## 1. Difference between r, r+, w, w+, a and a+

|  |  |  |  |
| --- | --- | --- | --- |
|  | r+ | w+ | a+ |
| Read | **✓** | **✓** | **✓** |
| Write | **✓** | **✓** | **✓** |
| Create |  | **✓** | **✓** |
| Truncate  (Delete) |  | **✓** |  |
| Position at start | **✓** | **✓** |  |
| Position at end |  |  | **✓** |

Definition of open modes r+, w+, a+:

* The r+ throws an error if the file does not exist or opens an existing file without truncating it for reading and writing; the file pointer position at the beginning of the file.
* The w+ creates a new file or truncates an existing file, then opens it for reading and writing; the file pointer position at the beginning of the file.
* The a+ creates a new file or opens an existing file for reading and writing, and the file pointer position at the end of the file.

What is + means in open()?

The + adds either reading or writing to an existing open mode, aka update mode.

* The r means reading file; r+ means reading and writing the file.
* The w means writing file; w+ means reading and writing the file.
* The a means writing file, append mode; a+ means reading and writing file, append mode.

Read and write a file with r+

In r+ mode, we can read and write the file, but the file pointer position is at the beginning of the file; if we write the file directly, it will overwrite the beginning content.

See the below example: