PASSWORD GENERATOR USING PYTHON

A Course Project Report submitted to the

VNR VIGNANA JYOTHI INSTITUTE OF ENGINEERING AND TECHNOLOGY ,HYDERABAD

in partial fulfillment of the requirements for the award of the degree of

BACHELOR OF TECHNOLOGY

IN

COMPUTER SCIENCE & ENGINEERING-CYBER SECURITY

Submitted By

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Under the Guidance of

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An Autonomous Institute, NAAC Accredited with 'A++' Grade (CGPA: 3.73/4.0)
NBA Accredited for CE, EEE, ME, ECE, CSE, EIE, IT B.Tech. Programmes
Approved by AICTE, New Delhi, Affiliated to JNTU-H, Recognised as "College with Potential for Excellence" by UGC
VignanaJyothi Nagar, Pragathi Nagar, Nizampet (S.O), Hyderabad TS 500 090 India

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CERTIFICATE

This is to certify that **V. SATISH (21071A6264),** have successfully completed their Course Based Project work at **Computer Science & Engineering Department** of **Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology,** Hyderabad entitled **"PASSWORD GENERATOR USING PYTHON "** in partial fulfillment of the requirements for the award of **B.Tech** during the academic year 2022-2023**.**

This work is carried out under my supervision and has not been submitted to any otherUniversity/ Institute for award of any degree/ diploma.

DECLARATION

This is to certify that the project work entitled **"PASSWORD GENERATOR USING PYTHON"** submitted in VNR Vignana Jyothi Institute of Engineering & Technology in partial fulfillment of requirement for the award of Bachelor ofTechnology in Computer Science and Engineering is a bonafide report of the work carried out by us under the guidance and supervision of LALITHA MAM, AssistantProfessor, Department of CYS,DS,AND AI&DS VNRVJIET. To the best of our knowledge, this report has not been submitted in any form to any university or institution for the award of any degree or diploma.

ACKNOWLEDGEMENT

An endeavor over a long period can be successful only with the advice and support of many well-wishers. We take this opportunity to express our gratitude and appreciation to all of them.

First of all we thank the lord almighty who has been with us from the beginning to the end of our project. We are indebted to our venerable principal **Dr. C. D. Naidu** for this unflinching devotion, which led us to complete this project. The support, encouragement given by him and his motivation lead us to complete this project.

We wish to express our profound gratitude to **Dr M.RAJASEKHAR HOD OF CSE-CYS DS AND AI &DS** Department**, VNR Vignana Jyothi Institute of Engineering and Technology** for their constant and dedicated service to brighten our career.

With great pleasure we express our gratitude to the internal guide **LALITHA MAM** for his timely help, constant guidance, cooperation, support and encouragement throughout this project.

Finally we wish to express our deep sense of gratitude and sincere thanks to our parents, friends and all our well-wishers who have technically and non-technically contributed for the successful completion of our course based project.

ABSTRACT

Having a weak password is not good for a system that demands high confidentiality and security of user credentials. It turns out that people find it difficult to make up a strong password that is strong enough to prevent unauthorized users from memorizing it.

This technique uses a mixture of numbers, alphabets, and other symbols found on the computer keyboard to form a 12-character password which is unpredictable and cannot easily be memorized.

INTRODUCTION:

A random password generator is software program or hardware device that takes input from a random or pseudo-random number generator and automatically generates a password**. Random passwords can be generated manually, using simple sources of randomness such as dice or coins, or they can be generated using a computer.**

About our project :

- The components of the password are represented in the form of arrays.
- Use the random method to select at least one character from each array of characters.
- Since the 12-character password is required, so fill the rest of the length of the password left with randomly selected characters from an array formed from the combination of all the characters needed in the final password. Anytime the password is generated, shuffle the password using random.shuffle() to ensure that the final password does not follow a particular pattern.

IMPLEMENTATION:

Here we are importing the array module and also the random module because we'll need to generate random choices in the list of alphabets, digits, or special characters.

And hence we're then generating a password that follows the characteristics of a strong password.

Conditions to be fulfilled are:

- Minimum 9 characters and maximum 20 characters.
- Cannot be a newline or a space
- There should not be three or more repeating characters in a row.
- The same string pattern(minimum of two character length) should not be repeating.

```
import random
import array

# maximum length of password needed
# this can be changed to suit your password length
MAX_LEN = 12

# declare arrays of the character that we need in out password
# Represented as chars to enable easy string concatenation
DIGITS = ['0', '1', '2', '3', '4', '5', '6', '7', '8', '9']
LOCASE_CHARACTERS = ['a', 'b', 'c', 'd', 'e', 'f', 'g', 'h',
                     'i', 'j', 'k', 'm', 'n', 'o', 'p', 'q',
                     'r', 's', 't', 'u', 'v', 'w', 'x', 'y',
                     'z']

UPCASE_CHARACTERS = ['A', 'B', 'C', 'D', 'E', 'F', 'G', 'H',
                     'I', 'J', 'K', 'M', 'N', 'O', 'P', 'Q',
                     'R', 'S', 'T', 'U', 'V', 'W', 'X', 'Y',
                     'Z']

SYMBOLS = ['@', '#', '$', '%', '=', ':', '?', '.', '/', '|', '~', '>',
           '*', '(', ')', '<']

# combines all the character arrays above to form one array
COMBINED_LIST = DIGITS + UPCASE_CHARACTERS + LOCASE_CHARACTERS + SYMBOLS

# randomly select at least one character from each character set above
rand_digit = random.choice(DIGITS)
rand_upper = random.choice(UPCASE_CHARACTERS)
rand_lower = random.choice(LOCASE_CHARACTERS)
rand_symbol = random.choice(SYMBOLS)

# combine the character randomly selected above
# at this stage, the password contains only 4 characters but
# we want a 12-character password
temp_pass = rand_digit + rand_upper + rand_lower + rand_symbol


# now that we are sure we have at least one character from each
# set of characters, we fill the rest of
# the password length by selecting randomly from the combined
# list of character above.
for x in range(MAX_LEN - 4):
        temp_pass = temp_pass + random.choice(COMBINED_LIST)

        # convert temporary password into array and shuffle to
        # prevent it from having a consistent pattern
        # where the beginning of the password is predictable
        temp_pass_list = array.array('u', temp_pass)
        random.shuffle(temp_pass_list)

# traverse the temporary password array and append the chars
# to form the password
password = ""
for x in temp_pass_list:
                password = password + x

# print out password
print(password)
```

OUTPUT :

Each time it get's called generates a different random output.

```
>3vJ2yxMT??m


...Program finished with exit code 0
Press ENTER to exit console.
```

```
04*UR)AfG92w


...Program finished with exit code 0
Press ENTER to exit console.
```

```
|7xZkXmrMcz9


...Program finished with exit code 0
Press ENTER to exit console.
```

CONCLUSION:

- The random password generator in Python is a program that will generate strong random passwords of the specified length using alphabets, numbers, and symbols.
- We first create a string or list consisting of all the alphabets, numbers, and symbols.
- We will use a loop ranging between 0 and the length of the password and in every iteration, we will randomly choose a letter from the set of letters and store them into a resultant password.
- We can also generate multiple random passwords by using an infinite loop that will take the length of the required password and generate the password.
- The choice() method selects a random value (or element) from the provided sequence. Now this sequence can be any sequential data type like strings, lists, tuples, or any other sequence of numbers or objects.