

File Input - Output

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graph TD; A[File Input - Output] --> B[High Level File Input - Output<br/>Auto Buffer Management<br/>Operations - File Pointer]; A --> C[Low Level File Input - Output<br/>Explicit Buffer Manage<br/>Operations - File Handle]; B --> D[Formatted IO]; B --> E[UnFormatted IO]; D --> F[fprintf, fscanf]; E --> G[fgetc, fputc<br/>fgets, fputs<br/>fread, fwrite];
```

High Level

File Input - Output

Auto Buffer Management
Operations - File Pointer

Low Level

File Input - Output

Explicit Buffer Manage
Operations - File Handle

Formatted IO

fprintf, fscanf

UnFormatted IO

fgetc, fputc
fgets, fputs
fread, fwrite

File Modes

“r” open text file for reading

“w” open text file for writing, discard previous contents if any

“a” append ; open or create text file for writing at the end

“r+” open text file for update (reading & writing)

“w+” create a text file for update ; discard previous contents if any

“a+” append open or create text file for update writing at the end

If mode includes b after initial letter as “rb” indicates a binary file.

ftell takes a file pointer and returns a number of type long, that corresponds to the current position. this function is useful in saving current position of a file which can be used later in the program.
Eg: `n=ftell(fp);` n bytes already been read (or written).

rewind takes file pointer and resets the position to the start of the file. `rewind(fp); n=ftell(fp);` Would assign n=0 as 1st byte in file is assigned 0, 2^{ed} 1 and so on.

This function helps us to read the file more than once without having to close or open file. Whenever file is open for reading or writing a rewind is done implicitly.

Random Access to Files

`fseek` function is used to read the particular part of the file

`fseek`- is used to move the file position to desired position within a file
`fseek(file ptr, offset, position)`

`ptr` is a pointer to the file concerned, `offset` is number or variable of type `long`, `position` is an integer number

Offset specifies the number of positions (bytes) to be moved from location specified by `position`. `Position` can take three values

Value	meaning	
0	beginning of file	<code>SEEK_SET</code>
1	Current position	<code>SEEK_CUR</code>
2	End of file	<code>SEEK_END</code>

Offset may be positive meaning move forward or negative meaning

Moving backwards

`fseek(fp,0L,0)` go to the beginning (like rewind)

`fseek(fp,0L,1)` stay at the current position

`fseek(fp,0L,2)` go to the end of file.

`fseek(fp,m,0)` moves to (m+1) th byte in the file.

`fseek(fp,m,1)` go forward by m bytes.

`fseek(fp,-m,1)` go backward by m bytes from
current position

`fseek(fp,-m,2)` go backward by m bytes from end

```
int main()
{  char ch;
   FILE *fp=NULL;

   fp=fopen("c:\\abc.txt","r");
   if(fp==NULL)
       printf("\n File is not present");
   else
   {
       fseek(fp,-1l,2); /* Postion to the last chararter */
       do
       {
           ch=getc(fp);
           printf(" %c", ch);
       }while(!fseek(fp,-2L,1));
   }   return 0;
}
```