**Project Report**

**1. Project Title: Password Analyzer**

**2. Introduction:**

The **Password Analyzer** is a simple, browser-based tool developed using **HTML** and **JavaScript**. It helps users evaluate the strength and security of their passwords in real time. The project runs entirely in the **Chrome browser** and does not require any server-side processing, making it lightweight and fast. It aims to raise awareness of password security by offering instant feedback based on password complexity.

**3. Objective:**

The primary goal of this project is to:

* Analyze passwords entered by users.
* Provide feedback about password strength (e.g., Weak, Moderate, Strong).
* Encourage users to choose stronger passwords for better security.

The application is built using only client-side technologies to demonstrate the effectiveness and interactivity possible with just HTML and JavaScript.

**4. Technologies Used:**

* **HTML5:** To structure the webpage and form elements where users can input their password.
* **JavaScript (Vanilla):** For all logic related to password analysis, real-time feedback, and dynamic DOM updates.

**5. Key Features:**

* **Real-time Password Evaluation:** As the user types, JavaScript analyzes the password immediately.
* **Strength Indicators:** Password strength is categorized based on various criteria such as length, use of uppercase and lowercase letters, numbers, and special characters.
* **Client-side Only:** All processing occurs in the user's browser; no data is sent to a server, ensuring user privacy.

**6. How It Works:**

1. The user inputs a password into a text field.
2. JavaScript listens for input events and captures the typed characters.
3. The script evaluates the password based on:
4. Length (minimum 8 characters recommended)
5. Use of lowercase and uppercase letters
6. Inclusion of numeric digits
7. Use of special characters (e.g., @, #, $, etc.)
8. Based on the evaluation, the application displays:
9. A message indicating strength level
10. Visual feedback like a progress bar or coloured text
11. The result updates in real-time as the password is modified.

**8. Learning Outcomes:**

Through this project, the following skills and concepts were learned or reinforced:

* Real-time event handling (e.g., input)
* Implementing conditional logic for real-world use cases
* Enhancing user experience with immediate visual feedback
* Creating fully client-side applications for performance and security

**9. Conclusion:**

The **Password Analyzer** is a practical and educational project that emphasizes the importance of strong passwords in daily digital life. Built entirely with HTML and JavaScript, it demonstrates how powerful and interactive applications can be created without