Part A-

One of the most popular and widespread ways to protect your self while using the internet is to get a Virtual Private Network, also known as a VPN. There are many providers for VPNs which may have different features to help protect the user.

A few examples of VPNs are Express VPN, Surfshark, and NordVPN.

To check the people following you there is multiple applications and services with different methods to identify if you are being followed by certain websites.

Example are Panopticlick, Disconnect, and Thunderbeam allow you to see if others are following you.

The reason why most sites and search engines track you is to collect data which can be used to learn more about the user, which in turn makes it easier for companies to create more targeted adds, which in turns nets them profit. By tracking /learning out more about you the sites can also understand your behaviour which also allows them optimize their applications so that you can spend more time/money on their sites. Over all the biggest factor for them is that it will net them a profit by doing as such.

Yes it is possible to prevent being tracked in a few different ways including vpns, not visiting sites with cookies, using secure connections to sites only with something like SSL, and not sharing information online.

Part B

The term deep web refers to all web pages that are unidentifiable by the search engines to keep them anonymous and private, which can be helpful in both legal and illegal applications.

You can access the dark web through a anonymizing web browser called Tor, it routes your web page requests through a series of proxy servers around the world rendering your IP address unidentifiable and untraceable. A VPN would also make the experience more secure and safe.

There are many dangers in accessing the deep web if done in an unprotected and anonymized manner, if another user gets your real IP they may be able to learn and gain many things from it. They can launch many attacks against you including attempting to hack your system, and even find out your location.

Approximately 90% of the web is the deep web, however it is impossible to discover exactly how many pages or websites are active at any one time.

***Part C***

from tkinter import \*  
  
# This code is for Lab1 for Advanced Security 1. It is to make a 4 function calculator with a functional GUI.  
#  
# Author: Jade Brennan-Keane  
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# Course: TU857-4  
from tkinter import messagebox  
  
window = Tk()  
window.title("Calculator")  
window.geometry('200x150')  
  
# # # # # # # # # variables # # # # # # # # #  
val = ""  
x = 0  
operator = ""  
# # # # # # # # # variables # # # # # # # # #  
  
  
def clear():  
 print("Values Cleared")  
 global x  
 global operator  
 global val  
 val = ""  
 x = 0  
 operator = ""  
 lbl.config(text=val)  
  
  
def one():  
 print("1")  
 global val  
 val = val + "1"  
 lbl.config(text=val)  
  
  
def two():  
 print("2")  
 global val  
 val = val + "2"  
 lbl.config(text=val)  
  
  
def three():  
 print("3")  
 global val  
 val = val + "3"  
 lbl.config(text=val)  
  
  
def four():  
 print("4")  
 global val  
 val = val + "4"  
 lbl.config(text=val)  
  
  
def five():  
 print("5")  
 global val  
 val = val + "5"  
 lbl.config(text=val)  
  
  
def six():  
 print("6")  
 global val  
 val = val + "6"  
 lbl.config(text=val)  
  
  
def seven():  
 print("7")  
 global val  
 val = val + "7"  
 lbl.config(text=val)  
  
  
def eight():  
 print("8")  
 global val  
 val = val + "8"  
 lbl.config(text=val)  
  
  
def nine():  
 print("9")  
 global val  
 val = val + "9"  
 lbl.config(text=val)  
  
  
def zero():  
 print("0")  
 global val  
 val = val + "0"  
 lbl.config(text=val)  
  
  
def plus():  
 print("+")  
 global x  
 global operator  
 global val  
 x = float(val)  
 operator = "+"  
 val = val + "+"  
 lbl.config(text=val)  
  
  
def minus():  
 print("-")  
 global x  
 global operator  
 global val  
 x = float(val)  
 operator = "-"  
 val = val + "-"  
 lbl.config(text=val)  
  
  
def multiply():  
 print("\*")  
 global x  
 global operator  
 global val  
 x = float(val)  
 operator = "\*"  
 val = val + "\*"  
 lbl.config(text=val)  
  
  
def divide():  
 print("/")  
 global x  
 global operator  
 global val  
 x = float(val)  
 operator = "/"  
 val = val + "/"  
 lbl.config(text=val)  
  
  
def decimal():  
 print(".")  
 global val  
 val = val + "."  
 lbl.config(text=val)  
  
  
def result():  
 global x  
 global operator  
 global val  
 val2 = val  
 if operator == "+":  
 y = float((val2.split("+")[1]))  
 z = x + y  
 val = str(z)  
 elif operator == "-":  
 y = float((val2.split("-")[1]))  
 z = x - y  
 val = str(z)  
 elif operator == "\*":  
 y = float((val2.split("\*")[1]))  
 z = x \* y  
 val = str(z)  
 elif operator == "/":  
 y = float((val2.split("/")[1]))  
 if y == 0:  
 messagebox.showerror("Error", "Division by 0 Not Allowed")  
 x == ""  
 val = ""  
 else:  
 z = float(x/y)  
 val = str(z)  
 lbl.config(text=val)  
  
 print(val)  
  
  
lbl = Label(window, text=val)  
lbl.grid(column=3, row=1)  
  
btn = Button(window, text="ac", command=clear)  
btn.grid(column=0, row=1)  
  
# # # # # # # # # Buttons 7-9 # # # # # # # # #  
btn = Button(window, text="7", command=seven)  
btn.grid(column=0, row=2)  
  
btn = Button(window, text="8", command=eight)  
btn.grid(column=1, row=2)  
  
btn = Button(window, text="9", command=nine)  
btn.grid(column=2, row=2)  
# # # # # # # # # Buttons 7-9 # # # # # # # # #  
  
  
# # # # # # # # # Buttons 4-6 # # # # # # # # #  
btn = Button(window, text="4", command=four)  
btn.grid(column=0, row=3)  
  
btn = Button(window, text="5", command=five)  
btn.grid(column=1, row=3)  
  
btn = Button(window, text="6", command=six)  
btn.grid(column=2, row=3)  
# # # # # # # # # Buttons 4-6 # # # # # # # # #  
  
  
# # # # # # # # # Buttons 0-3 # # # # # # # # #  
btn = Button(window, text="1", command=one)  
btn.grid(column=0, row=4)  
  
btn = Button(window, text="2", command=two)  
btn.grid(column=1, row=4)  
  
btn = Button(window, text="3", command=three)  
btn.grid(column=2, row=4)  
  
btn = Button(window, text="0", command=zero)  
btn.grid(column=1, row=5)  
# # # # # # # # # Buttons 1-3 # # # # # # # # #  
  
  
# # # # # # # # # `functions` # # # # # # # # #  
btn = Button(window, text="+", command=plus)  
btn.grid(column=3, row=2)  
  
btn = Button(window, text="-", command=minus)  
btn.grid(column=3, row=3)  
  
btn = Button(window, text="\*", command=multiply)  
btn.grid(column=3, row=4)  
  
btn = Button(window, text="/", command=divide)  
btn.grid(column=3, row=5)  
  
btn = Button(window, text=".", command=decimal)  
btn.grid(column=2, row=5)  
  
btn = Button(window, text="=", command=result)  
btn.grid(column=0, row=5)  
# # # # # # # # # `functions` # # # # # # # # #  
  
lbl = Label(window, text=val)  
lbl.grid(column=3, row=1)  
  
window.mainloop()