Variables and Types
Exercises
Week 2

Which is the purpose of a variable within Python?

Answer: The purpose of a variable within Python is to store data.

Write a simple Python statement that creates and assigns a value of 3.142 to a variable called ‘pi’

Answer: pi=3.142

Which of the following is NOT a valid name for a variable within Python?
total
result
question?
name_1

Answer: question?

Following the execution of the code below, what will be stored in the variable 'age'?
age = 10 + 20
age = age + 5

Answer: 35 will be stored in the variable ‘age’

In the answer box below write the exact output that would be displayed if the following statement was executed (assuming age has been created as in the previous question): print("The age value is",age)

Answer:The age value is 35

Which of the following is an example of an Augmented Assignment in Python?
total = 20
total = total + 5

total *= 100
total = max

Answer: total*=100 is an example of augmented assignment in python

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Which of the following is an example of an integer type variable?
result = "xyz"
result = 20
result = 20
result = False

Answer: result = 20

What are the only two legal values of a boolean type variable?

Answer: True and False

Following the execution of the code below, what will be the data-type of the variable 'average'?
average = total / count

Answer:Float

Following the execution of the code below, what will be the data-type of the variable 'message'?
message = "hello there!"

Answer: String

What determines the current data-type of a variable?

Answer: Data inside the variable

What is the purpose of the built-in type() function?

Answer:The purpose of the built-in type() function is to check the datatype of a variable.

What would be the output following execution of the following code?
type(10.2)

Answer:

Does the Python language support Dynamic Typing, or Static Typing?

Answer: Dynamic Typing

Which of the following is an example of a function call?
answer = 10
print(answer)
total *= 10
10 + 20

Answer: print(answer)

What is the name given to the values that are passed to a function within the parentheses?

Answer:actual argument

What is the purpose of the built-in input() function?

Answer: The function is to get input from user.

What is the data-type of the value returned by the input() function?

Answer:String

Use the Python interpreter to input a small Python program that prints your name and address on the screen. Once this works type the program in the answer box below.

Answer:print(“My name is Jeena Shrestha and i live in Kapan.”)

Within the answer box below write a small Python program, that when run, would print the
following message including the double quotes -
Hello, is your name "Bwian"?

Answer:print(‘Hello, is your name “Bwian”?’)

Now write a second small Python program, that when run, would print the following message
including the single quotes -
Or is your name 'Woger'?

Answer:print(“Or is your name ‘Woger’?”)

Within the answer box below write a small Python program, that when run, uses escape sequences to print the following text exactly.
This is a string containing a backslash (\),
a single quote ('), a double quote (")

and is split across multiple lines

Answer:print(“This is a string containing a backslash (\\), \n\ta single quotes(\’), a double quote (\”)\n\t andn is split across multiple lines’)

Within the answer box below write a small Python program, that when run, uses triple quotes to print the following text exactly.
This is a string containing a backslash (\),
a single quote (’), a double quote (")
and is split across multiple lines

Answer: print(“””This is a string containing a backslash(\),\n\ta single quote(\’), a double quote (‘)\n\t and is split across multiple lines”””)

Use the Python interpreter to input a small Python program that asks the user to input a temperature in fahrenheit. Once the value has been input, display a message that shows the same temperature in celsius. You may have to do some research in order to find out the conversion method. Once this works, type the program in the answer box below.

Answer:fahrenheit=int(“Enter the temperature in fahrenheit:”))
celsius=(fahrenheit - 32)|* 5/9
print(f”The temperature in celsius is {celcius}”)

Within the answer box below write a small Python program that asks the user to enter two values. Store these in variables called 'a' and 'b' respectively.

Answer: a=float(input(“enter the value for a:”))
b=float(input(“enter the value for b:”))

Once the values have been input use three calls to the print() function to show output such as the following (in this example the user entered 10.2 and 18.3) -
The value 'a' was 10.2 and the value 'b' was 18.3
The sum of 'a' and 'b' is 28.5
The product of 'a' and 'b' is 186.66

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Answer: print(f"The value 'a' was {a} and the value 'b' was {b}")
print(f"The sum of 'a' and 'b' is {a+b}")
print(f"the product of 'a' and 'b' is {a*b}")
```

Python includes a built-in function called max(). When this is called with multiple argument values it returns the largest of the given arguments. e.g.
max(20, 50, 30) # this would return 50
Within the answer box below write a small program that asks the user to input three values.
Store these in variables (the names are up to you) then use the max() function to display the largest of the input values.

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Answer: -a=int(input("Enter a number:"))
 b=int(input("Enter a number:"))
c=int(inout("Enter a number:"))

print(f"the largest number is {max(a,b,c)")
```

Using the Python interpreter execute your code, then examine the output generated when the input the values are 'hello', 'welcome', and 'bye'
Does the program still show the maximum value? If not, what does it show?

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Answer: Yes, the output is welcome.
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Given the following definition:
name = "Black Knight"
What would each of the following Python statements display?
print(name[0])

Answer: B

print(name[4])

Answer: K

print(name[-1])

Answer:t

print(name[-2])

Answer: h

print(name[2:5])

Answer:ack

print(name[6:])

Answer: night

print(name[:5])

Answer: Black

print(name[:])

Answer: Black Knight

Which of the following creates a variable containing a List?

names = "Terry"
names = 10
names = ["Mark", "Jon", "Amanda", "Edward", "Sally"]
names = "Mark", "Jon", "Amanda"

Answer: names = ["Mark", "Jon", "Amanda", "Edward", "Sally"]

Is the following a valid List, even though it contains values based on different data-types? values = [10.2, "Jon", False, "Edward", True]

Answer: yes

If a value is mutable, can it be modified after it has been created?

Answer: yes

What term is used to describe a value that cannot be changed once it has been created?

Answer: Immutable

Is a List mutable or immutable?

Answer: Mutable

Is a String mutable or immutable?

Answer: Immutable

Given the following definition -
names = ["Terry", "John", "Michael", "Eric", "Terry", "Graham"]
What would each of the following Python statements display?

print(names[2])

Answer: John

print(names[-2])

Answer: Terry

print(names[0:3])

Answer:[‘Terry’, ‘John’, ‘Michael’]

names = names + "Brian"
print(names)

Answer:TypeError: can only concatenate list (not “str”) to list

names[0:1] = ["Mark", "Jon"]
print(names)

Answer: [‘Mark’, ‘Jon’, ‘John’, Michael’, ‘Eric’, ‘Terry’, ‘Graham’]

What built-in function within Python can be used to find out how many elements are contained within a string or list?

Answer: len