

# Password Strength Evaluation Report

Password	Score	Complexity	Feedback
hacker123	41%	Good	No uppercase, no symbols, only basic lowercase + numbers, short length
Orange!7	66%	Strong	Good mix of cases, numbers, symbols, but short
MangoJuice2024	100%	Very Strong	Long, mixed cases, numbers, but lacks symbols
W@ter_Fall#99	100%	Very Strong	Good mix of all char types, long, strong
xY8!pL\$r2@Qm	100%	Very Strong	Random, long, all char types, very strong

## Best Practices for Creating Strong Passwords

To create strong passwords that resist common attacks, the following detailed best practices should be followed: 1. **Length**: Always use at least 12–16 characters. Longer passwords are exponentially harder to crack. 2. **Character Variety**: Include uppercase, lowercase, numbers, and symbols to increase complexity. 3. **Avoid Predictability**: Do not use dictionary words, names, or patterns like '12345', 'qwerty', or birthdates. 4. **Passphrases**: Use random combinations of unrelated words with added symbols/numbers, e.g., 'BlueHorse!River99'. 5. **Uniqueness**: Each account should have a unique password to prevent credential stuffing attacks. 6. **Password Manager**: Use a trusted password manager to securely store and generate strong passwords.

## Common Password Attacks

Password attacks are methods used by attackers to guess or steal passwords. Common examples include: - **Brute Force**: Tries every possible combination of characters until the correct one is found. - **Dictionary Attack**: Uses precompiled lists of common passwords and words. - **Hybrid Attack**: Combines dictionary words with slight modifications (e.g., 'apple123!'). - **Credential Stuffing**: Uses stolen credentials from one site to log into another. - **Phishing**: Tricks users into revealing their password via fake websites or messages.

## Impact of Password Complexity on Security

Password complexity directly impacts the time required to crack it. Short, simple passwords (e.g., 8 lowercase letters) can be cracked in seconds using modern GPUs. By contrast, a 12-character password with mixed cases, numbers, and symbols can take billions of years to brute force. Symbols and randomness make patterns unpredictable, reducing the success rate of dictionary and hybrid attacks.

# Password Strength Test Evidence

Test Your Password

Password:

Hide: ☐

Score: **43%**

Complexity: Good

**Minimum Requirements**

- Minimum 8 characters in length
- Contains 3/4 of the following items:
  - Uppercase Letters
  - Lowercase Letters
  - Numbers
  - Symbols

Additions	Type	Rate	Count	Bonus
Number of Characters	Flat	$+(n*4)$	9	+ 36
Uppercase Letters	Cond/Incr	$+((len-n)*2)$	0	0
Lowercase Letters	Cond/Incr	$+((len-n)*2)$	6	+ 6
Numbers	Cond	$+(n*4)$	1	+ 12
Symbols	Flat	$+(n*6)$	0	0
Middle Numbers or Symbols	Flat	$+(n*2)$	2	+ 4
Requirements	Flat	$+(n*2)$	3	0

**Deductions**

	Type	Rate	Count	Bonus
Letters Only	Flat	-n	0	0
Numbers Only	Flat	-n	0	0
Repeat Characters (Case Insensitive)	Comp	-	0	0
Consecutive Uppercase Letters	Flat	$-(n*2)$	0	0
Consecutive Lowercase Letters	Flat	$-(n*2)$	5	- 10
Consecutive Numbers	Flat	$-(n*2)$	2	- 4
Sequential Letters (3+)	Flat	$-(n*3)$	0	0
Sequential Numbers (3+)	Flat	$-(n*3)$	1	- 3
Sequential Symbols (3+)	Flat	$-(n*3)$	0	0

Test Your Password

Password:

Hide: ☐

Score: **66%**

Complexity: Strong

**Minimum Requirements**

- Minimum 8 characters in length
- Contains 3/4 of the following items:
  - Uppercase Letters
  - Lowercase Letters
  - Numbers
  - Symbols

Additions	Type	Rate	Count	Bonus
Number of Characters	Flat	$+(n*4)$	8	+ 32
Uppercase Letters	Cond/Incr	$+((len-n)*2)$	1	+ 14
Lowercase Letters	Cond/Incr	$+((len-n)*2)$	5	+ 6
Numbers	Cond	$+(n*4)$	1	+ 4
Symbols	Flat	$+(n*6)$	1	+ 6
Middle Numbers or Symbols	Flat	$+(n*2)$	1	+ 2
Requirements	Flat	$+(n*2)$	5	+ 10

**Deductions**

	Type	Rate	Count	Bonus
Letters Only	Flat	-n	0	0
Numbers Only	Flat	-n	0	0
Repeat Characters (Case Insensitive)	Comp	-	0	0
Consecutive Uppercase Letters	Flat	$-(n*2)$	0	0
Consecutive Lowercase Letters	Flat	$-(n*2)$	4	- 8
Consecutive Numbers	Flat	$-(n*2)$	0	0
Sequential Letters (3+)	Flat	$-(n*3)$	0	0
Sequential Numbers (3+)	Flat	$-(n*3)$	0	0
Sequential Symbols (3+)	Flat	$-(n*3)$	0	0

Test Your Password

Password:

Hide: ☐

Score:  100%

Complexity: Very Strong

Minimum Requirements

- Minimum 8 characters in length
- Contains 3/4 of the following items:
  - Uppercase Letters
  - Lowercase Letters
  - Numbers
  - Symbols

Additions	Type	Rate	Count	Bonus
Number of Characters	Flat	$+(n^4)$	14	+ 56
Uppercase Letters	Cond/Incr	$+/((len-n)^2)$	2	+ 24
Lowercase Letters	Cond/Incr	$+/((len-n)^2)$	8	+ 12
Numbers	Cond	$+(n^4)$	4	+ 16
Symbols	Flat	$+(n^6)$	0	0
Middle Numbers or Symbols	Flat	$+(n^2)$	3	+ 6
Requirements	Flat	$+(n^2)$	4	+ 8

Deductions

Letters Only	Flat	-n	0	0
Numbers Only	Flat	-n	0	0
Repeat Characters (Case Insensitive)	Comp	-	2	- 1
Consecutive Uppercase Letters	Flat	$-(n^2)$	0	0
Consecutive Lowercase Letters	Flat	$-(n^2)$	5	- 12
Consecutive Numbers	Flat	$-(n^2)$	3	- 6
Sequential Letters (3+)	Flat	$-(n^3)$	0	0
Sequential Numbers (3+)	Flat	$-(n^3)$	0	0
Sequential Symbols (3+)	Flat	$-(n^3)$	0	0

Test Your Password

Password:

Hide: ☐

Score:  100%

Complexity: Very Strong

Minimum Requirements

- Minimum 8 characters in length
- Contains 3/4 of the following items:
  - Uppercase Letters
  - Lowercase Letters
  - Numbers
  - Symbols

Additions	Type	Rate	Count	Bonus
Number of Characters	Flat	$+(n^4)$	13	+ 52
Uppercase Letters	Cond/Incr	$+/((len-n)^2)$	2	+ 22
Lowercase Letters	Cond/Incr	$+/((len-n)^2)$	6	+ 14
Numbers	Cond	$+(n^4)$	3	+ 8
Symbols	Flat	$+(n^6)$	2	+ 12
Middle Numbers or Symbols	Flat	$+(n^2)$	3	+ 6
Requirements	Flat	$+(n^2)$	5	+ 10

Deductions

Letters Only	Flat	-n	0	0
Numbers Only	Flat	-n	0	0
Repeat Characters (Case Insensitive)	Comp	-	4	- 2
Consecutive Uppercase Letters	Flat	$-(n^2)$	0	0
Consecutive Lowercase Letters	Flat	$-(n^2)$	4	- 8
Consecutive Numbers	Flat	$-(n^2)$	1	- 2
Sequential Letters (3+)	Flat	$-(n^3)$	0	0
Sequential Numbers (3+)	Flat	$-(n^3)$	0	0
Sequential Symbols (3+)	Flat	$-(n^3)$	0	0

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Password:

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Minimum Requirements

- Minimum 8 characters in length
- Contains 3/4 of the following items:
  - Uppercase Letters
  - Lowercase Letters
  - Numbers
  - Symbols

Additions	Type	Rate	Count	Bonus
Number of Characters	Flat	$+(n^4)$	12	+ 48
Uppercase Letters	Cond/Incr	$+/((len-n)^2)$	3	+ 18
Lowercase Letters	Cond/Incr	$+/((len-n)^2)$	4	+ 16
Numbers	Cond	$+(n^4)$	2	+ 8
Symbols	Flat	$+(n^6)$	3	+ 18
Middle Numbers or Symbols	Flat	$+(n^2)$	5	+ 10
Requirements	Flat	$+(n^2)$	5	+ 10

Deductions

Letters Only	Flat	-n	0	0
Numbers Only	Flat	-n	0	0
Repeat Characters (Case Insensitive)	Comp	-	0	0
Consecutive Uppercase Letters	Flat	$-(n^2)$	0	0
Consecutive Lowercase Letters	Flat	$-(n^2)$	0	0
Consecutive Numbers	Flat	$-(n^2)$	0	0
Sequential Letters (3+)	Flat	$-(n^3)$	0	0
Sequential Numbers (3+)	Flat	$-(n^3)$	0	0
Sequential Symbols (3+)	Flat	$-(n^3)$	0	0