfer weight sheets) is on and a unique weight sheet number. Optional data includes notes, a hauler and miles the hauler drove. The operator must be able to create new weight sheets of either type and assign them to a single lot. The application will generate a unique id for the weight sheet. The operator must be able to edit the hauler and miles data. The operator must be able to edit the hauler, miles and notes. The operator must be able to move a weight sheet from one lot to another. If a weight sheet has no loads on it is a VOID weight sheet.

The application must record load data. Loads are assigned to a specific weight sheet. The number of loads on a weight sheet is limited to the number of loads that can be printed on 8.5x11 piece of paper. The current limitation is 15 loads per weight sheet. Required load data includes unique load number, truck identifier (truck number or name of driver), gross weight, tare weight, net weight, date, time in and time out. Optional data includes destination bin, test weight, moisture, protein level, and Bill Of Lading (BOL) number. The operator must input the truck identifier. The operator may input the destination bin, test weight, moisture, protein level and BOL number. The application will get gross and tare weights from an Arduino scale. The application will calculate the net weight. The application will generate a unique load number, populate the date, time in and out data automatically. The operator must be able to edit the truck identifier, gross weight, tare weight and all optional data. The operator must be able to move a load from one weight sheet to another or delete the load.

The application must be able to generate reports based on the data recorded throughout harvest(s). These reports must be printable or exportable to Excel. These reports must include Intake Reports, Transfer Reports, Daily Weight Sheets Reports, Daily Commodity Reports, and Producer Commodity Delivery Reports.

The Intake Report must include the commodity type, weight sheet number, Customer number, Lot number, if the lot is open, producer name, landlord, farm number, net (lbs), net in UoM, and if the lot is closed. The day's total net and net UoM.

Daily Weight Sheet Reports must include weight sheet number, source, verity, notes, net, net in UoM. The day's total net and net UoM.

Daily Weight Sheet Report must include weight sheet number, weight sheet type, commodity type, commodity variety, number of loads on weight sheet and net total of the weight sheet in lbs. The total number of weight sheets, loads and net weight.

Daily Commody Loads Report must include commodity type, number of loads on the lot and total number of loads.

Producer Commodity Delivery Report must include District, location, producer, commodity, net, net in UoM, variety and load count.

Operators must be able to view current and past lots, weight sheets and loads. The operator must be able to search for and view specific lots or weight sheets. They must be able to view and filter current and past lots by any data columns.

Functional Requirements:

1. **Lots**
    - 1.1. The operator must be able to create (open) a new lot
        - 1.1.1. The application must generate unique lot numbers when opening a new lot
        - 1.1.2. The application must record the date the lot was opened.
    - 1.2. The operator must be able to input Lot data:
        - 1.2.1. Producer from list of existing producers
            - 1.2.1.1. Producer is replaced with source on transfer weight sheets
        - 1.2.2. State of origin from list of possible states
        - 1.2.3. Commodity type from list of existing types
        - 1.2.4. Commodity verity from list of existing verity
        - 1.2.5. Landlord
        - 1.2.6. FSA farm number
        - 1.2.7. Notes on the lot
    - 1.3. The operator must be able to edit lot data
        - 1.3.1. Producer from list of existing producers
            - 1.3.1.1. Producer is replaced with source on transfer weight sheets
        - 1.3.2. State of origin from list of possible states
        - 1.3.3. Commodity type from list of existing types
        - 1.3.4. Commodity verity from list of existing verity
        - 1.3.5. Landlord
        - 1.3.6. FSA farm number
            - 1.3.6.1. May contain letters, numbers and dashes
        - 1.3.7. Notes on the lot

1.4. The operator must be able close an open lot
    1.4.1. The application must record the lot is closed
    1.4.2. The application must record the date the lot was closed
1.5. The operator must be able to reopen a closed lot
    1.5.1. Current is only on the same day it was closed
    1.5.2. The application must be able to update the data base to reflect the change

2. Weight Sheets

2.1. The operator must be able to create a new weight sheet
    2.1.1. The application must generate a unique weight sheet number
    2.1.2. The application must record the date for the weight sheet
    2.1.3. Weight sheets must only be open for a single day
2.2. The operator must be able to input weight sheet data
    2.2.1. The type of weight sheet inbound or transfer
    2.2.2. Inbound weight sheets must be assigned to a single lot
    2.2.3. Hauler name from list of existing haulers
    2.2.4. Miles driven one way by hauler
2.3. The operator must be able to edit weight sheet data
    2.3.1. The type of weight sheet inbound or transfer
    2.3.2. Inbound weight sheets must be assigned to a single lot
    2.3.3. Hauler name from list of existing haulers
    2.3.4. Miles driven one way by hauler
2.4. The operator must be able to move an inbound weight sheet from one lot to another
2.5. The operator must be able to close a weight sheet
2.6. The operator must be able to open a previously closed weight sheet
2.7. The application must record data
2.8. The application must update record if edited

3. Loads

3.1. The operator must be able to weight a truck in on a weight sheet
    3.1.1. The application must gather gross weight of truck on weight in
        3.1.1.1. Gather weight from web based scale
3.2. The application must generate unique load numbers
3.3. The operator must input data before the truck is weighted in
    3.3.1. Truck identifier
        3.3.1.1. Truck number
        3.3.1.2. Truck driver name
3.4. The operator must be able to input data
    3.4.1. Destination bin
    3.4.2. Test weight (bu/lbs)
    3.4.3. Moisture
    3.4.4. Protein (12% MB)
    3.4.5. Bill of Lading number
3.5. The operator must be able to edit data
    3.5.1. Destination bin
    3.5.2. Test weight (bu/lbs)
    3.5.3. Moisture

3.5.4. Protein (12% MB)
3.5.5. Bill of Lading number
3.6. The operator must be able to weigh out a truck
3.6.1. The application must gather tare weight from web scale
3.7. The application must be able to calculate net weight from gross and tare weight
3.8. The operator must be able to adjust the gross or tare weight in case of scale connection failure
3.9. The application must record data
3.10. The application must update record if edited

4. Viewing
4.1. The operator must be able to view past and current lots
4.1.1. The operator must be able to view
4.1.1.1. Lot number
4.1.1.2. Producer
4.1.1.3. Commodity type
4.1.1.4. Commodity variety
4.1.1.5. FSA farm number
4.1.1.6. Landlord
4.1.1.7. Notes
4.1.1.8. Open date
4.1.1.9. Closed date
4.1.2. Filterable by
4.1.2.1. Producer name
4.1.2.2. Lot number
4.1.2.3. Commodity type
4.1.2.4. Commodity type & variety
4.1.2.5. Open
4.1.2.6. Closed
4.1.2.7. Open date
4.1.2.8. Close date
4.1.3. Sortable by
4.1.3.1. Producer name
4.1.3.2. Lot number
4.1.3.3. Commodity type
4.1.3.4. Commodity type & variety
4.1.3.5. Closed
4.1.3.6. Open
4.1.3.7. Open date
4.1.3.8. Closed date
4.2. The operator must be able to view past and current weight sheets
4.2.1. The operator must be able to view
4.2.1.1. Weight sheet number
4.2.1.2. Weight sheet type
4.2.1.3. Producer or source name for weight sheet
4.2.1.4. Commodity type

4.2.1.5. Commodity variety
4.2.1.6. Lot number for inbound weight sheets
4.2.1.7. Notes
4.2.1.8. Closed or open
4.2.1.9. Loads on weight sheet
4.2.1.10. Net weight totals from loads in lbs and bu
4.2.2. Filterable by
4.2.2.1. Producer or Source name
4.2.2.2. Weight sheet number
4.2.2.3. Closed
4.2.2.4. Open
4.2.3. Sortable by
4.2.3.1. Producer or Source name
4.2.3.2. Weight sheet number
4.2.3.3. Closed
4.2.3.4. Open
4.3. The operator must be able to view past and current loads
4.3.1. The operator must be able to view
4.3.1.1. Load number
4.3.1.2. Gross weight
4.3.1.3. Tare weight
4.3.1.4. Net weight
4.3.1.5. Truck identifier
4.3.1.6. Time in
4.3.1.7. Time out
4.3.1.8. Date
4.3.1.9. Destination bin
4.3.1.10. Test weight
4.3.1.11. Moisture
4.3.1.12. Protein
4.3.1.13. Bill of Lading number
4.3.2. Filterable by
4.3.2.1. Weight sheet number
4.3.2.2. Producer
4.3.2.3. Date
4.3.2.4. Bin identifier
4.3.3. Sortable by
4.3.3.1. Weight sheet number
4.3.3.2. Producer
4.3.3.3. Date
4.3.3.4. Bin identifier
4.3.3.5. Protein
4.3.3.6. Moisture
4.3.3.7. Test weight

5. Reports

5.1. The application must be able to print reports
5.2. The application must be able to export reports to excel
5.3. Reports are generated for a single warehouse
5.4. Reports of a single warehouse
    5.4.1. Intake Reports
        5.4.1.1. Commodity type
        5.4.1.2. Commodity variety
        5.4.1.3. Producer number
        5.4.1.4. Producer name
        5.4.1.5. Lot number
        5.4.1.6. If lot is open or closed
        5.4.1.7. Landlord
        5.4.1.8. FSA farm number
        5.4.1.9. Net (lbs)
        5.4.1.10. Net Uom (bu or cwt)
        5.4.1.11. Sum of Net
        5.4.1.12. Sum of UoM
    5.4.2. Transfer Reports
        5.4.2.1. Commodity type
        5.4.2.2. Commodity variety
        5.4.2.3. Source name
        5.4.2.4. Net (lbs)
        5.4.2.5. Net Uom (bu or cwt)
        5.4.2.6. Sum of Net
        5.4.2.7. Sum of UoM
    5.4.3. Daily Weight Sheets Reports
        5.4.3.1. Weight sheet number
        5.4.3.2. Source
        5.4.3.3. Commodity Type
        5.4.3.4. Commodity variety
        5.4.3.5. Number of loads
        5.4.3.6. Net (lbs)
        5.4.3.7. Sum of Net
        5.4.3.8. Sum of loads
    5.4.4. Daily Commodity Report
        5.4.4.1. Commodity type
        5.4.4.2. Commodity variety
        5.4.4.3. Number of loads for type and variety
        5.4.4.4. Sum of Loads
    5.4.5. Producer Commodity Delivery Reports
        5.4.5.1. District
        5.4.5.2. Location
        5.4.5.3. Producer
        5.4.5.4. Commodity type
        5.4.5.5.

5.4.5.6. Net (lbs)
5.4.5.7. Net (UoM)
5.4.5.8. Sum of loads