

CSE115L

Final Exam

Time: 1 hour 20 minutes

Task-1

Suppose, you are a developer. Now you are planning to make a social network site. The signup page required to input a name and a password. However, you are thinking every user should have a strong password to have a safe account. The website considers a password to be strong if it satisfies the following criteria:

- Its length is at least 8.
- It contains at least one digit.
- It contains at least one lowercase English character.
- It contains at least one uppercase English character.
- It contains at least one special character. The special characters are :!@#\$\$%^&*()-+

When any user will type a random string of length n in the password field, he or she won't be if it's strong or not. So, as a proper user you have to make sure the password is strong and if not you need to show a proper message to make his/her password strong.

Note: Here's the set of types of characters in a form you can paste in your solution:

Numbers = "0123456789"

Lower case = "abcdefghijklmnopqrstuvwxyz"

Upper case = "ABCDEFGHIJKLMNOPQRSTUVWXYZ"

Special characters = "!@#\$\$%^&*()-+ "

Input: abcd2	Output: This is not a strong password. Message = Length is smaller than 8. Upper case letter missing. Special Character missing.
Input: 4aB#@	Output: This is not a strong password. Message = Length is smaller than 8.
Input: 45Abcd#%	Output: Good to go!!

Task-2

Pythagorean triples are $a^2 + b^2 = c^2$ where a, b and c are the three positive integers. These triples are represented as (a, b, c). Here, a is the perpendicular, b is the base and c is the hypotenuse of the right-angled triangle. The most known and smallest triplets are (3, 4, 5).

In your program, there will be 2 user inputs (any two sides of these three). You have to figure out whether it is a possible Pythagorean triples or not.

Input – 3, 4	Output: possible Pythagorean triples
Input – 3, 5	Output: possible Pythagorean triples
Input – 4, 5	Output: possible Pythagorean triples
Input – 3, 7	Output: not possible
Input – 7, 24	Output: possible Pythagorean triples

Explain- Here in first example, (3, 4) could be the first two sides of the right angle triangle and third side could be 5. As, $3^2 + 4^2 = 5^2$.

In second example. (3, 5) could be possible triples. As, the second side could be 4.

In fourth example, there is no chance that the other side could be an integer value of a right angle triangle.