

# OPENING AND CLOSING FILES

## 2.2 Opening Files

**Open:** To associate a logical program file with a physical system file.

We have two options: 1) open an existing file or 2) Create a new file, deleting any existing contents in the physical file.

Opening a file makes it ready for use by the program

The C++ *open* function is used to open a file.

The open function must be supplied with (as arguments):

- o The name of the physical file
- o The access mode
- o For new files, the protection mode

The value returned by the *open* is the fd, and is assigned to the file variable.

### Function to open a file:

```
fd = open(filename, flags[, pmode]);
```

### fd-file descriptor

A cardinal number used as the identifier for a logical file by operating systems such as UNIX and PC-DOS.

For handle level access, the logical file is declared as an *int*.

The handle is also known as a *file descriptor*.

Prototypes:

```
int open (const char* Filename, int Access);
```

```
int open (const char* Filename, int Access, int Protection);
```

Example:

```
int Input;
```

```
Input = open ("Daily.txt", O_RDONLY);
```

The following **flags** can be bitwise *ored* together for the **access mode**:

**O\_RDONLY** : Read only

**O\_WRONLY** : Write only

**O\_RDWR** : Read or write

**O\_CREAT** : Create file if it does not exist

**O\_EXCL** : If the file exists, truncate it to a length of zero, destroying its contents. (used only with O\_CREAT)

**O\_APPEND** : Append every write operation to the end of the file

**O\_TRUNC** : Delete any prior file contents

## **Pmode- protection mode**

The security status of a file, defining who is allowed to access a file, and which access modes are allowed.

- Supported protection modes depend on the operating system, not on the programming language.
- DOS supports protection modes of:
  - Read only
  - Hidden
  - Systemfor all uses of the system.
- UNIX supports protection modes of:
  - Readable
  - Writable
  - Executablefor users in three categories:
  - Owner (Usually the user who created the file)
  - Group (members of the same group as the owner)
  - World (all valid users of the system)
- Windows supports protection modes of:
  - Readable
  - Modifiable
  - Writable
  - Executable

for users which can be designated individually or in groups.:

In Unix, the pmode is a three digit octal number that indicates how the file can be used by the owner(first digit), by members of the owner's group(second digit), and by everyone else(third digit). For example, if pmode is 0751, it is interpreted as

Example:

```
fd = open(filename, O_RDWR | O_CREAT, 0751);
```

## 2.3 Closing Files

### `close`

To disassociate a logical program file from a physical system file.

- Closing a file frees system resources for reuse.
- Data may not be actually written to the physical file until a logical file is closed.
- A program should close a file when it is no longer needed.

The C++ *close* function is used to close a file for handle level access.

The handle close function must be supplied with (as an argument):

- The handle of the logical file

The value returned by the *close* is 0 if the close succeeds, and -1 if the close fails..

Prototypes:

```
int close (int Handle);
```

Example:

```
close (Input);
```

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