

Campus Maintenance and Management System

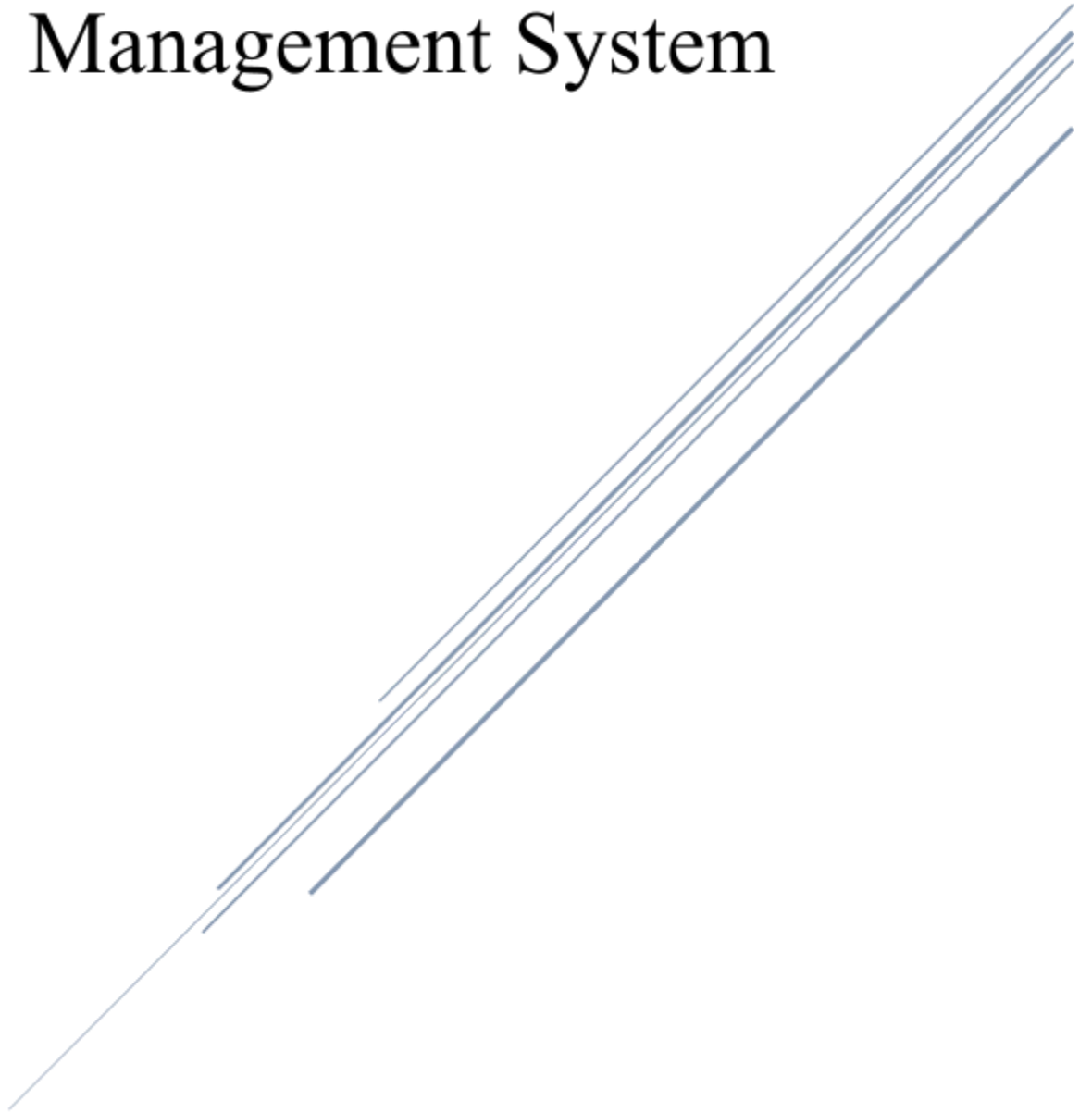


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1. Introduction

1.1. Project Description: (Background, Objectives, Brief Introduction)

Background: The technicians check building systems; also, these systems include heating, cooling, plumbing, and electrical equipment. Paper records this information then spreadsheets receive it. It is hard for one to see problems or trends quickly, mistakes can readily occur, and this also takes extra time.

Objectives:

- 1) You can use a digital system for replacement of paper log sheets.
- 2) Allow technicians to record data directly on tablets when they do their rounds.
- 3) Give administrator tools for easy management of buildings, data categories, and users.
- 4) Creation of reports helps the admin track building performance. Spotting issues early helps too.
- 5) Reduce paper use to make the process environment friendly. Speed as well as accuracy should also improve by way of this change.

Brief Introduction: Technicians can collect data in real time using a digital maintenance tracking app developed by this project. Administrators can then analyze building systems with the app to manage them much more effectively. The system will save time, reduce errors, and provide a clear view into building health, and this leads to better decisions and smoother operations across campus as it moves from paper to a digital platform.

1.2. Project Scope: (Main functions included in the system)

The project CMMS, a digital tool that is going to replace the current paper-based process. The goal is to make the process simple, to raise a concern regarding a particular problem in the block that makes the admin address the concern and resolve it by sending it to the respective department for the maintenance, this helps in faster maintenance, more accurately. This would be a place for both admins and technicians to enter and use data to make faster and smart decisions to work on a problem. As the final stage to resolve an issue, the admin will be able to generate the reports, which makes the work more efficient.

Digital Data Collection: Instead of carrying, writing, and re-writing if there is a mistake in the entry sheet, this project makes it easier. Technicians will be able to record the data directly in the system while they are on the grounds. This majorly reduces mistakes that often happen with manual paperwork.

System and User Management: Administrators will have complete control of buildings, equipment, data that is entered into the system and user accounts. Different levels of access can be provided for the users depending on their job roles like technicians, supervisors, and guest access for the temporary staff. The level of access ensures the data safety

Performance Monitoring and Reporting: This function would be the key to perfect building maintenance. As part of this function that system would be able to create dashboards to show progress each day, reports of raised and resolved concerns, building and equipment performance. This makes it easier to track, spot, address, act, and resolve issues. This improves sustainability by improving speed and accuracy compared to the traditional approach.

2. Requirement Analysis

2.1 Software Requirements

- Web browser
- Stable network connection

2.2 Hardware Requirements

- Device with internet access (desktop, laptop, or tablet)
- Minimum 4 GB RAM
- Tablet or touchscreen support for technician field data entry.

2.3 Functional Requirements

2.3.1. User Authentication

- The system shall allow users to log in securely.
- The system shall restrict access based on user roles (Administrator, Technician).

2.3.2. Administrator Functionalities

- Manage user accounts (add, update, and deactivate users)
- Manage building information (add, update, and deactivate buildings).
- Define data categories for each building (add, update, and deactivate data categories).
- Generate maintenance reports and graphs (bi-weekly).

2.3.3 Technician Functionalities

- Enter and edit building-specific data forms.
- Submit observations or concerns during regular rounds.

2.4 Non-Functional Requirements

2.4.1 Usability

- The interface shall be simple, clear, and easy to navigate for all users.

- The design shall support quick access for both administrators and technicians.

2.4.2 Performance

- The system shall support concurrent access by multiple users without delay.
- Reports and graphs shall be generated within seconds.

2.4.3 Security

- The system shall enforce role-based authorization and authentication.
- The system shall protect all users and build data according to university IT policies.

2.4.4 Operational

- The system shall be accessible on both desktop and tablet devices.
- The system shall support real-time data entry for technicians.

2.4.5 Legal and Policy Compliance

- The system shall comply with Northwest Missouri State University's IT and data protection policies.

3. Programing languages and tools

3.1 Frontend technologies

HTML, CSS, JavaScript, JavaScript validation, Visual Studio code.

3.2 backend technologies

Java, MS SQL, DB viewer, Spring boot, Eclipse

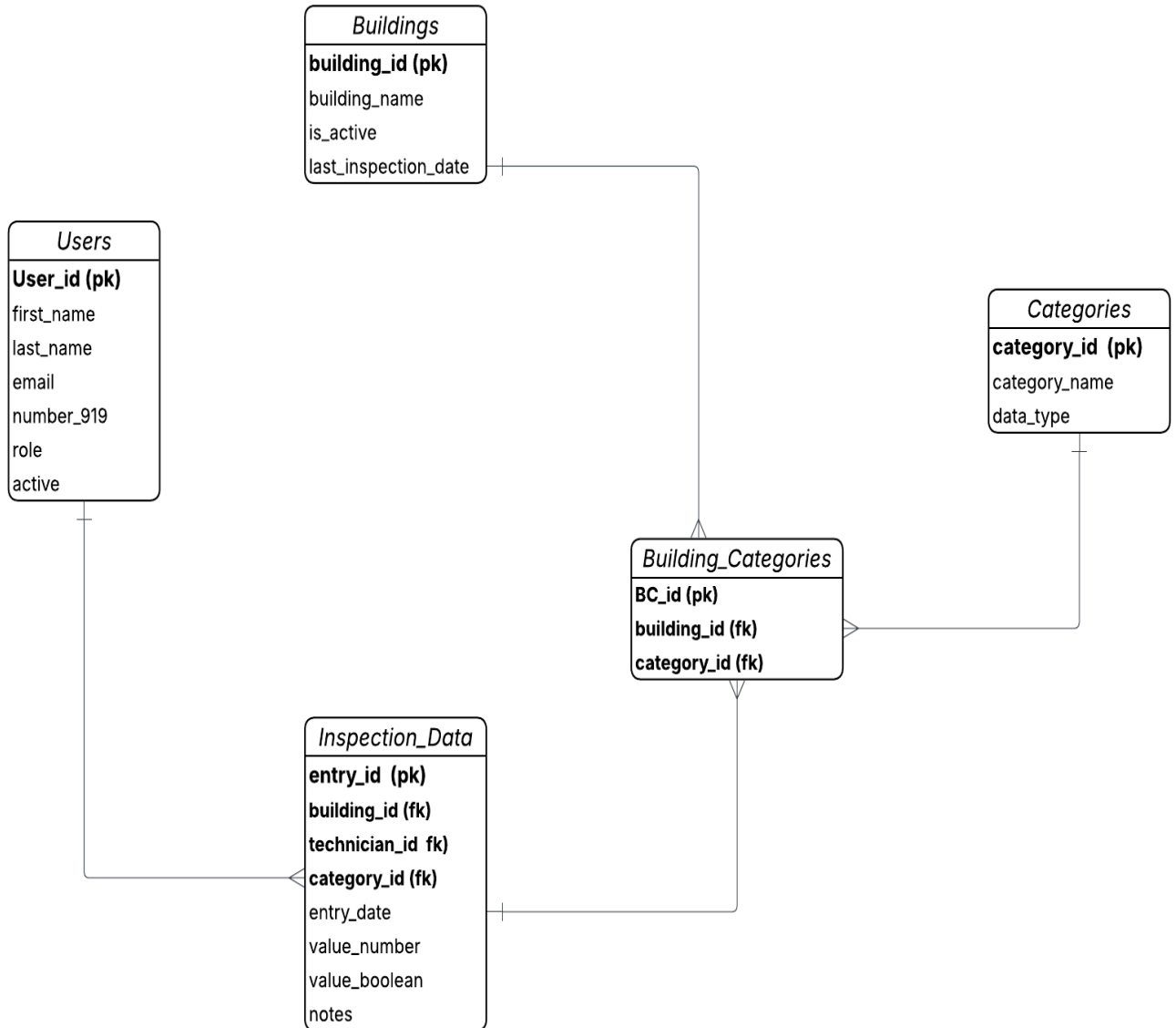
3.3 Framework

We are using Spring Boot for our backend and JavaScript validation for our frontend. Spring Boot helps us easily build and connect the backend parts of our project using Java. It also works smoothly with our MySQL database and saves us time by handling many setup tasks automatically.

On the frontend, JavaScript validation helps us check user inputs before sending them to the backend. This makes sure that the data entered is correct and keeps our system clean and error-free. Together, Spring Boot and JavaScript validation help our frontend and backend work well together and make the project run more smoothly.

4. Database implementation

4.1 Entity Relationship Diagram



4.2 Database design

1. User Data

	User	Data Type
PK	User_id	Int
	first_name	Text
	last_name	Text
	email	Text
	Number_919	Int
	Role	Text
	is_active	Boolean

2. Inspection_Data

	Inspection_Data	Data Type
PK	entry_id	Int
FK	building_id	Int
Fk	category_id	Int
FK	technician_id	Int
	entry_data	Datetime
	value	Text/Boolean/ Int
	is_active	Boolean

3. Building_Categoires

	Building_Categories	Data Type
PK	BC id	Int
FK	building id	Int
Fk	category id	Int

4. Buildings

	Building	Data Type
PK	building id	Int
	Building name	Int
	Is active	Boolean
	Last inspection date	datetime

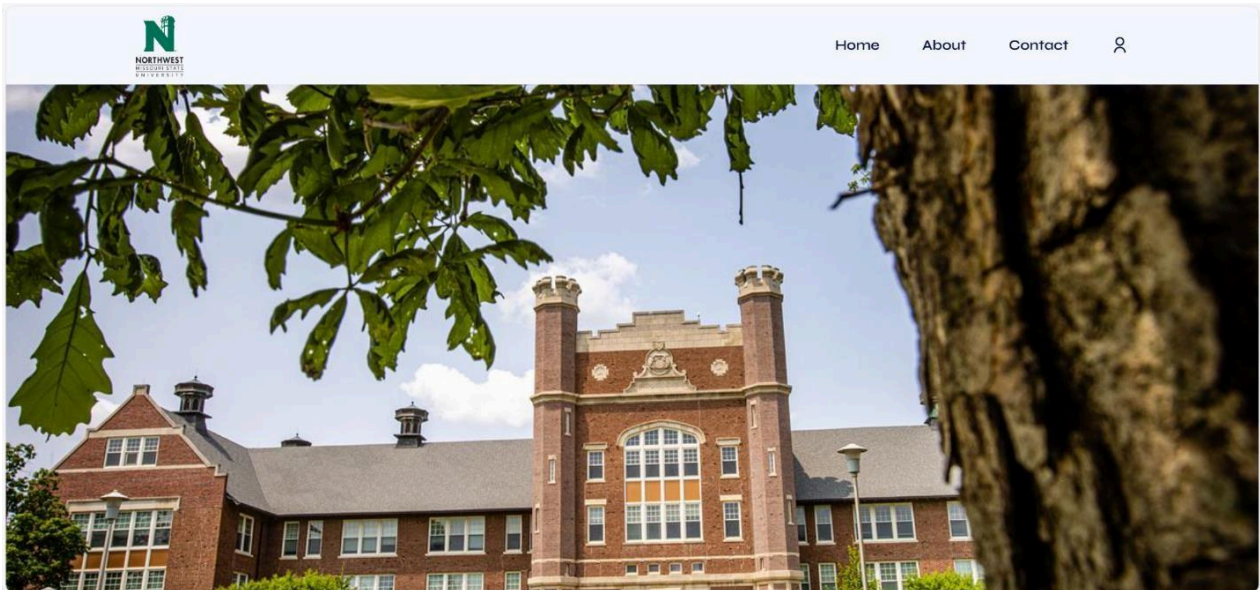
5. Categories

	Categories	Data Type
PK	category id	Int
	Category name	Text
	Data type	Text/Boolean/Int

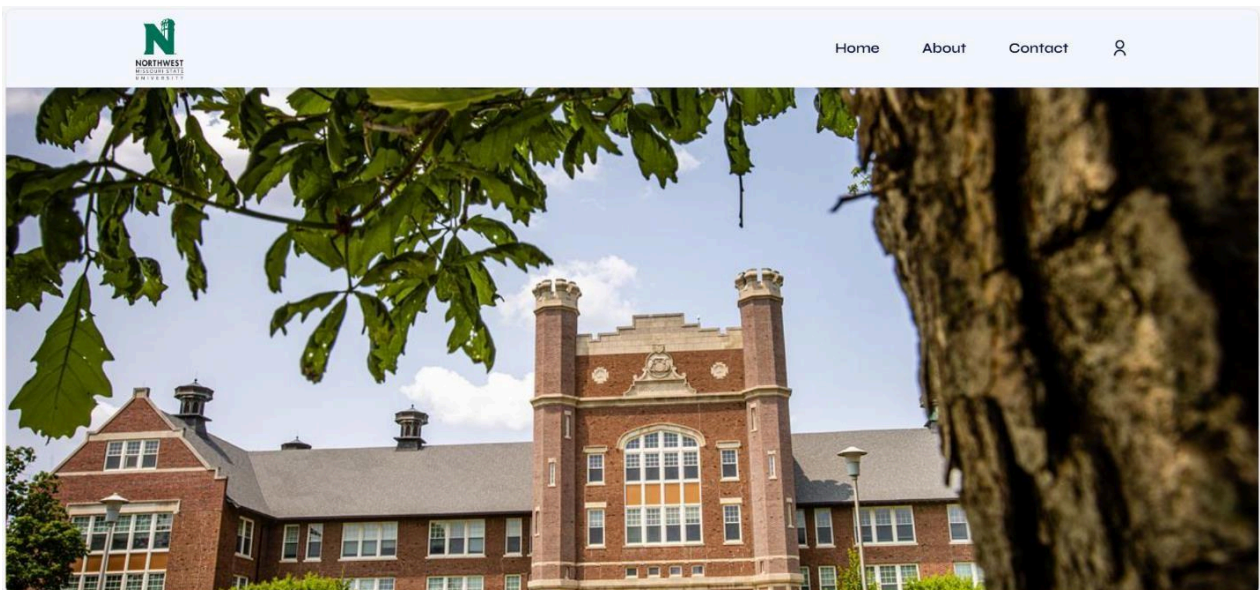
5. Testing

5.1 Unit Testing

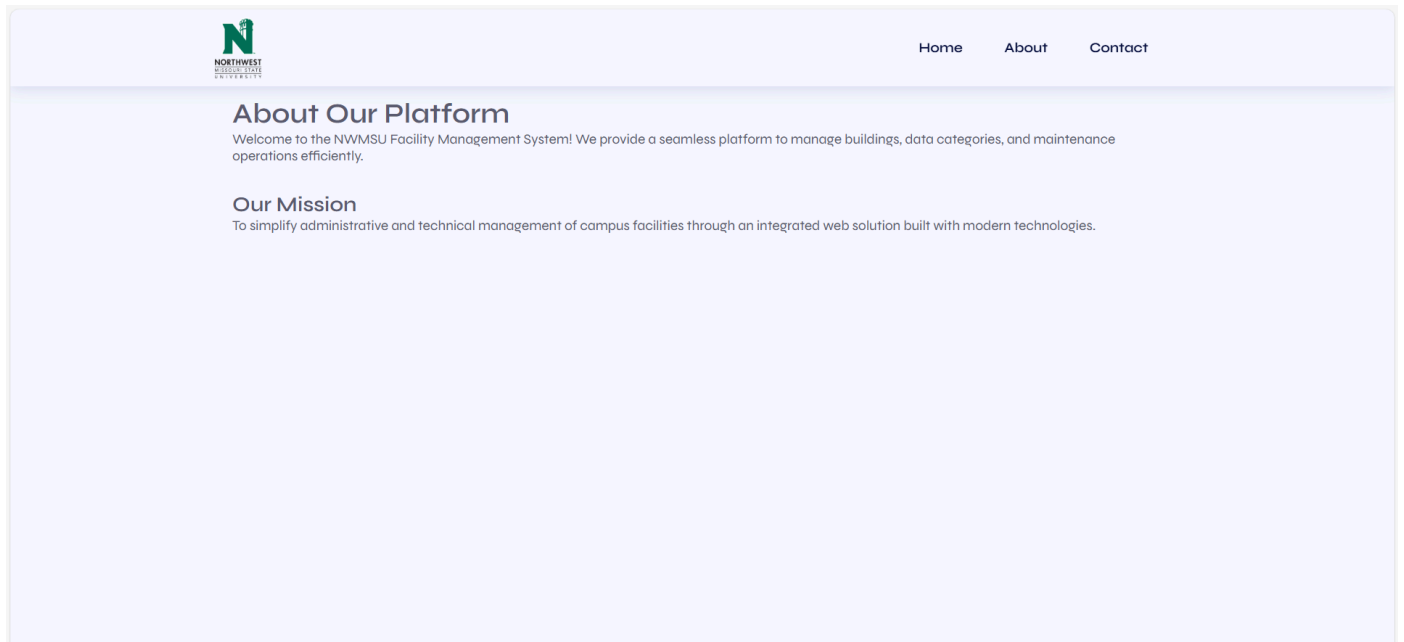
- This is our **Main Dashboard**. It has a Login icon, a Home button, and About and Contact options, making it easy for users to move around and get basic information.



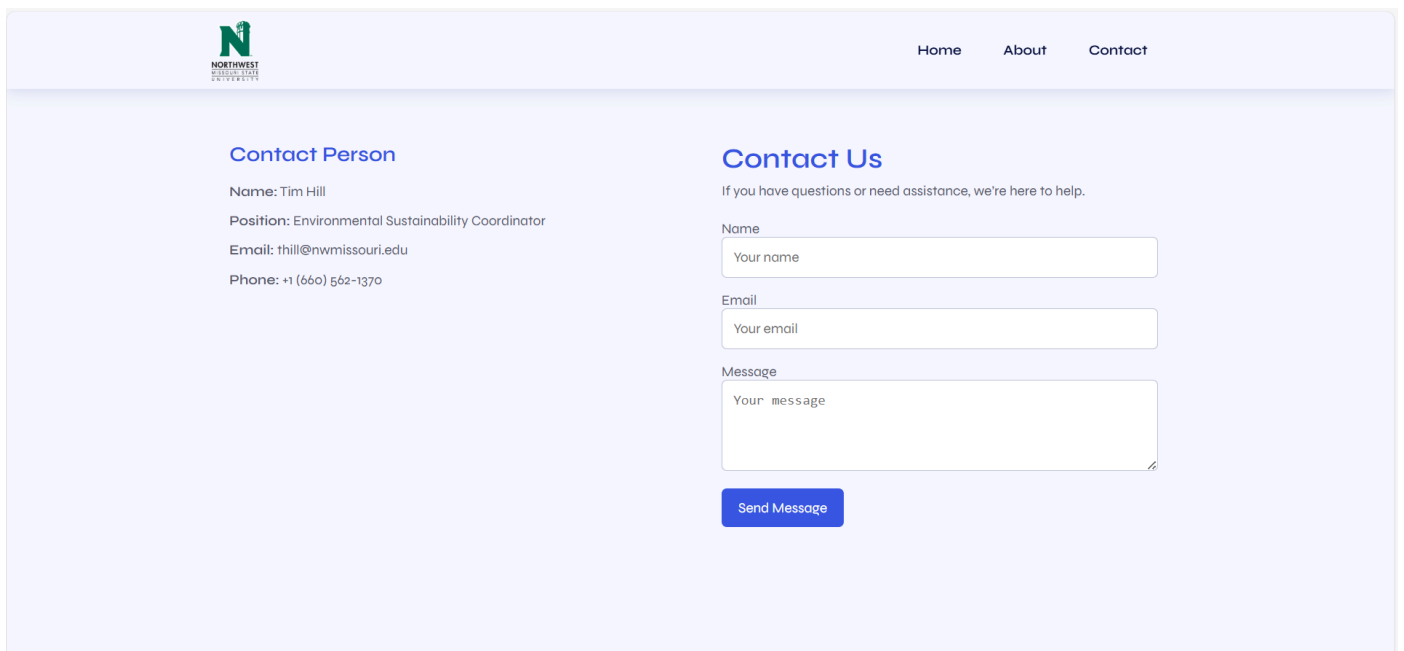
- The **Home** button reloads or updates the current page



- The **About** section gives information about the platform, it explains what the system does, why it was created, and the mission behind it.

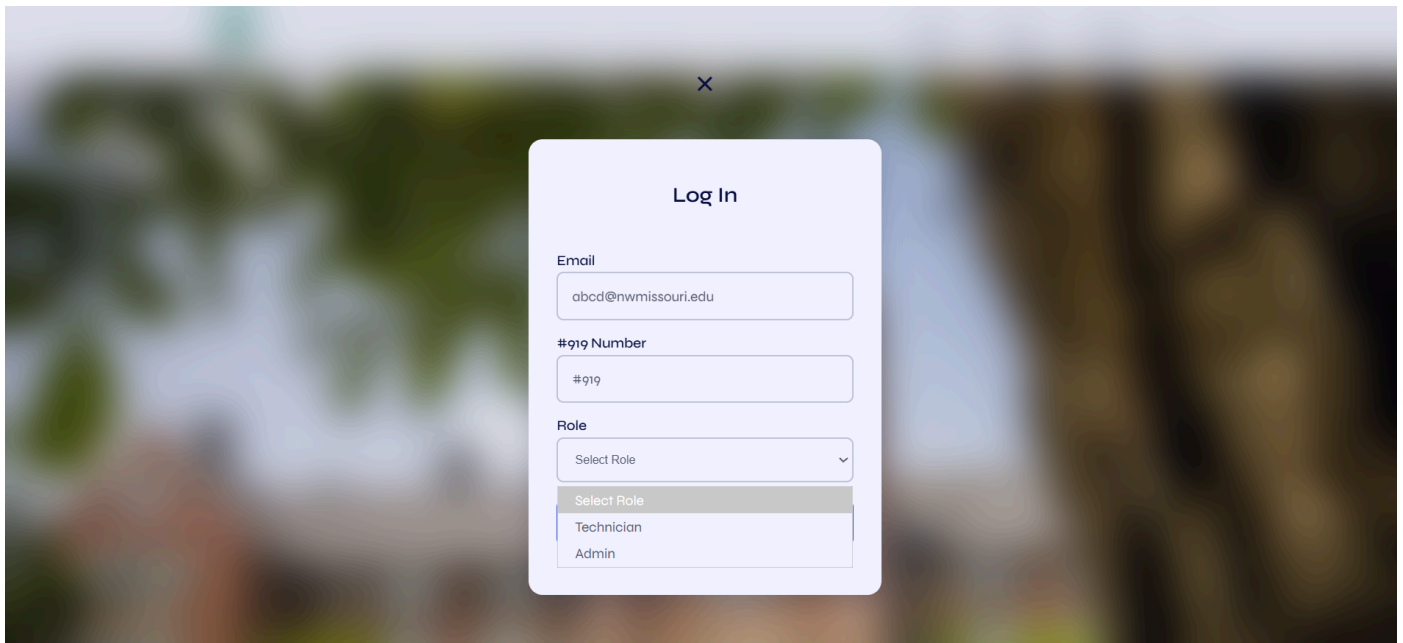
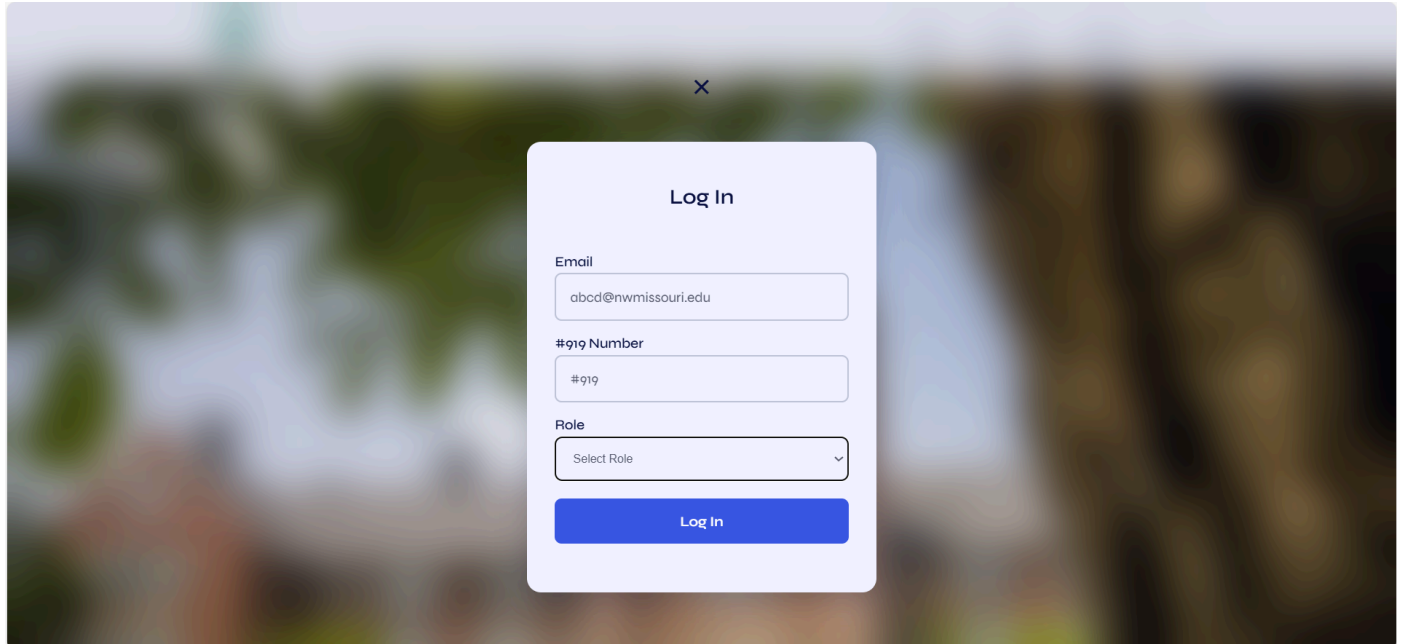


- The **Contact** section provides the client's details such as email or support information. Users can use this page to ask questions or send any queries if they need help.

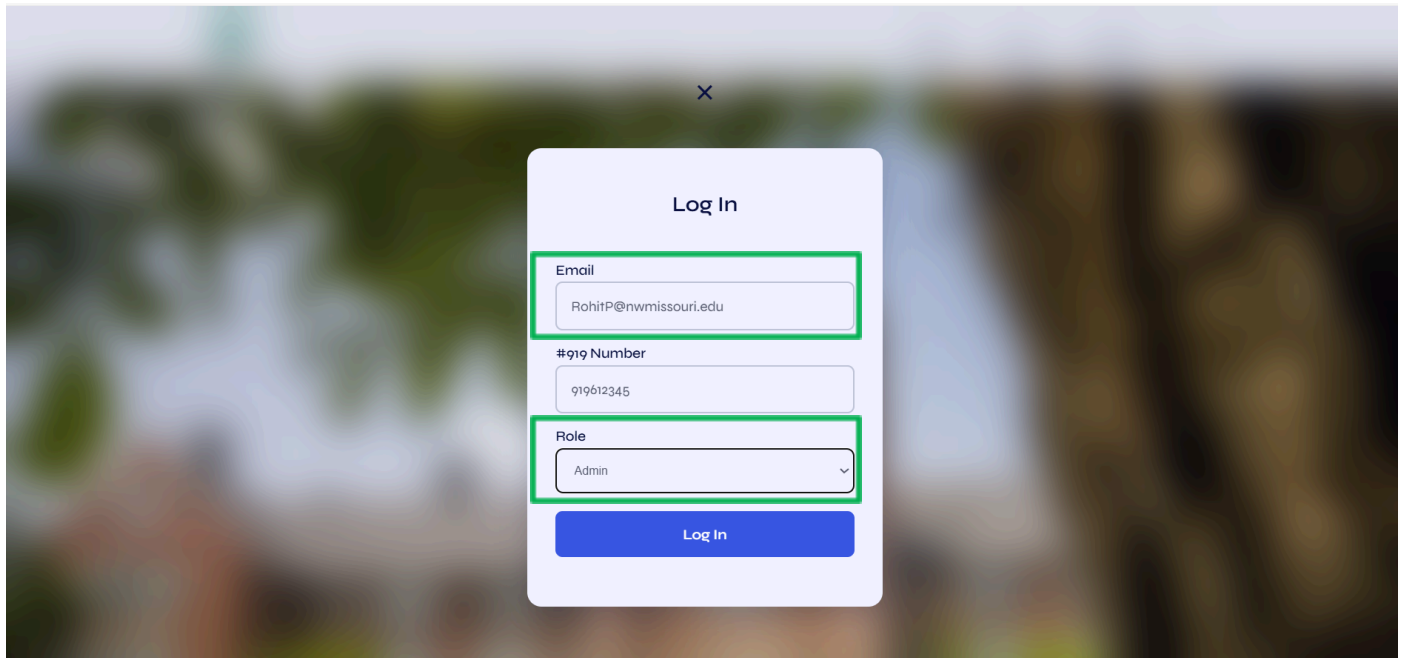


□ **User Authentication:**

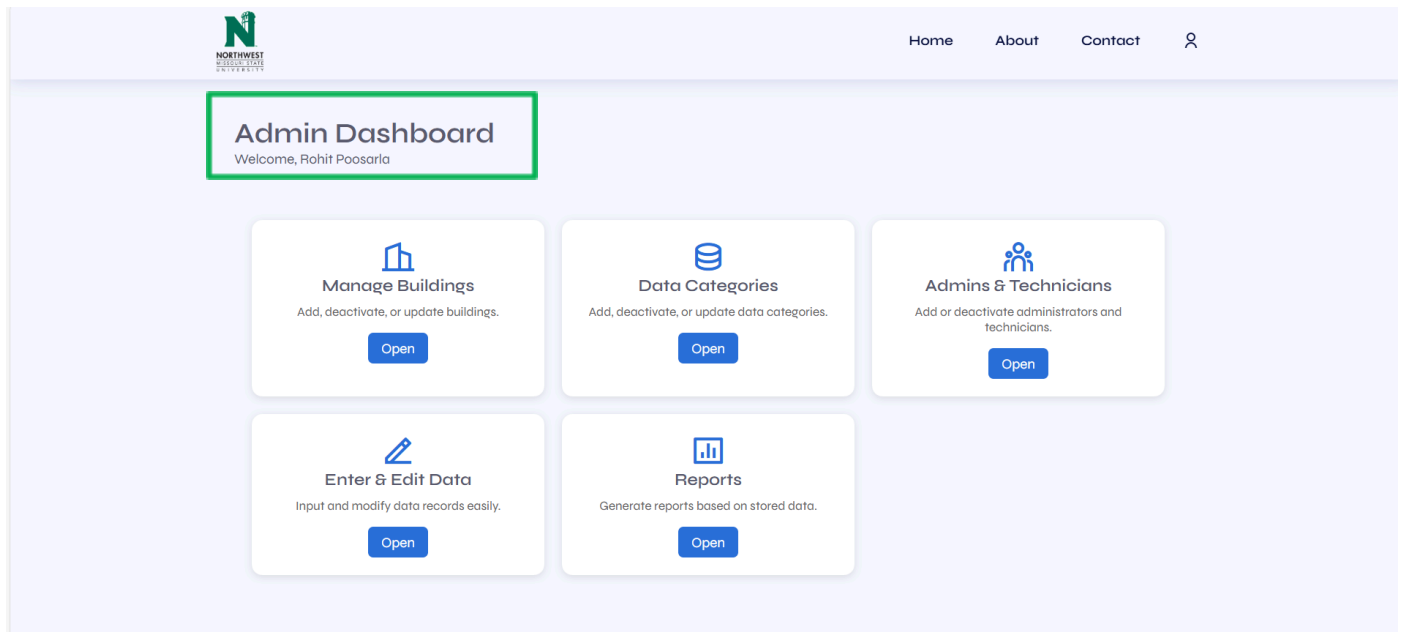
- In the **Login** page only users with a **Bearcat email ID, a #919 number, and a designated role (Admin or Technician)** can access the system. This ensures access control specific to Northwest Missouri State University.



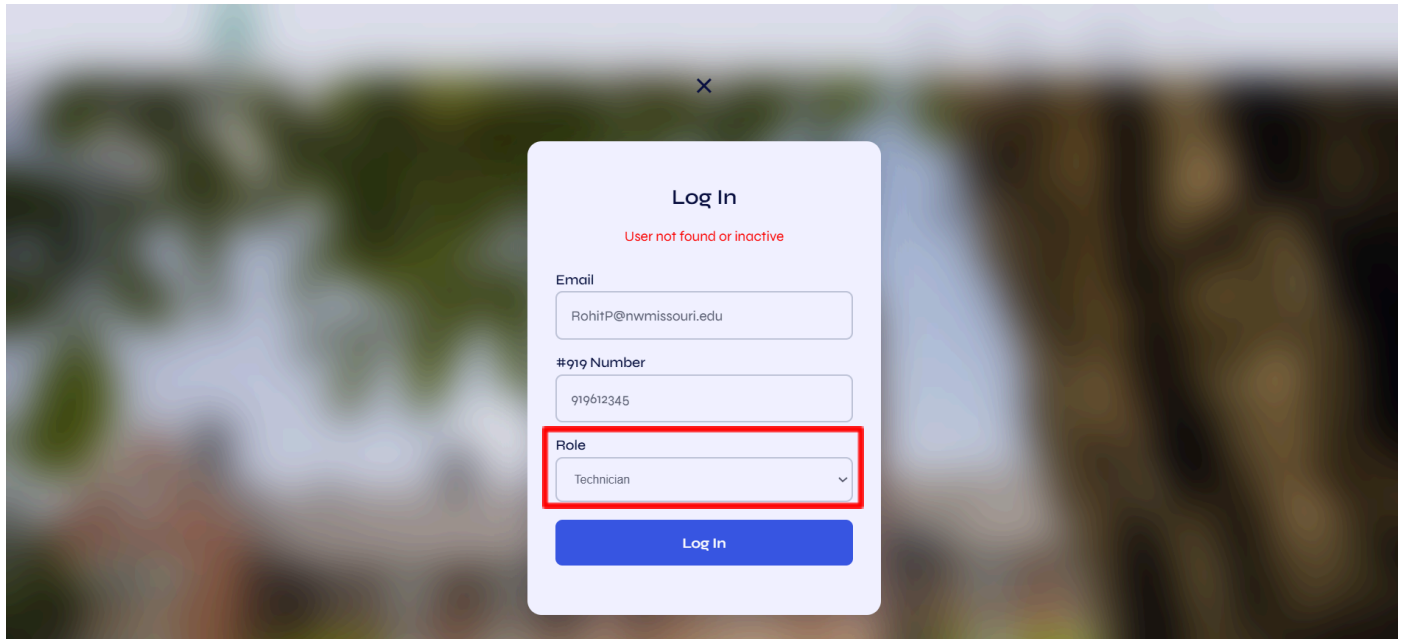
- **Verify login** with valid Bearcat email, #919 number, and for **ADMIN** Role



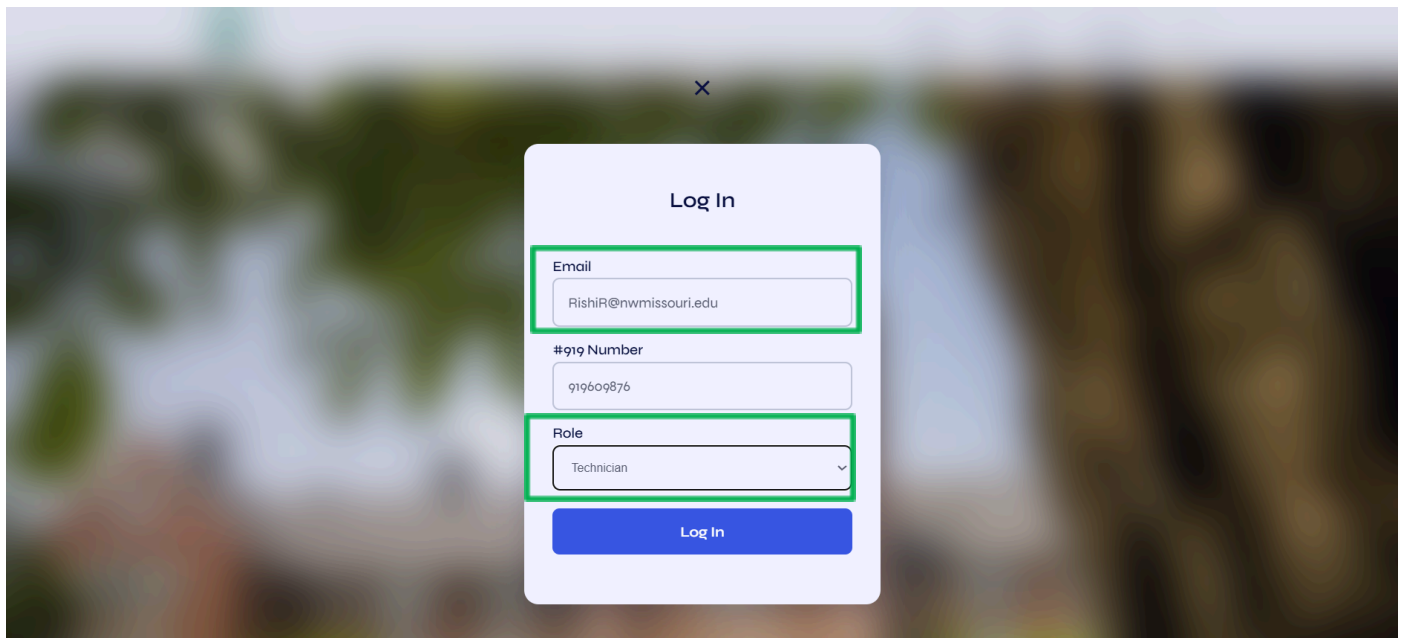
- **ADMIN Dashboard View**



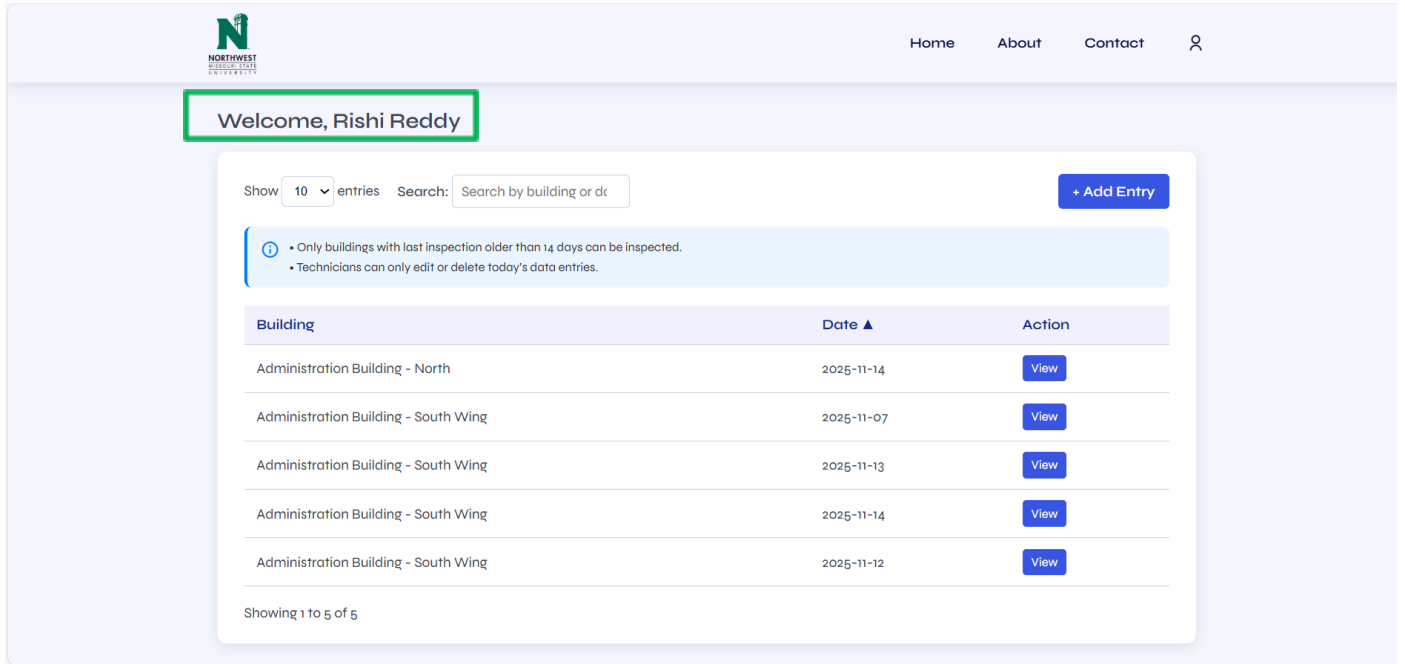
- When a user attempts to log in with a Bearcat email and #919 number but an **incorrect role**, the system displays the error message: **‘User not found or inactive’**. The same error message appears if the user enters an **incorrect email or #919 number**.



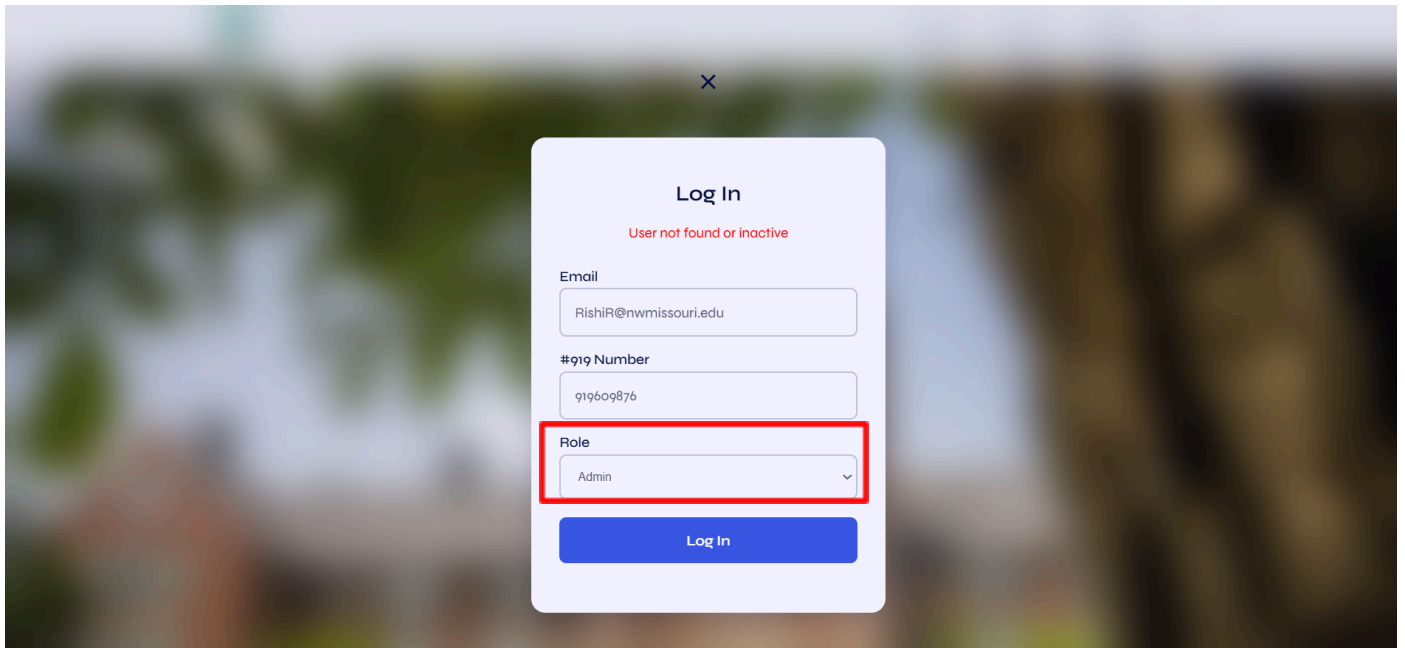
- **Verify login** with **valid** Bearcat email, #919 number, and for **TECHNICIAN** Role



- **TECHNICIAN Dashboard View**



- When a user attempts to log in with a Bearcat email and #919 number but an incorrect role, the system displays the error message: **'User not found or inactive'**. The same error message appears if the user enters an incorrect email or #919 number.



- ❑ **ADMIN Functionalities:**
- ❑ **User Management**
- Admin can add a New, edit or Delete **Users** in **Admins & Technicians**.

Admin Dashboard
Welcome, Rohit Poosarla

Home About Contact

Role: ADMIN

Rohit Poosarla
Logout

Manage Buildings
Add, deactivate, or update buildings.
Open

Data Categories
Add, deactivate, or update data categories.
Open

Admins & Technicians
Add or deactivate administrators and technicians.
Open

Enter & Edit Data
Input and modify data records easily.
Open

Reports
Generate reports based on stored data.
Open

By clicking on open at Admins & Technicians we can add, edit or delete Users.

- Adding a new User.

Home About Contact

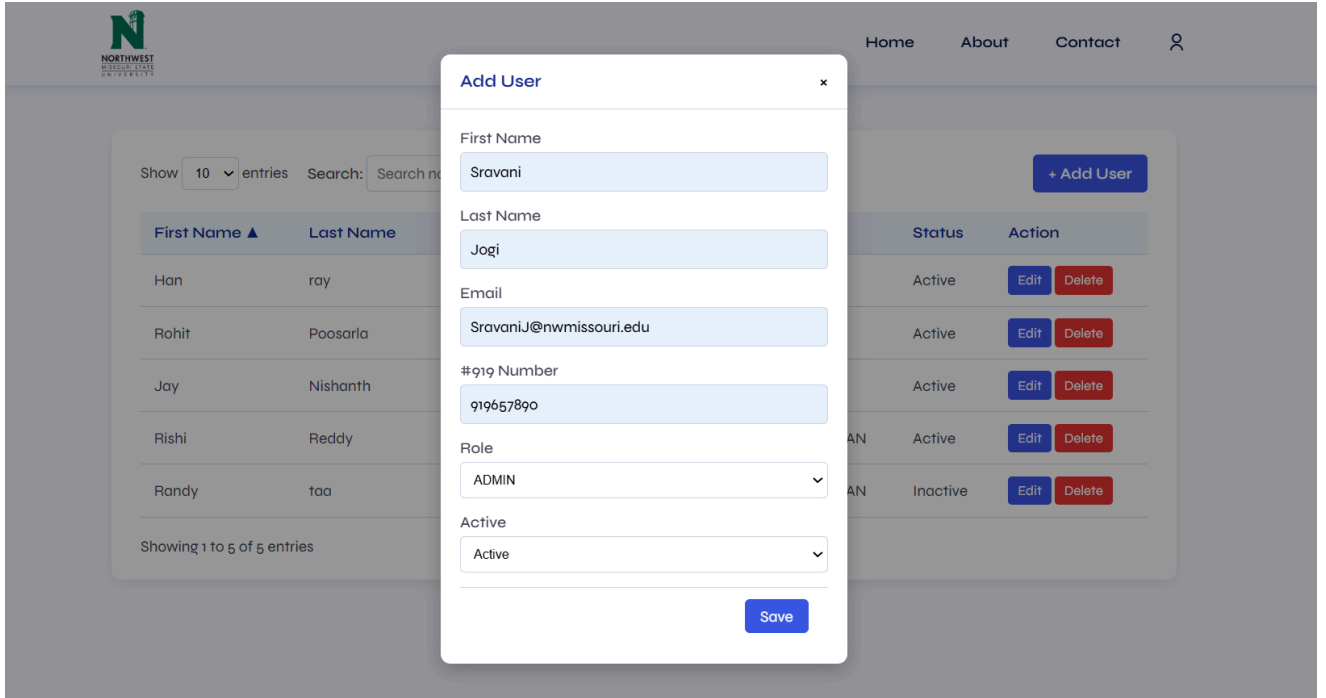
Show 10 entries Search: Search name / email /

By clicking on Add user, we can add a new user

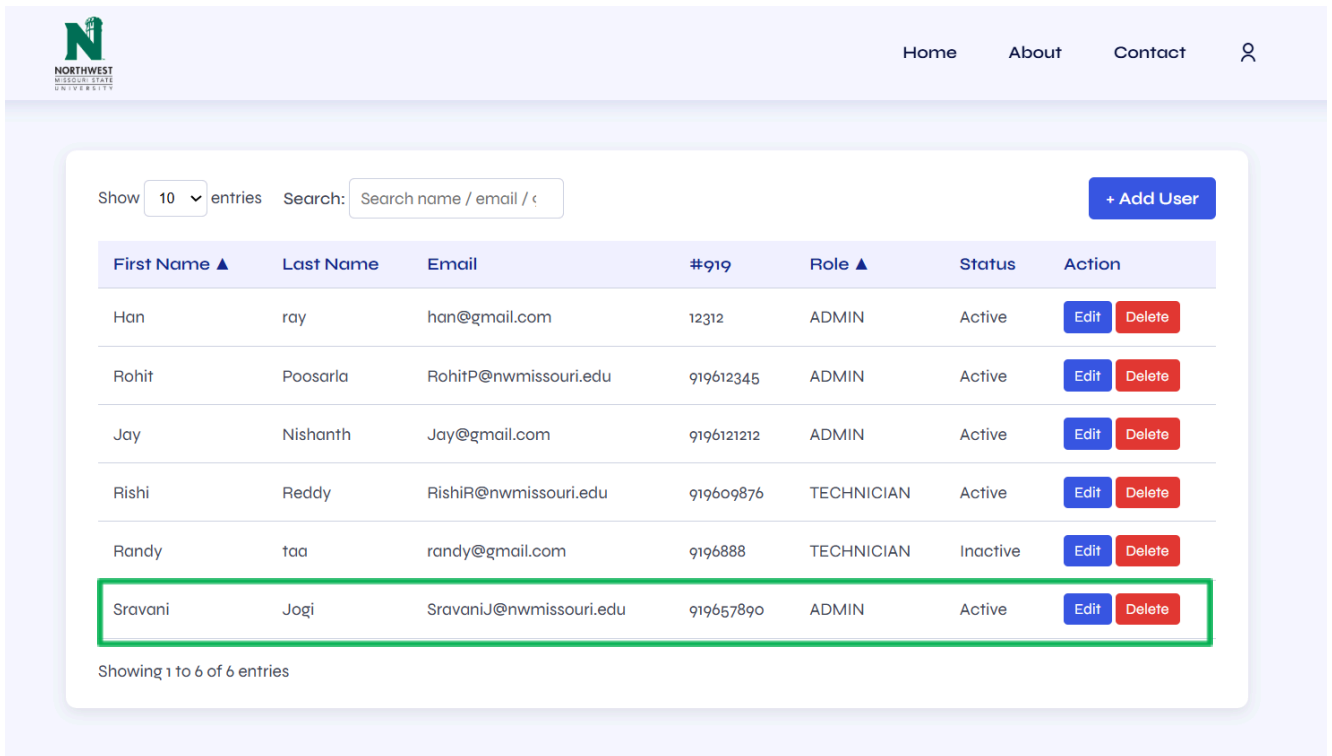
+ Add User

First Name ▲	Last Name	Email	#919	Role ▲	Status	Action
Han	ray	han@gmail.com	12312	ADMIN	Active	Edit Delete
Rohit	Poosarla	RohitP@nwmissouri.edu	919612345	ADMIN	Active	Edit Delete
Jay	Nishanth	Jay@gmail.com	9196121212	ADMIN	Active	Edit Delete
Rishi	Reddy	RishiR@nwmissouri.edu	919609876	TECHNICIAN	Active	Edit Delete
Randy	taa	randy@gmail.com	9196888	TECHNICIAN	Inactive	Edit Delete

Showing 1 to 5 of 5 entries



- Here we can see the **new Users** in the **Admins & Technicians**.



- The admin can **Edit** a user's name, email, or role by clicking the 'Edit' button and updating the user information accordingly.

The 'Edit User' modal form contains the following fields:

- First Name: Sravani
- Last Name: Jogi
- Email: SravaniJ11@nwmissouri.edu (highlighted)
- #919 Number: 919657890
- Role: TECHNICIAN (highlighted)
- Active: Active

The background table shows the following data:

First Name	Last Name	Email	#919	Role	Status	Action
Han	ray	han@gmail.com	12312	ADMIN	Active	Edit Delete
Rohit	Poosarla	RohitP@nwmissouri.edu	919612345	ADMIN	Active	Edit Delete
Jay	Nishanth	Jay@gmail.com	9196121212	ADMIN	Active	Edit Delete
Rishi	Reddy	RishiR@nwmissouri.edu	919609876	TECHNICIAN	Active	Edit Delete
Randy	taa	randy@gmail.com	9196888	TECHNICIAN	Inactive	Edit Delete
Sravani	Jogi	SravaniJ11@nwmissouri.edu	919657890	TECHNICIAN	Active	Edit Delete

The user management page displays the following table:

First Name	Last Name	Email	#919	Role	Status	Action
Han	ray	han@gmail.com	12312	ADMIN	Active	Edit Delete
Rohit	Poosarla	RohitP@nwmissouri.edu	919612345	ADMIN	Active	Edit Delete
Jay	Nishanth	Jay@gmail.com	9196121212	ADMIN	Active	Edit Delete
Rishi	Reddy	RishiR@nwmissouri.edu	919609876	TECHNICIAN	Active	Edit Delete
Randy	taa	randy@gmail.com	9196888	TECHNICIAN	Inactive	Edit Delete
Sravani	Jogi	SravaniJ11@nwmissouri.edu	919657890	TECHNICIAN	Active	Edit Delete

- The newly created user, **Sravani**, can **log in** to the system as **Technician**, so we can see the technician dashboard.

The screenshot shows the technician dashboard for Sravani Jogi. At the top left is the Northwest Missouri State University logo. The top right navigation bar includes 'Home', 'About', and 'Contact' links, along with a user profile icon for Sravani Jogi and a 'Logout' button. A green-bordered box highlights the 'Welcome, Sravani Jogi' message. Below this is a search bar with '10' entries and a '+ Add Entry' button. A light blue information box contains two bullet points: 'Only buildings with last inspection older than 14 days can be inspected.' and 'Technicians can only edit or delete today's data entries.' Below the information box is a table with columns 'Building', 'Date', and 'Action'. The table is empty, displaying 'No data found'. At the bottom, it says 'Showing 1 to 0 of 0'.

- Admin can also be able to **Delete the Users in Admins & Technicians.**

The screenshot shows the admin user management page. A modal dialog is open, asking 'Delete this user?' for user '127.0.0.1:5500'. The dialog has 'OK' and 'Cancel' buttons. In the background, there is a table of users with columns: 'First Name', 'Last Name', 'Email', '#919', 'Role', 'Status', and 'Action'. The table contains 6 entries. At the bottom, it says 'Showing 1 to 6 of 6 entries'.

First Name ▲	Last Name	Email	#919	Role ▲	Status	Action
Han	ray	han@gmail.com	12312	ADMIN	Active	Edit Delete
Rohit	Poosarla	RohitP@nwmissouri.edu	919612345	ADMIN	Active	Edit Delete
Jay	Nishanth	Jay@gmail.com	9196121212	ADMIN	Active	Edit Delete
Rishi	Reddy	RishiR@nwmissouri.edu	919609876	TECHNICIAN	Active	Edit Delete
Randy	taa	randy@gmail.com	9196888	TECHNICIAN	Inactive	Edit Delete
Sravani	Jogi	SravaniJ11@nwmissouri.edu	919657890	TECHNICIAN	Active	Edit Delete

□ Data Categories

- Admin can Add, Edit or Delete **categories** in the **Data Categories**.

The screenshot shows the Admin Dashboard for Northwest Portland State University. The user is logged in as Rohit Poosarla, with the role of Admin. The dashboard features several modules: Manage Buildings, Data Categories (highlighted with a green border), Admins & Technicians, Enter & Edit Data, and Reports. A callout box on the right states: "By clicking on open at Data Categories we can add, edit or delete categories".

- Adding a new Categories.

The screenshot shows the Data Categories management interface. It includes a search bar, a table of existing categories, and an "Add Category" modal. The modal is open, showing the "Add Category" form with the following fields:

- Category Name: sample
- Data Type: Text (selected from a dropdown menu)

The table below the modal lists existing categories and their actions:

Category Name	Action
Air Compressor Pressure	Edit Delete
Air Compressor Pressure - East	Edit Delete
Air Compressor Pressure - West	Edit Delete
Circulating Pumps	Edit Delete
Cooling/Heating Water Temperature	Edit Delete

At the bottom, there is a pagination control showing "Showing 1 to 5 of 17 entries" and page numbers 1, 2, 3, 4.

- Here we can see the **new category** in the data categories.

Northwest Missouri State University

Home About Contact

Show 5 entries Search: Search category... + Add Category

Category Name ▲	Data Type ▲	Action
Pump Pressure - High Side	NUMBER	Edit Delete
Pump Pressure - Low Side	NUMBER	Edit Delete
Return Pumps	BOOLEAN	Edit Delete
sample	TEXT	Edit Delete
South Pump Pressure - High	NUMBER	Edit Delete

Showing 11 to 15 of 18 entries

1 2 3 4

- Editing the category name and data type, here we can see the updated category.

Northwest Missouri State University

Home About Contact

Show 5 entries Search: Search category... + Add Category

Edit Category

Category Name

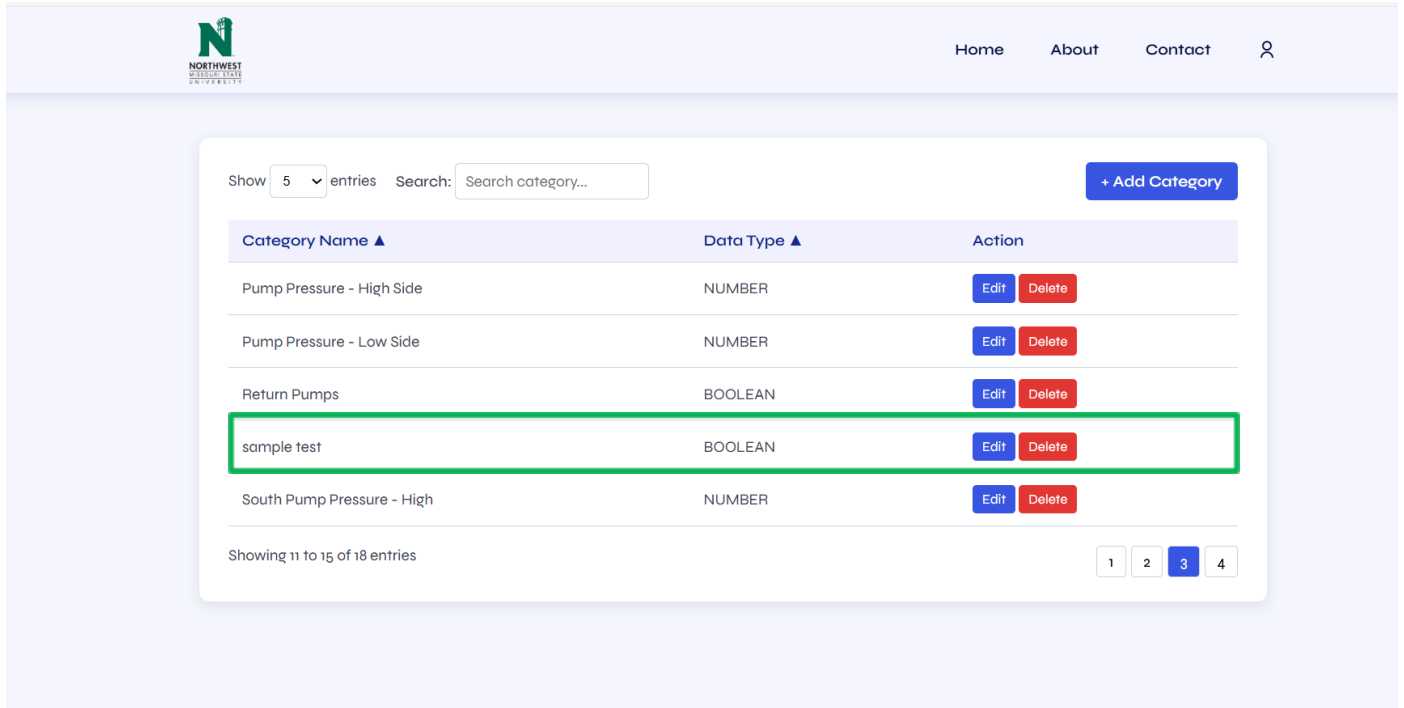
Data Type

[Save](#)

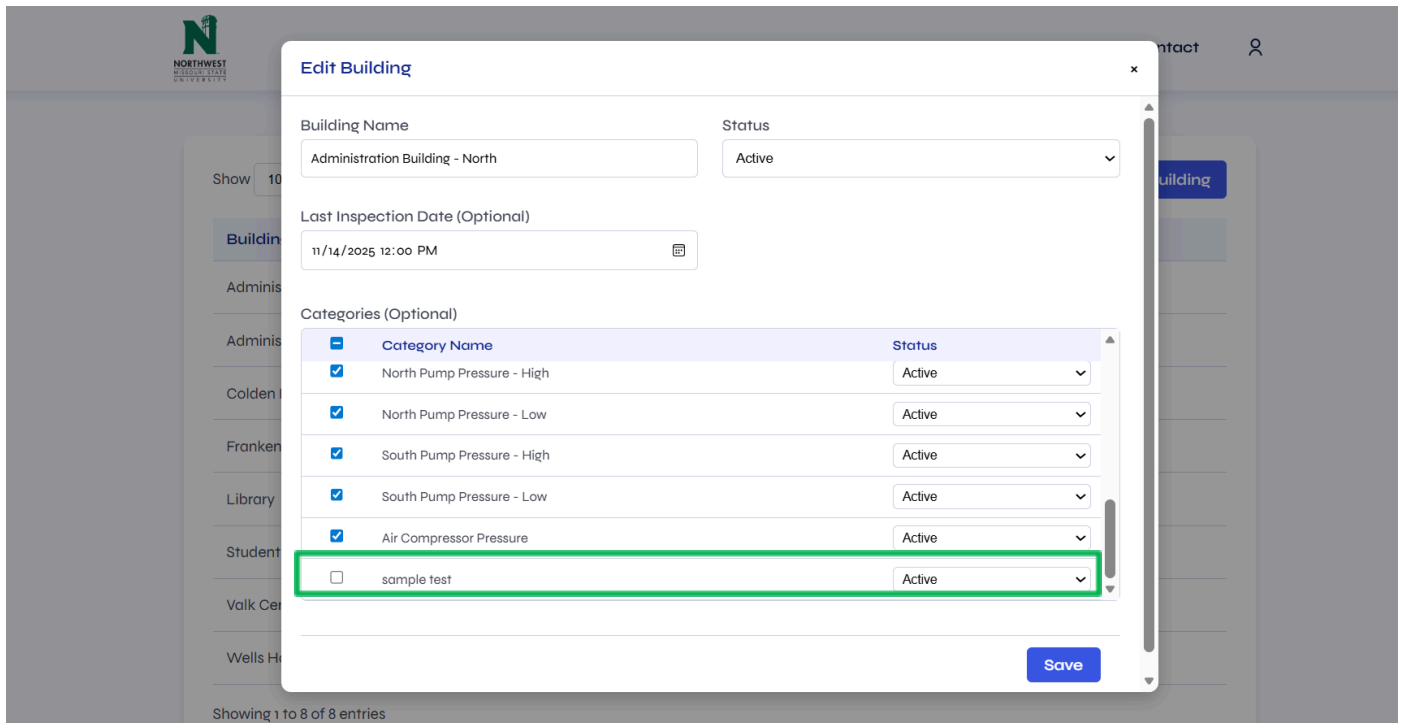
Category Name ▲	Data Type ▲	Action
Pump Pressure - High Side	NUMBER	Edit Delete
Pump Pressure - Low Side	NUMBER	Edit Delete
Return Pumps	BOOLEAN	Edit Delete
sample	TEXT	Edit Delete
South Pump Pressure - High	NUMBER	Edit Delete

Showing 11 to 15 of 18 entries

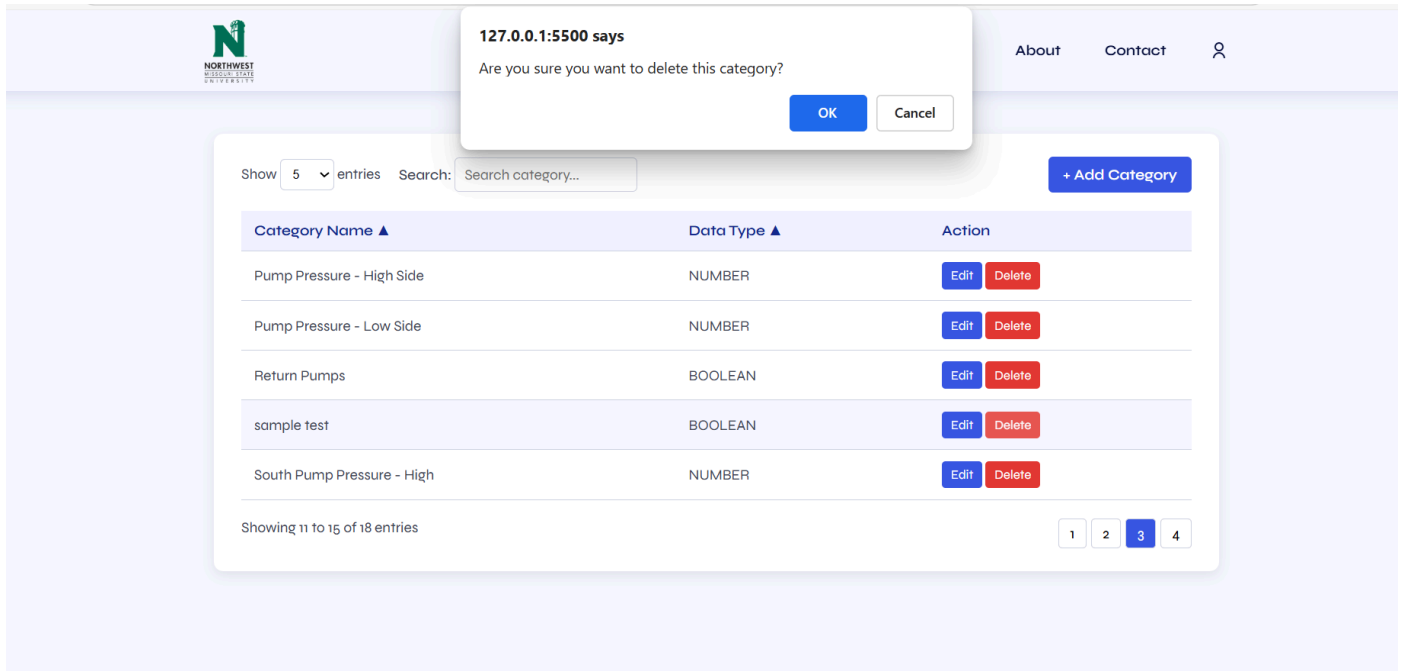
1 2 3 4



- Verifying that the **new category** should be display in **Building Categories**.

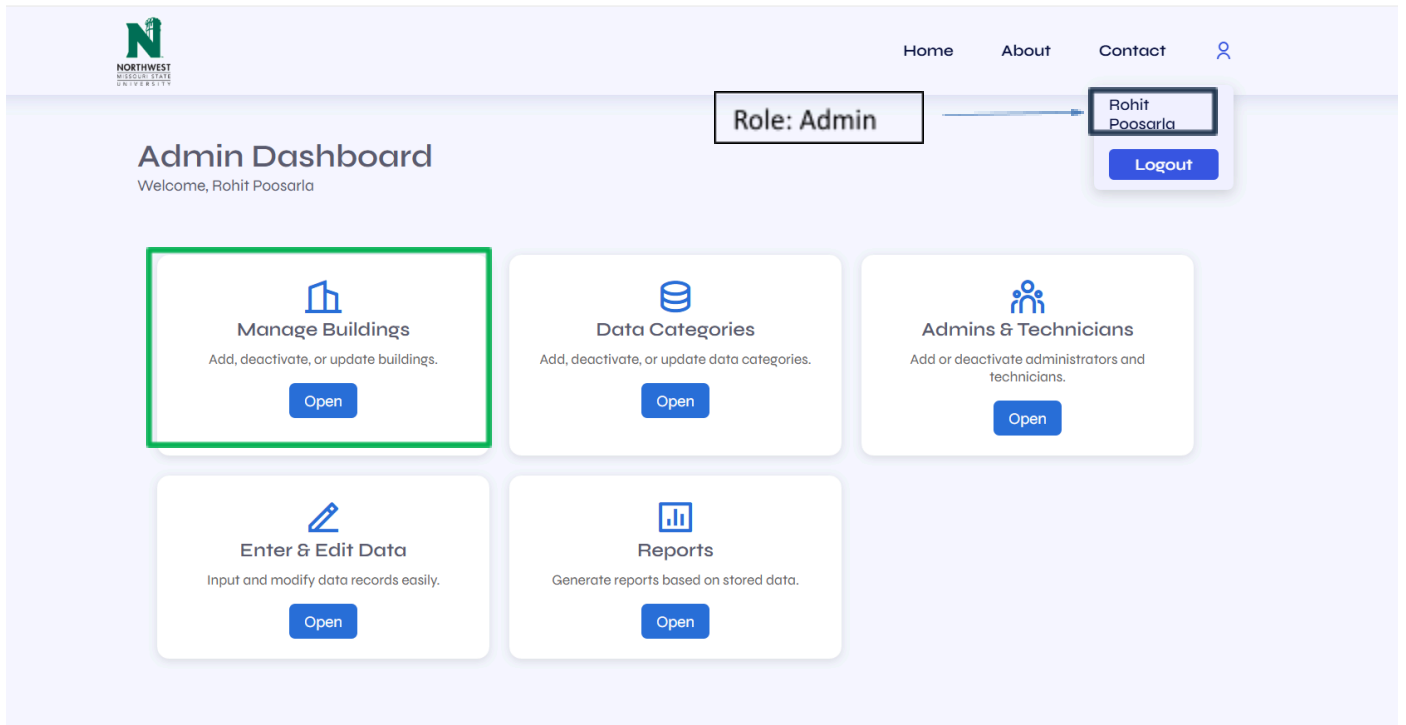


- **Deleting a Category.**



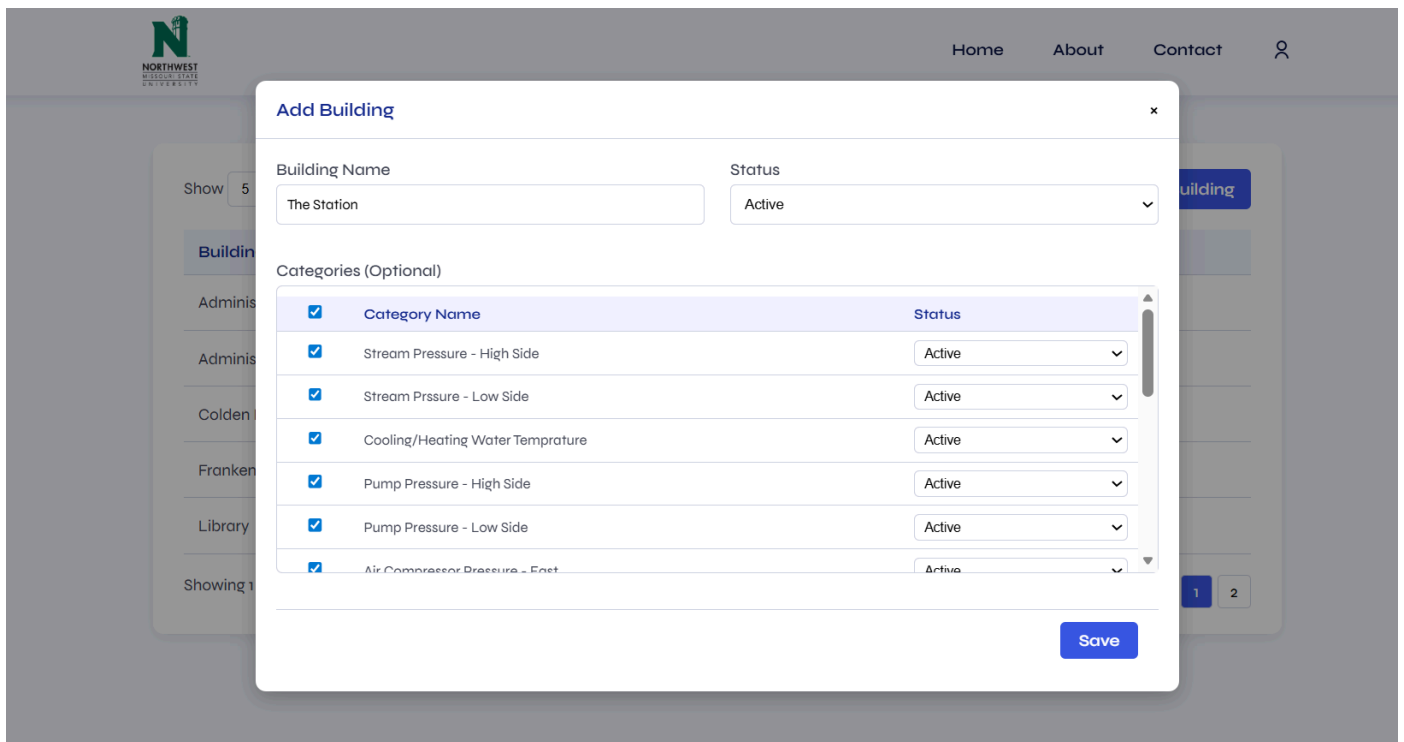
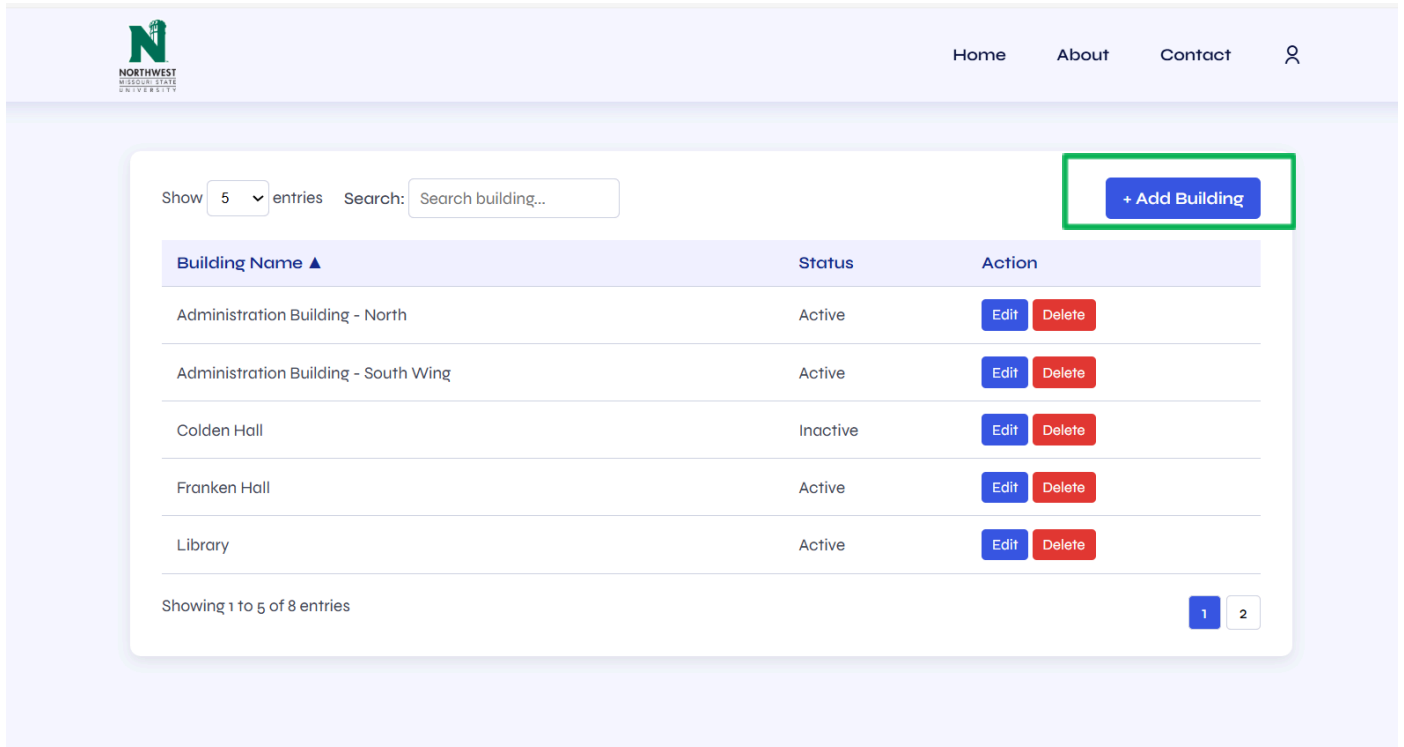
- **Building Management**

- Admin can Add, Edit or Building in the Manage Buildings:

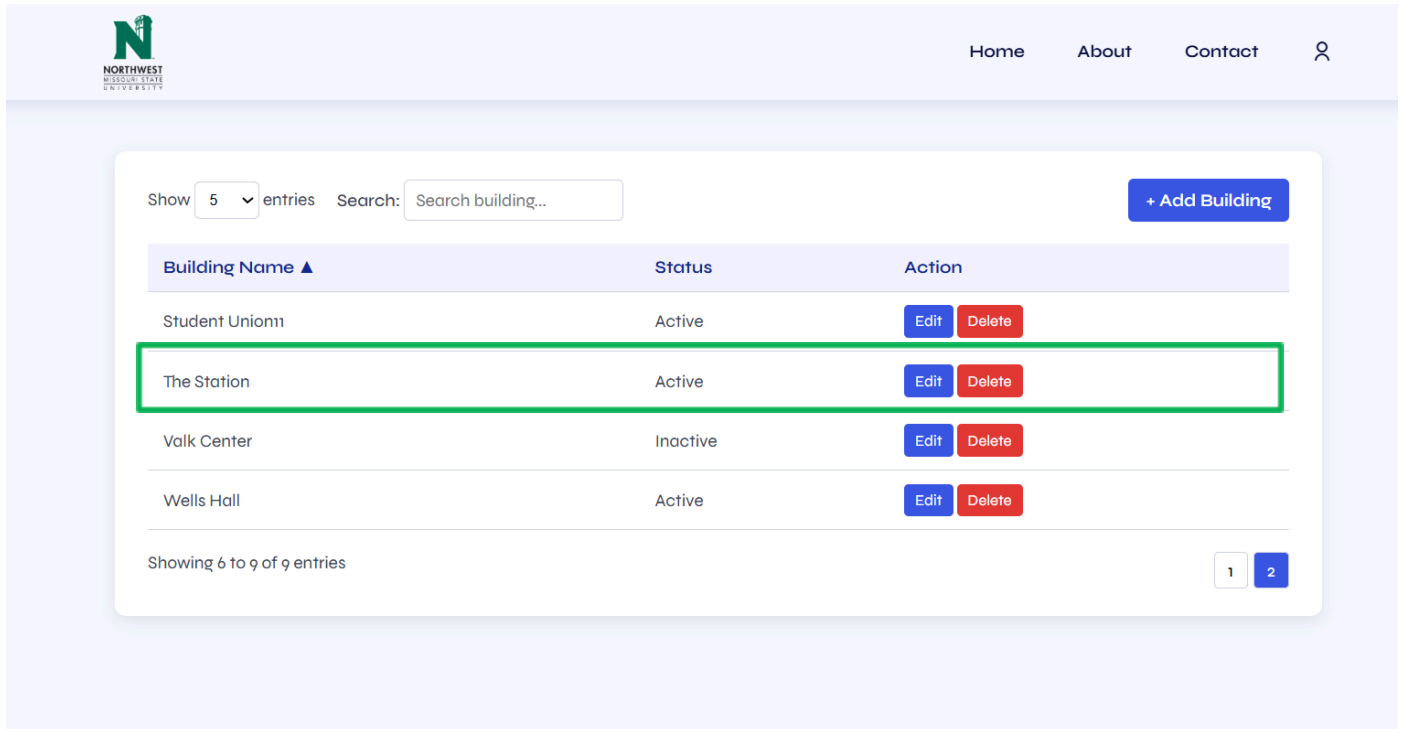


- Adding a new **Building**.

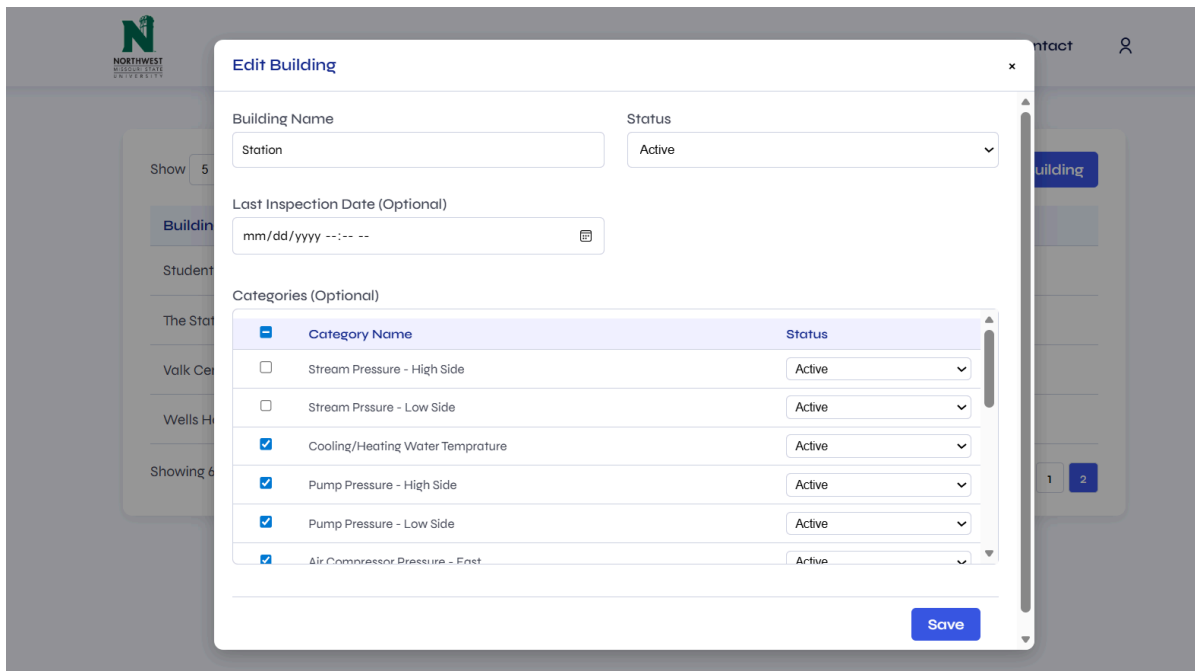
While adding a new building, users can also select the categories that will be required in the data entry form during inspections. Since this is a new building, the latest inspection data will initially be empty.



- Here we can see the **new Building** in the Manage Buildings.



- Users can **edit** the building name and **add or remove categories** for that building by selecting the appropriate checkboxes.



Show entries Search: [+ Add Building](#)

Building Name ▲	Status	Action
Station	Active	Edit Delete
Student Union	Active	Edit Delete
Valk Center	Inactive	Edit Delete
Wells Hall	Active	Edit Delete

Showing 6 to 9 of 9 entries 1 2

- Deleting a **Building** from Manage Buildings.

127.0.0.1:5500 says
Are you sure you want to delete this building?

[OK](#) [Cancel](#)

Show entries Search: [+ Add Building](#)

Building Name ▲	Status	Action
Station	Active	Edit Delete
Student Union	Active	Edit Delete
Valk Center	Inactive	Edit Delete
Wells Hall	Active	Edit Delete

Showing 6 to 9 of 9 entries 1 2

□ **Enter and Edit Data**

- Admin can **view all data entries** submitted by **Technicians** after **Building Inspections**.

The screenshot shows the Admin Dashboard for Northwest Missouri State University. The dashboard includes a header with the university logo and navigation links (Home, About, Contact, and a user profile icon). The main content area features five cards: 'Manage Buildings', 'Data Categories', 'Admins & Technicians', 'Enter & Edit Data', and 'Reports'. The 'Enter & Edit Data' card is highlighted with a green border. A callout box with a black border points to the 'Enter & Edit Data' card and contains the following text:

- By clicking on open we can see the data entries made by technician after inspection.
- And able to edit only category values if needed.
- Add a new Data Entry if needed.
- And, able delete the data entries.

The screenshot shows the data entry table in the Admin Dashboard. The table has a header with 'Building', 'Technician', 'Date', and 'Action'. The table contains five rows of data, all of which are highlighted with a green border. The 'Action' column for each row contains 'Edit' and 'Delete' buttons. Below the table, it says 'Showing 1 to 5 of 5'. The table data is as follows:

Building	Technician	Date ▲	Action
Administration Building - South Wing	Rishi Reddy	2025-11-07	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-12	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-13	Edit Delete
Administration Building - North	Rishi Reddy	2025-11-14	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-14	Edit Delete

- Admin can **Edit** the values of the **category fields** only and **cannot** change the Technician's name, the building name are read only and if needed they can change the date of entry.

Northwest Missouri State University logo and navigation links: Home, About, Contact.

Show 10 entries Search: Search by building, techn

+ Add Entry

Building	Technician	Date ▲	Action
Administration Building - South Wing	Rishi Reddy	2025-11-07	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-12	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-13	Edit Delete
Administration Building - North	Rishi Reddy	2025-11-14	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-14	Edit Delete

Showing 1 to 5 of 5

- Before edit the values are

Northwest Missouri State University logo and navigation links: Home, About, Contact.

Building: Administration Building - North

Technician: Rishi Reddy

Entry Date: 11/14/2025

Categories

Category	Value
Stream Pressure - High Side	0
Stream Prssure - Low Side	9
Cooling/Heating Water Temperature	8
Pump Pressure - High Side	7

Save

- After edit the values for category fields are changed and saved.

Edit Entry

Building: Administration Building - North

Technician: Rishi Reddy

Entry Date: 11/14/2025

Category	Value
Stream Pressure - High Side	90
Stream Prssure - Low Side	89
Cooling/Heating Water Temperature	78
Pump Pressure - High Side	67

Save

- Admin can **Add** a new data entry if required.

By clicking on Add Entry a new data entry form appears where admin can add inspection building data if needed.

Home About Contact

Show 10 entries Search: Search by building technician

Building	Technician	Date ▲	Action
Administration Building - South Wing	Rishi Reddy	2025-11-07	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-12	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-13	Edit Delete
Administration Building - North	Rishi Reddy	2025-11-14	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-14	Edit Delete

Showing 1 to 5 of 5

+ Add Entry

Add Entry

Building

Student Union11

Technician

Rishi Reddy

Entry Date

11/16/2025

Categories

Category

Value

Stream Prssure - Low Side

34

Save

Show 10 entries

Search: Search by building, tech

+ Add Entry

Building	Technician	Date ▲	Action
Administration Building - South Wing	Rishi Reddy	2025-11-07	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-12	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-13	Edit Delete
Administration Building - North	Rishi Reddy	2025-11-14	Edit Delete
Administration Building - South Wing	Rishi Reddy	2025-11-14	Edit Delete
Student Union11	Rishi Reddy	2025-11-16	Edit Delete

Showing 1 to 6 of 6

Reports

Generate reports based on stored data

- **Graphs** - Select the building, data field(s), and the start and end dates to generate visual graphs.
- **Reports/ Excel Download** - Select the building, data field(s), and the start and end dates to download the data in Excel format.

System Reports

Building: Administration Building - South Wing

Categories: Stream Pressure - High Side, Stream Prssure - Low Side, Cooling/Heating Water Temperature, Pump Pressure - High Side, Pump Pressure - Low Side

Start Date: 11/01/2025

End Date: 11/16/2025

Generate

Northwest Energy Services logo | Home | About | Contact

System Reports

Building: Administration Building - South Wing

Categories: Stream Pressure - High Side, Stream Pressure - Low Side, Cooling/Heating Water Temperature, Pump Pressure - High Side, Pump Pressure - Low Side

Start Date: 11/01/2025 | End Date: 11/16/2025

Generate

Download Excel

Numeric Data

Date	Stream Pressure - High Side	Pump Pressure - Low Side	Stream Pressure - Low Side	Cooling/Heating Water Temperature
2025-11-07	86	43	0	0
2025-11-12	0	55	0	0
2025-11-13	11	66	22	33
2025-11-14	5	30	6	7

Boolean Data (true=1, false=0)

Date	Return Pumps	Circulating Pumps
2025-11-07	0	0
2025-11-12	0	0
2025-11-13	1	0
2025-11-14	0	1

By clicking on **Download Excel**, we can get data in Excel format.

System_Report_Administration Building - South Wing_2025-11-16.xlsx - Protected View • Saved to this PC

PROTECTED VIEW Be careful—files from the Internet can contain viruses. Unless you need to edit, it's safer to stay in Protected View. Enable Editing

Administration Building - South Wing Report

Administration Building - South Wing Report									
Date	Stream Pressure - High Side	Pump Pressure - Low Side	Stream Pressure - Low Side	Cooling/Heating Water Temperature	Pump Pressure - High Side	Return Pumps	Circulating Pumps	Outside Temp	
2025-11-07	86	43	0	0	0	0	FALSE	FALSE	0
2025-11-12	0	55	0	0	0	0	FALSE	FALSE	0
2025-11-13	11	66	22	33	33	44	TRUE	FALSE	88
2025-11-14	5	30	6	7	7	8	FALSE	TRUE	8

- **Building Status (Active / Inactive)**

1. when a building is marked as **Inactive**, it will **not appear** in the dropdown list for Technicians while performing inspections.
2. Only **Active** buildings are available for selecting and filling data entry forms.

Northwest Missouri State University

Home About Contact

Role: ADMIN

Show 10 entries Search: Search building..

Rohit Poosarla
Logout

Building Name ▲	Status	Action
Administration Building - North	Active	Edit Delete
Administration Building - South Wing	Inactive	Edit Delete
Colden Hall	Inactive	Edit Delete
Franken Hall	Active	Edit Delete
Library	Active	Edit Delete
Student Unionm1	Active	Edit Delete
Valk Center	Inactive	Edit Delete
Wells Hall	Active	Edit Delete

Showing 1 to 8 of 8 entries

2. Display for Admin

- If a building has previous inspection data, the admin can still view those entries.
- For such buildings, the admin will see an **“Inactive” status label** beside the building name, indicating the building is currently inactive

Northwest Missouri State University

Home About Contact

Role: ADMIN

Rohit Poosarla
Logout

Show 10 entries Search: Search by building, tech

Building	Technician	Date ▲	Action
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-07	Edit Delete
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-12	Edit Delete
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-13	Edit Delete
Administration Building - North	Rishi Reddy	2025-11-14	Edit Delete
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-14	Edit Delete
Student Unionm1	Rishi Reddy	2025-11-16	Edit Delete

Showing 1 to 6 of 6

□ Technician Functionalities:

- Enter new data entry form while he was inspecting the building he needs to enter the values in particular category field for that building.

Northwest Missouri State University

Home About Contact

Welcome, Rishi Reddy

Show 10 entries Search: Search by building or dc

By clicking on Add Entry a new data entry form appears with date of entry cannot be changed and dropdown to select the building

+ Add Entry

• Only buildings with last inspection older than 14 days can be inspected.
• Technicians can only edit or delete today's data entries.

Building	Date ▲	Action
Administration Building - North	2025-11-14	View
Administration Building - South Wing	2025-11-07	View
Administration Building - South Wing	2025-11-13	View
Administration Building - South Wing	2025-11-14	View
Administration Building - South Wing	2025-11-12	View

Showing 1 to 5 of 5

Welcome, Rishi Reddy

Show 10 entries Search: Search by building or dc

+ Add Entry

• Only buildings with last inspection older than 14 days can be inspected.
• Technicians can only edit or delete today's data entries.

Add Entry x

Building: -- Select Building --

Entry Date: 11/16/2025

Category	Value
----------	-------

Save

Administration Building - South Wing 2025-11-14 View

Welcome

Add Entry

Building: Student Union11 Entry Date: 11/16/2025

Category	Value
Stream Prssure - Low Side	99
Cooling/Heating Water Temperature	88
Pump Pressure - High Side	66
Pump Pressure - Low Side	55

Save

Showing 1 to 5 of 5

Welcome, Rishi Reddy

Show 5 entries Search: Search by building or dc

+ Add Entry

• Only buildings with last inspection older than 14 days can be inspected.
• Technicians can only edit or delete today's data entries.

Building	Date ▲	Action
Administration Building - North	2025-11-14	View
Administration Building - South Wing	2025-11-07	View
Administration Building - South Wing	2025-11-13	View
Student Union11	2025-11-16	Edit Delete
Administration Building - South Wing	2025-11-14	View

Showing 1 to 5 of 6

- **Admin** can be able to see the latest data entry and can also generate reports accordingly.

The screenshot shows the Northwest Missouri State University Admin interface. At the top left is the university logo. The top right has navigation links for Home, About, and Contact, along with a user profile icon. The user profile dropdown menu is open, showing the name 'Rohit Poosarla' and a 'Logout' button. Below the navigation is a search bar with the text 'Search by building, tech' and a 'Show 10 entries' dropdown. The main content is a table with the following data:

Building	Technician	Date ▲	Action
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-07	Edit Delete
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-12	Edit Delete
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-13	Edit Delete
Administration Building - North	Rishi Reddy	2025-11-14	Edit Delete
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-14	Edit Delete
Student Union	Rishi Reddy	2025-11-16	Edit Delete

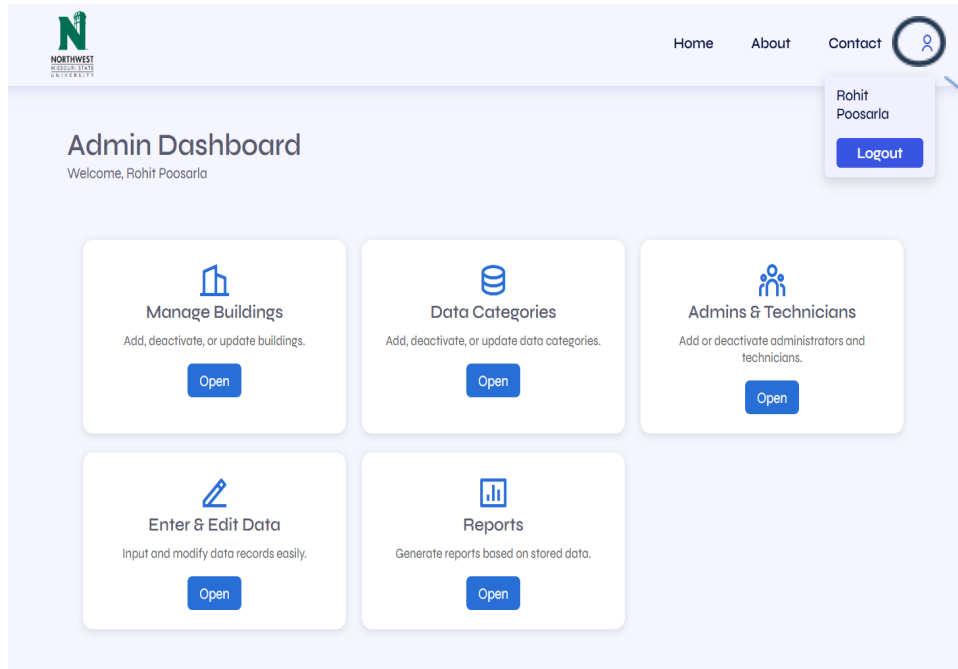
Showing 1 to 6 of 6

5.2 System Testing

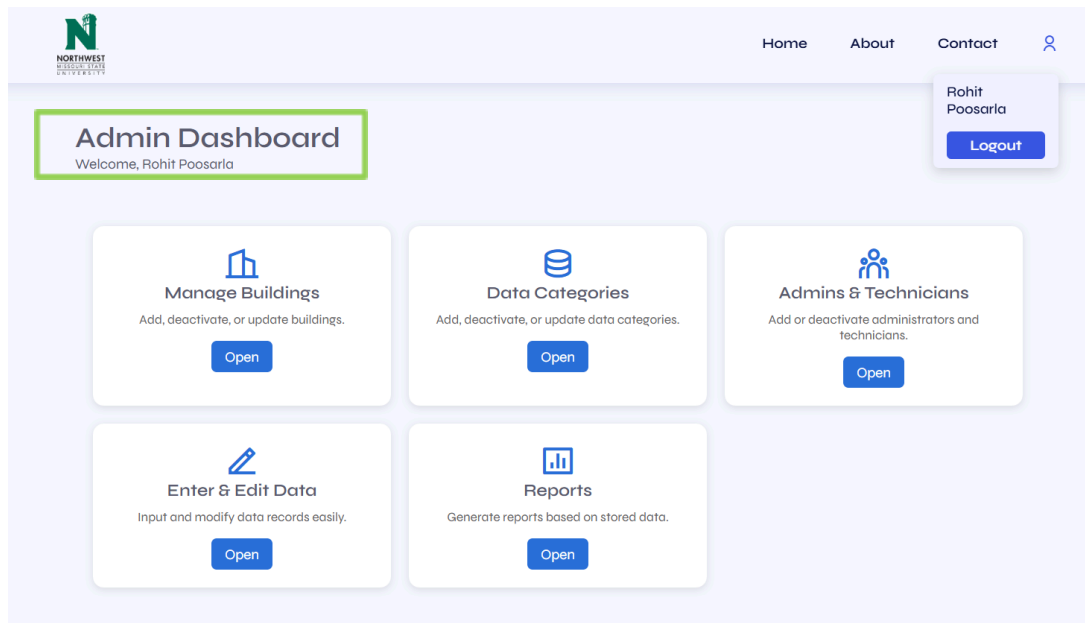
Below are screenshots taken after the manual testing of the app.

The screenshot shows a 'Log In' modal form. The form has a title 'Log In' and a close button (X) at the top. It contains three input fields: 'Email' with the value 'RohitP@nwmissouri.edu', '#919 Number' with the value '919612345', and 'Role' with a dropdown menu showing 'Admin'. Below the input fields is a blue 'Log In' button.

This indicates that the login system for the Northwest Missouri State University's Maintenance Technician Building Rounds system is restricted to users with a specific "Bearcat" email address and #919 number and Role requires authentication through a Microsoft account.



The image confirms that the user profile is visible and that there is a logout option. In the top right corner of the image, you can see "Your profile name" and "Log out" options under the user's name



The image shows the ADMIN dashboard of the Campus Maintenance and Management System. It provides access to key functions like Manage Buildings, Data Categories, Admins & Technicians, Enter & Edit Data, Reports.

Welcome, Rishi Reddy

Show 10 entries Search: Search by building or dc [+ Add Entry](#)

- Only buildings with last inspection older than 14 days can be inspected.
- Technicians can only edit or delete today's data entries.

Building	Date ▲	Action
Administration Building - North	2025-11-14	View
Administration Building - South Wing	2025-11-07	View
Administration Building - South Wing	2025-11-13	View
Administration Building - South Wing	2025-11-14	View
Administration Building - South Wing	2025-11-12	View

Showing 1 to 5 of 5

The image displays the TECHNICIAN dashboard of the Campus Maintenance and Management System, where technicians can access essential features, including entering data for buildings during inspections.

Home About **Contact**

Show 5 entries Search: Search building... [+ Add Building](#)

Building Name ▲	Status	Action
Administration Building - North	Active	Edit Delete
Administration Building - South Wing	Inactive	Edit Delete
Colden Hall	Inactive	Edit Delete
Franken Hall	Active	Edit Delete
Library	Active	Edit Delete

Showing 1 to 5 of 8 entries 1 2

Admin can add a new building and be able to add all the categories are needed for data entries from

The Admin can edit the building name and add or remove categories associated with that building as needed

The admin can also delete a building if it is no longer needed.

Home About Contact

Show 5 entries Search: Search category...

+ Add Category

Category Name ▲	Data Type ▲	Action
Air Compressor Pressure	TEXT	Edit Delete
Air Compressor Pressure - East	NUMBER	Edit Delete
Air Compressor Pressure - West	NUMBER	Edit Delete
Circulating Pumps	BOOLEAN	Ed Delete
Cooling/Heating Water Temperature	NUMBER	Edit Delete

Showing 1 to 5 of 17 entries

1 2 3 4

The admin can add new categories with name and data type.

The admin can edit the category name, and its data type as needed.

The admin can also delete a category if it is no longer required.

Home About Contact

Show 10 entries Search: Search name / email / c

+ Add User

First Name ▲	Last Name	Email	#919	Role ▲	Status	Action
Han	ray	han@gmail.com	12312	ADMIN	Active	Edit Delete
Rohit	Poosarla	RohitP@nwmissouri.edu	919612345	ADMIN	Active	Edit Delete
Jay	Nishanth	Jay@gmail.com	9196121212	TECHNICIAN	Inactive	Edit Delete
Rishi	Reddy	RishiR@nwmissouri.edu	919609876	TECHNICIAN	Active	Ed Delete
Randy	taa	randy@gmail.com	9196888	TECHNICIAN	Inactive	Edit Delete

Showing 1 to 5 of 5 entries

The Admin can create a new user by assigning a name, email, #919 number, and role (Admin or Technician)

The Admin can update user information such as name, email, role, or status (Active/Inactive).

The Admin can delete a user if they are no longer needed, or mark them as **Inactive** to prevent them from logging into the system.

Home About Contact

Show 5 entries Search: Search by building, tech

+ Add Entry

Building	Technician	Date ▲	Action
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-07	Edit Delete
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-12	Edit Delete
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-13	Edit Delete
Administration Building - North	Rishi Reddy	2025-11-14	Edit Delete
Administration Building - South Wing (Inactive)	Rishi Reddy	2025-11-14	Edit Delete

Showing 1 to 5 of 6

The Admin can create a new data entry manually if additional information needs to be recorded.

The Admin can edit the category values within a data entry if corrections are needed. The Admin can also delete a data entry if it is incorrect or no longer required.

The admin can create a new data entry manually if additional information needs to be recorded.

6. Result of the Project

+ Technicians can now record inspection data in real time using a web-based system, reducing errors and saving time. Administrators can manage buildings, categories, and users with ease, and generate detailed reports and graphs for performance tracking.

The system improved accuracy, streamlined data entry, and provided better visibility into building conditions across campus. Real-time data availability, role-based access, and automated reporting helped enhance decision-making and overall operational efficiency. By replacing paper logs with a centralized digital solution, the project achieved faster maintenance workflows, improved sustainability, and a more organized maintenance management process for the university.