**Python built-in Modules [31 exercises with solution]**

[*An editor is available at the bottom of the page to write and execute the scripts.*]

Python comes with a library of standard modules. Some modules are built into the interpreter; these provide access to operations that are not part of the core of the language but are nevertheless built in, either for efficiency or to provide access to operating system primitives such as system calls.

Following exercises based on important methods of useful Python built in modules.

**Module - random**

**1.** Write a Python program to generate a random color hex, a random alphabetical string, random value between two integers (inclusive) and a random multiple of 7 between 0 and 70. Use random.randint()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-random-exercise-1.php)

**2.** Write a Python program to select a random element from a list, set, dictionary (value) and a file from a directory. Use random.choice()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-random-exercise-2.php)

**3.** Write a Python program to generate a random alphabetical character, alphabetical string and alphabetical string of a fixed length. Use random.choice()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-random-exercise-3.php)

**4.** Write a Python program to construct a seeded random number generator, also generate a float between 0 and 1, excluding 1. Use random.random()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-random-exercise-4.php)

**5.** Write a Python program to generate a random integer between 0 and 6 - excluding 6, random integer between 5 and 10 - excluding 10, random integer between 0 and 10, with a step of 3 and random date between two dates. Use random.randrange()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)   
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-random-exercise-5.php)

**6.** Write a Python program to shuffle the elements of a given list. Use random.shuffle()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-random-exercise-6.php)

**7.** Write a Python program to generate a float between 0 and 1, inclusive and generate a random float within a specific range. Use random.uniform()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-random-exercise-7.php)

**8.** Write a Python program to create a list of random integers and randomly select multiple items from the said list. Use random.sample()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-random-exercise-8.php)

**9.** Write a Python program to set a random seed and get a random number between 0 and 1. Use random.random. [Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-random-exercise-9.php)

**Module - types**

**1.** Write a Python program to check if a function is a user-defined function or not. Use types.FunctionType, types.LambdaType()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-type-exercise-1.php)

**2.** Write a Python program to check if a given value is a method of a user-defined class. Use types.MethodType()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-type-exercise-2.php)

**3.** Write a Python program to check if a given function is a generator or not. Use types.GeneratorType()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-type-exercise-3.php)

**4.** Write a Python program to check if a given value is compiled code or not. Also check if a given value is a module or not. Use types.CodeType, types.ModuleType()  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-type-exercise-4.php)

**Module - decimal**

**1.** Write a Python program to construct a Decimal from a float and a Decimal from a string. Also represent the Decimal value as a tuple. Use decimal.Decimal  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-decimal-exercise-1.php)

**2.** Write a Python program to configure the rounding to round up and round down a given decimal value. Use decimal.Decimal  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-decimal-exercise-2.php)

**3.** Write a Python program to round a Decimal value to the nearest multiple of 0.10, unless already an exact multiple of 0.05. Use decimal.Decimal  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-decimal-exercise-3.php)

**4.** Write a Python program to configure the rounding to round to the floor, ceiling. Use decimal.ROUND\_FLOOR, decimal.ROUND\_CEILING  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-decimal-exercise-4.php)

**5.** Write a Python program to configure the rounding to round to the nearest - with ties going towards 0, with ties going away from 0. Use decimal.ROUND\_HALF\_DOWN, decimal.ROUND\_HALF\_UP  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-decimal-exercise-5.php)

**6.** Write a Python program to configure the rounding to round to the nearest, with ties going to the nearest even integer. Use decimal.ROUND\_HALF\_EVEN  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-decimal-exercise-6.php)

**7.** Write a Python program to display a given decimal value in scientific notation. Use decimal.Decimal  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-decimal-exercise-7.php)

**Module - copy**

**1.** Write a Python program to create a shallow copy of a given list. Use copy.copy  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-copy-exercise-1.php)

**2.** Write a Python program to create a deep copy of a given list. Use copy.copy  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-copy-exercise-2.php)

**3.** Write a Python program to create a shallow copy of a given dictionary. Use copy.copy  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-copy-exercise-3.php)

**4.** Write a Python program to create a deep copy of a given dictionary. Use copy.copy  
[Go to the editor](https://www.w3resource.com/python-exercises/modules/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/modules/python-module-copy-exercise-4.php)

**Python OS Services [18 exercises with solution]**

[*An editor is available at the bottom of the page to write and execute the scripts.*]

**1.** Write a Python program to get the name of the operating system (Platform independent), information of current operating system, current working directory, print files and directories in the current directory and raises error in the case of invalid or inaccessible file names and paths. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-1.php)

**2.** Write a Python program to list only directories, files and all directories, files in a specified path. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-2.php)

**3.** Write a Python program to scan a specified directory and identify the sub directories and files.  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-3.php)

**4.** Write a Python program to check for access to a specified path. Test the existence, readability, writability and executability of the specified path. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-4.php)

**5.** Write a Python program to get the size, permissions, owner, device, created, last modified and last accessed date time of a specified path. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-5.php)

**6.** Write a Python program to create a symbolic link and read it to decide the original file pointed by the link. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-6.php)

**7.** Write a Python program to create a file and write some text and rename the file name. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-7.php)

**8.** Write a Python program to find the parent's process id, real user ID of the current process and change real user ID. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-8.php)

**9.** Write a Python program to retrieve the current working directory and change the dir (moving up one). [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-9.php)

**10.** Write a python program to access environment variables and value of the environment variable. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-10.php)

**11.** Write a Python program to iterate over a root level path and print all its sub-directories and files, also loop over specified dirs and files. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-11.php)

**12.** Write a Python program to test whether a given path exists or not. If the path exist find the filename and directory portion of the said path. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-12.php)

**13.** Write a Python program to join one or more path components together and split a given path in directory and file. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-13.php)

**14.** Write a Python program to alter the owner and the group id of a specified file. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-14.php)

**15.** Write a Python program to get information about the file pertaining to the file mode. Print the information - ID of device containing file, inode number, protection, number of hard links, user ID of owner, group ID of owner, total size (in bytes), time of last access, time of last modification and time of last status change. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-15.php)

**16.** Write a Python program to write a string to a buffer and retrieve the value written, at the end discard buffer memory. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-16.php)

**17.** Write a Python program to run an operating system command using the os module. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-17.php)

**18.** Write a Python program to start a new process replacing the current process. [Go to the editor](https://www.w3resource.com/python-exercises/os/index.php#EDITOR)  
[Click me to see the sample solution](https://www.w3resource.com/python-exercises/os/python-os-exercise-18.php)