Fundamentals of Computer Programming (FOCP)

Submitted by

Rishav Rauniyar

Section E

ID No:8711

Bsc (Computing)

Submitted to

Krishna Sir

Introduction to Programming

Lab Worksheet

Week 2

Working with Variables

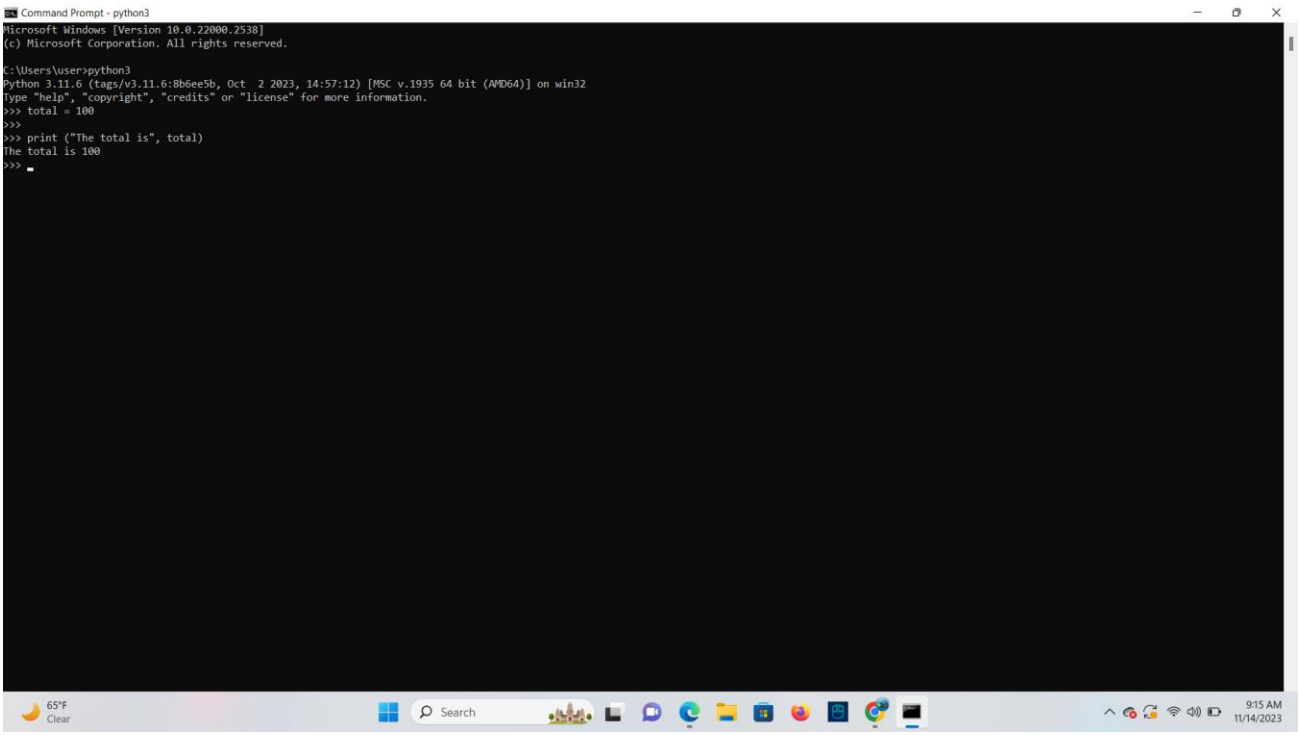
Variable assignment

TASK: Try inputting the following code and examine the results.

total = 100

print(“The total is”, total)

Ans

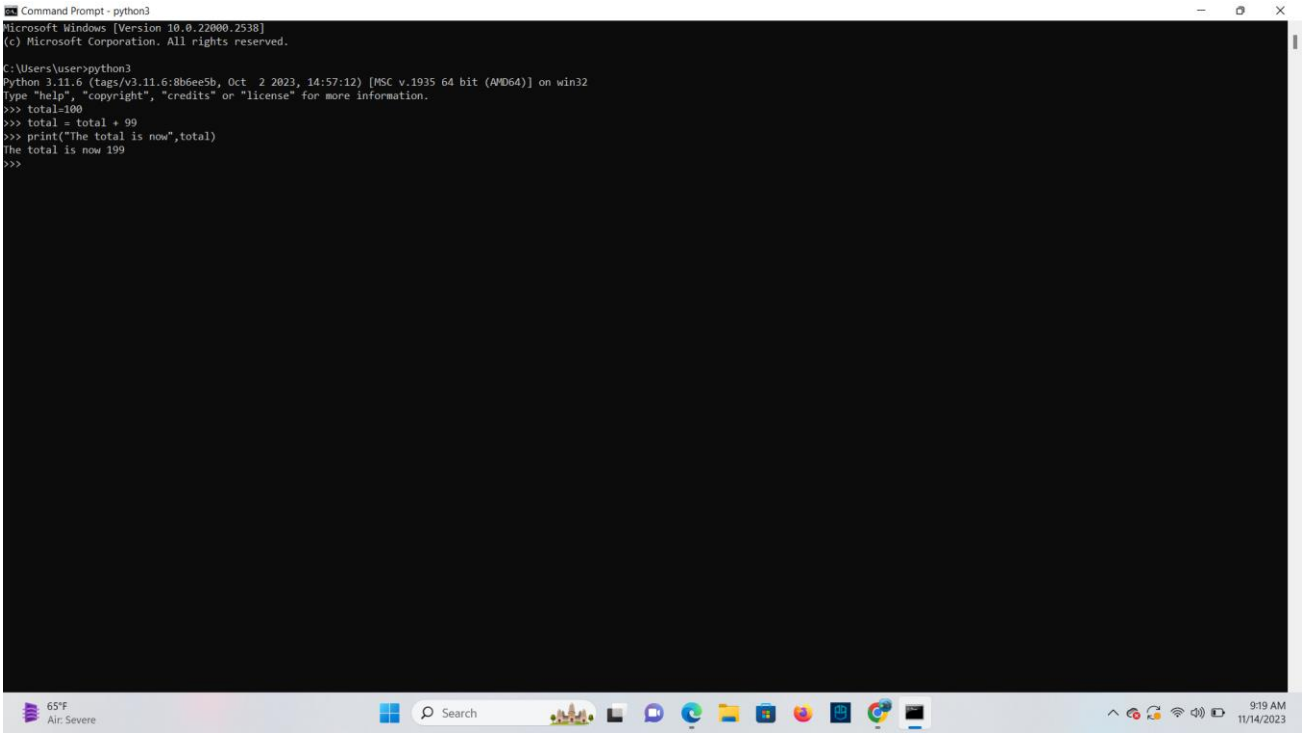


TASK: Try inputting the following code and examine the results.

total = total + 99

print(“The total is now”, total)

Ans

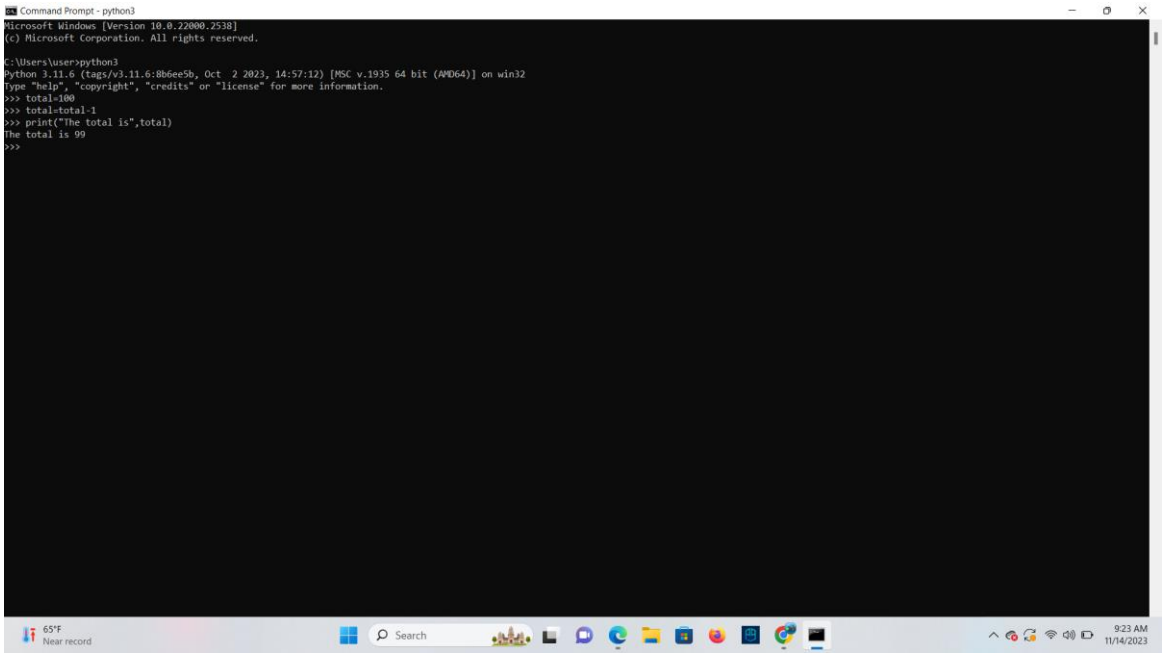


TASK: Try inputting the following code, but replace each of the assignment expressions with the equivalent augmented assignment.

total = total - 1

print(“The total is”, total)

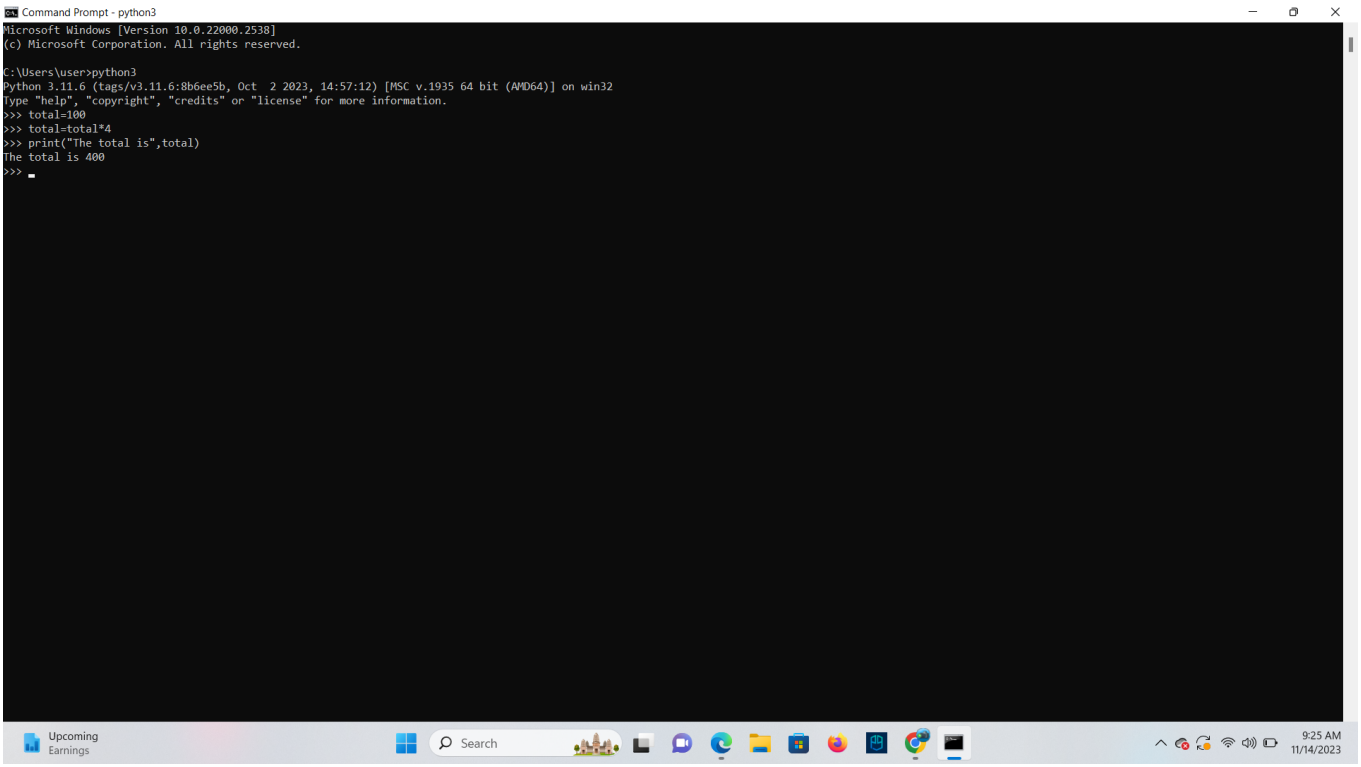
Ans



total = total * 4

print(“The total is”, total)

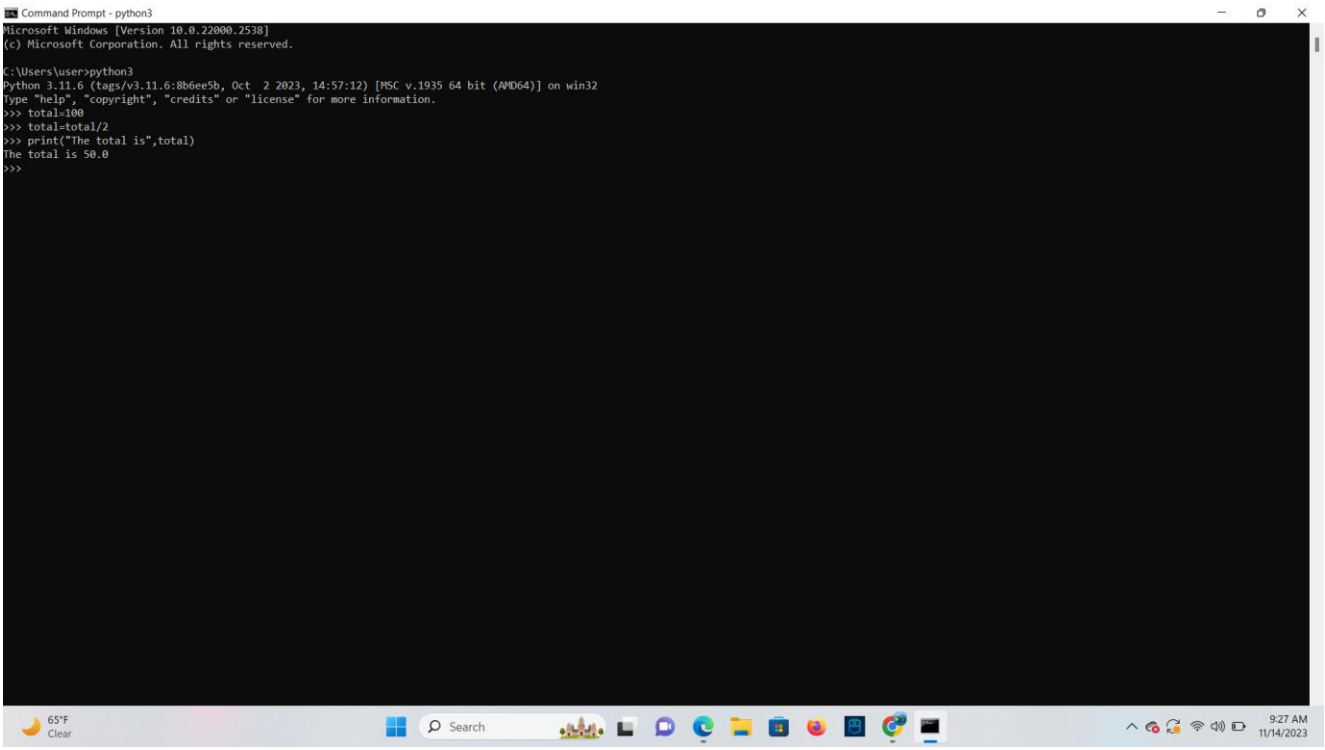
Ans



total = total / 2

print(“The total is”, total)

Ans



TASK: Try extending the code below so that it creates a new variable called ‘average’, that is set to equal the average calculated from the two other variables.

total = 98.2

count = 5

add your extra code here

Ans

total = 98.2

count = 5

Average = total/count

Print(“The average is:”, Average)

Data-Types

A Variable’s data-type

TASK: Use the type() function to determine the type of each of the following values.

False

1000

100.111

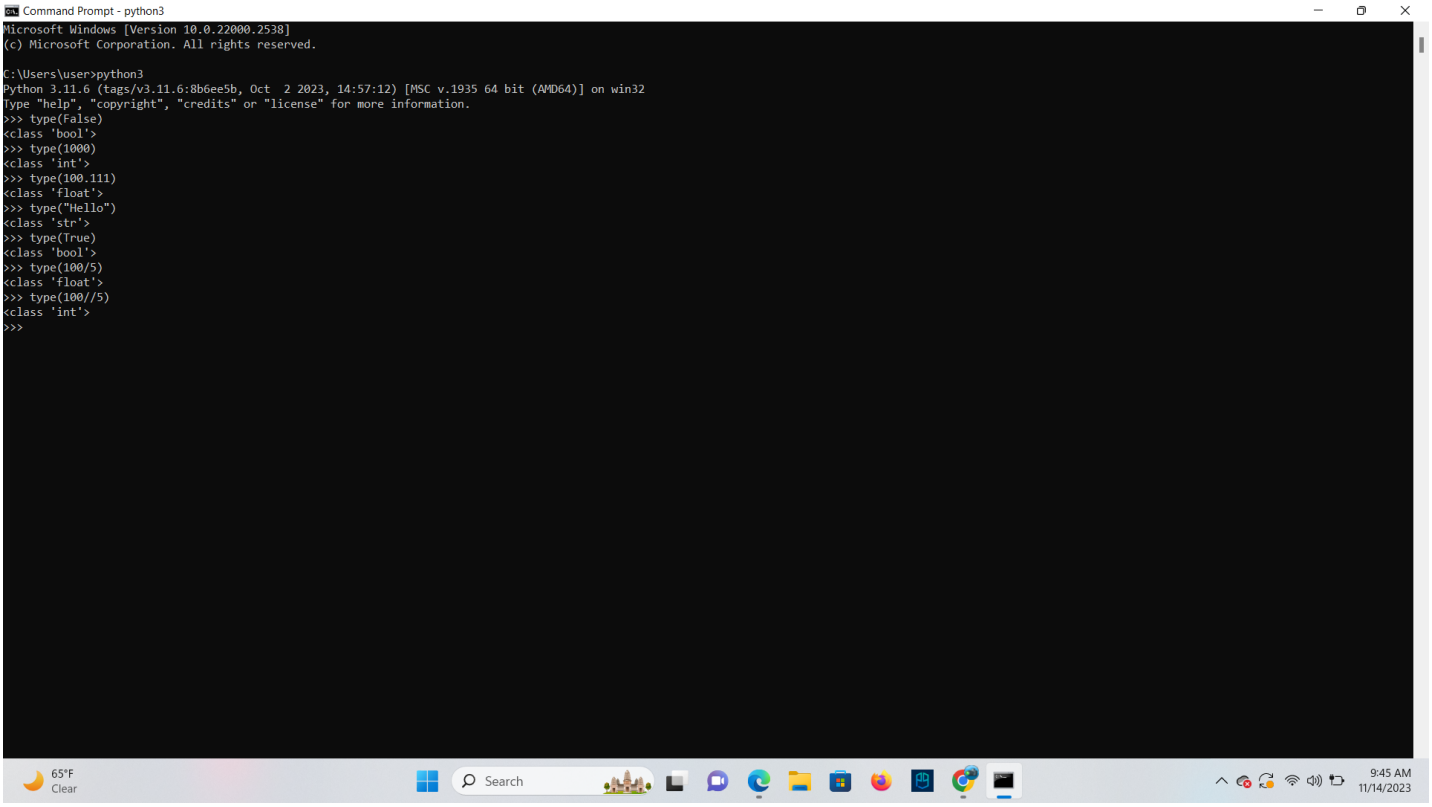
“Hello”

True

100 / 5

100//5

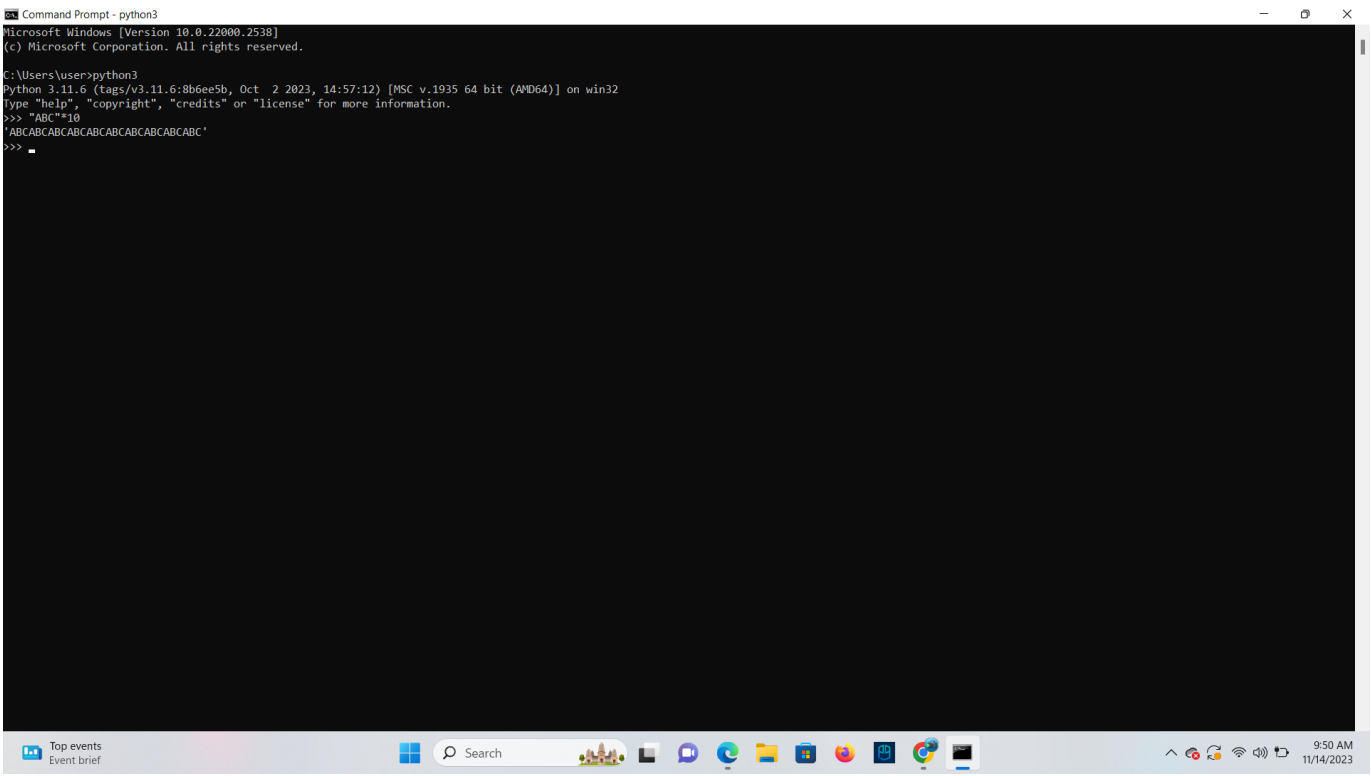
Ans



TASK: Input the following code and examine the result. What is the * operator doing to the given string operand?

“ABC” * 10

Ans The * operator is repeating the string operand 10 times.



Calling Built-in functions

TASK: Write some code that calls the print() function several times, displaying your name, address and contact details. Add additional calls to the print() function which includes an argument that calculates and prints the length of your name, by calling the len() function.

Ans

Name= “Rishav”

Address= 123, digital city

Contact= 9844983568

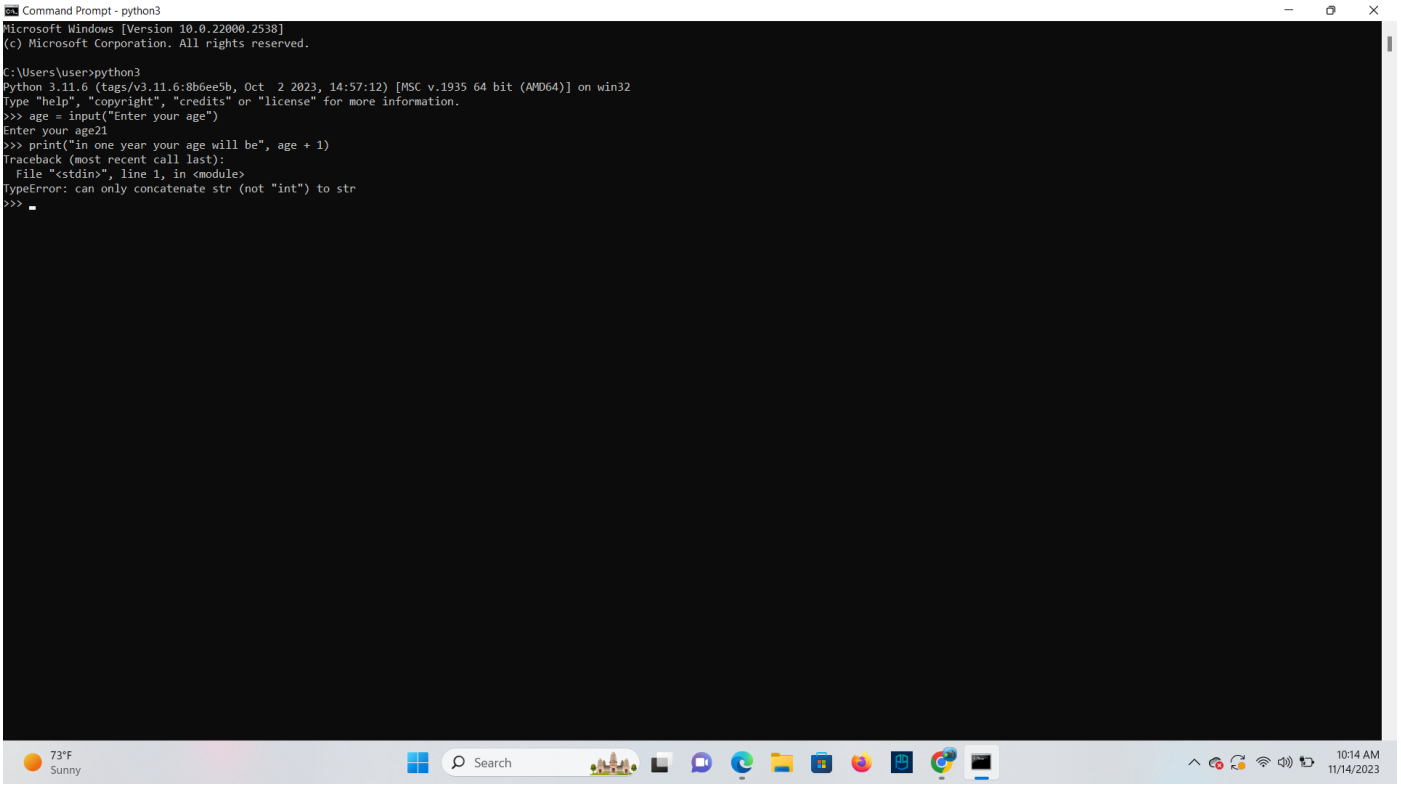
```
print (“My name is:”, Name)
print (“My address is:”, Address)
print (My Contact is:”, Contact)
Name_length=len(Name)
print (“My name length is:”, Name_length)
```

Getting input from the user

TASK: Input the following code, when asked to type your age input a numeric value such as 20. Does this program work? If not, why?

```
age = input(“Enter your age”)
print(“in one year your will be”, age + 1)
```

Ans: This program does not work as input() function return a string and when it concatenates with integer 1 it gives us a type error.



TASK: Write a program that prompts the user to input two numeric values. Once the values have been input display the product of these values, using the multiply (*) operator.

Ans

a=2

b=4

c=a*b

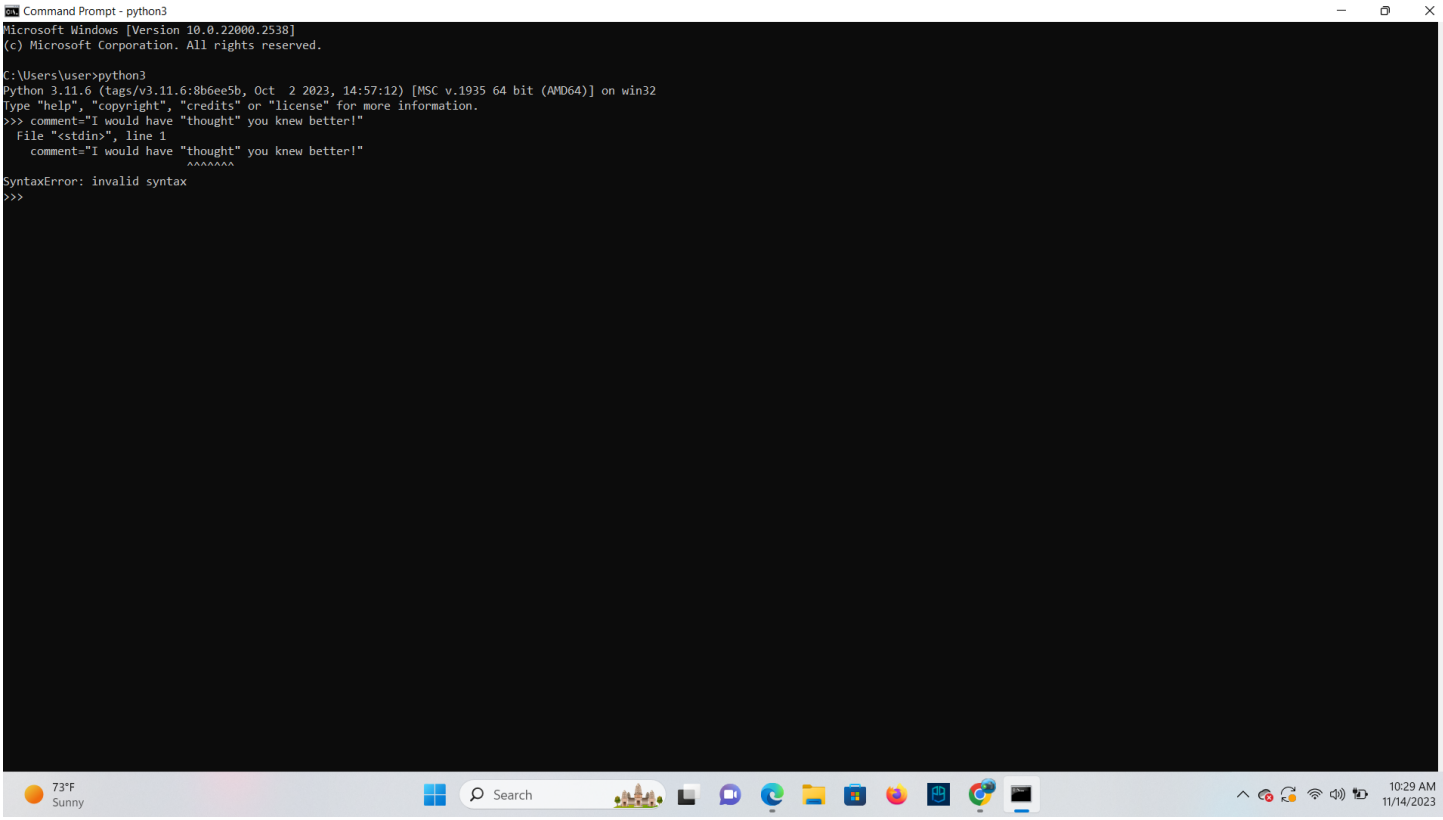
print (“The product of c is:”,c)

Single, Double and Triple Quotes

comment = ‘I would have “thought” you knew better!’

TASK: Try writing the above assignment statement but only use double quotes instead of single quotes as the string delimiter. What is the result?

Ans



Escape Sequences

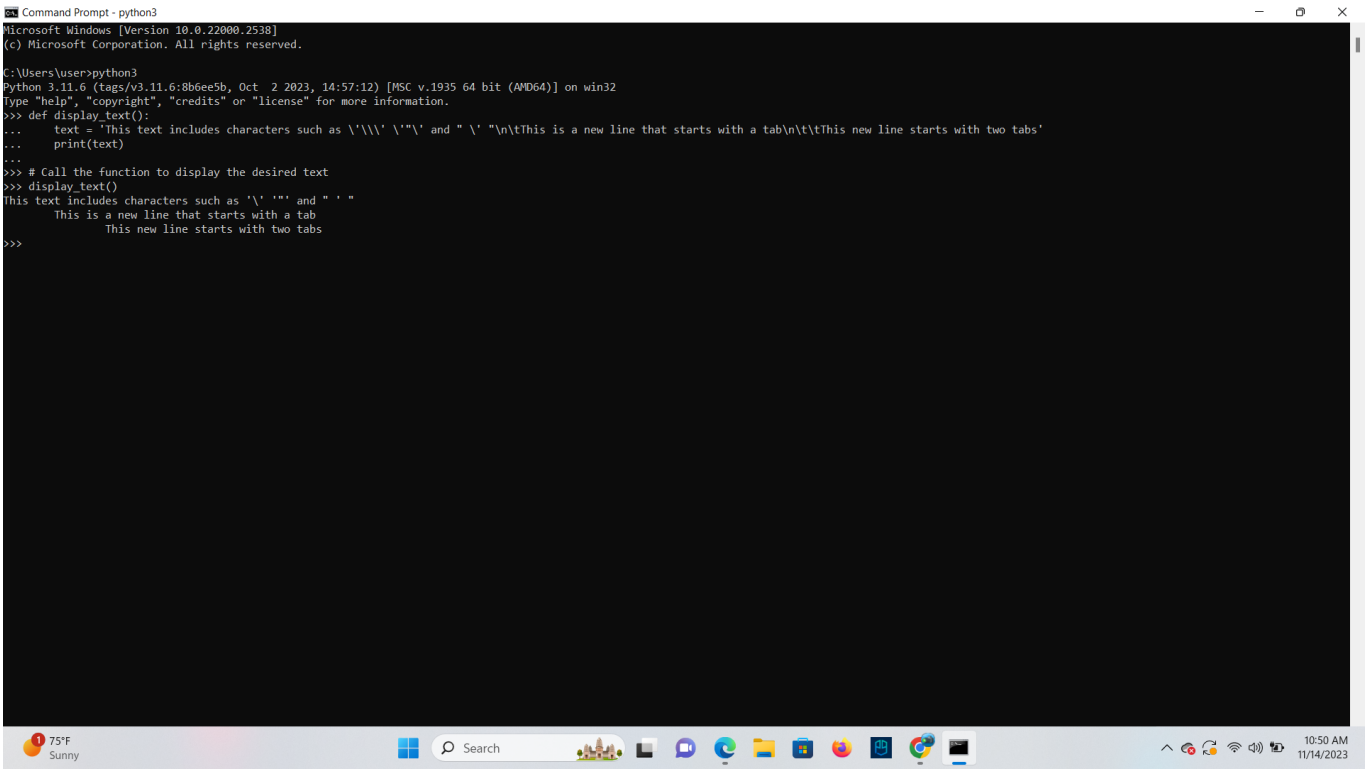
TASK: Write some code that calls a print() function, which takes a single string argument that results in the following text being displayed (exactly as shown).

This text includes characters such as ‘\’ ‘ “ ‘ and “ ‘ “,

This is a new line that starts with a tab

This new line starts with two tabs

Ans



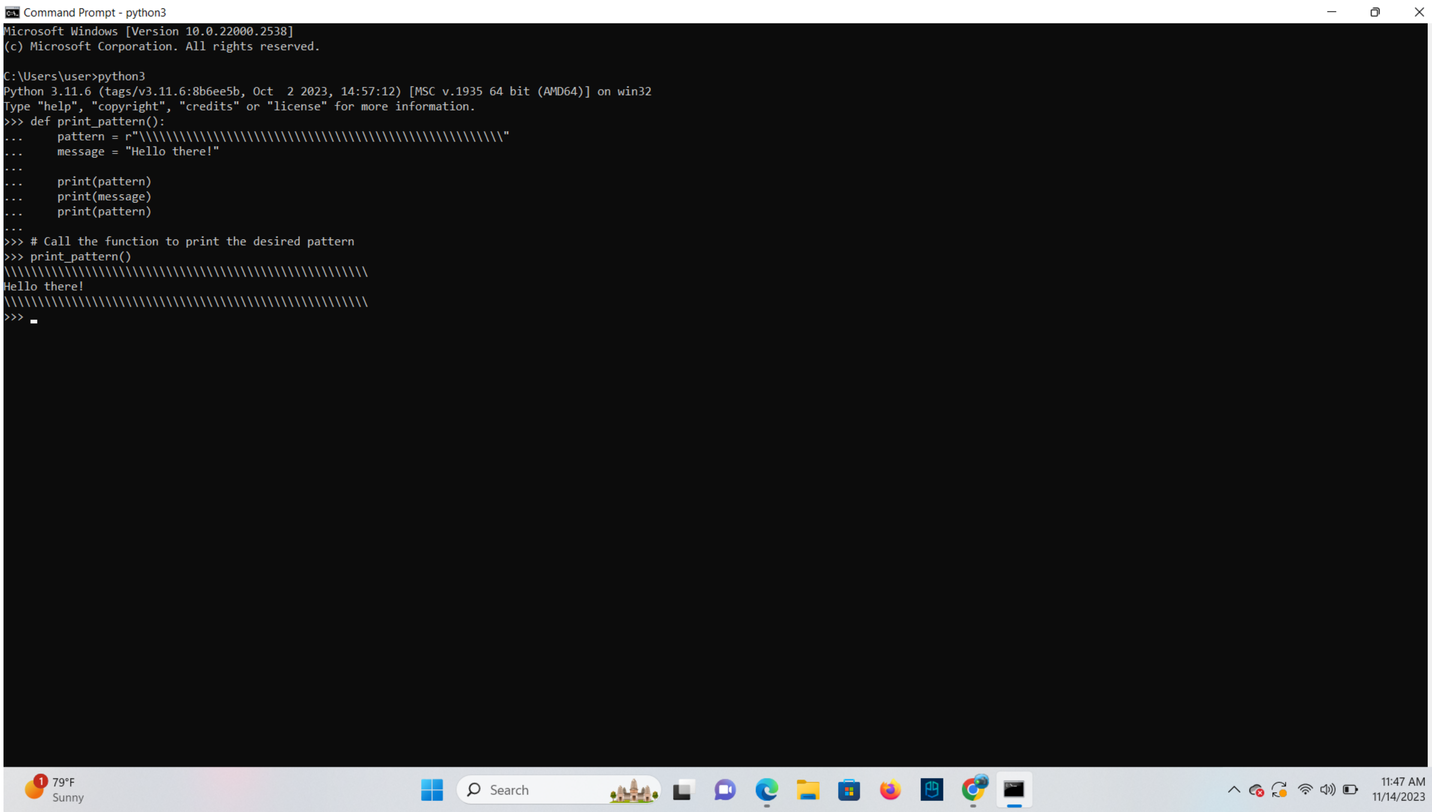
TASK: Write some code that calls a print() function, which takes a single string argument that results in the following text being displayed (exactly as shown).

\\

Hello there!

\\

Ans



Using Triple Quotes

TASK: Write some code that calls a print() function, which takes a single string argument that results in the following text being displayed (exactly as shown). Do this without the use of any escape sequences.

This text spans three lines,

and includes both single (‘),

and double quotes (“).

Ans

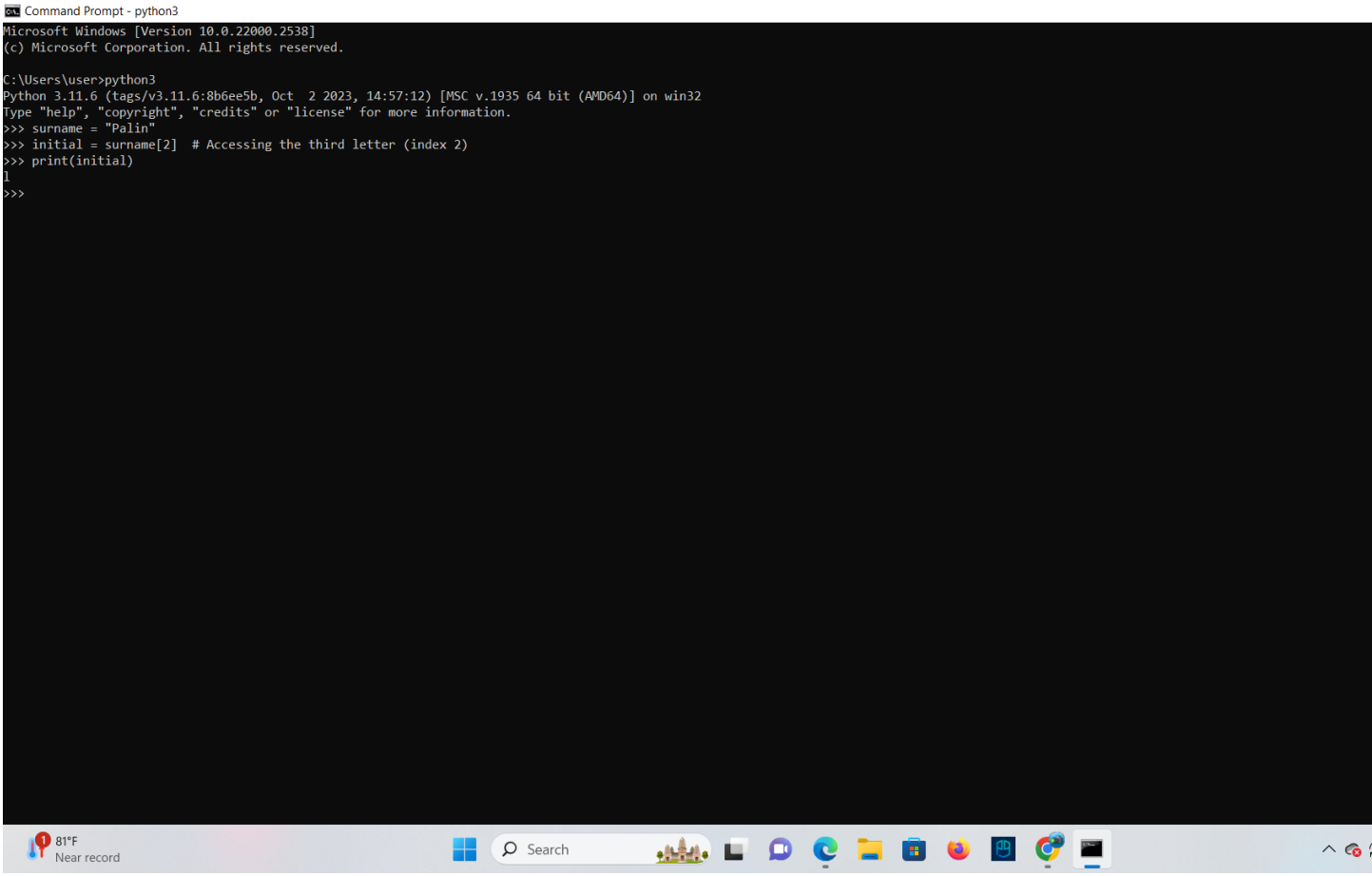
```
Def print ():
    print (“This text spans three lines,\n\n and includes both single (‘) ,\n\n and double quotes (“).”)
print ()
```

Indexing and Slicing

```
surname = “Palin”
initial = surname[0]
```

TASK: Rewrite the above example, so that the third letter of the ‘surname’ is accessed rather than the first, then print this letter to the screen.

Ans



TASK: Rewrite the above example, so that the tenth letter of the 'surname' is accessed, and note the result.

Ans

surname = "Palin"

tenth_letter = surname[9]

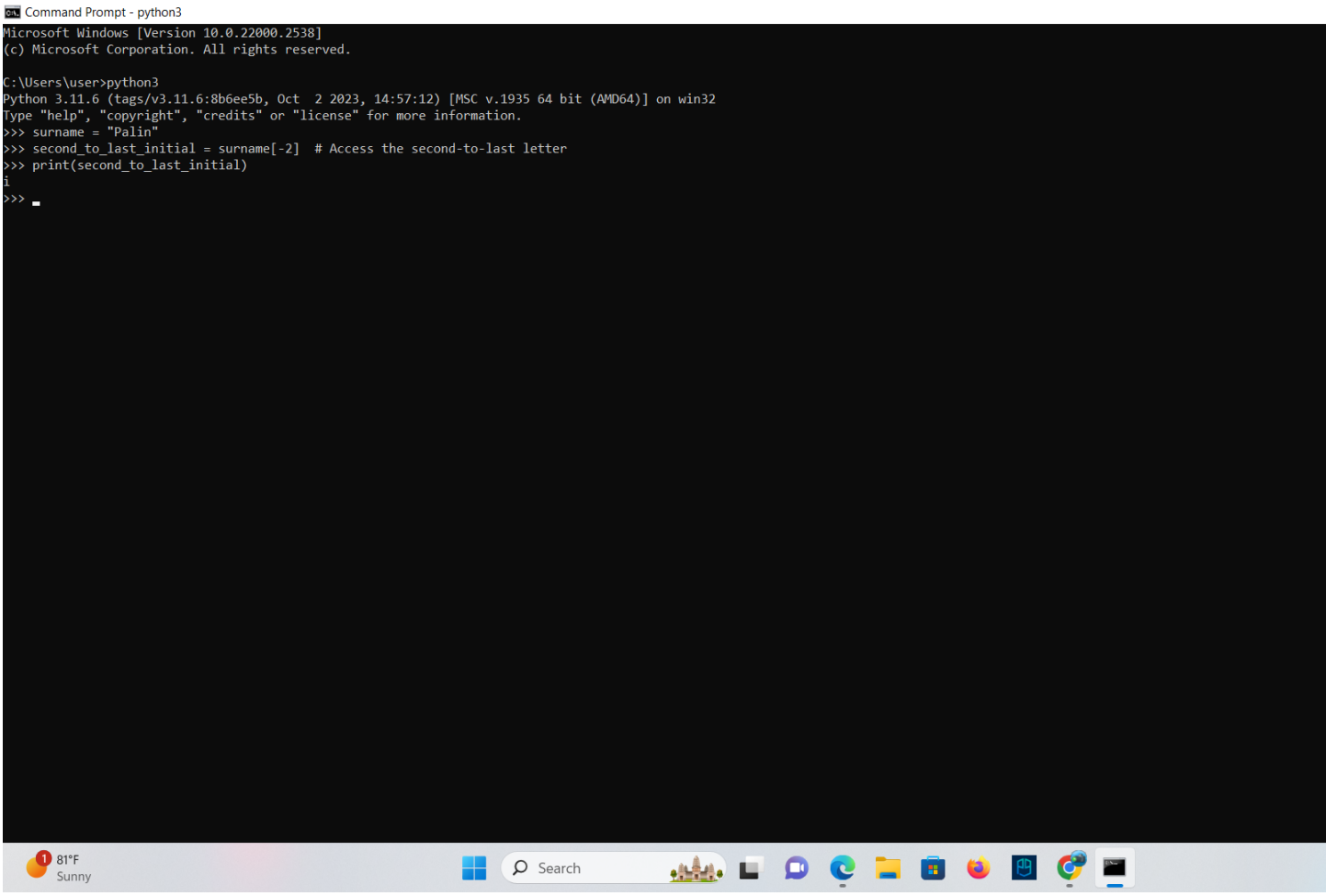
print("Tenth letter of the surname:", tenth_letter**)**

Output:

Tenth letter of the surname: n

TASK: Rewrite the above example, so that the second from last letter of the ‘surname’ is accessed rather than the last, then print this letter to the screen.

Ans



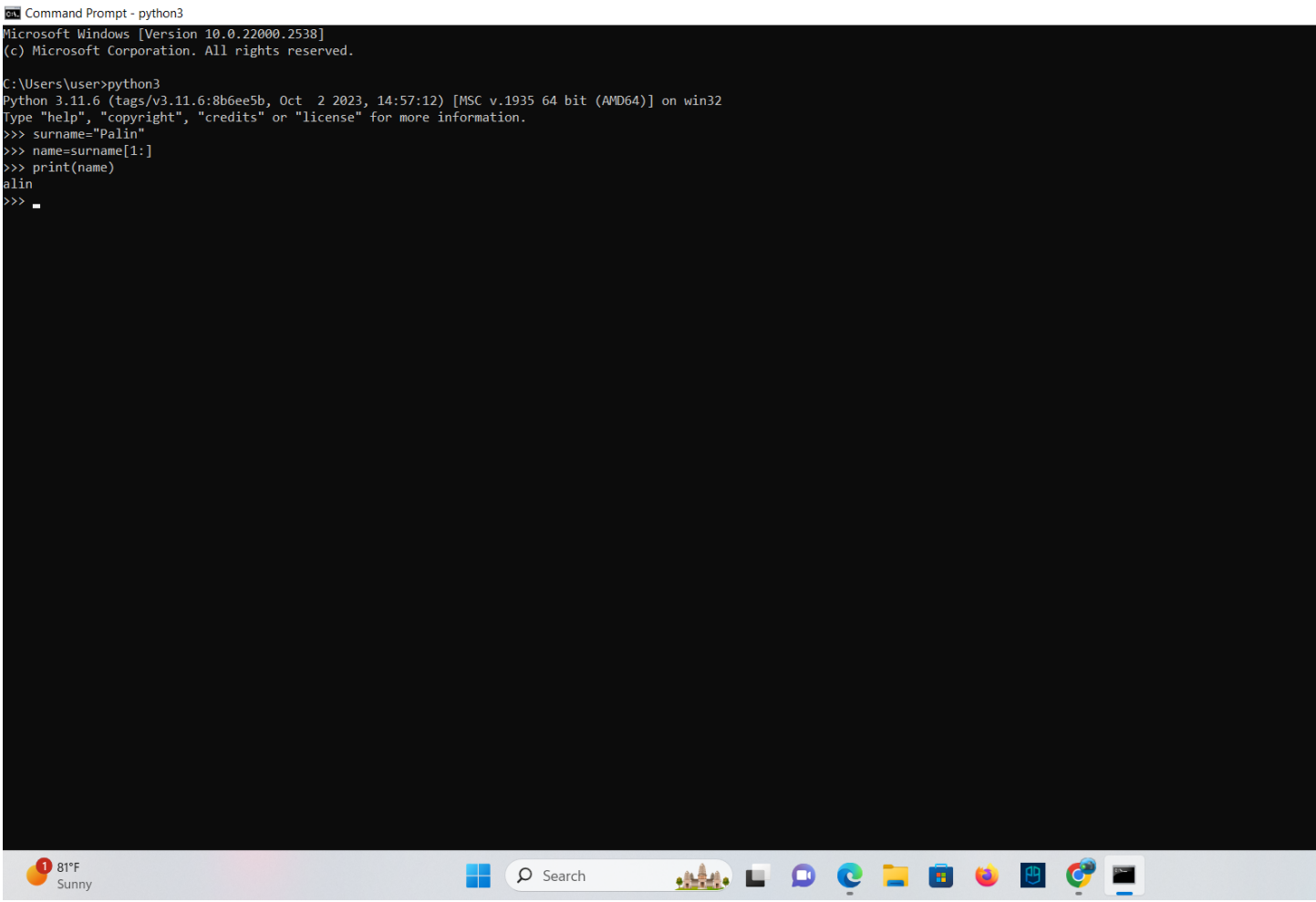
Slicing

surname = “Palin”

middle = surname[1:4]

TASK: Rewrite the above example, so that all of the characters of the ‘surname’ except the first character are sliced and then displayed on the screen.

Ans



TASK: Write code that accesses and prints all characters of the ‘surname’ except the last

character.

Ans

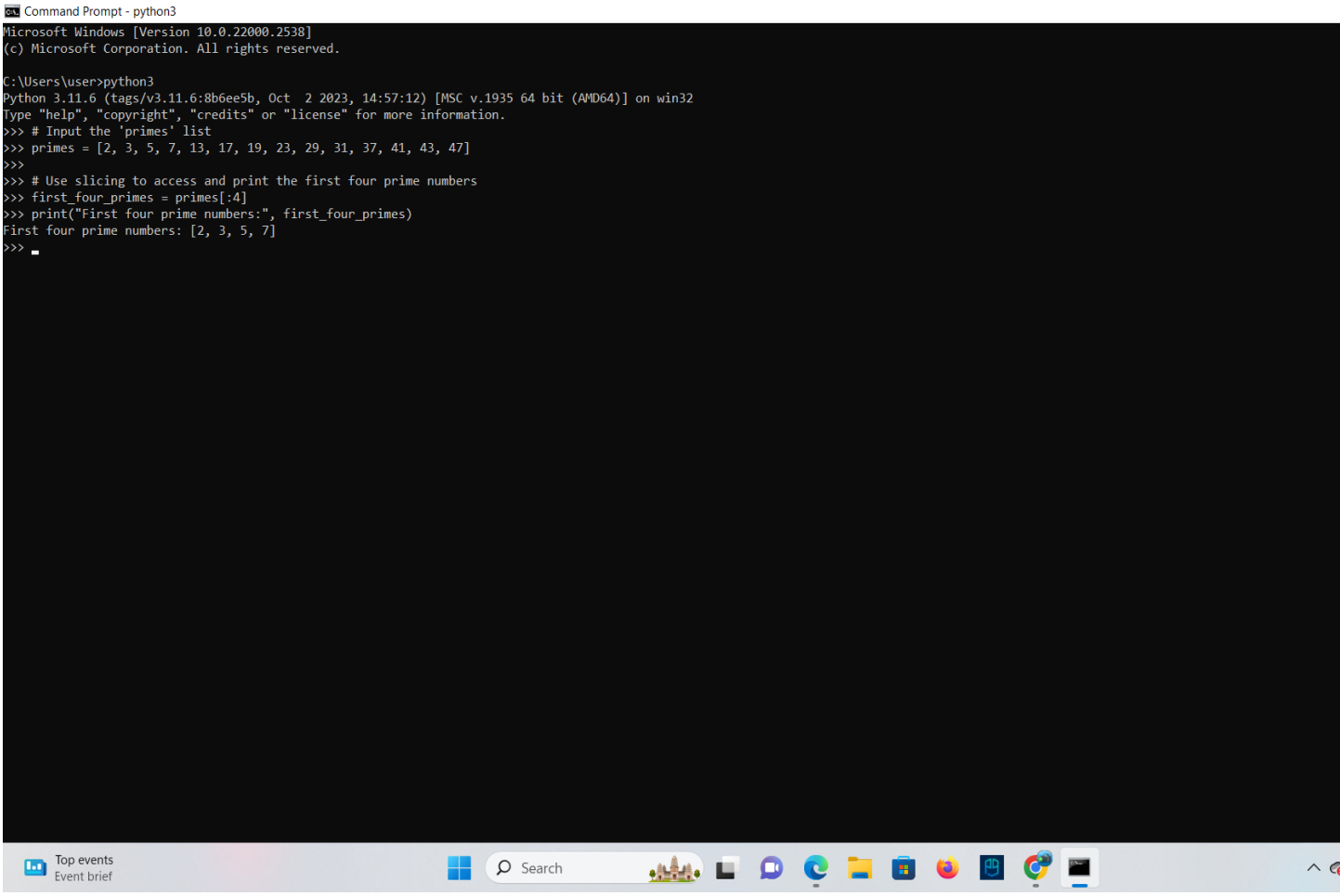
```
Surname=” Rishav”
for char in surname[:-1]:
    print(char,end=’’)
```

Introducing Lists

primes = [2, 3, 5, 7, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47]

TASK: Write code that uses slicing to access then print the first four prime numbers defined within the ‘primes’ list given above. Note: you will have to input that list first for testing Purposes.

Ans

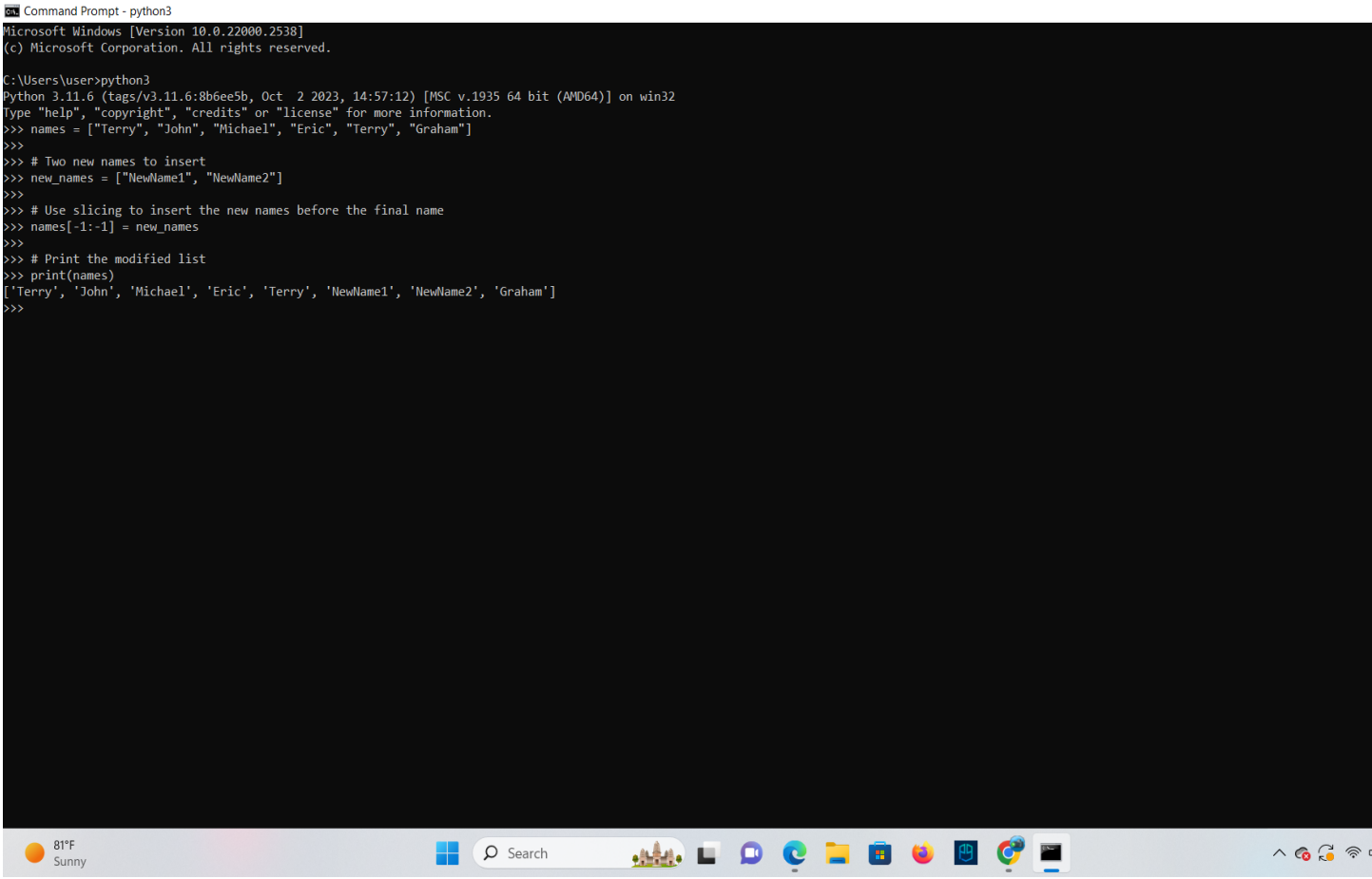


Mutable and Immutable types

names = [“Terry”, “John”, “Michael”, “Eric”, “Terry”, “Graham”]

TASK: Write code that uses slicing to insert two new names just before the final name within the ‘names’ list.

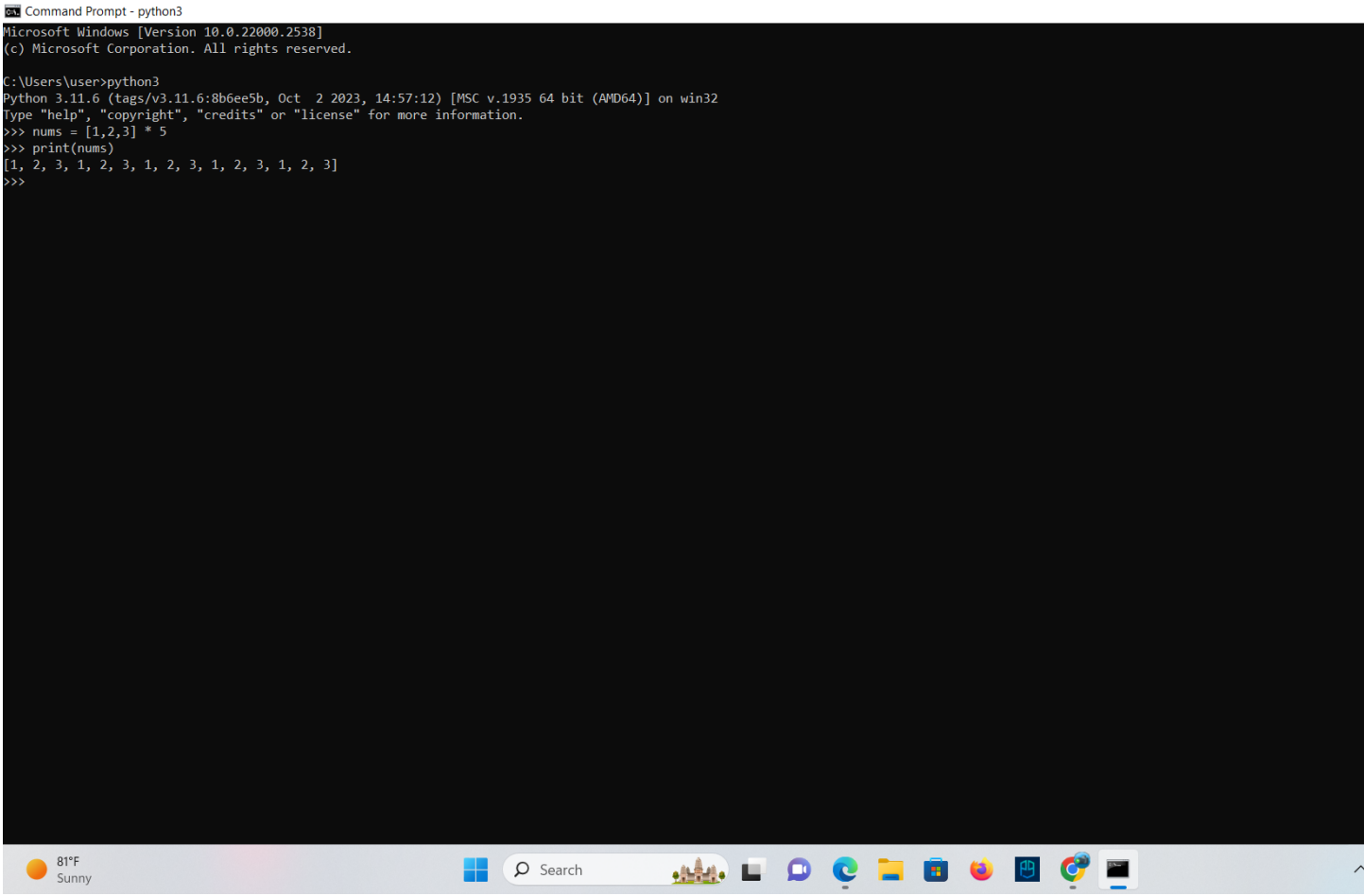
Ans



TASK: Work out in your head what the contents of the ‘nums’ list would be, then check this using the Python interpreter.

nums = [1,2,3] * 5

Ans



Key Terminology

● **Assignment**

Ans The operators which is used to assign value to a variable.

● **Data-type**

Ans It represents the kind of value that tells what operations can be performed on data.

● **Argument**

Ans An argument is a value that is passed to a function when it is called.

● **Indexing**

Ans Indexing is the process of accessing an element in a sequence.

● **Slicing**

Ans It enables users to access the specific range of elements by mentioning their indices.

- **Mutable**

Ans Those who values can be modified once they are created.

- **Immutable**

Ans Those who values cannot be modified once they are created.