# Password Strength Evaluation Report

**Date:** 12 Aug 2025

**Tool Used:** PasswordMeter.com

## 1. Objective

To create several passwords of varying complexity, evaluate them using an online password strength checker, and analyze what factors contribute to password security.

## 2. Test Passwords and Results

| Password | Length | Composition | Score (%) |
|---|---|---|---|
| apple123 | 8 | Lowercase + num | 36% |
| ApPlE!23 | 8 | Upper, lower, | 68% |

|  |  |  |  |
|---|---|---|---|
|  |  | numbers, symbol |  |
| Gr33nF!sh2025 | 13 | Upper, lower, numbers, symbol | 88% |
| #V9tLp@rQz7!nB | 14 | Random characters, mixed types | 100% |

## 3.Analysis

- **Length matters:** Passwords over 12 characters greatly increase brute-force resistance.
- **Complexity matters:** Including uppercase, lowercase, numbers, and symbols boosts entropy.
- **Avoid dictionary words:** Common words, even with numbers, are vulnerable to dictionary attacks.
- **Randomness is key:** The strongest password tested (#V9tLp@rQz7!nB) is random, not based on a pattern.

## 4.Common Password Attack Methods

- **Brute force:** Tries every possible combination — slower for long, complex passwords.
- **Dictionary attack:** Uses lists of common words/ passwords — defeats weak or common phrases.
- **Hybrid attack:** Combines dictionary words with number/symbol substitutions.
- **Credential stuffing:** Uses leaked username/ password combos from breaches.

## 5.Best Strong Passwords

- Minimum **12–16 characters**.
- Use a mix of **upper/lowercase letters, numbers, and symbols**.
- Avoid **personal info** (names, birthdays, etc.).
- Avoid **dictionary words** or common substitutions (e.g., P@ssw0rd).
- Consider using a **passphrase** (random words + symbols).
- Use a **password manager** to store unique

## 6.Conclusion

Password complexity directly impacts security by increasing the number of possible combinations an attacker must try. The strongest passwords are long, random, and contain diverse characters. Even moderate complexity is insufficient if length is short or if predictable patterns are used.