

Python Random Word Password Generator Tutorial

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Time required: 60 minutes

Random Word Passwords

Passwords generated from three random words help users to create unique passwords that are strong enough for many purposes and can be remembered much more easily.

Let's build a Python program to generate random word passwords.

Tutorial 1: Hard Coded Random Words

Create a Python program named **random_word_password_generator.py**

```
1  #!/usr/bin/env python3
2  """
3      Name: random_word_password_generator_1.py
4      Author:
5      Created:
6      Generate a password using random combinations of words
7  """
8
9  import random
```

Import the Python random library. This is used to random number generation.

```
11 # A list of words
12 word_list = ["purple", "fling", "olive", "police", "apple", "marsh"]
13
```

We will choose our random word password from this short word list. You can add any words to the list that you want.

```
14 # random.choices returns random items from a list.
15 # This returns random words from the list as a single string
16 # based on the number of words assigned to k
17 random_words = random.choices(
18     word_list, # Word list
19     k=3        # Return 3 words
20 )
```

random.choices returns random items from a list. Words/strings in this case based on the k number of items to return.

```
22 # Create an empty string variable to store the password
23 password = ""
24
25 # Loop through each word in the random_words list one at a time
26 for word in random_words:
27     # Capitalize the first letter of each word
28     cap_word = word.title()
29     print(f" {cap_word}")
30     # Concatenate each word onto the password
31     password += cap_word
```

1. Create an empty string variable named password to store the resulting password.
2. Loop through each word in the list one at a time.
3. Capitalize the first letter of each word and print it out.
4. Concatenate means to put together. Each word gets added on to the next word and assigned to the password variable.

```
33 # Print the resulting password
34 print(f" {password}")
35 # len() gives the length of the string
36 print(f"\n Number of letters: {len(password)}")
```

Example run:

```
Police
Marsh
Police
PoliceMarshPolice
Number of letters: 17
```

As our word list is very small, we run the risk of repeating words. We need a bigger word list.

Tutorial 2: A Bigger Word List

There are 2 files attached to this assignment in a zip file. Copy these files to the same directory as your program.

1. word_list.txt (Contains a longer list of commonly used words)
2. read_txt_to_list.py (Reads a text file and returns a list of words)

Save your program as **random_word_password_generator_2.py**

```
1  #!/usr/bin/env python3
2  """
3      Name: random_word_password_generator_2.py
4      Author:
5      Created:
6      Generate a password using random combinations of words
7  """
8
9  import random
10 # Library to read a text file of words to a list
11 import read_txt_to_list
12
13 # Read a list of commonly used words from a text file into a list
14 word_list = read_txt_to_list.read_to_list("word_list.txt")
15
16 print(" +-----+")
17 print(" |      ---   Best Random Word Generator   ---   |")
18 print(" +-----+")
19 print(f" {len(word_list)} commonly used words.")
20
21 # random.choices returns random items from a list.
22 # This returns random words from the list as a single string
23 # based on the number of words assigned to k
24 random_words = random.choices(
25     word_list, # Word list
26     k=3        # Return 3 words
27 )
```

Make the changes as shown above.

The **read_txt_to_list.py** reads each line (word) of a text file to a separate name and returns a list.

Example run:

```

+-----+
|      ---   Best Random Word Generator   ---      |
+-----+
4959 commonly used words.
Senior
Clerk
Reportedly
Password: SeniorClerkReportedly
Number of letters: 21

```

Tutorial 3: User Input and Menu Loop

Let's finish up this program with user input and a menu loop.

Save your program as **random_word_password_generator_3.py**

Make the modifications as shown below. The complete program is shown.

```

1  #!/usr/bin/env python3
2  """
3      Name: random_word_password_generator_2.py
4      Author:
5      Created:
6      Generate a password using random combinations of words
7  """
8
9  import random
10 # Library to read a text file of words to a list
11 import read_txt_to_list
12
13 # Read a list of commonly used words from a text file into a list
14 word_list = read_txt_to_list.read_to_list("word_list.txt")
15
16 print(" +-----+")
17 print(" |      ---   Best Random Word Generator   ---      |")
18 print(" +-----+")
19 print(f" {len(word_list)} commonly used words.")

```

```

21 while True:
22     # Ask user how many random words we want to string together
23     num_of_words = int(input(" How many words: "))
24
25     # random.choices returns random items from a list.
26     # This returns random words from the list as a single string
27     # based on the number of words assigned to k
28     random_words = random.choices(
29         word_list,      # Word list
30         k=num_of_words  # Return 3 words
31     )
32
33     # Create an empty string variable to store the resulting password
34     password = ""
35
36     # Loop through each word in the random_words list one at a time
37     for word in random_words:
38         # Capitalize the first letter of each word
39         cap_word = word.title()
40         print(f" {cap_word}")
41         # Concatenate each word onto the password
42         password += cap_word
43
44     # Print the resulting password
45     print(f" Password: {password}")
46     # len() gives the length of the string
47     print(f" Number of letters: {len(password)}")
48
49     # Ask the user if they wish to generate another password
50     menuchoice = input(" Generate another password (y/n): ")
51     # If the user enters n, exit the program
52     if menuchoice.lower() == "n":
53         break

```

Example run:

```

+-----+
|  ---   Best Random Word Generator   ---  |
+-----+
4959 commonly used words.
How many words: 3
Rhythm
Practice
Give
Password: RhythmPracticeGive
Number of letters: 18
Generate another password (y/n): y
How many words: 3
Fasten
Tactical
Making
Password: FastenTacticalMaking
Number of letters: 20
Generate another password (y/n): n

```

Extra Credit: Add Special Characters and Numbers

Can you figure out how to add random characters and/or numbers at the end, in between the words, or at beginning of your password?

```

RANDOM_CHARACTERS = [
    '!', '@', '$', '%', '^', '&',
    '*', '-', '_', '+', '=', ':',
    '|', '~', '?', '/', '.', ';'
]

RANDOM_NUMBERS = [
    "0", "1", "2", "3", "4", "5", "6", "7", "8", "9"
]

```

```

+-----+
|  ---   Best Random Word Generator   ---  |
|  . . . Use to create long passwords . . .  |
+-----+
A minimum of 16 characters is recommended.
Add a number or special characters to make it a better password.
How many words: 3
Biological
Forum
Activate
BiologicalForumActivate9

Number of letters: 24
Generate another set of words (y/n): |

```

Assignment Submission

1. Attach the program files.
2. Attach screenshots showing the successful operation of the program.
3. Submit in Blackboard.