PROGRAMMING ASSESSMENT

9. Write a Python function that generates a random password. The password should contain a mix of uppercase letters, lowercase letters, digits, and special characters.

import random

import string

def generate\_password(length=12):

"""Generate a random password."""

if length < 4: # Ensure minimum length for complexity

raise ValueError("Password length should be at least 4 characters.")

# Define character sets

lowercase = string.ascii\_lowercase

uppercase = string.ascii\_uppercase

digits = string.digits

special\_characters = string.punctuation

# Ensure the password includes at least one of each character type

password = [

random.choice(lowercase),

random.choice(uppercase),

random.choice(digits),

random.choice(special\_characters),

]

# Fill the remaining length of the password with random choices from all character sets

all\_characters = lowercase + uppercase + digits + special\_characters

password += random.choices(all\_characters, k=length - 4)

# Shuffle the resulting password list to ensure randomness

random.shuffle(password)

return ''.join(password)

# Example usage

if \_\_name\_\_ == "\_\_main\_\_":

password = generate\_password(12)

print(f"Generated Password: {password}")

