



SNS COLLEGE OF TECHNOLOGY



Coimbatore – 35
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DEPARTMENT OF INFORMATION TECHNOLOGY

23ITT101 – PROGRAMMING IN C & DATA STRUCTURES

I YEAR - II SEM

UNIT I – INTRODUCTION TO C

STRUCTURE OF C PROGRAM



STRUCTURE OF A C PROGRAM



Structure of a C program

Basically the structure of a C program divides into 6 sections and they are,

01
Documentation

02
Preprocessor

03
Definition

04
Global declaration

05
Main function

06
User defined functions



Documentation Section

- ✓ It includes the statement specified at the beginning of a program, such as a program's **name**, **date**, **description**, and **title**, which is represented using commands
- ✓ Single line commands will be represented by //
- ✓ Multi – line commands will be represented as /* */

```
//program1.c
```

```
/*  
...  
Overview of code  
...  
*/
```

Preprocessor Section

```
#include<stdio.h>  
#include<conio.h>
```



Preprocessor Section (contd..)

- ✓ The preprocessor section contains all the header files used in a program. It informs the system to link the header files to the system libraries
- ✓ A header file in C/C++ contains:
 - i) Function definitions
 - ii) Data type definitions
 - iii) Macros
- ✓ Header files offer these features by importing them into your program with the help of a preprocessor directive called **#include**.
- ✓ These preprocessor directives are responsible for instructing the C/C++ compiler that these files need to be processed before compilation.



Contd....

- ✓ Every C program should necessarily contain the header file `<stdio.h>` which stands for standard input and output used to take input with the help of `scanf()` function and display the output using `printf()` function.
- ✓ The source file contains `#include` which is responsible for directing the C/C++ compiler that this file needs to be processed before compilation and includes all the necessary data type and function definitions



Define Section

- ✍ The define section comprises of different constants declared using the define keyword

```
#define a = 4
```

Global declaration

- ✍ The global section comprises of all the global declarations in the program.
- ✍ Anything which is declared as global can be used throughout the entire program
- ✍ It should be declared before the main function

Main function

- ✍ main() is the first function to be executed by the computer.
- ✍ It is necessary for a code to include the main(). It is like any other function available in the C library.
- ✍ Parenthesis () are used for passing parameters (if any) to a function.



Declaration of main()

main() function can be declared in three ways

- ✍ main()
- ✍ void main() ~ specifies that program will not return any value
- ✍ int main() ~ specifies that program can return integer type data

Local
Declarations

```
main()  
{  
  int i = 2;  
  if(i<5)  
  {  
    i++;  
  }  
}
```

Statements

Expressions



User defined functions

- ✍ The user defined functions specified the functions specified as per the requirements of the user.
- ✍ For example, color(), sum(), division(), etc.

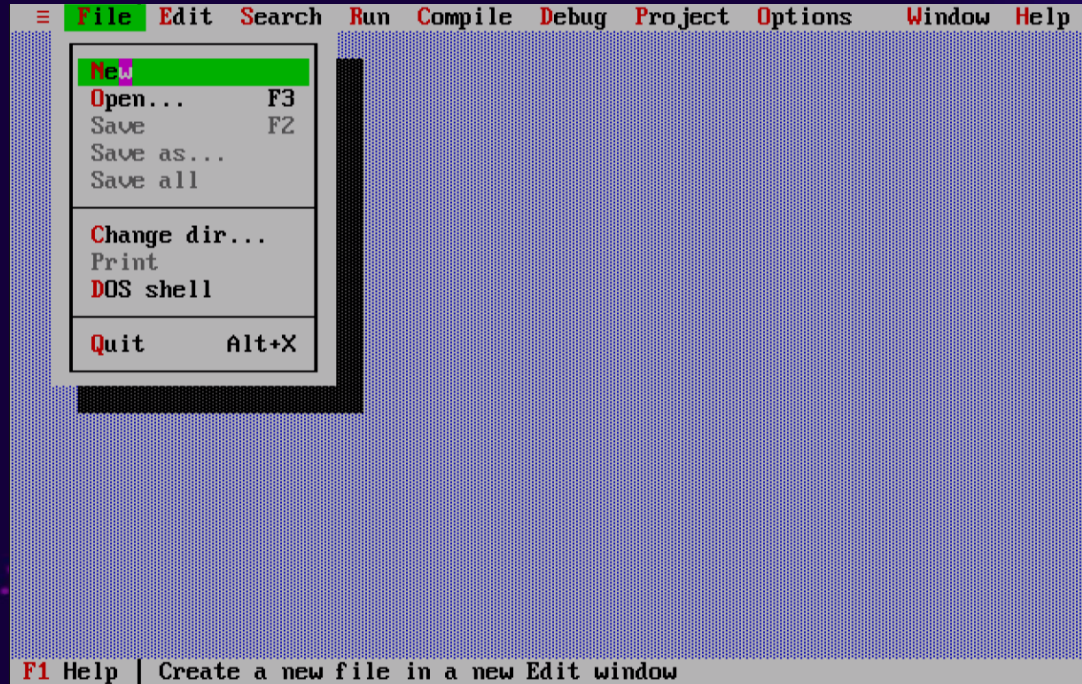
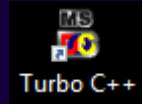
Basic Syntax

```
#include<stdio.h> //(Header Files)
main( )           //(Main function)
{
// Statements to be executed;
}
```



Editor and file creation

Editor used: Turbo C++





Example

```
File Edit Search Run Compile Debug Project Options Window Help
NONAME01.CPP 1=[↑↓]
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,c;
clrscr();
printf("Enter a number for a:");
scanf("%d", &a);
printf("Enter a number for b:");
scanf("%d", &b);
c=a+b;
printf("The sum of the two numbers %d and %d is: %d ", a,b,c);
getch();
}_
14:2
F1 Help F2 Save F3 Open Alt-F9 Compile F9 Make F10 Menu
```



Example

```
File Edit Search Run Compile Debug Project Options Window Help
NONAME01.CPP 1-[F1]
#i New
#i Open... F3
vo Save F2
{ Save as...
in Save all
cl
pr Change dir... for a:");
sc Print for b:");
pr DOS shell
sc
c= Quit Alt+X
pr two numbers >d and >d is: >d ", a,b,c);
getch();
}
```

1:12

F1 Help Save the file in the active window under a new name

```
File Edit Search Run Compile Debug Project Options Window Help
NONAME01.CPP 1-[F1]
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,c;
clrscr();
printf("Enter a\n");
scanf("%d", &a);
printf("Enter a\n");
scanf("%d", &b);
c=a+b;
printf("The sum\n");
getch();
}
```

Save File As

Save File As
program1.c OK

Files

ARRAYS~1.CPP	FACTOR~1.CPP
BIN.CPP	FACTOR~2.CPP
CI1A.CPP	FILE.CPP
CONSTD~1.CPP	FILE1.CPP
CONSTD~2.CPP	FILE2.CPP
CONSTR~1.CPP	FORLOOP1.CPP
DOWHILE.CPP	FORLOOP2.CPP
EBBILL.CPP	FRIEND.CPP

Cancel

Help

C:\TURBOC3\BIN*.CPP
ARRAYS~1.CPP 1261 Nov 30, 2020 9:22am

1:12

F1 Help Enter directory path and file-name mask



Example

```
File Edit Search Run Compile Debug Project Options Window Help
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,c;
clrscr();
printf("Enter a number for
scanf("%d", &a);
printf("Enter a number for b:");
scanf("%d", &b);
c=a+b;
printf("The sum of the two numbers %d and %d is: %d ", a,b,c);
getch();
}
```

1:1

F1 Help | Compile the file in the active Edit window

Compile	Alt+F9
Make	F9
Link	
Build all	
Information...	
Remove messages	



Example

```
File Edit Search Run Compile Debug Project Options Window Help
PROGRAM1.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,c;
clrscr();
printf("Enter a number:");
scanf("%d", &a);
printf("Enter a number:");
scanf("%d", &b);
c=a+b;
printf("The sum of a and b is: %d", c);
getch();
}
```

Compiling

Main file: PROGRAM1.C
Compiling: EDITOR -> PROGRAM1.C

	Total	File
Lines compiled:	468	468
Warnings:	0	0
Errors:	0	0

Available memory: 1969K
Success : Press any key

1:1

F1 Help Alt-F8 Next Msg Alt-F7 Prev Msg Alt-F9 Compile F9 Make F10 Menu



Example

```
File Edit Search Run Compile Debug Project Options Window Help
[ ] 2=[+]
```

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,c;
clrscr();
printf("Enter a number");
scanf("%d", &a);
printf("Enter a number for b:");
scanf("%d", &b);
c=a+b;
printf("The sum of the two numbers %d and %d is: %d ", a,b,c);
getch();
}
```

Run	Ctrl+F9
Program reset	Ctrl+F2
Go to cursor	F4
Trace into	F7
Step over	F8
Arguments...	

1:1

F1 Help | Make and run the current program



Example

```
Enter a number for a:12
Enter a number for b:3
The sum of the two numbers 12 and 3 is: 15
```