ISSN No:-2456-2165

Password Manager using Python Programming Language

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Abstract:- A password manager is a software application that is used to store and manage the passwords that a user has for various online accounts and security features. Password managers store the passwords in an encrypted format and provide secure access to all the password information with the help of a master password. We are going to build this application using Python Programming language. Its design philosophy emphasizes code readability with the useof significant indentation.

Keywords:- *Python Programming Language, Password Managers, Security, Interpreter*

I. INTRODUCTION

Getting proper education is not an easy task. Particularly with modern curriculums placing more burdens on students to perform. You may be comfortable writing essays and navigating the library, but you may run into an overwhelming task you may not be ready for. One such project college students dread is the capstone project and for good reason. common question any student has, especially in high school, is the definition capstone project. According to the University of Virginia, this task is a two-semester project where students must independently research a topic to obtain a deep understanding of the subject matter. UV gives many recommendations when preparing your assignment you can use. But here our professional writers will dig into detail about the purpose of this significant work as well as methods to overcome some hurdles. There are several sections that encompass a capstone project meaning, which we'll detail below.

The main goal of this task is to challenge a student to carry out significant research over an extended period of time. Not everyone is up to the arduous journey this task demands. Therefore capstone project for sale for college is a common way to avoid failure. Leveraging the help of the pros, you get a set ofguarantees to ensure a quality paper that is plagiarism-free and will get a good grade.

One of the most complex issues is a capstone paper. What makes it so difficult? To figure it out, we need to define the capstone project meaning first because there is no way you can handle an assignment withoutknowing what it requires from you. hat is the capstone definition? A capstone project is a culminating assignment, on which students usually work on during their final year in school or at the end of the academic program. It requires different intellectual activities. This project helps young people learn how tofind and analyze information and how to work with it efficiently. It has a wide variety of forms. This means that a capstone program can be submitted in various forms including a multimedia presentation, film, performance, or paper. A capstone research project is very similar to a college thesis. No one can argue that this type of work is a bit more complicated as writing a capstone project involves a wider range of activities like critical thinking, deep analysis, and the ability to use different media.

What is a capstone project purpose? A capstone college course can help students demonstrate their knowledge and skills and it can also be used as an employment portfolio. At university, people get suchtasks in the last class of a study program.

In most cases, while working on a nursing capstone project, a student can be asked to pick out a topic suchas a profession, a social problem, or another topic in which he or she is interested. After that, the student finds information, analyzes it, and makes a portfolio or presentation based on the findings. During a presentation, a person demonstrates the project to the class and gives a short conclusion. The student usually gives an oral presentation apart from the main material, which can be in writing, film or a multimedia product.

Why do you have to write about it? Capstone projects were generally developed to encourage student's abilities of critical thinking, problem-solving, oral communication skills, research skills, and teamwork. Moreover, thanks to this project, students learn to connect with the community and analyze important issues, problems, and ideas. Some tasks include outside-of-school experiences, like interviews and scientific observations.

- *Topic*:

Topic for our paper today is password managers using python. This is a major project development application.This application can be used by all age groups. The gui interface of this application makes it easy and comfortable for any average user. It does not take any major space. It is not open sourced so there's a rare chance of any security breaches.

II. PASSWORD MANAGERS

A Password Manager is a software application designed to make good password hygiene easier forend users.

Because most users today have many accounts on many systems, they are often tempted to select obvious passwords rather than non-obvious passwords, to write passwords down for easy recall, or to engage in other practices that represent bad password hygiene and thatlikely put their data (and possibly others' data, or even entire systems or companies) at risk.

Password managers seek to remedy this problem by providing users with a convenient way to save, recall, and enter passwords at login prompts. In the simplest sense, password managers are simply a database of the user's username-password pairs and the various sytems to which each pair applies. This database is then typically secured with a "master password" or some other form of authentication. When the user signs into their password manager, they then gain access to all of their stored passwords.

In practice, password managers are often paired with features that make password entry easier—such as streamlined copy and paste or even scripting to enable automated entry when matching systems are visited.

Password managers are a controversial topic in cybersecurity, with advocates citing the improved password hygiene that they enable. Detractors express concern that overall security may be reduced since forusers of password managers, a single password compromise (that of their master password) is enoughto gain access to all of the other systems that a user regularly interacts with, each of which be individually protected in the absence of password manager use.

Fig 1 Loading Screen

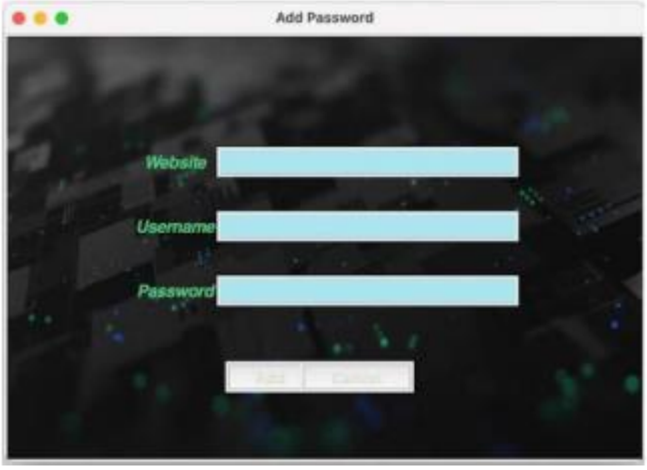


Fig 2 Interface Image

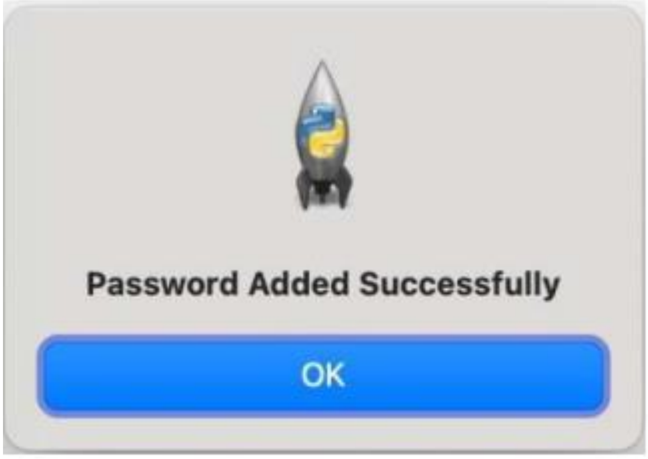

Password Added Successfully

Fig 3 Password Added

III. PYTHON PROGRAMMING LANGUAGE

Fig 4 Python Circle

Python Programming Language – Looking to stepinto the world of programming? Or do you want to explore new languages? Python programming is often one of the first picks for both because it is both easy to pick up and has vast capabilities. Python Programming language uses a simple object-oriented programming approach and very efficient high-level data structures. Python Programming also uses very simple and concisesyntax and dynamic typing. If you want a language for rapid application building and scripting in several areas, you would be hard-pressed to find a better alternative than Python.

One of the key benefits of Python Programming is its interpretive nature. The Python interpreter and standard library are available in binary or source form from the Python website and can run seamlessly on all major operating systems. Python Programming language is also freely distributable, and the same site even has tipsand other third-party tools, programs, modules and more documentation.

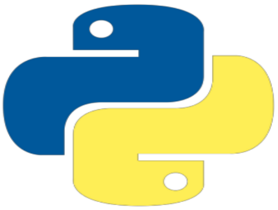
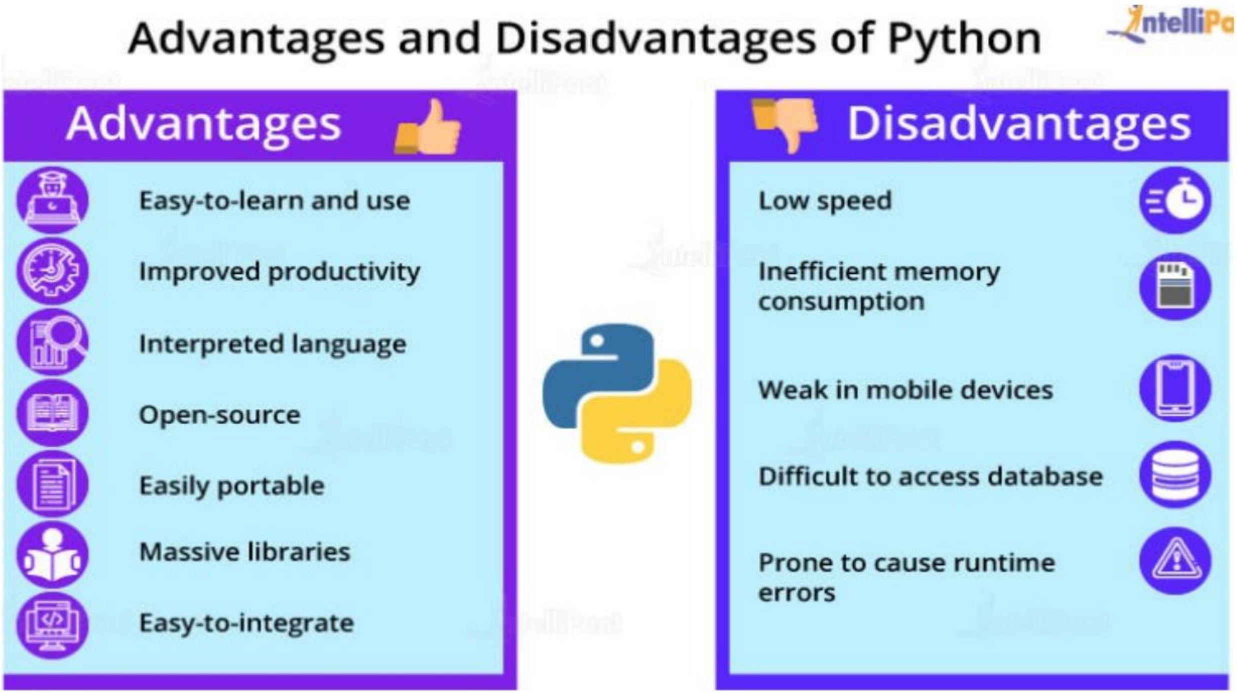


Fig 5 Python logo

IV. ADVANTAGES AND DISADV ANTAGESOFPYTHON PROGRAMMING LANGUAGE



Advantages and Disadvantages of Python

Advantages

Easy-to-learn and use

Improved productivity

Interpreted language

Open-source

Easily portable

Massive libraries

Easy-to-integrate

Disadvantages

Low speed

Inefficient memory consumption

Weak in mobile devices

Difficult to access database

Prone to cause runtime errors

Fig 6 Advantages and Disadvantages of Python

➢ *Advantages:*

- Easy-to-learn and Easy-to-use
- Improves Productivity
- Interpreted Language
- Open-source
- Easily Portable
- Massive Libraries
- Easy-to-integrate with Other Programming

➢ *Disadvantages:*

- Low Speed
- Inefficient Memory Consumption
- Weak in Programming for Mobile DevicesDevelopers
- Difficult-to-interact Database Layer 5)Prone to Cause Runtime Errors

V. THE PASSWORD MANAGER APPLICATION

➢ *Master Key:*

We need a master password to gain access into our password manager.

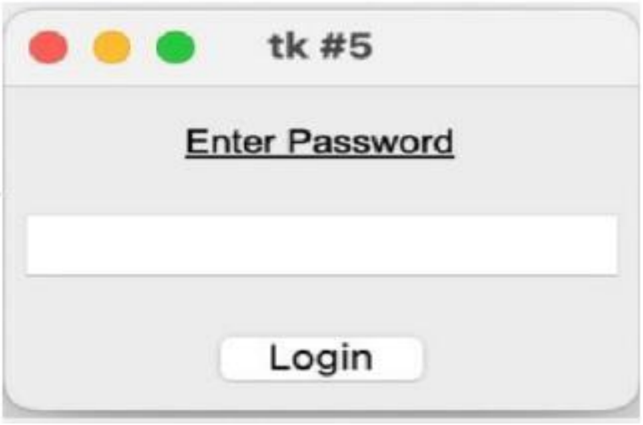


Fig 7 Master Key UI

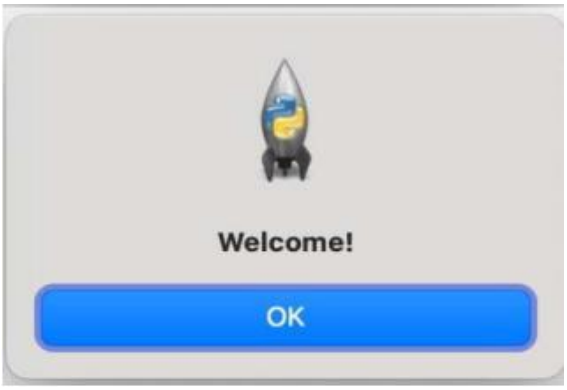


Fig 8 Welcome Screen

- *Interface:*

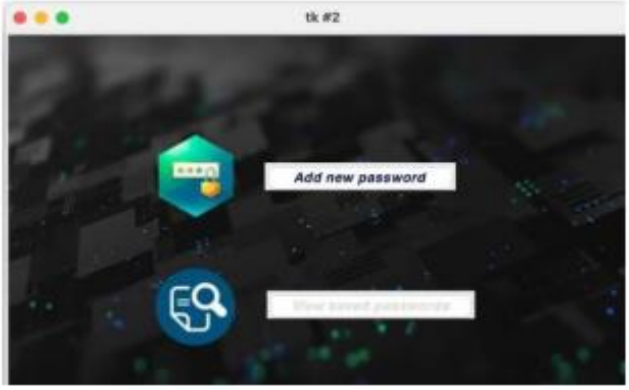


Fig 9 Main UI

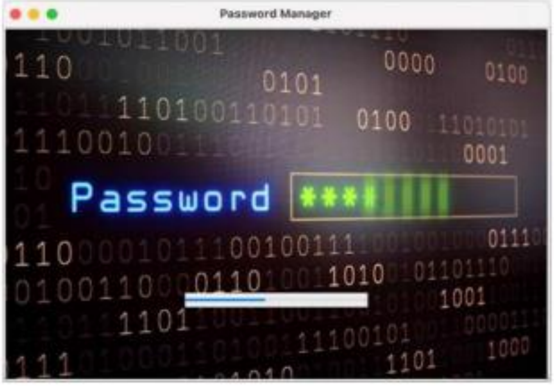


Fig: 10 Loading Screen

- *Password:*

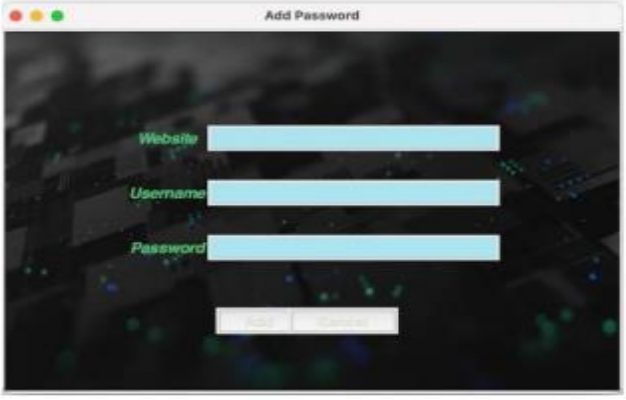


Fig 11 Interface Image

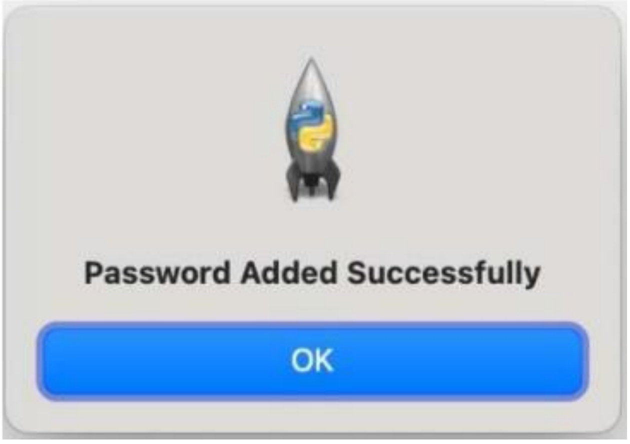
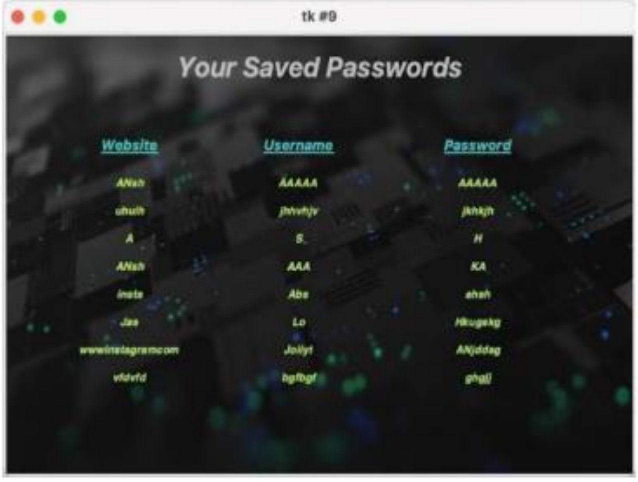


Fig 12 Password Added

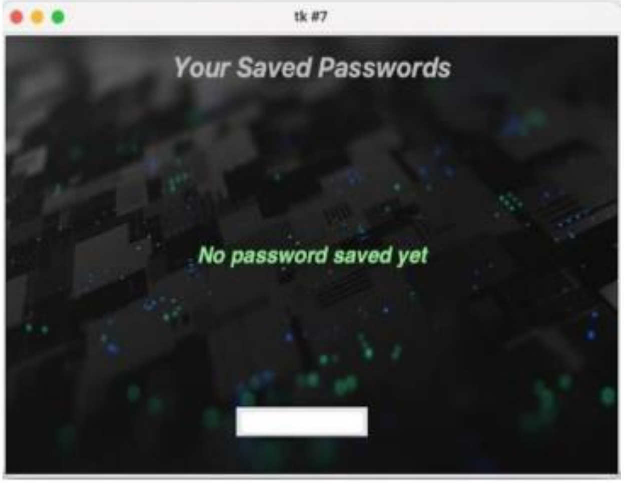
- *Password-Interface:*



Your Saved Passwords

Website	Username	Password
ANsh	AAAAA	AAAAA
uhuih	jhhvhjv	jkhkjh
A	S.	H
ANsh	AAA	KA
insta	Abs	ahah
Jas	Lo	Hkugekg
wwwinstagramcom	Jollyt	ANjddag
vfdvfd	bgfbgf	ghgjl

Fig 13 Your Passwords



Your Saved Passwords

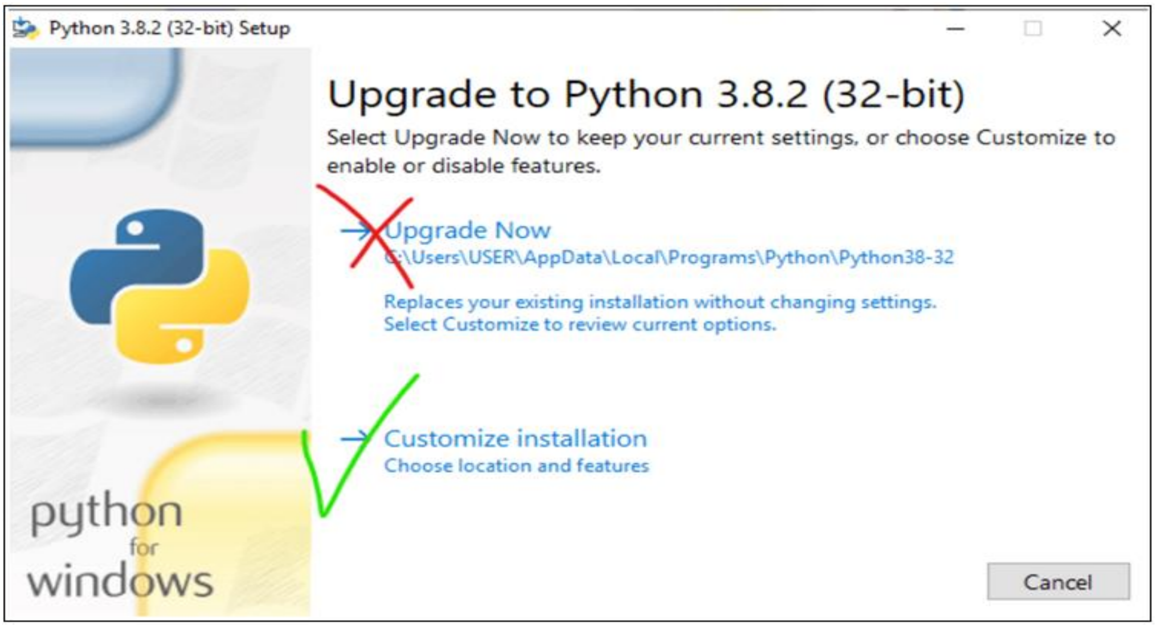
No password saved yet

Fig 14 Your Passwords

VI. PASSWORD MANAGER USING PYTHON SETUP

- *Step1: Install python*

Go to the official python website and download the latest version of it. Locate where you have downloadedit and then proceed installation. Installing it in windowsis fairly simple. If you are in mac or Linux, you will getpython preinstalled. So don't bother going through thisstep.


Python 3.8.2 (32-bit) Setup

Upgrade to Python 3.8.2 (32-bit)

Select Upgrade Now to keep your current settings, or choose Customize to enable or disable features.

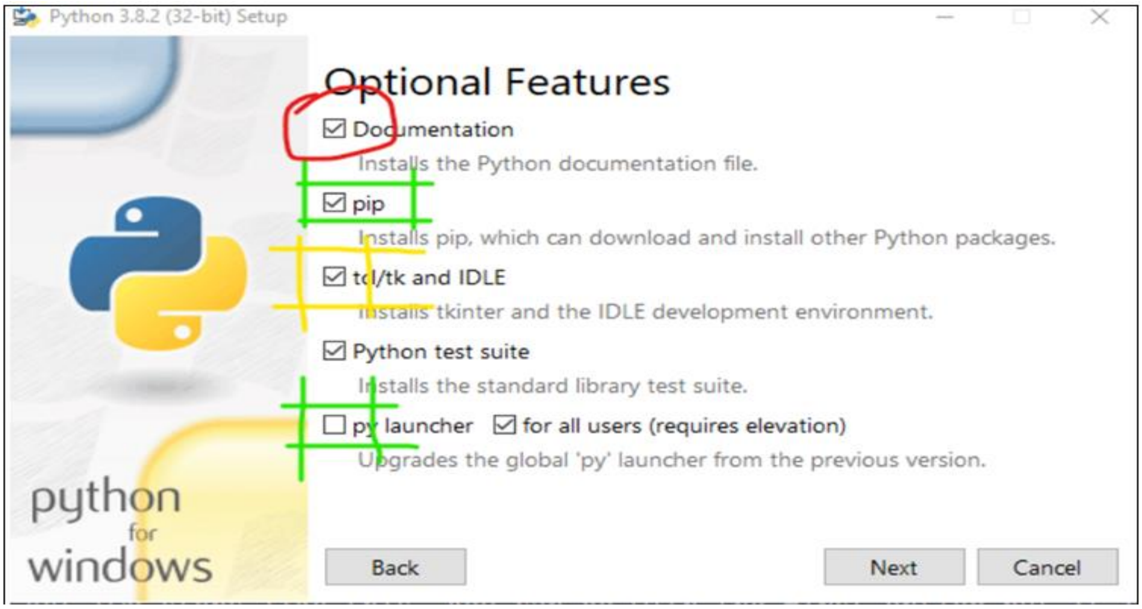
→ Upgrade Now
C:\Users\USER\AppData\Local\Programs\Python\Python38-32

Replaces your existing installation without changing settings.
Select Customize to review current options.

→ Customize installation
Choose location and features

Fig 15 Python IDLE Installer

You will get two steps like this. You can go with the first option but it is the second option that we need. Soclick it.


Python 3.8.2 (32-bit) Setup

Optional Features

☑ Documentation
Installs the Python documentation file.

☑ pip
Installs pip, which can download and install other Python packages.

☑ tcl/tk and IDLE
Installs tkinter and the IDLE development environment.

☑ Python test suite
Installs the standard library test suite.

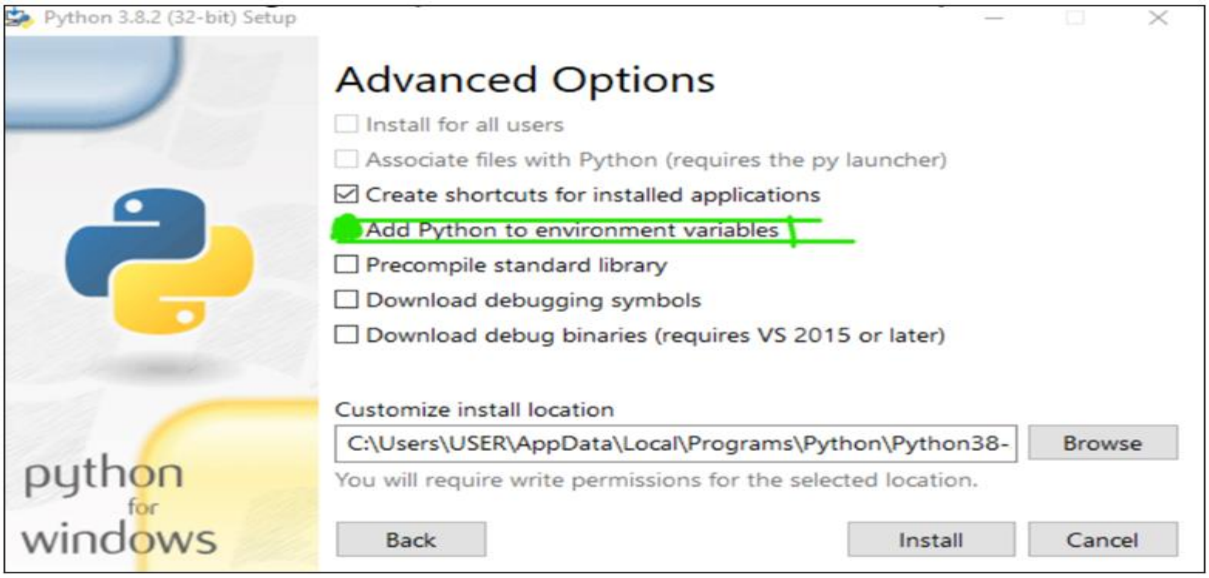
□ py launcher ☑ for all users (requires elevation)
Upgrades the global 'py' launcher from the previous version.

Fig 16 Python IDLE Installer Optional Features

You will probably see this page. ⇧⇧⇧ Now follow these instructions.

- *Green:* Must check these items.
- *Yellow:* I won't say it's necessary but you can if you wantto build a GUI app with python letter on.
- *Red:* You don't need the documentation. You can refer tothe internet whenever you need it.

The item I haven't marked, I'm not sure what that does 😅. But don't worry, those won't affect you. Now let'sproceed.


Python 3.8.2 (32-bit) Setup

Advanced Options

□ Install for all users
□ Associate files with Python (requires the py launcher)
☑ Create shortcuts for installed applications
Add Python to environment variables
□ Precompile standard library
□ Download debugging symbols
□ Download debug binaries (requires VS 2015 or later)

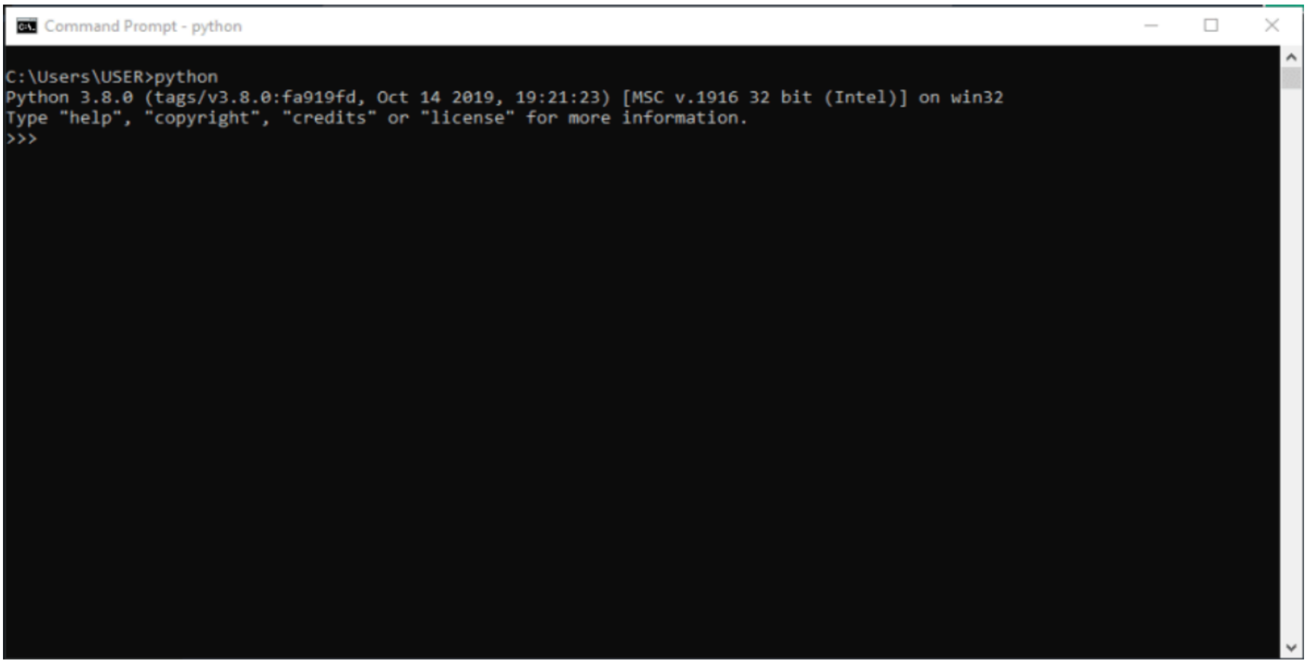
Customize install location
C:\Users\USER\AppData\Local\Programs\Python\Python38-
You will require write permissions for the selected location.

Fig 17 Python IDLE Installer Setup

MAKE SURE TO CHECK THE SECOND CHECK BOX. This is the most important one. It will enable you to run python codes via terminal. You canchange the installation location if you want. Just remember where you have installed it.

Now let's check if python is installed in our device properly. Open up the terminal and write this line ofcommand.

- *Python*


Command Prompt - python

```
C:\Users\USER>python
Python 3.8.0 (tags/v3.8.0:fa919fd, Oct 14 2019, 19:21:23) [MSC v.1916 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

Fig 18 CMD Interface

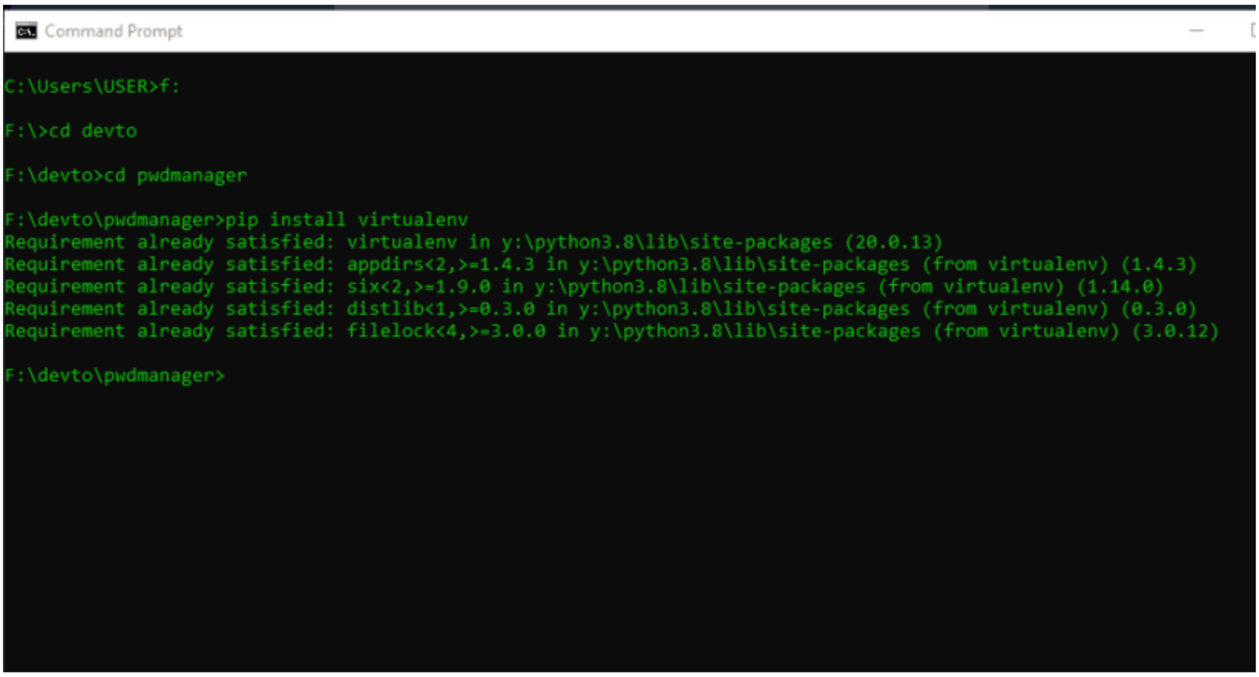
⇧⇧⇧ Seeing a page like this? Then Great! It was a success. Ow, make sure to check the version. I am using 3.8.0 as it shows in the picture.

➢ *Step2: Making the Environment*

Create a folder in your device where you want to set upthe environment. Once you have made the folder locateto that folder using command prompt. How?

I have made a folder in this directory: f:\devto\pwdManager. And I am currently inthis directory: c:user\users.

Keep following these commands if you don't know howto use the command prompt.



```
C:\Users\USER>f:

F:\>cd devto

F:\devto>cd pwdmanager

F:\devto\pwdmanager>pip install virtualenv
Requirement already satisfied: virtualenv in y:\python3.8\lib\site-packages (20.0.13)
Requirement already satisfied: appdirs<2,>=1.4.3 in y:\python3.8\lib\site-packages (from virtualenv) (1.4.3)
Requirement already satisfied: six<2,>=1.9.0 in y:\python3.8\lib\site-packages (from virtualenv) (1.14.0)
Requirement already satisfied: distlib<1,>=0.3.0 in y:\python3.8\lib\site-packages (from virtualenv) (0.3.0)
Requirement already satisfied: filelock<4,>=3.0.0 in y:\python3.8\lib\site-packages (from virtualenv) (3.0.12)

F:\devto\pwdmanager>
```

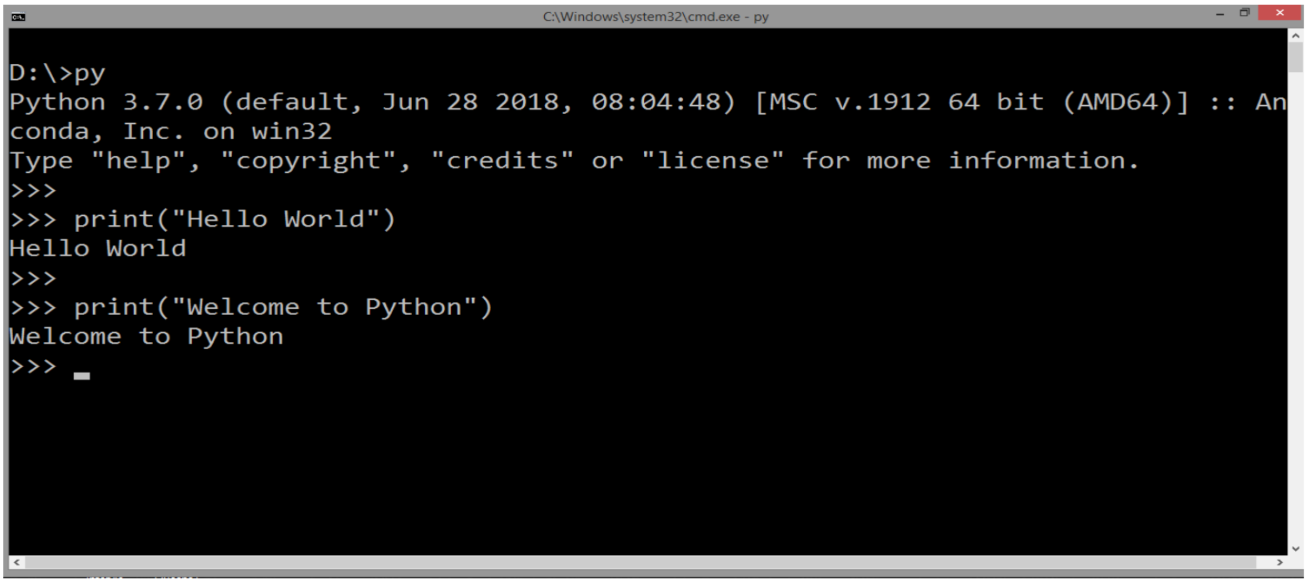
Fig 19 CMD Interface

I already have installed virtualenv. But for your case, thescenario will be different.

Once it is downloaded, write the final command in your command prompt for today and get your environmentready.

Virtualenv env And done.

- *Testing:*



```
D:\>py
Python 3.7.0 (default, Jun 28 2018, 08:04:48) [MSC v.1912 64 bit (AMD64)] :: An
conda, Inc. on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
>>> print("Hello World")
Hello World
>>>
>>> print("Welcome to Python")
Welcome to Python
>>> _
```

Fig 20 CMD Interface

ISSN No:-2456-2165

VII. CODING

```
from tkinter.ttk import *
from tkinter import *
 from PIL import Image,ImageTkimport time
 from tkinter import messagebox
 from functools import partial
 import os
 root=Tk()
 root.geometry("600x400+100+100")
 root.title("Password Manager")
 bg=Image.open("pbg.jpg")
 bg=bg.resize((600,400))
 bg=ImageTk.PhotoImage(bg)
 canvas1=Canvas(height=600,width=600)
 canvas1.create_image(0,0,anchor=NW,i
 mage=bg)
 canvas1.pack()
 bar=Progressbar(canvas1,orient=HORIZ
 ONTAL,length=200)
 bar.place(x=200,y=300)
 bar['value']=0
 while bar['value']<100:
 bar['value']+=1
 root.update()
 time.sleep(0.01)
 root.destroy()
 shift=11
 c=1
 def decrypt(data):
 global shift
 decrypted=""
  for i in range(len(data)):
      char=data[i]
     if char.isupper():
       decrypted += chr((ord(char) - shift -
65) % 26 + 65)
     elif char.islower():
     decrypted += chr((ord(char) - shift
- 97) %26 +97 )
    elif char.isdigit():
      num=(int(char) - shift) %10
      decrypted += str(num)
 return decrypted


def encrypt(data):
  global shift
  encrypted=""
  for i in range(len(data)):
      char=data[i]
      if char.isupper():
        encrypted += chr((ord(char)+ shift
- 65) % 26 + 65)
      elif char.islower():
        encrypted += chr((ord(char)+shift
- 97) %26 +97 )
        elif char.isdigit():
         num=(int(char) + shift) %10
         encrypted += str(num)
  return encrypted
```

```
 def clear(menu):
 fw=open("pass.txt",'w').close()
 messagebox.showinfo("Success","Entr
 ies deleted successfully")
 menu.destroy()
   main()


 def save(website,username,password):
 fw=open("pass.txt",'a')
 website=encrypt(website)
 username=encrypt(username)
 password=encrypt(password)
 fw.write(website+"|"+username+"|"+p
 assword+'\n')
   fw.close()


   def
   add_pass(web,user,pasw,add_main):
   x=True
   website=web.get()
   username=user.get()
   password=pasw.get()
   if website=="" or username=="" or
 password=="":
       x=False
       messagebox.showwarning("Alert","E
 mpty Fields not allowed")
 if x is True:
     save(website,username,password)
     messagebox.showinfo("Success","Pa
 ssword Added Successfully")
       add_main.destroy()
       main()


def back(add_main):
 add_main.destroy()
 main()


 def add(root):
   root.destroy() add_main=Tk()
   add_main.geometry("600x400+100+10
 0")
   add_main.title("Add Password")
   bg=Image.open("pbg2.jpg") bg=bg.resize((600,400))
   bg=ImageTk.PhotoImage(bg)
   canvas1=Canvas(height=600,width=600
 )

   canvas1.create_image(0,0,anchor=NW,i
 mage=bg)
   canvas1.pack()
 ent_web=Entry(width=30, bg="#ace5ee")
 ent_user=Entry(width=30, bg="#ace5ee")
 ent_pass=Entry(width=30, bg="#ace5ee")
 canvas1.create_text(160,120,text="Web
 site",fill="#50C878",font=("Helvetica",1
 6,"italic bold"))
```

```
canvas1.create_text(160,180,text="User
name",fill="#50C878",font=("Helvetica",


16,"italic bold")) canvas1.create_text(160,240,text="Pas
sword",fill="#50C878",font=("Helvetica",16,"italic bold"))
canvas1.create_window(340,120,wind
ow=ent_web)
canvas1.create_window(340,180,wind
ow=ent_user)
canvas1.create_window(340,240,wind
ow=ent_pass) add_btn=Button(text="Add",font=("C
alibri",14,"bold"),bg="#104E8B",fg="#
E2DFD2",width=5,command=partial(a
dd_pass,ent_web,ent_user,ent_pass,add
_main))
canvas1.create_window(250,320,wind
ow=add_btn) cancel_btn=Button(text="Cancel",font
=("Calibri",14,"bold"),bg="#104E8B",f
g="#E2DFD2",width=7,command=part
ial(back,add_main))
canvas1.create_window(330,320,wind
ow=cancel_btn)
 add_main.mainloop()


def view_pass():
  filesize = os.path.getsize("pass.txt")
menu=Tk()
menu.geometry("600x400+100+100")
bg=Image.open("pbg2.jpg")
bg=bg.resize((600,400))
bg=ImageTk.PhotoImage(bg)
canvas1=Canvas(height=400,width=6
00)
  canvas1.create_image(0,0,anchor=N
W,image=bg)
  canvas1.pack()
canvas1.create_text(300,30,text="You r
Saved
Passwords",font=("Calibri",25,"italic
bold"),fill="#c0c0c0")
  if os.path.getsize("pass.txt")==0:
     canvas1.create_text(300,200,text="
No password saved
yet",font=("Helvetica",20,"italic
bold"),fill="light green")
     add_btn=Button(text="Add
password",font=("Helvetica",12),bg="#c
80815",fg="white",width=13,command=
partial(back,menu))
      canvas1.create_window(290,350,win
dow=add_btn)
  else:
     canvas1.create_text(120,100,text="W
ebsite",font=("Calibri",13," italic bold
underline"),fill="#48d1cc")
      canvas1.create_text(280,100,text="U
sername",font=("Calibri",13,"italic bold
underline"),fill="#48d1cc")
      canvas1.create_text(450,100,text="Password",font=("Calibri",13,"italic bold
underline"),fill="#48d1cc")
     fw=open("pass.txt")
     x=110
     for line in fw:
       x=x+25
       line=line.rstrip()
       sentence=line.split("|")
       website=decrypt(sentence[0])
       username=decrypt(sentence[1])
       password=decrypt(sentence[2])
       canvas1.create_text(120,x,text=web
site,font=("Helvetica",10,"italic
bold"),fill="#b2ec5d")
       canvas1.create_text(280,x,text=user
name,font=("Helvetica",10,"italic
bold"),fill="#b2ec5d")
       canvas1.create_text(450,x,text=pass
word,font=("Helvetica",10,"italic
bold"),fill="#b2ec5d")
      clr_btn=Button(text="Clear
All",font=("Helvetica",12),bg="#c80815
",fg="white",width=8,command=partial(
clear,menu))
     back_btn=Button(text="Go
Back",font=("Helvetica",12),bg="#c8081
5",fg="white",width=8,command=partial
(back,menu))
     canvas1.create_window(240,350,win
dow=clr_btn)
     canvas1.create_window(350,350,win
dow=back_btn)
  menu.mainloop()


def check(ent_pass,pas):
  global c
  ans=ent_pass.get()
   if ans == "python07":
     messagebox.showinfo("Success","
Welcome!")
     pas.destroy()
     view_pass()
  else:
     if c<3:
      ent_pass.delete(0,'end')x=3-c
      messagebox.showwarning("Incorr
ect",f"Password Incorrect\n{x} try
left")
       c=c+1
      else:
       messagebox.showerror("Login
Failed","No more try left")
      os.remove ("pass.txt")
      pas.destroy()
      main()

def view(root):
 root.destroy()
 pas=Tk()
 pas.geometry("200x120+500+300")
```

```
lab=Label(pas,text="Enter
Password",font=("Arial",12,UNDERLI
NE))
  lab.pack(pady=10)
ent_pass=Entry(pas,show="*")
ent_pass.pack(pady=5)
submit=Button(pas,text="Login",com
mand=partial(check,ent_pass,pas))
submit.pack(pady=10)
pas.mainloop()
def exit(root):
root.destroy()

def main():root=Tk()
  root.geometry("600x400+100+100")
  bg=Image.open("pbg2.jpg")
  bg=bg.resize((600,400))
  bg=ImageTk.PhotoImage(bg)
  canvas1=Canvas(root,height=400,width
=600)
  canvas1.create_image(0,0,anchor=NW,i
mage=bg)
  canvas1.pack()
add_img=Image.open("pass2.jpg")
add_img=add_img.resize((80,80))
add_img=ImageTk.PhotoImage(add_im
g)
  view_img=Image.open("vpass.png")
view_img=view_img.resize((75,75))
view_img=ImageTk.PhotoImage(view_
img)
  btn=Button(text="Add new
password",bg="#40B5AD",fg="#162252
",width=18,command=partial(add,root),f
ont=("Helvetica 13 italic
bold"),relief="raised")
btn2=Button(text="View saved
passwords",bg="#104E8B",fg="#E2DFD
2",width=20,command=partial(view,root
),font=("Helvetica 13 italic bold"),relief="raised")
exit_btn=Button(text="Exit",command=
partial(exit,root),font=("Helvetica",12,"b
old
italic"),bg="#c80815",fg="white",width=
5,relief="raised")
canvas1.create_image(140,100,anchor=
NW,image=add_img)
canvas1.create_window(335,140,windo
w=btn)
canvas1.create_image(142,230,anchor=
NW,image=view_img)
canvas1.create_window(345,265,windo
w=btn2)
canvas1.create_window(530,370,windo
w=exit_btn)
  root.mainloop()

main()
root.mainloop()
```

VIII. FUTURE SCOPE

The most important scope I want for my project isfor it to be accessible by everyone. It has to have a big reach. Many people get to know about the application. People should know about how usefulthis is.

IX. CONCLUSION

Thus, we learned about password managers and python programming language.

We learned how to build this application from scratch. Through this paper we taught many people about the importance of password managers.

And how python is the easiest programming language out there.

We showed you how to install python.

And hope you like this project and get some value out of it

REFERENCES

[1]. https://www.bing.com/search?q=password+manager+wikipedia&cvid=e02f669609444d7cac56958f03f2f16a&aqs=edge. 0.0j69i64. 15152j0j4&FORM=ANAB01&PC= U531

[2]. https://www.bing.com/search?q=python+wikipedia&qs=AS&pq=python+wiki&sc=8-11&cvid=21A3C1BB3A0A44DF96634 BEFDCBA1414&FORM=QBRE&sp=1

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