

DAILY ASSESSMENT FORMAT

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Course:	C programming	USN:	4AL17EC055
Topic:	Files and Error Handling The Preprocessor	Semester & Section:	6 TH SEM "A" SEC
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FORENOON SESSION DETAILS

Image of session



C programming

20/06/2020

→ Files and stream handling

An external file can be opened, read, functions and written to in a C program. For these operations, C includes the file type for defining a file stream.

The file stream keeps track of where reading and writing last occurred.

The `stdio.h` library includes file handling functions. `FILE` typedef for defining a file pointer.

`fopen(filename, mode)` Returns a file pointer to file `filename` which is opened using `mode`. If a file cannot be opened, `NULL` is returned.

Mode options are

- `r` open for reading (file must exist)
- `w` open for writing (file need not exist)
- `a+` open for reading and writing, for beginning
- `w+` open for reading and writing overwriting file
- `a` open for reading and writing appending to file

`fclose(fp)` closes file opened with `FILE fp`, returning 0 if close was successful, `EOF` (end of file) is returned if there is an error in closing.

The following program opens a file for writing and then closes it:

```
#include <stdio.h>
int main() {
    FILE *fp;
    fp = fopen("myfile.txt", "w");
    if (fp == NULL) {
        printf("Error opening file.");
        return -1;
    }
    fclose(fp);
    return 0;
}
```

Reading from a file

The `stdio.h` library also includes functions for reading from an open file. A file can be read one character at a time or an entire string can be read into a character buffer, which is typically a char array used for temporary storage.

`fgetc(fp)` Returns the next character from the file pointed to by `fp`, if the end of the file has been reached.

`fgets(buff, n, fp)` Reads `n-1` characters from the file pointed to by `fp` and stores the string in `buff`.

Binary File I/O

→ Writing only characters and strings to a file can become tedious when you have an array of structures. To write entire blocks of memory to a file

- `rb` open for reading
- `wb` open for writing
- `ab+` open for reading and writing for beginning

`fwrite(<ptr>, <item-size>, <num-items>, <fp>)`

`fread(<ptr>, <item-size>, <num-items>, <fp>)`

