

Create a directory in Python

The `OS` module in Python provides functions for interacting with the operating system. `OS` comes under Python's standard utility modules. This module provides a portable way of using operating system dependent functionality. The `os` and `os.path` modules include many functions to interact with the file system. All functions in `os` module raise `osError` in the case of invalid or inaccessible file names and paths, or other arguments that have the correct type but are not accepted by the operating system.

There are different methods available in the `OS` module for creating a director. These are –

- `os.mkdir()`
- `os.makedirs()`

Using `os.mkdir()`

`os.mkdir()` method in Python is used to create a directory named `path` with the specified numeric mode. This method raise `FileExistsError` if the directory to be created already exists.

Syntax: `os.mkdir(path, mode = 0o777, *, dir_fd = None)`

Parameter:

path: A path-like object representing a file system path. A path-like object is either a string or bytes object representing a path.

mode (optional): A Integer value representing mode of the directory to be created. If this parameter is omitted then default value 0o777 is used.

dir_fd (optional): A file descriptor referring to a directory. The default value of this parameter is None. If the specified path is absolute then dir_fd is ignored.

Note: The '*' in parameter list indicates that all following parameters (Here in our case 'dir_fd') are keyword-only parameters and they can be provided using their name, not as positional parameter.

Return Type: This method does not return any value.

Example #1: Use of `os.mkdir()` method to create directory/file

```
import os

directory = "GeeksforGeeks"

parent_dir = "D:/Pycharm projects/"
```

```
path = os.path.join(parent_dir, directory)

os.mkdir(path)

print("Directory '% s' created" % directory)


directory = "Geeks"


parent_dir = "D:/Pycharm projects"


mode = 0o666


path = os.path.join(parent_dir, directory)


os.mkdir(path, mode)

print("Directory '% s' created" % directory)
```

Output:

```
Directory 'GeeksforGeeks' created
Directory 'Geeks' created
```


Example #2: Errors while using `os.mkdir()` method.

Output:

```
Traceback (most recent call last):
```

```
  File "gfg.py", line 18, in  
    os.mkdir(path)
```


```
FileExistsError: [WinError 183] Cannot create a file  
/already exists: 'D:/Pycharm proje
```



Example #3: Handling error while using `os.mkdir()` method.

Output:

```
[WinError 183] Cannot create a file when that file/  
/already exists: 'D:/Pycharm projects
```



Using `os.makedirs()`

`os.makedirs()` method in Python is used to create a directory recursively. That means while making leaf directory if any intermediate-level directory is missing, `os.makedirs()` method will create them all.

For example, consider the following path:

Suppose we want to create directory 'Nikhil' but Directory 'GeeksForGeeks' and 'Authors' are unavailable in the path. Then `os.makedirs()` method will create all unavailable/missing directories in the specified path. 'GeeksForGeeks' and 'Authors' will be created first then 'Nikhil' directory will be created.

Syntax: *os.makedirs(path, mode = 0o777, exist_ok = False)*

Parameter:

path: *A path-like object representing a file system path. A path-like object is either a string or bytes object representing a path.*

mode (optional): *A Integer value representing mode of the newly created directory. If this parameter is omitted then the default value 0o777 is used.*

exist_ok (optional): *A default value False is used for this parameter. If the target directory already exists an OSError is raised if its value is False otherwise not.*

Return Type: *This method does not return any value.*

Example #1: Use of `os.makedirs()` method to create directory.

Output:

```
Directory 'Nikhil' created  
Directory 'c' created
```

Example #2:

Output:

```
Traceback (most recent call last):  
  File "gfg.py", line 22, in  
    os.makedirs(path)  
  File "C:\Users\Nikhil Aggarwal\AppData\Local\Programs\Python\Python38-32\lib\os.py", line 221, in make  
    mkdir(name, mode)  
FileExistsError: [WinError 183] Cannot create a file  
/ file already exists: 'D:/Pycharm p
```

Example #3: Handling errors while using os.makedirs() method.

Output:

```
Directory 'Nikhil' created successfully
```

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