Python for Novices Cheat Sheet

by Tính Vy (tinhvy) via cheatography.com/132374/cs/37194/

TOPIC 01: INTRODUCTION

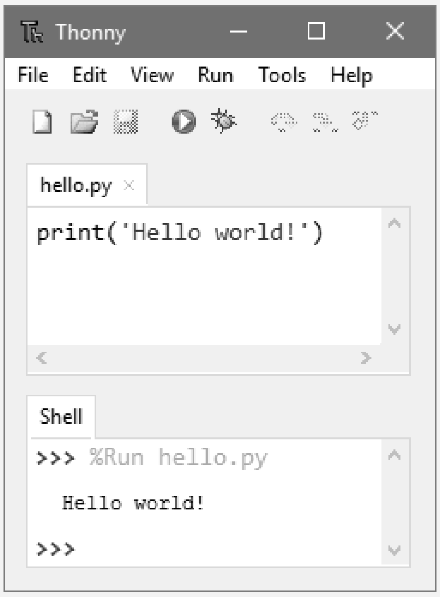
1.1. Install Thonny Python IDE

Link to download Thonny Python IDE for beginners

> https://thonny.org/

Thonny is a popular Python Integrated Development Environment (IDE) that is designed for beginners and students learning to program in Python.

1.2. Run Thonny Python IDE



```
print('Hello world!')
```

```
>>> %Run hello.py
  Hello world!
>>>
```

Thonny comes with Python 3.10 built in, so just one simple installer is needed and you're ready to learn programming. (You can also use a separate Python installation, if necessary.) The initial user interface is stripped of all features that may distract beginners.

1.3. Python Programming Keywords

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		

In Python, All keywords are case sensitive. All the keywords except True, False and None are in lowercase and they must be written as it is.

1.4. Create a program to test Keywords

```
>>> import keyword
>>> keywor d.i ske ywo rd( " tut sma ke.c om ")
False
>>> keywor d.i ske ywo rd( " try ")
True
>>>
```

1.5. Python Programming identifiers

Identifier rules of Python

Rule 1:

> Use either a lowercase (A to Z) or an uppercase (A to Z) sequence of letters. However, you can also add digits (0 to 9) or an underscore (_) while writing identity in python.

> For example:- Names like myClass, my_1, and upload_image-_to_db are all valid identifiers.

Rule 2:

> You cannot write digit with the start of an identifier. This will assume invalid. But you can write digit with the end of the identifier.

> For Example:- If you write identifier like 1variable, it is invalid, but variable1 is perfectly fine.

Rule 3:

> Python Programming Reserved Keywords cannot be used as identifiers. Like del, global, not, with, as, if, etc.

1.5. Python Programming identifiers (cont)

Rule 4:

> Also, you can not use special character as an identifier in python programming like '.', '!', '@', '#', '$', '%' , etc.

Rule 5:

> The identifier can be of any length.

In the Python programming language, identifiers are user-defined names. Which represents functions, classes, variables, and any other objects in the code. It helps to distinguish one identity from another.

1.6. Create a program to test identifier

```
>>> 'jonh'.isidentifier()
True
>>> '1hell o'.i si den tif ier()
False
>>> 'tutsm ake.co m'.i si den tif ier()
False
>>> 'tutsm ake _co m'.i si den tif ier()
True
```

1.7. Python Statement

Simple Assignment Statement

Syntax:

```
variable = expression
```

Example:

```
lang = " Learn Python "
```

Multi-line statement

Use a new line character to break the statement line

```
x = 5 + 4 + 2 + \
     1 + 6 + 4 + \
     9 + 7 + 8
```

Use parentheses ( ), brackets [ ] and braces { }.

```
x = (5 + 4 + 2 +
     1 + 6 + 4 +
     9 + 7 + 8)
```

```
colors = ['red',
          'blue',
          'green']
```

Multiple line statements in signle line.

1.7. Python Statement (cont)

Use semicolons

```
a = 1; b = 2; c = 3
```

In python programming, A statement is a logical instruction. Which can read and execute by Python interpreter. In Python, it could be an expression or an assignment statement.

1.8. Python Indentation

Python uses indentation

A code block starts with indentation and ends with the first unindented line. And a code block that represents the body of a function, loop, etc. For example:

```
for i in range(1,9):
     print(i)
     if i == 5:
         break
```

Python Comments

Single line comment

```
#This is hello world by tutsmake.com
 print( 'Hello world')
```

Multi line comment

```
#This is hello world program
 #by tutsmake.com{{nl #hello{{nl print( 'Hello world
'
```

```
" " "This is also a
     multi line
     comments"""
 print( 'Hello world')
```

1.9. Docstring in Python

Docstring in Python

```
def myFunc(no):
     " " " Fun ction to 10x the value"""
     return 10*no
```

access the code above

```
>>> print( myF unc.__ doc__)
```

1.10. Python Variable and Type

Rules for creating a variable in python

Rule 1:

> A variable name must begin with a letter or the underscore character

Rule 2:

> A variable name cannot begin with a number

Rule 3:

> The python variable name can only contain alpha-numeric characters and underscores (A-z, 0-9, and _)

Rule 4:

> A Variable names are case-sensitive Like name, Name and NAME are three different variables

Python declare/create variable

Here first we will create/declare a variable. And also assign value to it.

```
x = 10
print("My fav no is " + x)
```

Change variable value in python

We will create a variable and change the value of this variable at runtime.

```
x = 10
print("My fav no is " + x)
x = 15
print("My fav no is " + x)
```

Assigning a single value to multiple variables

Python allows to assign a single value to several variables simultaneously.

```
x = y = z = 10
print(x)
print(y)
print(z)
```

Assigning a different values to multiple variables

```
x, y, z = 5, " str ing ", 99
print(x)
print(y)
print(z)
```

Types of variables

Local Variable

> Which variables are made inside the function. They are called local variables. Local variables can be used only inside the function. For example:

1.10. Python Variable and Type (cont)

```
def valfun():
  x = "great"
  print( " Python is " + x)
valfun()
```

Global Variable

> Which variables are made outside the function. They are called global variables. Global variables can be used both inside and outside the function. For example:

```
x = "great"
def valfun():
  print( " Python is " + x)
valfun()
```

1.11. Data Types in Python

Numbers Data Type

Integer, floating-point numbers, and complex numbers under the catego
numbers. Those you define as int, float and complex classes. For exam

```
a = 10
print(a, "is of type", type(a))

a = 50.0
print(a, "is of type", type(a))

a = 11+2j
print(a, "is complex number ?", isinst anc e(1 1+2
lex))
```

Output of the above program is following:

```
10 is of type <class 'int'>
50.0 is of type <class 'float'>
(11+2j) is complex number? True
```

List Data Type

list data types hold different types of data. it does not need to be of the
The items stored in the list are separated with a comma (,) and enclose
square brackets [].

```
a = [10, 5.5, 'python']
print(a)
a = [5,10, 15, 20, 25, 30, 35,40]
# a[2] = 15
print( "a[2] = ", a[2])
# a[0:3] = [5, 10, 15]
print( " a[0:3] = ", a[0:3])
# a[5:] = [30, 35, 40]
print( " a[5:] = ", a[5:])
```

The output of the above program is following:

```
[10, 5.5, 'python']
a[2] =  15
a[0:3] =  [5, 10, 15]
a[5:] =  [30, 35, 40]
```

Tuple Data Type

1.11. Data Types in Python (cont)

A tuples data type is alike to list data type. But it is only one difference, once tuples created can not be changed/modify.
Tuples contain the collection of the items of different data types alike list data type. The items of the tuple are separated with a comma (,) and enclosed in parentheses ().

```
a = (8,'py thon', 1+2j)
# a[1] = 'program'
print( "a[1] = ", a[1])
# a[0:3] = (5, 'program', (1+3j))
print( " a[0:3] = ", a[0:3])
```

Output of the above code is following:

```
a[1] =  python
a[0:3] =  (8, 'python', (1+2j))
```

Strings Data Type

A string is a sequence of characters in Python. In python, Strings are either enclosed with single quotes, double, and triple quotes.

```
string = 'Hello world!'
# string[1] = 'e'
print( " str ing[1] = ", string[1])
mString = " " " Hello world!
              this is multi
              line string exampl e"""
print( mSt ring)
```

Output of the above program is the following:

```
string[1] =  e
Hello world!
              this is multi
              line string example
```

Set Data Type

Set data types hold unordered collection of unique items. The items stored in the set data types are separated with a comma (,) and enclosed within square brackets { }.

```
abc = {5,2,3 ,1,4}
# printing set variable
print( "abc = ", abc)
# data type of variable a
print( typ e(abc))
```

Output of the above program is following:

```
abc =  {1, 2, 3, 4, 5}
<class 'set'>
```

Dictionary Data Type

1.11. Data Types in Python (cont)

Dictionary data types is held data in key and value pairs. Note:- A dictionary data type does not allow duplicate keys in collection. But the values can be duplicate. For example:

```
 dict = {1:" joh n","l ast nam e":"s mit h", " age
":25}
 # prints the value where key value is 1
 print( dic t[1])
 # prints the value where key value is " las tna me
"
 print( dic t["l ast nam e"])
 # prints the value where key value is " age "
 print( dic t["a ge"])
```

Output of the above program is following:

```
john smith 25
```

TOPIC: FLOW CONTROL

TOPIC: FUNCTIONS

TOPIC: DATATYPES

TOPIC: FILE HANDLING

- File Handling Operation
- Python open and close
- Python Read and Write
- Python File Delete

TOPIC: Python built-in Methods

- Math Functions
- Math Module Functions
- String Methods
- List Methods
- Dictionary Methods
- Set Methods