

AerE 161: Password Strength Indicator

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Synopsis

This project will take a user's password as a string, evaluate its strength, and return a statement to the user on how strong their password is.

Criteria

The three categories to search for are letters (not case-sensitive), numbers, and length. The strength of a password follows the following rules

- A very weak password contains only numbers and is fewer than eight characters.
- A very weak password contains only letters and is fewer than eight characters.
- A weak password contains letters and at least one number and is fewer than eight characters.
- A strong password contains only numbers and is at least eight characters.
- A strong password contains only letters and is at least eight characters.
- A very strong password contains letters and numbers and is at least eight characters.

Approach

This program will use regex to search if the password contains any letter (case insensitive) or any numbers, and will use the MATLAB length() function to check if it is at least eight characters. If a certain criteria is met, a numerical strength value will be added to. The numerical strength will be evaluated to result in a written strength value.

This project is available on github:

<https://github.com/himam99/AERE161-PW-Strength>

Code

```
clear, clc; %clear the console and all variables

pw = input('Enter password: ', 's'); %request password from user

ps = 0; %initiate pw strength to 0
pws = strcat("The password '", pw, "' is "); %initial return string

if ~(isempty(regexw(pw, '[a-zA-Z]'))))    %if there are letters
    ps = ps+1;                            %increase strength by 1
end
if ~(isempty(regexw(pw, '[0-9]'))))        %if there are numbers
    ps = ps+1;                            %increase strength by 1
end
if length(pw) >= 8                        %if it's longer than 8 characters
    ps = ps+2;                            %increase strength by 2
end

%append strength level to pws
if(ps <= 0)
    pws = strcat(pws, 'extremely weak. ');
elseif(ps == 1)
    pws = strcat(pws, 'very weak. ');
elseif(ps == 2)
    pws = strcat(pws, 'weak. ');
elseif(ps == 3)
    pws = strcat(pws, 'strong. ');
elseif(ps == 4)
    pws = strcat(pws, 'very strong. ');
else
    pws = strcat(pws, 'very very strong. ');
end

disp(pws);
```

Results

Criteria: A very weak password contains only numbers and is fewer than eight characters.

Example 1:

```
Enter password: 12345
The password '12345' is very weak.
```

Example 2:

```
Enter password: 50013
The password '50013' is very weak.
```

Criteria: A very weak password contains only letters and is fewer than eight characters.

Example 1:

```
Enter password: adcd
The password 'adcd' is very weak.
```

Example 2:

```
Enter password: iowa
The password 'iowa' is very weak.
```

Criteria: A weak password contains letters and at least one number and is fewer than eight characters.

Example 1:

```
Enter password: adcd5
The password 'adcd5' is weak.
```

Example 2:

```
Enter password: isul8
The password 'isul8' is weak.
```

Criteria: A strong password contains only numbers and is at least eight characters.

Example 1:

```
Enter password: 123456789
The password '123456789' is strong.
```

Example 2:

```
Enter password: 500111096
The password '500111096' is strong.
```

Criteria: A strong password contains only letters and is at least eight characters.

Example 1:

```
Enter password: adcddefgh
The password 'adcddefgh' is strong.
```

Example 2:

```
Enter password: howehall
The password 'howehall' is strong.
```

Criteria: A very strong password contains letters and numbers and is at least eight characters.

```
Enter password: abcd123xyz
```

Example 1: The password 'abcd123xyz' is very strong.

```
Enter password: spring2018
```

Example 2: The password 'spring2018' is very strong.