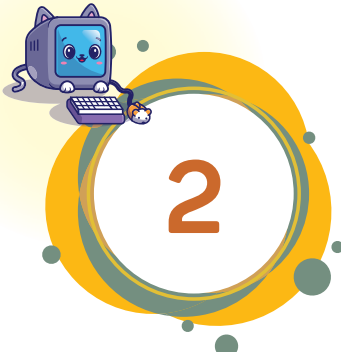




MORE ON PYTHON



Learning Outcomes

At the end of this chapter, students will be able to:

- ◆ Recognise Python keywords.
- ◆ Comprehend the fundamental rules of a language.
- ◆ Understand Syntax.
- ◆ Identify different operators of Python.



What will be the output if the given statements are typed in interactive Python mode?

1. `>>>'Python is Fun'`

2. `>>>30 + 30`

3. `>>>'Shubham\Shubhi'`

4. `>>> 100% 30`



Teacher's Note:

Assist students in doing the above exercise and give some more statements to them.



Hello Friends! We covered the fundamentals of the Python programming language in the previous class. More information about the rules that govern the Python programming language will be covered in this chapter.

There are several laws that apply to every human language. These principles are language-specific i.e., we adhere to the linguistic rules of the language in which we are communicating. Similar to this, if you want to instruct a machine using a programming language, you must adhere to the syntax, or set of rules of that language.



Python is one of the 9 languages that influenced the design of JavaScript.



SYNTAX

The collection of guidelines that must be followed while writing programming statements is known as the syntax. The interpreter will highlight a statement mistake if the proper syntax is not used.

For example, your science teacher finds out that the labelling of the diagram done by you is not correct, then she will mark the labelling as incorrect.



Do You Know?

Many big names use Python for their products/services. Some of these are NASA, Google, IBM, Nokia, etc.

A syntax error might cause the programme to stop working by using improper punctuation, the wrong keywords, or undefined phrases.

```
figure2.1.py - D:/Users/Admin/Desktop/coding/figure2.1.py (3.10.7)
File Edit Format Run Options Window Help
Prin("I am Learning Python")
Ln: 2 Col: 0

IDLE Shell 3.10.7
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/Users/Admin/Desktop/coding/figure2.1.py =====
Traceback (most recent call last):
  File "D:/Users/Admin/Desktop/coding/figure2.1.py", line 1, in <module>
    Prin("I am Learning Python")
    ^
NameError: name 'Prin' is not defined. Did you mean: 'print'?
>>>
Ln: 9 Col: 0
```

Figure 2.1: Syntax Error

Look at the program's output and the interpreter's error in the example given on the previous page. The error is highlighted in red.



VARIABLES

Variables are placed in a computer's memory where values can be stored. These values are retrieved from memory during processing, where they are subsequently processed to produce output. Each variable has a set of values and distinctive names that make it easier to find and identify the values that have been stored in memory.

Marks=80 : Marks is a variable that stores the value 80.

PinNo=110032 : PinNo is a variable that stores the value 110032.



VARIABLE NAMING CONVENTIONS

The guidelines that need to be followed while defining variables are known as variable name conventions.

- ❖ An underscore (_) or an alphabet can begin a variable name.
- ❖ White spaces are used to create variable names.
- ❖ The names of variables can be made up of letters, numbers and underscores.
- ❖ A variable name needs to make sense.



Let Me Answer

Create two variable names by following its name conventions.

Let's create some programs using variables.

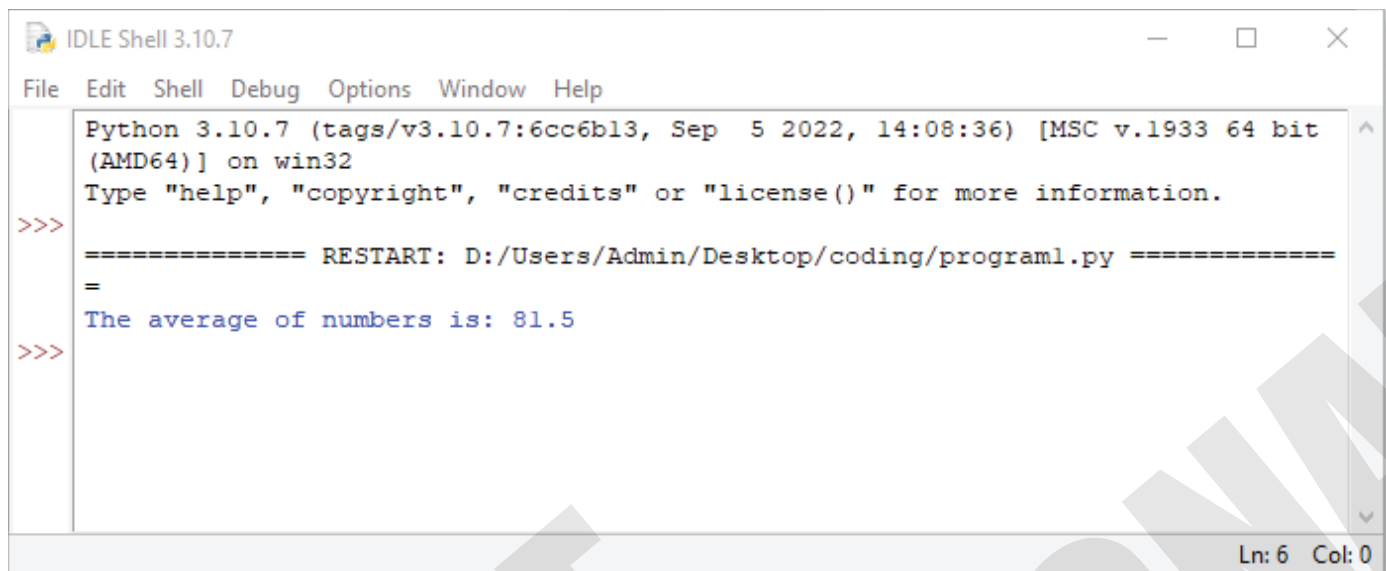
Program 1: To print the average of two numbers, write a programme. To store the values, use the following variables:

number1, number 2, average , total

```
program1.py - D:/Users/Admin/Desktop/coding/program1.py (3.10.7)
File Edit Format Run Options Window Help
number1=98
number2=65
total = number1+number2
average =total/2
print("The average of numbers is:",average)
```

Ln: 5 Col: 43

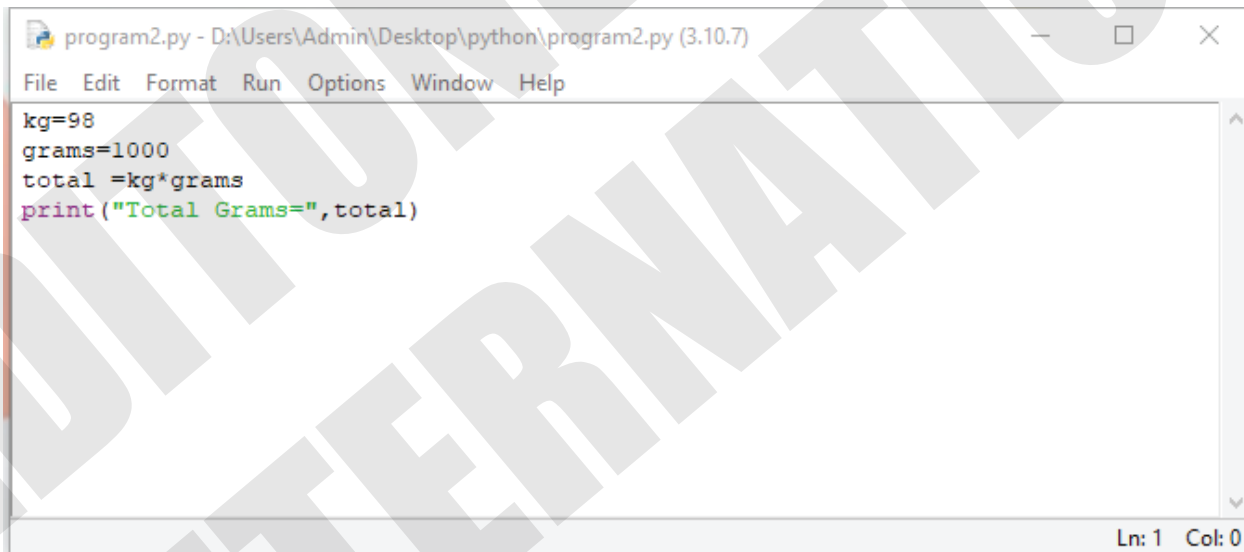
Figure 2.2: Program1



```
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/Users/Admin/Desktop/coding/program1.py =====
=
The average of numbers is: 81.5
>>>
```

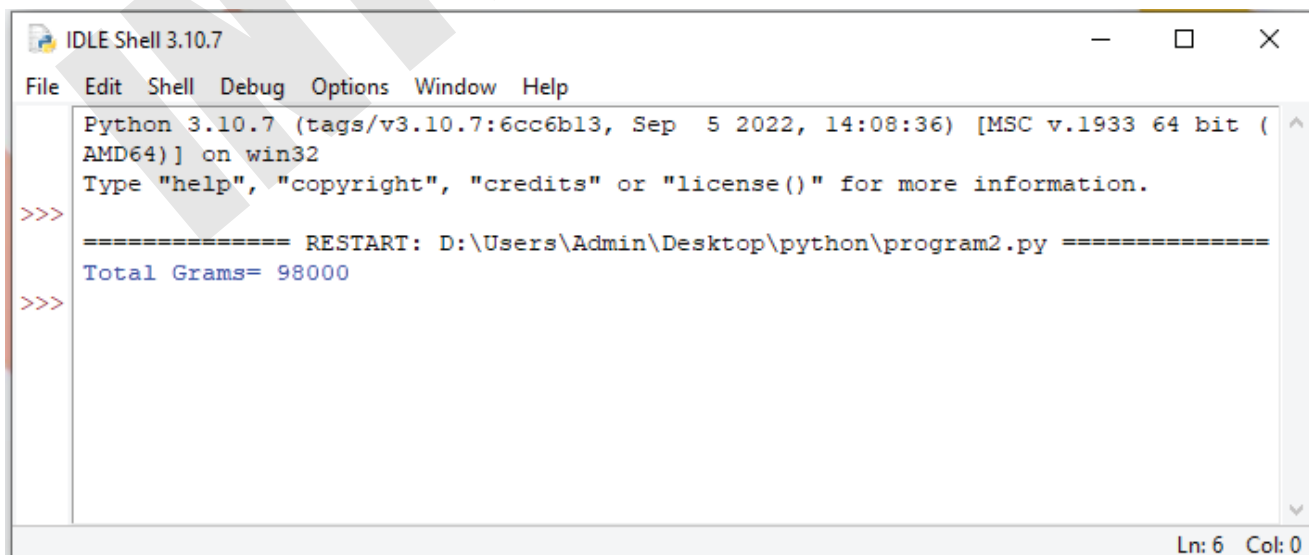
Output

Program 2: Using variables create a program to convert Kilograms into Grams.



```
kg=98
grams=1000
total =kg*grams
print("Total Grams=",total)
```

Figure 2.3: Program 2

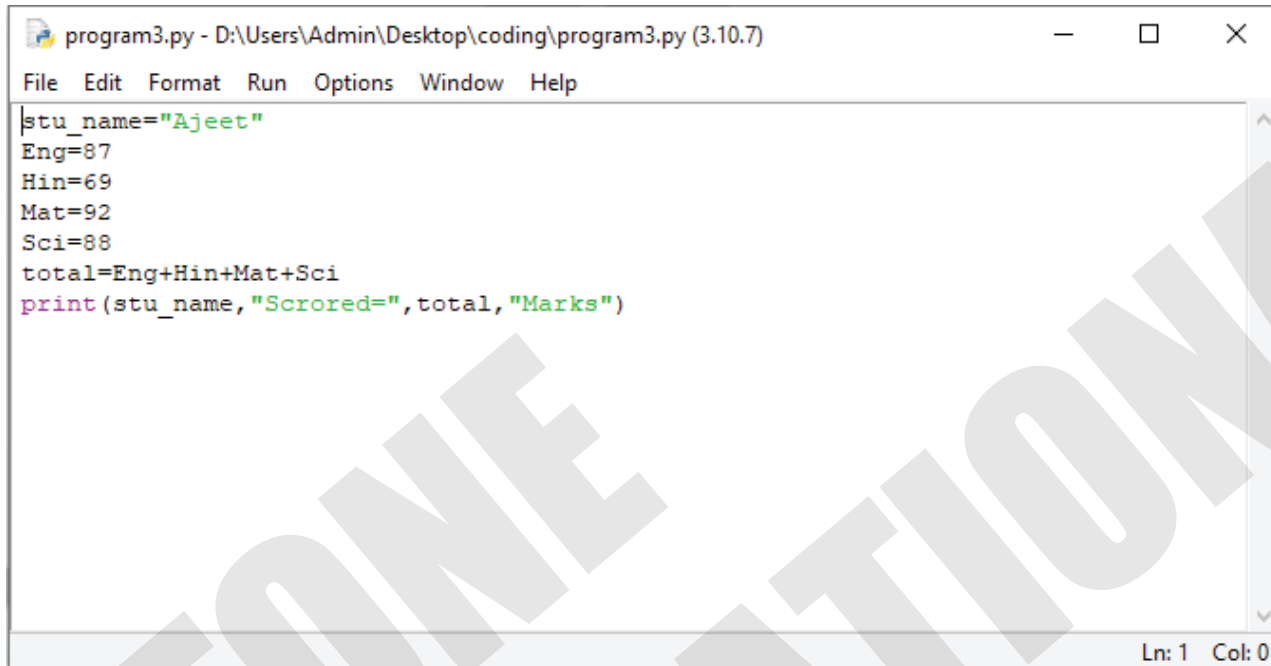


```
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:\Users\Admin\Desktop\python\program2.py =====
Total Grams= 98000
>>>
```

Output

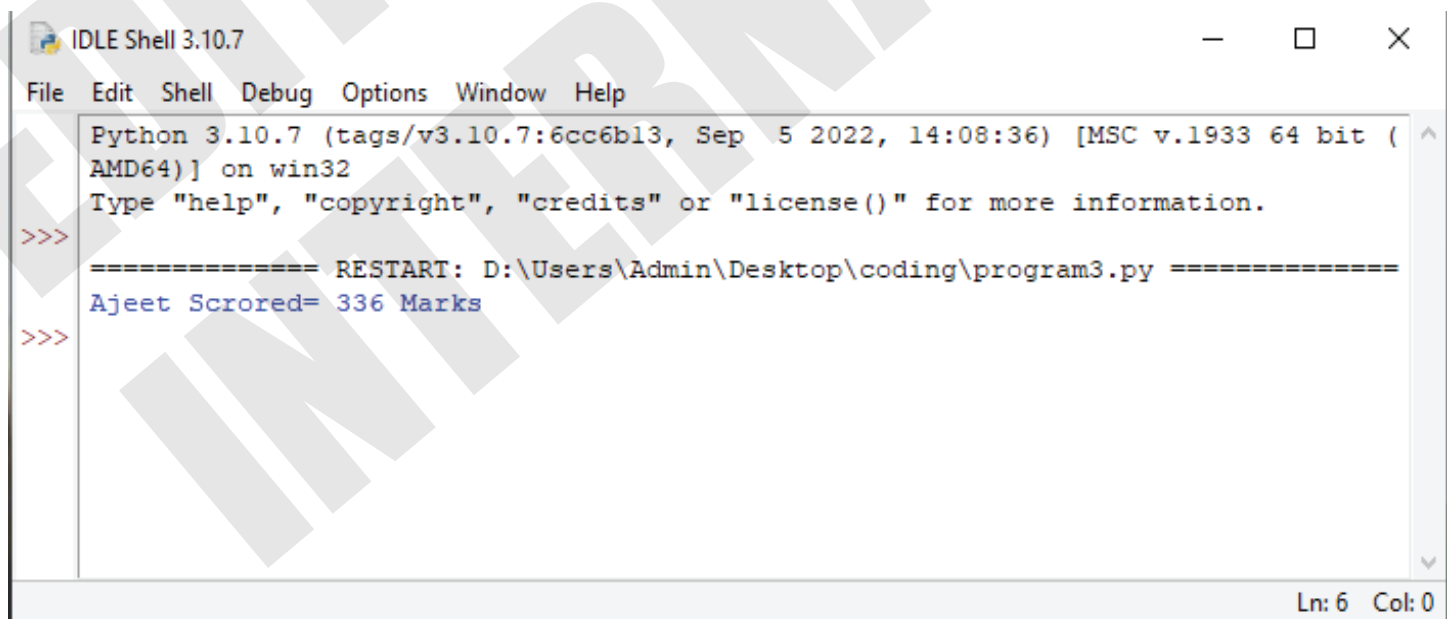
Program 3: Create a program to print the marks scored by Ajeet in the following subjects.

1. English
2. Hindi
3. Math
4. Science



```
program3.py - D:\Users\Admin\Desktop\coding\program3.py (3.10.7)
File Edit Format Run Options Window Help
stu_name="Ajeet"
Eng=87
Hin=69
Mat=92
Sci=88
total=Eng+Hin+Mat+Sci
print(stu_name,"Scored=",total,"Marks")
Ln: 1 Col: 0
```

Figure 2.4: Program 3



```
IDLE Shell 3.10.7
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:\Users\Admin\Desktop\coding\program3.py =====
Ajeet Scored= 336 Marks
>>>
Ln: 6 Col: 0
```

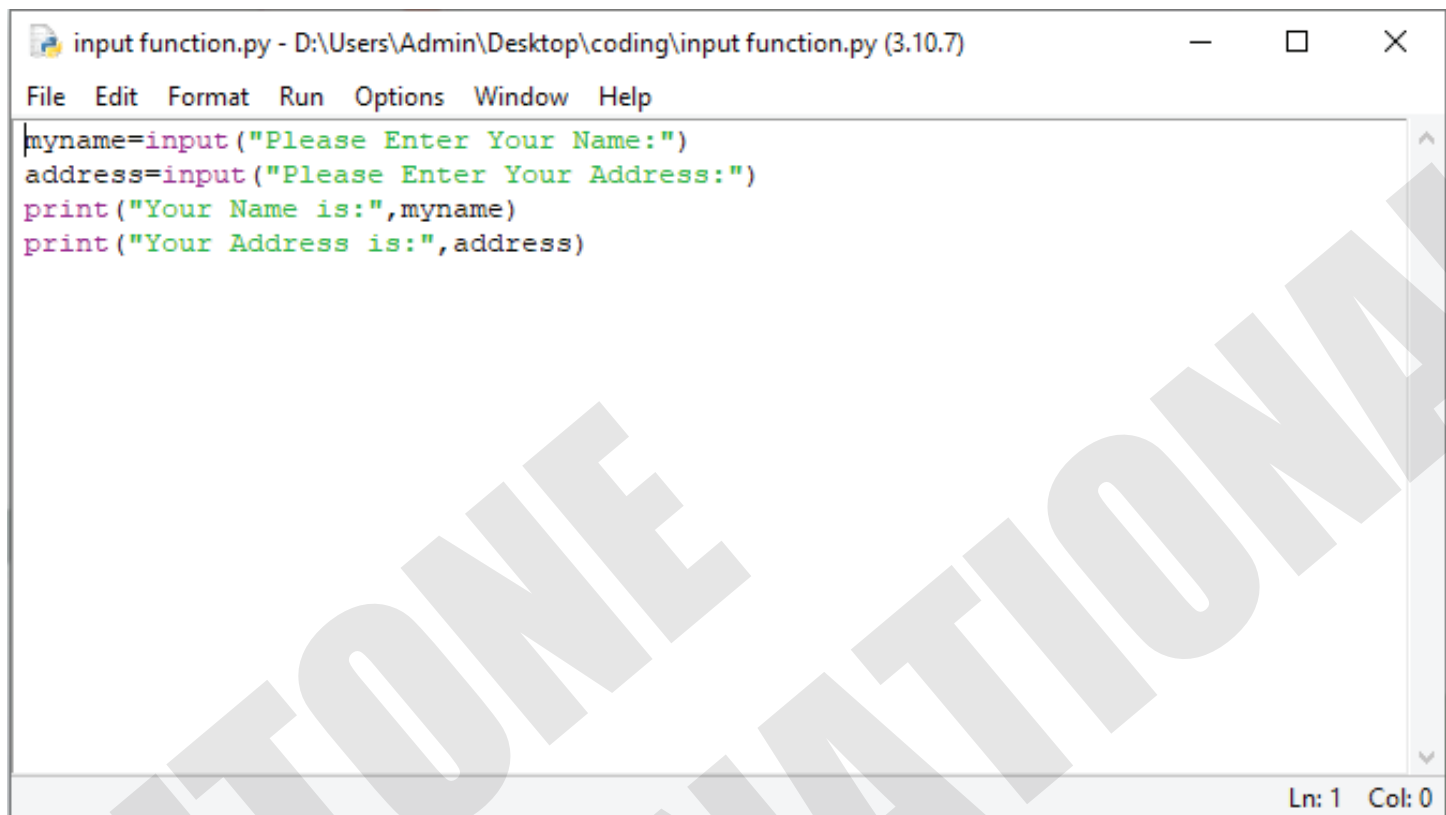
Output



INPUT FUNCTION

The input function in Python is used to receive user input. The input function is used to collect values from users and save them in a variable.

Let us now create a program, to print your name and school's name using input and print function.



```
input function.py - D:\Users\Admin\Desktop\coding\input function.py (3.10.7)
File Edit Format Run Options Window Help
myname=input("Please Enter Your Name:")
address=input("Please Enter Your Address:")
print("Your Name is:",myname)
print("Your Address is:",address)
Ln: 1 Col: 0
```

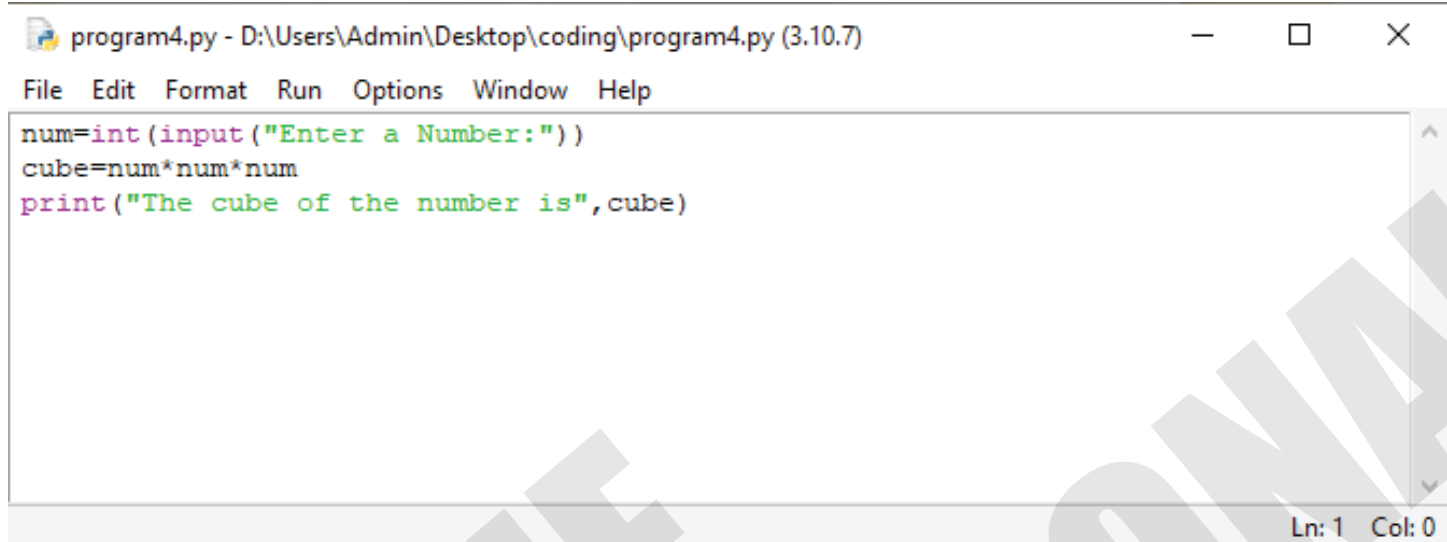
Figure 2.5: Input Function



```
IDLE Shell 3.10.7
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:\Users\Admin\Desktop\coding\input function.py =====
Please Enter Your Name:Ajeet
Please Enter Your Address:New Delhi
Your Name is: Ajeet
Your Address is: New Delhi
>>>
Ln: 9 Col: 0
```

Output

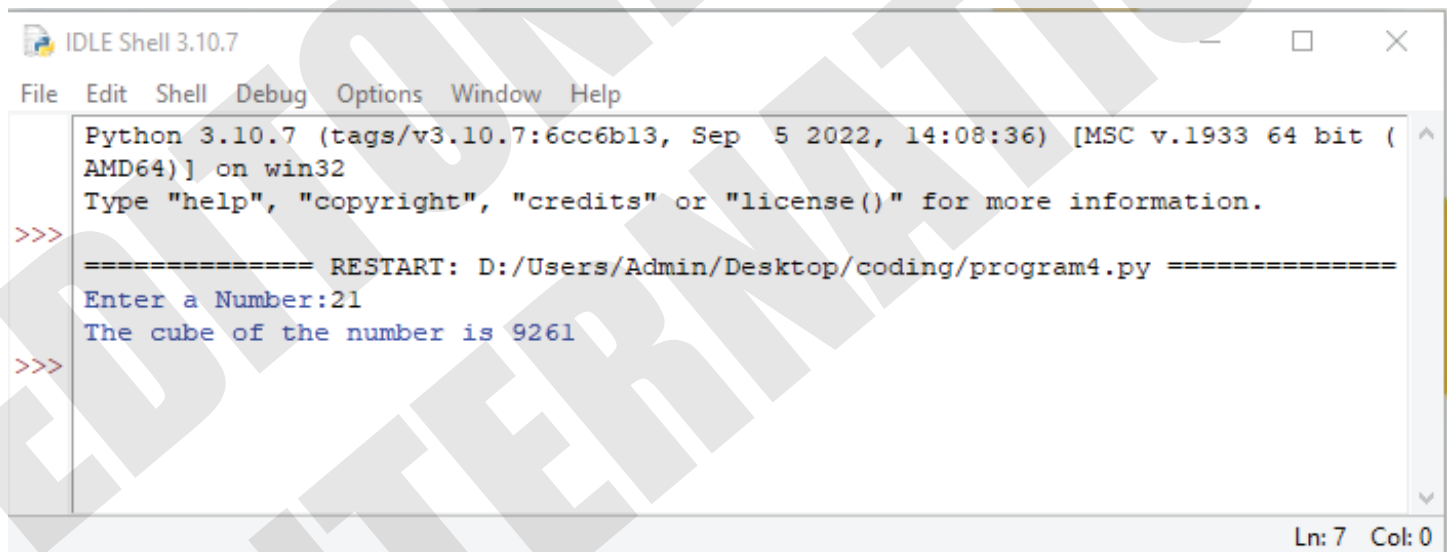
Program 4: Let us create a program, to print the cube of a number entered by the user.



```
program4.py - D:\Users\Admin\Desktop\coding\program4.py (3.10.7)
File Edit Format Run Options Window Help
num=int(input("Enter a Number:"))
cube=num*num*num
print("The cube of the number is",cube)
```

Ln: 1 Col: 0

Figure 2.6: Program 4



```
IDLE Shell 3.10.7
File Edit Shell Debug Options Window Help
Python 3.10.7 (tags/v3.10.7:6cc6b13, Sep 5 2022, 14:08:36) [MSC v.1933 64 bit (AMD64)] on win32
Type "help", "copyright", "credits" or "license()" for more information.
>>>
===== RESTART: D:/Users/Admin/Desktop/coding/program4.py =====
Enter a Number:21
The cube of the number is 9261
>>>
```

Ln: 7 Col: 0

Output



KEYWORDS

When speaking in English, you employ a variety of words, and each word has a distinct meaning that is interpreted by the listener. The Python interpreter understands a set of reserved words with specific meanings as keywords. In order to develop your own programming language, you must define keywords and give them a specific function.



Let Me Answer

Tell the input to print a cube of a number.



Let's know about some keywords of Python language.



LIST OF KEYWORDS IN PYTHON

Keywords in Python				
false	class	finally	is	return
none	continue	for	lambda	try
true	def	from	nonlocal	while
and	del	global	not	with
as	elif	if	or	yield
assert	else	import	pass	
break	except	in	raise	



IDENTIFIERS

Different programme elements are referred to as identifiers. We can state that identifiers are the names assigned to variables, methods, objects, etc.

Identifiers

- ❖ A letter must come first in an identifier name.
- ❖ In Python, identifier names are case-sensitive.
- ❖ In Python, an identifier can be of any length.
- ❖ Python keywords are not permitted to be used as identifier names.



EXPRESSION AND OPERATORS

An expression can be a statement that consists of variables and operators.

Expressions are represented on a value. For example any string is also an expression since it represents the value of the string as well.

Operators are special symbols in Python that carry out arithmetic or logical computation.

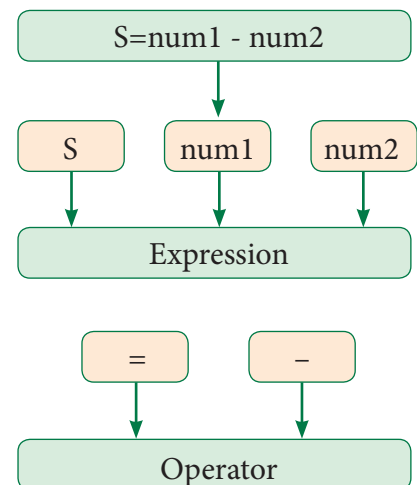


Figure 2.7: Expression and Operator



OPERATORS IN PYTHON

Operators are used to carry out various operations on variables and produce meaningful outcomes.

Python Operators

Operator	Function	Symbol	Example
Arithmetic	Used for performing mathematical operations.	(+) Addition (-) Subtraction (/) Division (*) Multiplication	Num1+Num2 Num1-Num2 Num1/Num2 Num1*Num2
Relational	Used to check relation between two or more variables.	(<) less than (>) greater than	Num1<Num2 Num1>Num2
		(==) equals (<=) less than equal	Num1==Num2 Num1<=Num2
		(>=) greater than equal to (!=) not equal to	Num1>=Num2 Num1!=Num2
Logical	Used to evaluate multiple conditions.	and or	Num1=36 Num2=45
		not	Num1>Num2 and Num2<Num1
			Num1>Num2 or Num2<Num1



Kids' IQ

Put a (✓) for correct and (✗) for incorrect identifier names:

Identifiers	
myClass	
1 variable	
print	
Item price	



Let's Recall

- To instruct a machine using a programming language, you must adhere to the syntax of that language.
- The interpreter will highlight a statement mistake if the proper syntax is not used.
- A syntax error might cause the programme to stop working.
- Variables are places in a computer's memory where values can be stored.
- An expression can be a statement that consists of variables and operators.
- Operators are used to carry out various operations on variables and produce meaningful outcomes.



Upskill Your Intelligence



A. Fill in the blanks.

1. To instruct a machine using a program language, you must adhere to the of that language.
2. is the collection of guidelines that must be followed while writing programming statements.
3. The error is always highlighted in colour.

4. An or an can begin a variable name.
5. The function in Python is used to receive user input.

B. Write 'T' for True statements and 'F' for False statements.

1. Keywords must be defined in order to develop your own programming language. ☐
2. Different programme elements are referred to as variables. ☐
3. An expression can be a statement that consists of variables and operators. ☐
4. Black spaces are used to create variable names. ☐
5. Each variable has a set of rules. ☐

C. Answer the following questions.

1. What is syntax?

.....

.....

2. What do you mean by variables?

.....

.....

3. Write the guidelines to be followed when naming variables.

.....

.....

4. What is an input function?

.....

.....

5. Write some keywords in Python.

.....

.....



Critical Thinking

Rearrange the letters to create keywords in Python.

1. LLAOONNE -
2. TWHI-
3. SSARET-
4. TEURRN-
5. LLOAGB-



Team Work

The C programming language is another one that is particularly well-liked. Python language keywords are listed in the table below.

If the C language has an equivalent keyword, find it and enter it in the area provided below.

Python	C Language
for	
else	
true	
as	
break	