

FILE HANDLING / FILE OPERATIONS /DATA FILES

File is the name of physical memory location within secondary storage area that is hard disk.

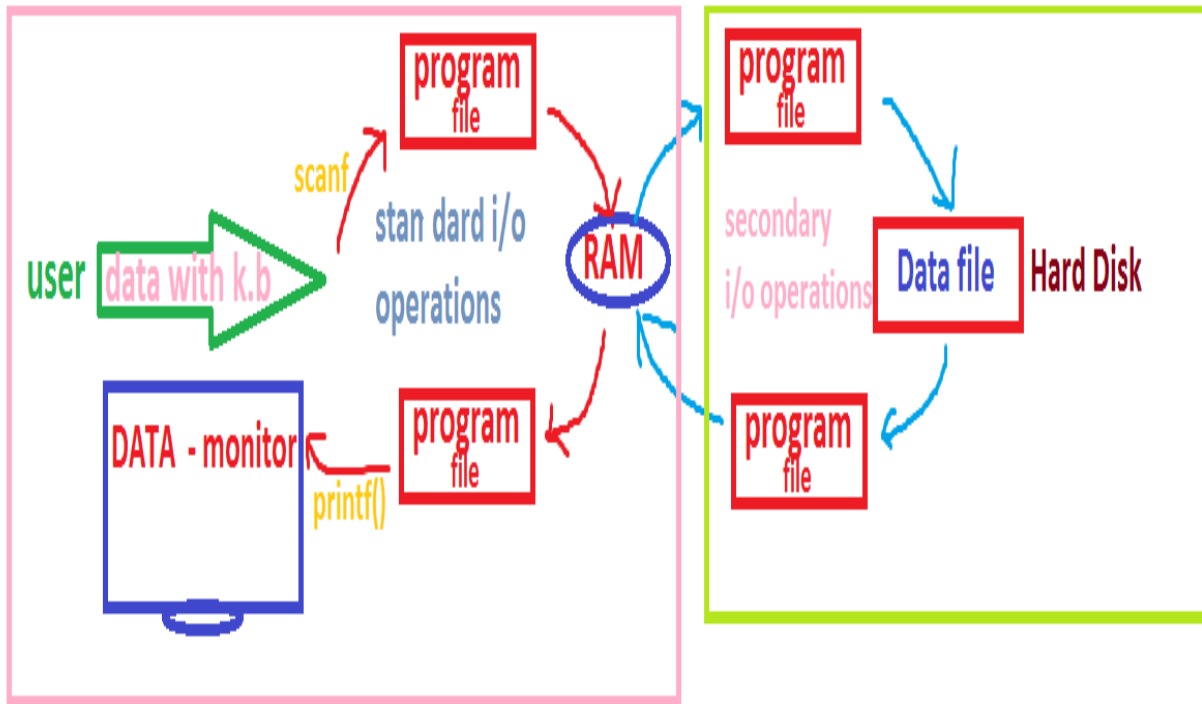
In implementation, when we need to read or write the data from the secondary storage area, then go for file operations. By using file operations related data can be stored permanently in the secondary storage area. Whenever we want to load this information from secondary storage area then also we can use file operations.

I/O operations are classified into 2 types.

1. Standard I/O operations.
2. Secondary I/O operations

When we are interacting with standard I/O devices then it is called standard I/O operations. when we are interacting with secondary I/O devices, then it is called secondary I/O operations.

Standard I/O and Secondary I/O related operations are controlled by **<stdio.h>**



In C, to control file operations, we are using predefined structure called **FILE**.

FILE structure size is **16 bytes**.

It need pointer structure variable.

fopen(): It is used to open a file in specified mode. If file is not opened, it returns NULL.

Syntax: fopen(filename, mode);

fputc(): It is used to write a character into the file.

Syntax: fputc(ch, fileptr);

fgetc(): It reads a character from file.

Syntax: fgetc(fileptr);

fwrite(): It is used to write the data into a data file.

Syntax: fwrite(&var,noofbytes,nooftimes, fileptr);

fread(): It is used to read the data from a data file.

Syntax: fread(&var,noofbytes,nooftimes, fileptr);

fclose(): It closes the currently opened data file.

Syntax: fclose(fileptr);

fseek(): It is used to move the file pointer to a specified position.

Syntax: fseek(fileptr,position, from);

ftell(): It returns the current file pointer position.

Syntax: ftell(fileptr);

rename(): It is used to change the filename.

Syntax: rename(oldfilename, newfilename);

remove(): It deletes a file.

Syntax: remove(filename);

We are conducting two types of file operations.

1. Text file operations, where our data stored in the form of characters.
2. Binary file operations, where our data stored based on the data types.

Creating a text file:

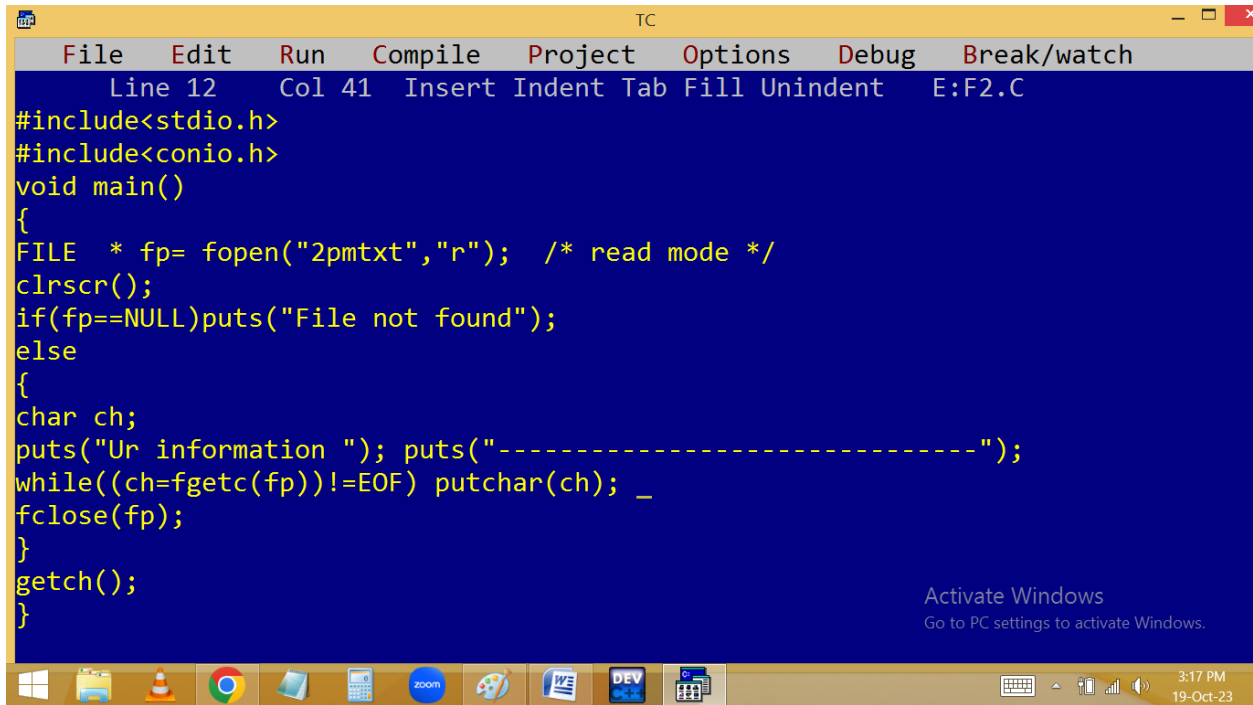
The image shows two screenshots of the Turbo C++ (TC) IDE. The top screenshot displays the source code of a C program designed to create a text file named '2pmtxt.txt'. The code includes headers for `stdio.h` and `conio.h`, and uses `fopen` in append mode ('a'). It prompts the user to enter information, which is then written to the file until the user presses Ctrl+Z (EOF). The bottom screenshot shows the program's execution. It prompts the user to enter information, and the user has entered 'abc' followed by Ctrl+Z. The program then outputs 'One file created'.

```
File Edit Run Compile Project Options Debug Break/watch
Line 5 Col 51 Insert Indent Tab Fill Unindent E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
FILE * fp= fopen("2pmtxt","a"); /* apply at the _end mode */
clrscr();
if(fp==NULL)puts("Unable to create file");
else
{
char ch;
puts("Enter the information "); puts("-----");
while((ch=getchar())!=EOF) fputc(ch, fp); /* End Of File - Ctrl+Z */
fclose(fp);
puts("One file created");
}
getch();
}
```

Enter the information

abc
^Z
One file created

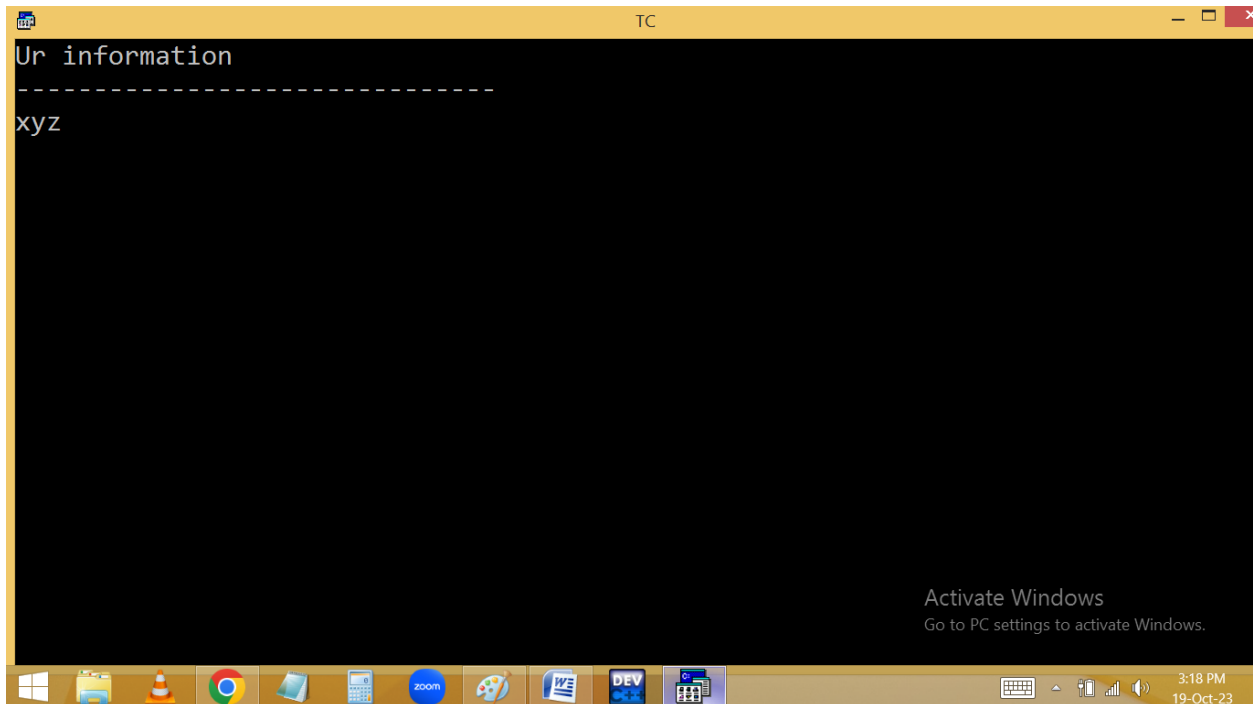
Reading text file content:



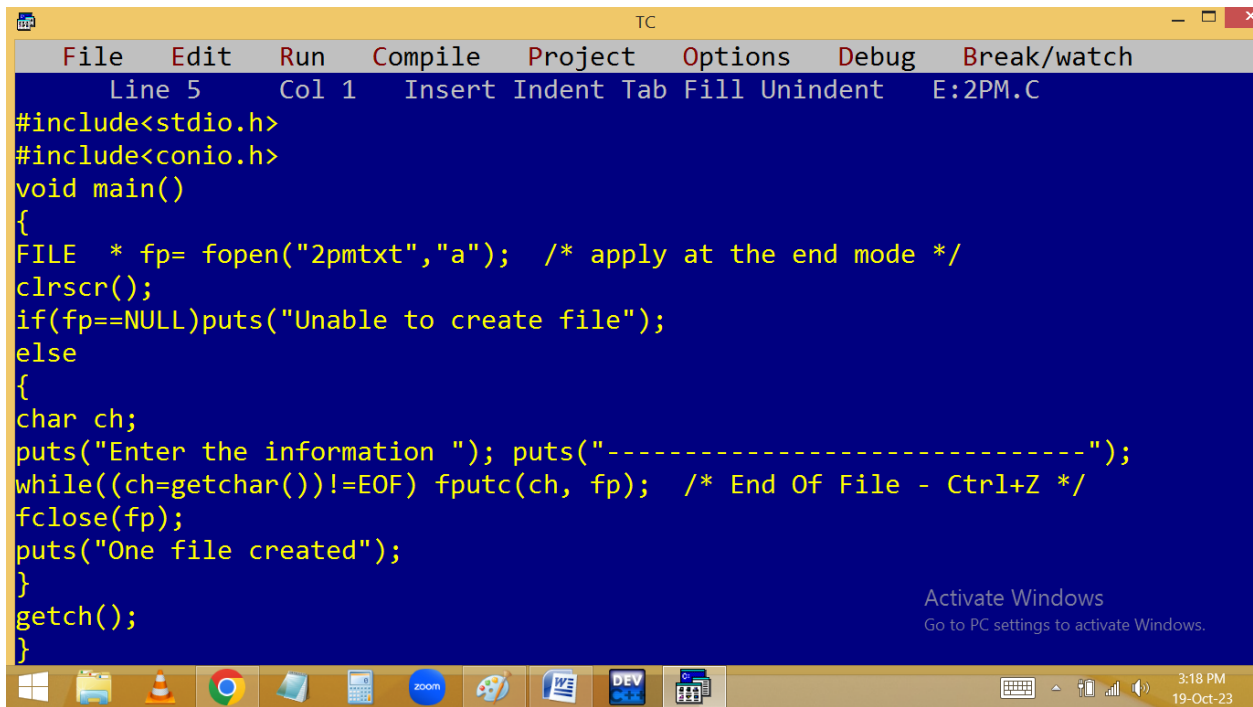
The screenshot shows the Turbo C++ (TC) IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 12 Col 41 Insert Indent Tab Fill Unindent E:F2.C'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
FILE * fp= fopen("2pmtxt","r"); /* read mode */
clrscr();
if(fp==NULL)puts("File not found");
else
{
char ch;
puts("Ur information "); puts("-----");
while((ch=fgetc(fp))!=EOF) putchar(ch); _
fclose(fp);
}
getch();
}
```

An 'Activate Windows' watermark is visible in the bottom right corner of the IDE window. The Windows taskbar at the bottom shows various application icons and the system clock indicating 3:17 PM on 19-Oct-23.



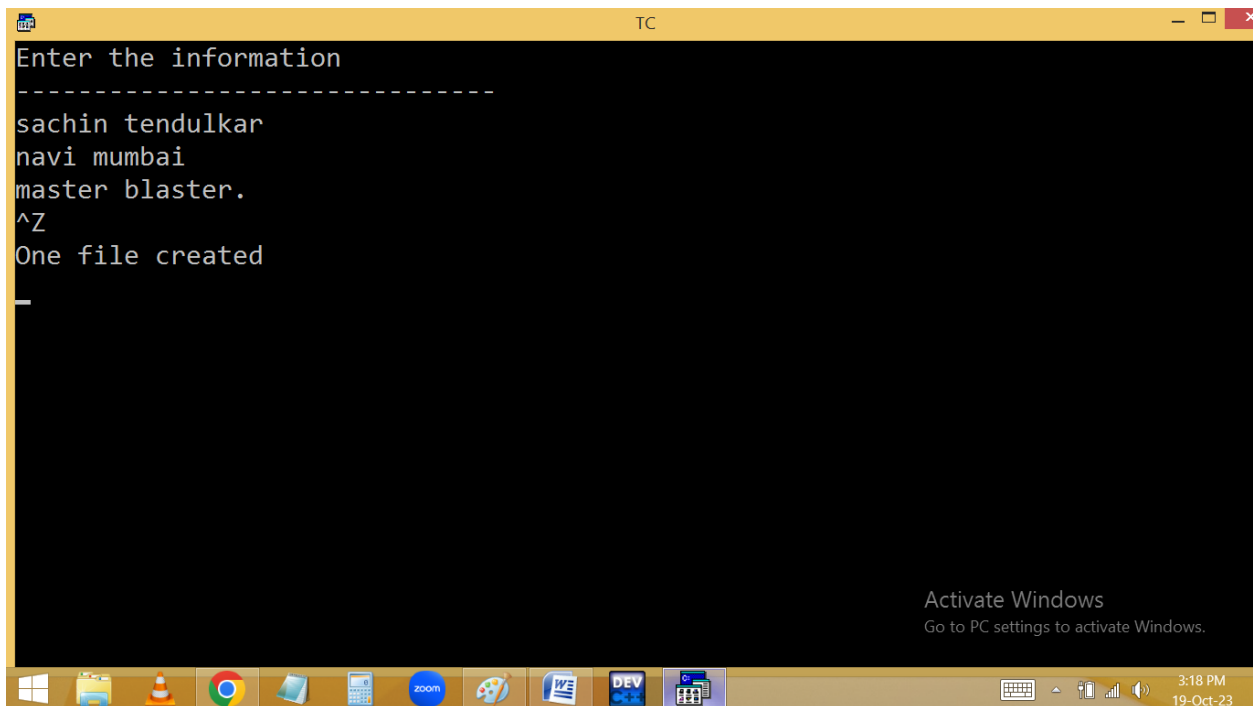
The screenshot shows the same Turbo C++ IDE window, but now displaying the output of the program. The text 'Ur information' is printed, followed by a dashed line '-----' and the characters 'xyz' on the next line. The 'Activate Windows' watermark is still present in the bottom right corner. The Windows taskbar at the bottom shows the system clock indicating 3:18 PM on 19-Oct-23.



The screenshot shows the Turbo C++ (TC) IDE with the following code in the editor:

```
File Edit Run Compile Project Options Debug Break/watch
Line 5 Col 1 Insert Indent Tab Fill Unindent E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
FILE * fp= fopen("2pmtxt","a"); /* apply at the end mode */
clrscr();
if(fp==NULL)puts("Unable to create file");
else
{
char ch;
puts("Enter the information "); puts("-----");
while((ch=getchar())!=EOF) fputc(ch, fp); /* End Of File - Ctrl+Z */
fclose(fp);
puts("One file created");
}
getch();
}
```

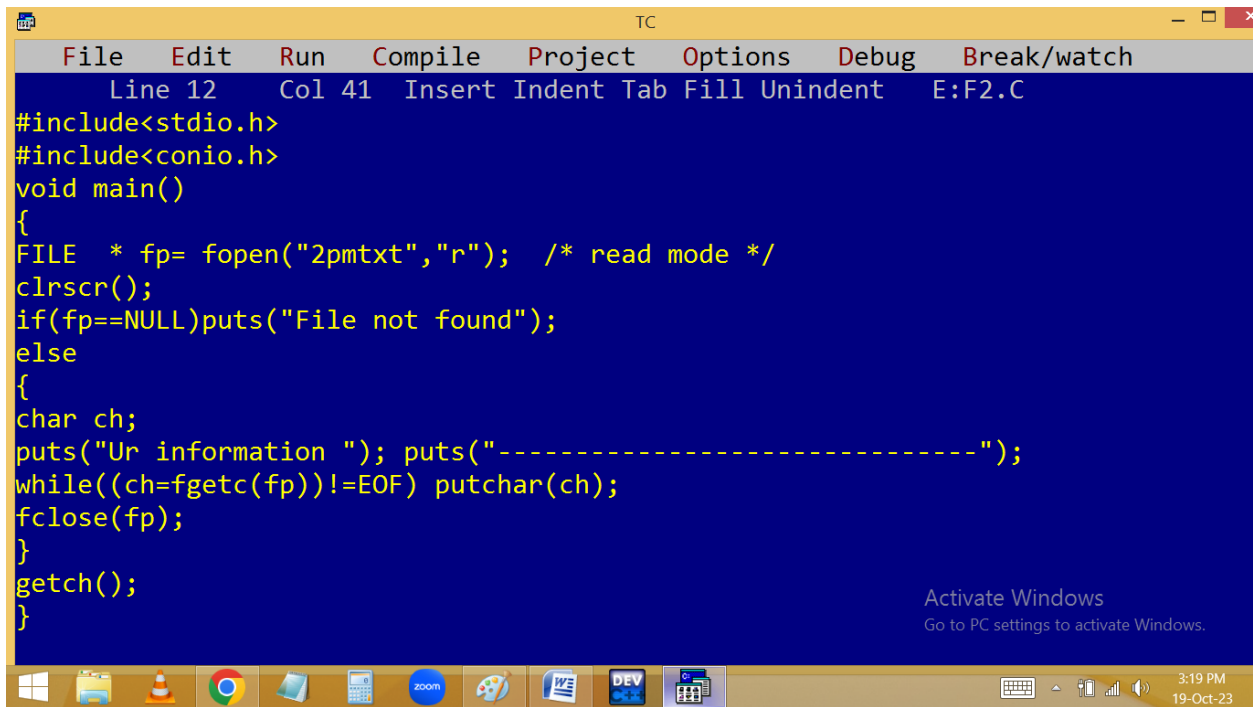
The Windows taskbar at the bottom shows the time as 3:18 PM on 19-Oct-23. An "Activate Windows" watermark is visible in the bottom right corner of the IDE window.



The screenshot shows the same Turbo C++ IDE with the program's output displayed in the console window:

```
Enter the information
-----
sachin tendulkar
navi mumbai
master blaster.
^Z
One file created
_
```

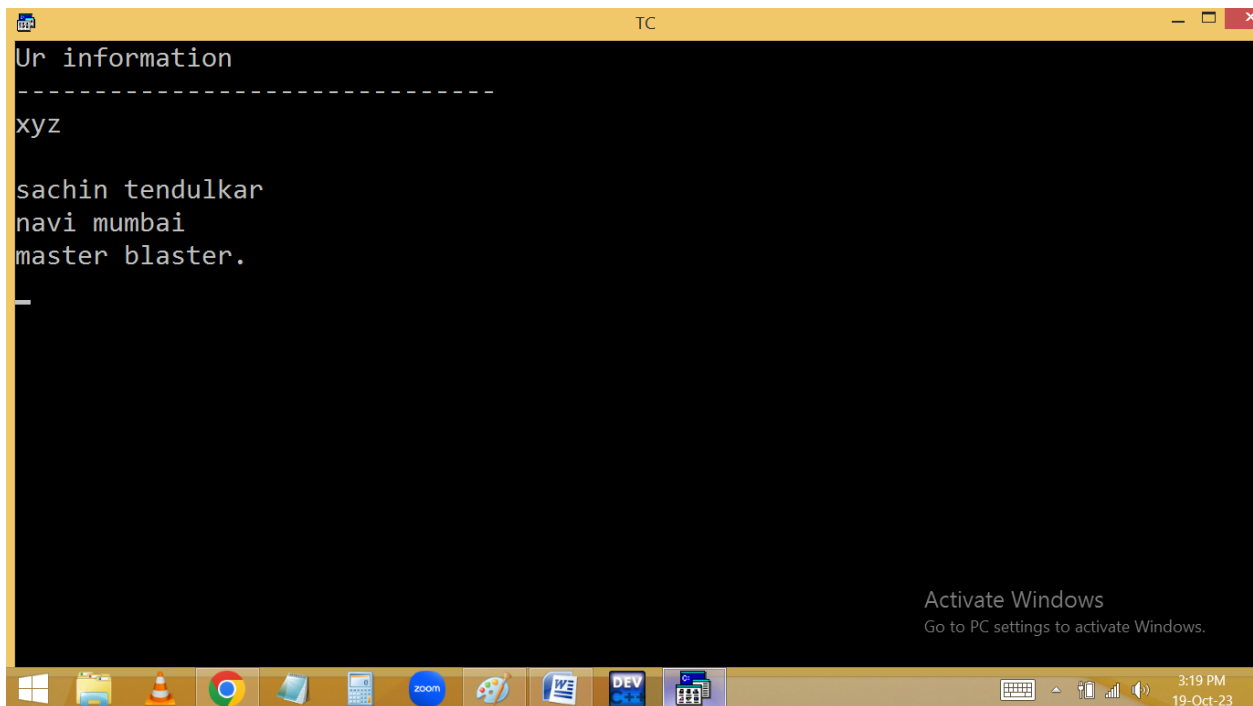
The Windows taskbar at the bottom shows the time as 3:18 PM on 19-Oct-23. An "Activate Windows" watermark is visible in the bottom right corner of the IDE window.



The screenshot shows the Turbo C++ (TC) IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 12 Col 41 Insert Indent Tab Fill Unindent E:F2.C'. The code in the editor is as follows:

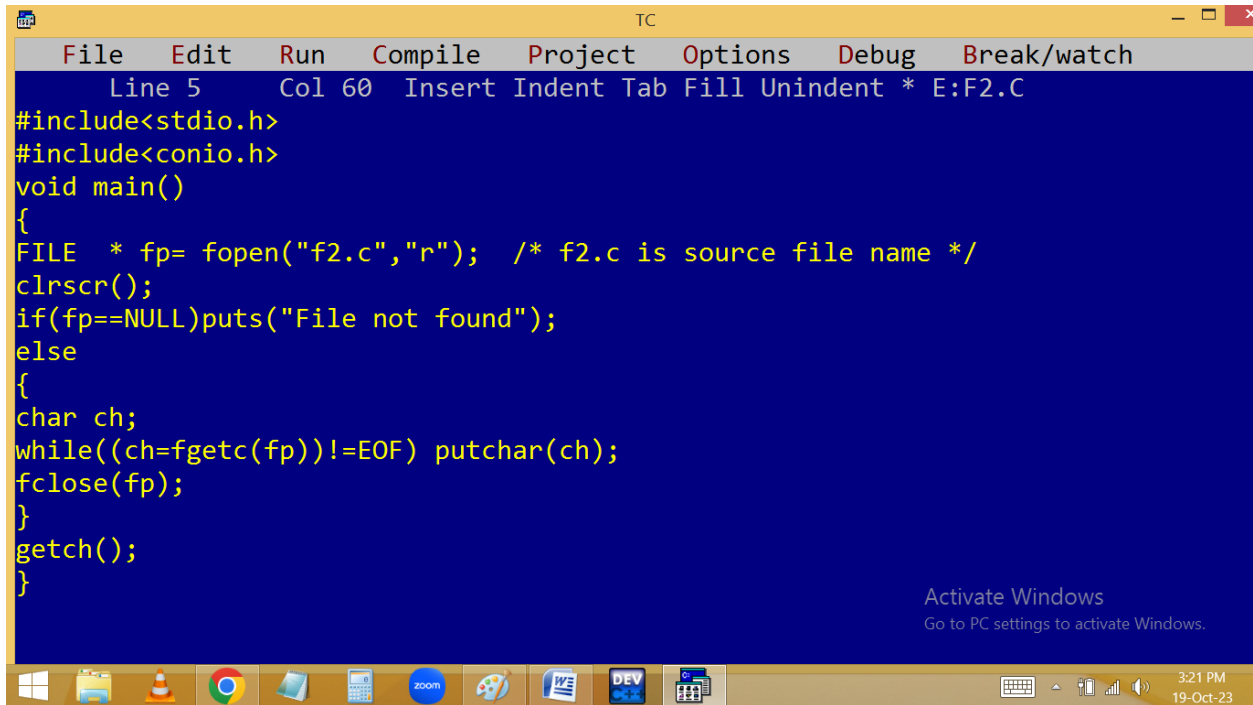
```
#include<stdio.h>
#include<conio.h>
void main()
{
FILE * fp= fopen("2pmtxt","r"); /* read mode */
clrscr();
if(fp==NULL)puts("File not found");
else
{
char ch;
puts("Ur information "); puts("-----");
while((ch=fgetc(fp))!=EOF) putchar(ch);
fclose(fp);
}
getch();
}
```

An 'Activate Windows' watermark is visible in the bottom right corner of the IDE window. The Windows taskbar at the bottom shows various application icons and the system clock indicating 3:19 PM on 19-Oct-23.



The screenshot shows the same Turbo C++ IDE window, but now displaying the output of the program. The text 'Ur information' is printed, followed by a dashed line '-----'. Below this, the contents of the file '2pmtxt' are displayed: 'xyz', 'sachin tendulkar', 'navi mumbai', and 'master blaster.'. A cursor is visible on the line following the last line of output. The 'Activate Windows' watermark and the Windows taskbar are also present, with the system clock showing 3:19 PM on 19-Oct-23.

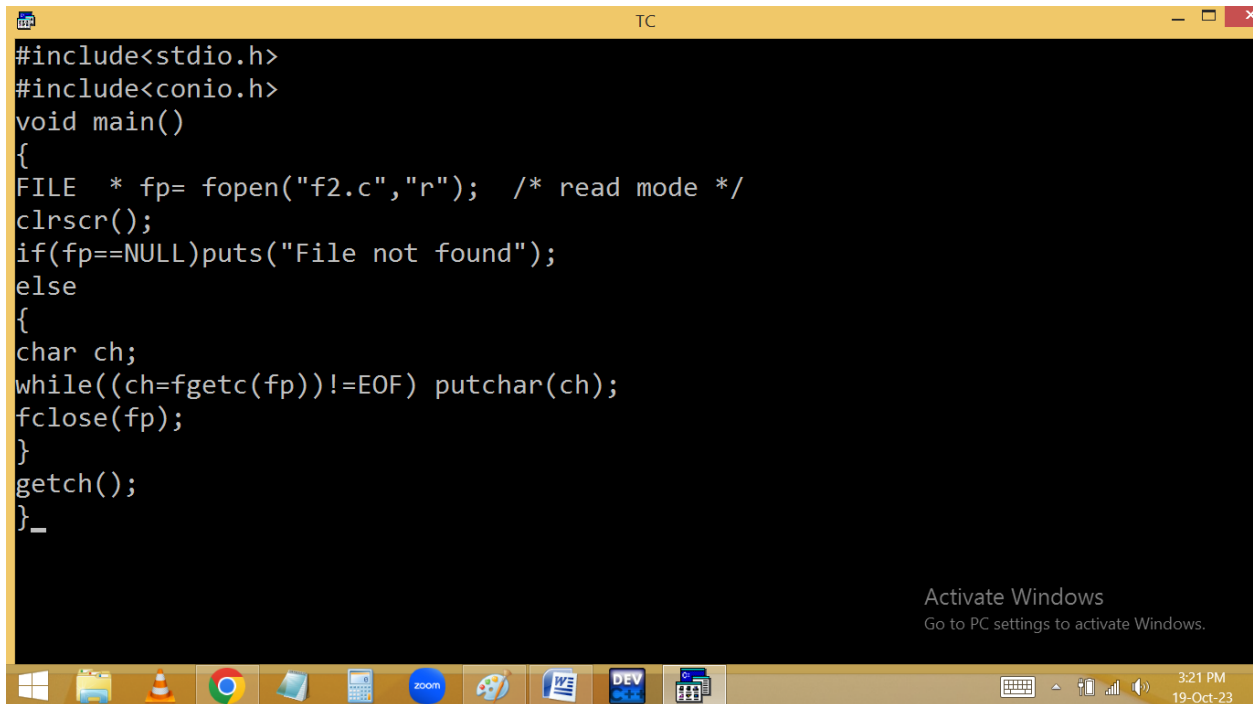
Printing source code as output:



The screenshot shows the Turbo C++ (TC) IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 5 Col 60 Insert Indent Tab Fill Unindent * E:F2.C'. The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
FILE * fp= fopen("f2.c","r"); /* f2.c is source file name */
clrscr();
if(fp==NULL)puts("File not found");
else
{
char ch;
while((ch=fgetc(fp))!=EOF) putchar(ch);
fclose(fp);
}
getch();
}
```

An 'Activate Windows' watermark is visible in the bottom right corner of the code area. The Windows taskbar at the bottom shows various icons including File Explorer, VLC, Chrome, and the system clock at 3:21 PM on 19-Oct-23.

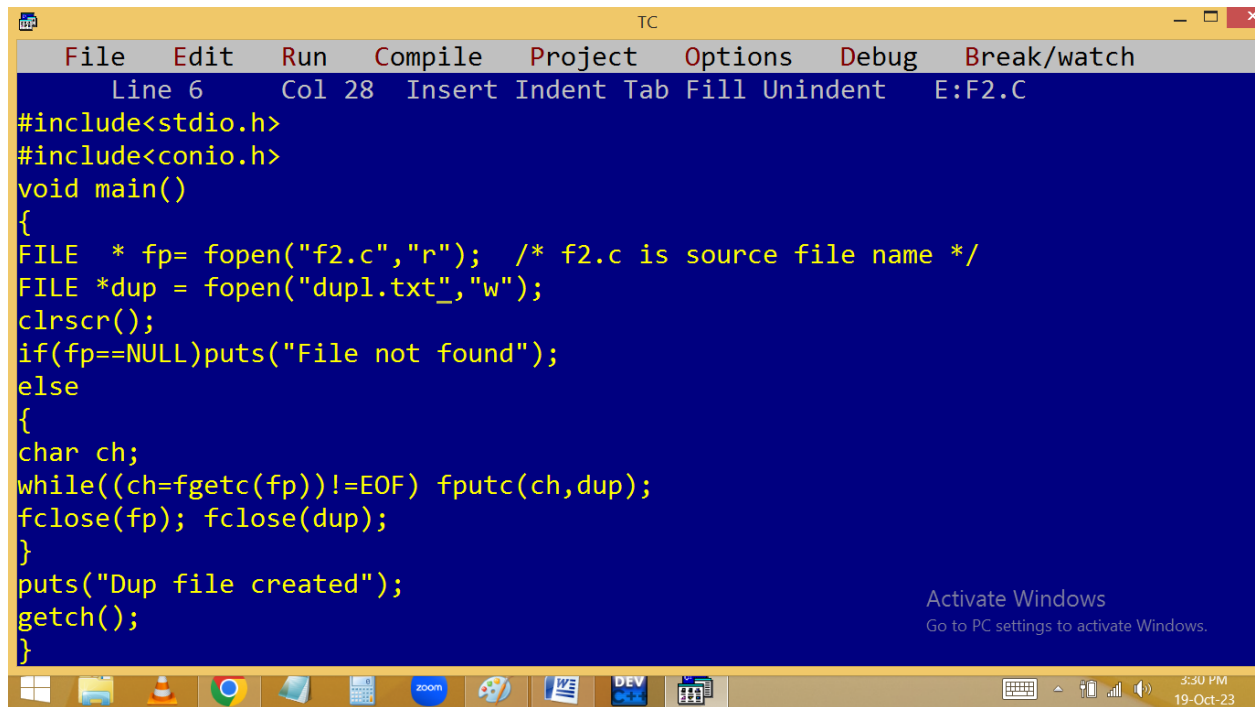


This screenshot shows the same Turbo C++ (TC) IDE window, but with a black background. The code is identical to the one in the first screenshot:

```
#include<stdio.h>
#include<conio.h>
void main()
{
FILE * fp= fopen("f2.c","r"); /* read mode */
clrscr();
if(fp==NULL)puts("File not found");
else
{
char ch;
while((ch=fgetc(fp))!=EOF) putchar(ch);
fclose(fp);
}
getch();
}_
```

The 'Activate Windows' watermark and the Windows taskbar are also present in this version of the screenshot.

Text file to text file copy:



The screenshot shows the Turbo C++ (TC) IDE interface. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 6', 'Col 28', and the file path 'E:F2.C'. The main editing area has a dark blue background with yellow text. The code is a C program that copies the contents of 'f2.c' into 'dupl.txt'. It includes `<stdio.h>` and `<conio.h>`. The `main` function opens 'f2.c' in read mode and 'dupl.txt' in write mode. It checks if the source file is found; if not, it prints 'File not found'. If found, it reads characters from 'f2.c' and writes them to 'dupl.txt' until the end of the file (EOF) is reached. Finally, it prints 'Dup file created' and waits for a key press with `getch()`. The Windows taskbar at the bottom shows various icons, including the Start button, File Explorer, VLC, Chrome, and several application icons. The system clock in the bottom right corner shows '3:30 PM' and '19-Oct-23'.

```
File Edit Run Compile Project Options Debug Break/watch
Line 6 Col 28 Insert Indent Tab Fill Unindent E:F2.C
#include<stdio.h>
#include<conio.h>
void main()
{
FILE * fp= fopen("f2.c","r"); /* f2.c is source file name */
FILE *dup = fopen("dupl.txt","w");
clrscr();
if(fp==NULL)puts("File not found");
else
{
char ch;
while((ch=fgetc(fp))!=EOF) fputc(ch,dup);
fclose(fp); fclose(dup);
}
puts("Dup file created");
getch();
}
```

Binary files with project:

STUDENT ENROLLMENT SYSTEM
1. New stu 2. Enquiry 3. Report 4. Update 5. Delete 6. Exit
Enter ur option[1]