import random

import math

# Character sets

alpha = "abcdefghijklmnopqrstuvwxyz"

num = "0123456789"

special = "@#$%&\*"

# User input for password length

pass\_len = int(input("Enter Password Length: "))

# Length distribution using 50-30-20 formula

alpha\_len = pass\_len // 2

num\_len = math.ceil(pass\_len \* 30 / 100)

special\_len = pass\_len - (alpha\_len + num\_len)

# Password storage

password = []

# Function to generate password components

def generate\_pass(length, array, is\_alpha=False):

for i in range(length):

index = random.randint(0, len(array) - 1)

character = array[index]

# Handle uppercase/lowercase for alphabets

if is\_alpha:

case = random.randint(0, 1)

if case == 1:

character = character.upper()

password.append(character)

# Generate password

generate\_pass(alpha\_len, alpha, True) # Alphabets

generate\_pass(num\_len, num) # Numbers

generate\_pass(special\_len, special) # Special characters

# Shuffle password to randomize order

random.shuffle(password)

# Convert list to string

gen\_password = "".join(password)

# Output generated password

print("Generated Password:", gen\_password)