**Lesion Analysis Dashboard Report**

1. **Introduction**

The Lesion Analysis Dashboard provides a comprehensive visualization of skin lesion data, highlighting various types of lesions, their distribution, and their localization. This dynamic and colorful dashboard is designed to offer insights into the prevalence of different lesion types, their distribution across different age groups, and their geographical localization.

1. **Methodology**

The dashboard was created using a combination of HTML, CSS, and JavaScript with the Chart.js library. The primary steps involved in developing the dashboard are as follows:

1. **Data Preparation**:
   * Data was collected and organized into a format suitable for visualization.
   * Different lesion types and their percentages were extracted and formatted for display.
2. **Chart Implementation**:
   * **Donut Chart**: Displays the distribution of lesion types with percentages shown on the chart and in a legend.
   * **Bubble Chart**: Shows the relationship between lesion types and age groups.
   * **Bar Charts**: Highlight various analyses such as lesion types by age group and precise recall by sex.
   * **Localization Chart**: Represents lesion types across different anatomical regions.
3. **Styling**:
   * CSS was used to enhance the visual appeal of the dashboard.
   * Titles, descriptions, and borders were styled for clarity and aesthetic consistency.
4. **Interactive Elements**:
   * Hovering over chart segments provides detailed information, including percentages and lesion types.
   * Charts were designed to be responsive and adapt to different screen sizes.
5. **Accessing the Dashboard**

To view the Lesion Analysis Dashboard on your local machine, follow these steps:

1. **Navigate to the Project Directory:**
   * Use the command prompt/terminal to navigate to the folder where your dashboard project files are located. You can do this by typing the following command:
     + On Windows: cd path\to\your\project\folder
     + On macOS/Linux: cd /path/to/your/project/folder
2. **Run the Local Server:**
   * Once you are inside the project folder, start a local server by typing the following command in the command prompt/terminal:
     + python -m http.server 8000
3. **Access the Dashboard:**
   * Open a web browser and go to the address http://localhost:8000.
   * The Lesion Analysis Dashboard will load, and you can interact with the charts directly.
4. **Detailed Explanation of Charts**

**4.1 Donut Chart: Lesion Types Distribution:**

**Description**: The Donut Chart illustrates the distribution of different lesion types. Each segment represents a specific lesion type, with its size corresponding to the percentage of occurrences.

* **Lesion Types**:
  + Melanocytic nevi
  + Melanoma
  + Benign keratosis-like lesions
  + Basal cell carcinoma
  + Actinic keratoses
  + Vascular lesions
  + Dermatofibroma

**Analysis**:

* **Melanocytic nevi** is the most common type, constituting 30% of the data.
* **Dermatofibroma** is the least common, at 5%.

A screenshot of a computer

Description automatically generated

**4.2 Bubble Chart: Lesion Types by Age Group:**

**Description**: The Bubble Chart visualizes lesion types across different age groups. Each bubble represents a lesion type, with its size indicating the prevalence in various age categories.

**Analysis**:

* The largest bubbles represent the most common lesions for each age group.

A screenshot of a computer screen

Description automatically generated

**4.3 Bar Chart: Lesion Types by Age Group:**

**Description**: This Bar Chart displays the prevalence of different lesion types categorized by age group. It provides a clear comparison of lesion types across different age brackets.

**Analysis**:

A screenshot of a graph

Description automatically generated

**4.4 Bar Chart: Precise Recall by Sex:**

**Description**: This Bar Chart compares precise recall rates for lesions between male and female patients. Different colors represent various lesion types.

**Analysis**:

* The chart shows which lesion types are most and least common among different sexes.

A graph of different colored bars

Description automatically generated with medium confidence

**4.5 Bar Chart: Lesion Type and Localization:**

**Description**: The Localization Chart depicts how lesion types are distributed across various anatomical regions. The regions include back, lower extremity, trunk, and others.

**Analysis**:

* **Back**, **lower extremity**, **trunk**, and **upper extremity** are notably compromised regions for skin cancer.

A screenshot of a graph

Description automatically generated

1. **Conclusion**

The Lesion Analysis Dashboard effectively presents critical data about skin lesions, providing a clear and interactive way to analyze lesion types, their distribution, and their localization. The visualizations offer valuable insights that can assist in understanding patterns and making informed decisions regarding skin health.