

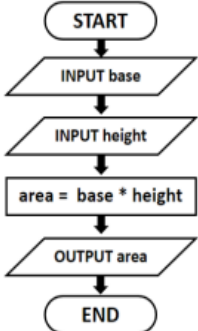
8.4 Intro to Python

This unit introduces learners to text-based programming with Python. The lessons form a journey that starts with simple programs involving input and output, and gradually moves on through arithmetic operations, randomness, selection, and iteration. Emphasis is placed on tackling common misconceptions and elucidating the mechanics of program execution.

Algorithm	A sequence of steps used by a human or computer to solve a problem or complete a task
Program	An algorithm expressed in a programming language
Input	Any method of getting data into the computer
Output	Any method of getting data out of the computer
Variable	A storage location with a name. The data in a variable can be changed after being initially set
Assignment	A statement in a programming language used to set or reset the data stored in a storage location identified by a variable name
Syntax error	An error that has occurred because the programmer has not followed the rules of the programming language they're using
Logical error	When a program does not behave in the way that it should, even though the programmer has followed the rules of the language
Arithmetic expression	A mathematical operation, for example, 10+5
Sequence	One of the three basic programming constructs. Instructions that are carried one after the other in order.
Selection	One of the three basic programming constructs. Instructions that can evaluate a Boolean expression and branch off to one or more alternative paths.
Iteration	One of the three basic programming constructs. A selection of code that can be repeated either a set number of times (count-controlled) or a variable number of times based on the evaluation of a Boolean expression (condition-controlled).

integer <i>A whole number</i> <hr/> File Edit Format <pre>print(3 + 2)</pre> 5 >>>	float <i>A decimal number</i> <hr/> File Edit Format RL <pre>print(3.95 * 2.34)</pre> 9.243 >>>	string <i>A character or text</i> <hr/> File Edit Format Run <pre>print("hello world")</pre> hello world >>>	Boolean <i>A True or False value</i> <hr/> File Edit Formu <pre>print(True) print(False)</pre> True False >>>
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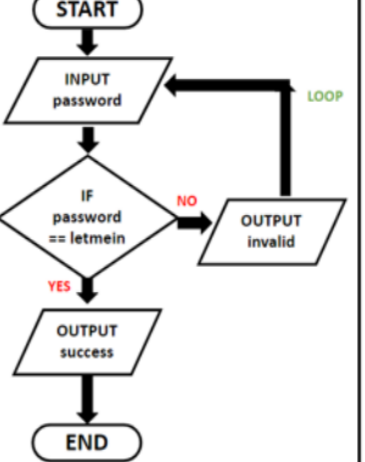
SEQUENCE



```
1 base = int(input("Enter the base: "))
2 height = int(input("Enter the height: "))
3 area = base * height
4 print(area)
```

Enter the base: 10
Enter the height: 5
50

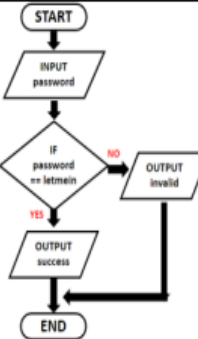
LOOP (Iteration)



```
1 password = input("Enter the password: ")
2 while password != "letmein":
3     print("Invalid")
4     password = input("Enter the password: ")
5 print("Success")
```

Enter the password: abc123
Invalid

SELECTION



```
1 password = input("Enter the password: ")
2 if password == "letmein":
3     print("Success")
4 else:
5     print("Invalid")
```

Enter the password: letmein
Success
Enter the password: abc123
Invalid

Operator	Meaning	Example
+	Addition	4 + 7 → 11
-	Subtraction	12 - 5 → 7
*	Multiplication	6 * 6 → 36
/	Division	30 / 5 → 6
%	Modulus	10 % 4 → 2
//	Quotient	18 // 5 → 3
**	Exponent	3 ** 5 → 243

The Input Script

The input() script is set up like this:

```
'name' represents a memory location, which will store in the user input
```

```
name = input("What is your name?")
```

variable input statement