**INTRODUCTION**

The study of plants encompasses a wide range of attributes that contribute to their ecological roles, cultivation, and interactions within ecosystems. This report provides a comprehensive analysis of collected data focusing on key characteristics of various plant species. Hardiness zones, flower colors, pollination methods, common diseases, and associated infectious agents. The data includes information on plant names, their country of origin, hardiness

Each of these elements plays a significant role in plant survival and utility. The origin and hardiness zone provide insights into a plant's adaptability to specific climates, aiding in horticultural planning and conservation efforts. Flower color and pollination methods reveal ecological relationships, highlighting how plants interact with pollinators to ensure reproduction and biodiversity. Understanding common diseases and infectious agents offers valuable information for developing preventive measures and enhancing plant health management.

This report synthesizes these diverse aspects, offering a detailed resource for researchers, agriculturists, horticulturists, and environmentalists. By examining these interconnected traits, it aims to support sustainable practices in agriculture, promote biodiversity, and contribute to the effective management of plant resources.

**CHALLENGES**

* **Challenges in Collecting Plant-Related Data from Online Sources**

Gathering plant-related data from online platforms presents unique challenges, ranging from information reliability to accessibility. Below are the key issues faced during such efforts:

**1. Data Accuracy and Reliability**

* Online data may be outdated, incomplete, or incorrect. Sources such as blogs, forums, or user-contributed content can lack scientific rigor, leading to misinformation.

**2. Fragmentation of Information**

* Plant data is often scattered across multiple websites, databases, research papers, and institutional repositories. Integrating and synthesizing this fragmented information requires significant effort and expertise.

**3. Inconsistent Data Standards**

* Different websites or databases may use varying terminologies, formats, or classification systems, complicating data harmonization. For example, hardiness zones might differ depending on the region or source.

**4. Lack of Contextual Data**

* Online sources often focus on specific attributes, such as cultivation tips or ornamental value, without providing comprehensive ecological or botanical context, such as pollination mechanisms or disease susceptibility.
* **Challenges in creating Login Form and Data Input Form in excel:**

In creating the login form in my project, I don’t know how to save this form. And the same problem I faced in creating the data input form.

* **Challenges in creating the poster of this project:**

To create the poster, I was a little bit confused about which types of pages would be perfect.  Then which design would be perfect for the poster of this project.

**DATASET PREPARATION**

I have to do  different types of work to set the data in my project. The different types of works are described in below:

* **To collect and select the data:**

I searched different types of online sources ( such as: Chatgpt, Kaggle, Google etc.) for collecting plant related data because I am a student of the Botany Department.

Then I selected data  from chatgpt for my project.

* **To analysis the selected data:**

Next, I analyzed the selected data. The data is on the basis of pollination method, common infectious disease, infectious agent, plant origin, hardiness zone of the different types of plants ( such as: aloe vera, chestnut, strawberry etc.)

* **Transfer the data into the excel sheet :**

Then the data is transferred into the excel sheet to make my project. Questionnaires , answers the questions, create the chart and pivot table, create login and data input form are functioned in the excel sheet to set the data.

Above all the steps are followed to set the data into the excel sheet for my project due to the department related data.

METHODOLOGY

Data input:

To input the data into the excel sheet, I copied the data from the source of chatgpt . Then, In Excel, select the starting cell and press **Ctrl + V** (Windows) to paste it.

Creating a questions set in docs:

I did some questions about 10 on the basis of my collecting data. In my data, the topics are plant name , origin country , hardiness zone , flower color, pollination method , common diseases , infectious agent . So, my questions are topics related. But I avoid the maximum , minimum and most common type of questions according to the instructions.

Creating the pivot table:

I used pivot table to answer the above questions. It also helps to analysis the data according to the questions and answers. I have followed some steps to work with the pivot table. They are:

**1. Set Up the Pivot Table**

* Create the Pivot Table from my dataset.
  + Go to **Insert** > **Pivot Table**.
  + Choose where to place it (new worksheet or existing worksheet).

**2. Drag Fields into Areas**

* **Rows**: Place the field that I want to categorize (e.g. Origin country).
* **Values**: Place the field that I want to calculate (e.g. Plant number).
  + By default, Excel will sum numerical fields.
  + I can change the calculation type to *Count*, *Average*, *Max*, etc., by clicking the dropdown arrow in the Values area.
* **Columns** (Optional): Use this to add another dimension, such as comparing by month or category.
* **Filters** (Optional): Use this to filter data for specific criteria, like viewing results for only one region.

**Creating the chart in the Pivot table:**

There are some steps to create the chart in the pivot table. They are:

1. Click anywhere inside the Pivot Table.
2. Go to the **Insert** tab on the Ribbon.
3. Choose a chart type, such as:
   * **Column Chart** (to compare categories).
   * **Line Chart** (to show trends over time).
   * **Pie Chart** (to show proportions).
   * **Bar Chart** (to compare horizontally).
4. The chart will automatically reflect the Pivot Table's data.

**Customize the Pivot Chart:**

* **Adjust Axes and Labels**:
  + Click on the chart and use the "Chart Tools" Ribbon to customize labels, axes, and titles.
* **Filter Data**:
  + Use the filters in the Pivot Table or apply slicers to dynamically change the chart.
* **Change the Chart Type**:
  + Right-click the chart, choose **Change Chart Type**, and select a new type.

**Creating the Login form:**

Login form is important for my project. The reasons are :

 **Data Security**:

* A login form ensures that only authorized users can access the Pivot Table and its underlying data.
* This is especially useful when dealing with sensitive data in shared Excel files.

 **User-Specific Access**:

* A login form can control access to specific parts of the data, allowing different users to see only the information relevant to them.

 **Customization**:

* A login form can be used to tailor the Pivot Table's view or filters based on the logged-in user.

**How to Implement a Login Form in Excel :**

1. **Using VBA (Visual Basic for Applications)**:
   * I create a login form using VBA to collect username and password input.
   * Based on the login credentials, the form can grant access to the Pivot Table or apply specific filters.
2. **Steps to Create a Login Form**:
   * Open the **Developer** tab (enable it from Excel options if it's not visible).
   * Go to **Visual Basic Editor (VBE)** and insert a UserForm.
   * Add text boxes for username and password, along with a login button.
   * Write VBA code to validate the credentials and control access to the Pivot Table.

**Creating the data entry form into my project:**

A **data entry form** in Excel is created to simplify and streamline the process of entering data into a worksheet. Here are the key reasons for using a data entry form in Excel:

### ****1. Easy and Structured Data Entry****

* Data entry forms provide a user-friendly interface to input data, especially when dealing with large datasets or complex tables.
* It organizes fields in a clear, structured way, making it easier for users to fill out information.

### ****2. Reduces Errors****

* Forms help minimize data entry mistakes by:
  + Restricting input types (e.g., numbers, dates, dropdowns).
  + Providing validation rules (e.g., required fields, specific ranges).

### ****3. Saves Time****

A data entry form speeds up the process by allowing users to:

Navigate between records quickly.

* + Enter and edit records in one place without scrolling through the sheet.

### ****4. Handles Large Datasets****

* When dealing with hundreds or thousands of rows, manually scrolling and finding rows can be cumbersome. A form simplifies adding, viewing, or editing rows.

### ****5. Improves Data Organization****

* Forms allow data to be entered directly into a specific format, ensuring consistency and avoiding misplaced entries.

### ****6. Provides a Professional Interface****

* A form looks more polished and professional compared to entering data directly into raw rows and columns.

### ****How to Create a Data Entry Form in Excel****

#### Option 1: **Using Built-in Excel Forms**

1. Ensure your table has headers for all the fields.
2. Select the table and enable the **Form** tool:
   * Go to **Quick Access Toolbar** > **More Commands** > Add "Form" from the list of commands.
3. Use the **Form** button to open a data entry form for the table.

#### Option 2: **Using VBA for Custom Forms**

1. Open the **Developer** tab.
2. Create a custom **UserForm** in Visual Basic for Applications (VBA).
3. Add text boxes, dropdowns, and buttons as needed.
4. Write VBA code to save the form's inputs into the Excel worksheet.

**Creating the report on my project:**

Creating a **project report** is essential for documenting and communicating the progress, outcomes, and key aspects of a project.

In my report, I have given some types of work which are used in my project. They are – Introduction, challenges which are faced doing the project, data set preparation, methodology, results and conclusion.

**Creating a poster presentation:**

Finally, I create a poster on my project which is important to show the overall works on my project. And it is essential to give the presentation about my project.

**RESULT OR OUTCOMES**

Different types of analysis are showed in my project. From this analysis, we get outcomes which are data related such as-

Which plants show the insect pollination, which origin country are effected by the multiple infectious diseases, which infectious agents are responsible for the multiple diseases etc.

Above all the outcomes are showed in the project.

CONCLUSION

The comprehensive analysis of plant characteristics in this project provides a deeper understanding of the factors that influence plant growth, health, and productivity. By linking plant names and origins to their environmental requirements, the study offers valuable insights for improving cultivation techniques, selecting suitable plants for specific regions, and managing plant diseases. The relationship between pollination methods and flower characteristics further highlights the role of biodiversity in maintaining healthy ecosystems.

The knowledge gained from this project is crucial for anyone involved in horticulture, agriculture, or environmental science. It not only aids in selecting and growing plants effectively but also contributes to broader discussions on sustainability, conservation, and disease management in plant species. Future research could expand on this by investigating the long-term effects of climate change on plant health and the evolution of disease resistance in different species, which will be vital for ensuring the resilience of plants in the face of environmental challenges.

REFRENCES:

From the source of chatgpt.