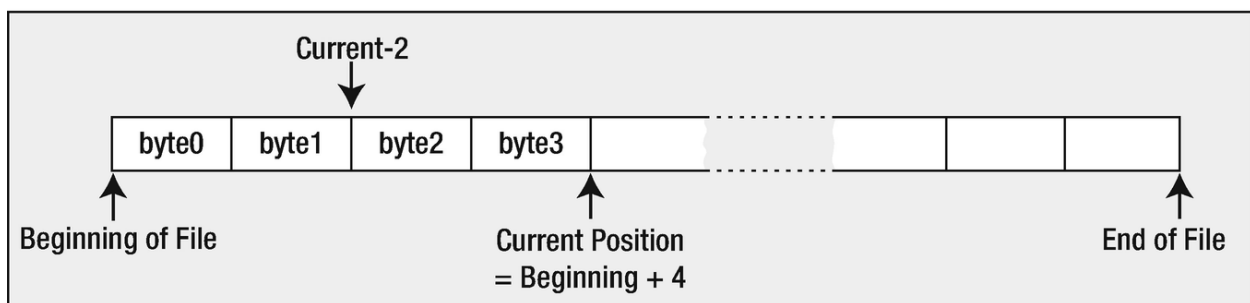


File: Text

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A file is a sequence of bytes



- A file has a beginning, an end and it's current position. The current position is usually tracked using number of bytes since the start of the file
- The current position is where any file action(a read or write from/to the file) will take place. You can move the current position to any point in the file.

Opening a File

To open a file, we can call the function `fopen()` that returns the file pointer for a specific external file. The `fopen()` function is defined in `stdio.h`, and it has this prototype:

```
FILE *fopen(const char * restrict name, const char * restrict mode)
```

- The first argument to the function is a pointer to a string that is the name of the external file you want to process.

- The second argument to the `fopen()` function is a character string that represents the file mode. The file mode specifies what you want to do with the file. For example:

Permission Modes

Mode	Description
w	Open a text file for write operations. If the file exists, its current content is deleted.
a	Open a text file for append operations. All writes are to the end of the file. The existing data is not touched.
r	Open a text file for read operations
r+	Open a text file for both read and write operations.
w+	Open a text file for both read and write operations.

- If the `fopen()` is successful, the function returns a pointer of type `FILE*` that you can use to reference the file for further input/output.
- If the file cannot be opened, `fopen()` will return `NULL`
- When you want to open several files at the same time, they must each have their own file pointer and you open each of them with a separate `fopen()` call.

Write Mode

```
FILE *pfile = NULL;
char *filename = "myfile.txt";
pfile = fopen(filename, "w");
if(!pfile) // Open myfile.txt to write it
    printf("Failed to open %s.\n", filename);
```

- This opens the file and associates the file with the name `myfile.txt` with your file pointer `pfile`. Because you've specified the mode as `"w"`, you can only

write to the file; you can't read it.

- If a file with the name `myfile.txt` does not exist, the call to `fopen()` in the previous statement will create a new file with this name. Because you have just provided the file name without any path specification as the second argument to the function, the file is assumed to be in the current directory; if the file is not found there, that's where it will be created.

Append Mode

If you want to add to an existing text file rather than overwrite it, you specify mode "a", which is the append mode of operation.

```
FILE *pfile = NULL;
char *filename = "myfile.txt";
pfile = fopen(filename, "a")
```

Read Mode

```
FILE *pfile = NULL;
char *filename = "myfile.txt";
pfile = fopen("myfile.txt", "r");
```

You have specified the mode argument as "r", indicating that you want to read the file, so you can't write to this file. The file position will be set to the beginning of the data in the file. Clearly, if you're going to read the file, it must already exist. Otherwise the file pointer `pfile` will be set to `NULL`.