**LAB # 1&2**

**OBJECT**

***UNDERSTANDING IDE AND USING THE BASIC STRUCTURE OF PRINTF***

**THEORY**

**IDE basics**

C language features an integrated development environment (IDE) as the programmer’s platform. It is s screen with windows and pulls down menu. Code of the program, error messages and other information are displayed in separate windows. Programmer uses menu selections or key combination to revoke all the operations necessary for the program development. Debugging capabilities are also built-in the IDE.

**Invoking the IDE**

To invoke the IDE from the windows you need double click the **TC icon** in the directory **c:\tc\bin.** The alternate approach is that we can make a shortcut of the **tc.exe** on the desktop. This makes you enter the IDE interface, which initially displays only a menu bar at the top of the screen and a status line below will appear. The menu bar displays the menu names and the status line tells what various function keys will do.

**Using menus**

If the menu bar is inactive, you can invoke by pressing the [F10] function key. To select different menu, move the highlight left or right with cursor (arrow) keys. You can also revoke the selection by pressing the key combination for the specific menu.

**Opening new window**

To type in program you will need to open an Edit window. For this , open file menu and click new. A window will appear on the screen with double line border. You can resize this window by clicking arrow in the upper right corner. If the code is too long you can see the code by scrolling the window contents with up and down cursors key.

**Opening file form command line**

C language program can be opened from the command line as well. Providing the name of the file to be opened on the command line, when TC is first invoked can do this. These causes the IDE to be displayed on the screen as before, however, the Edit window will be automatically opened and given the name of the file to be opened.

**Writing a program**

For writing program the Edit window will be active. Type the program code with the proper syntax and command. Characters will appear where the cursor is positioned. Press [Enter] to move to the next line. Use the cursor keys to move to any position on the screen. You can delete characters by using [Del] key. You can delete the entire line by

Cursor on the line and pressing the positioning the cursor on the line and pressing the [ctrl][y] combination.

**Saving the program**

After typing the program code, you should save it to the disk. To perform this operation, select Save from the File menu, pressing the [F2] function key can also complete this operation, save the file and provide an appropriate and unique name to the file. You can save the code after compiling the program but saving it before more appropriate.

**MAKING AN .EXE FILE**

After the program code is completed and the source file is written, you must turn it into an executable file. It includes different tasks to be performed on the file, which are follows:

**Compiling**

It is the process in which source code is translated into machine understandable language. The compiler is a part of IDE.

**Linking**

Programs may need to be combined with various library routines and functions. The linking process combines these files into single executable file. In TURBO C IDE, compiling and linking are performed in a single step where two ways to perform this operation are. Either you can select Make EXE from the Compile menu or you can press the [F6] key.

**Project/Make**

Before compiling and linking a file, a part of the IDE called Project/Make checks the time and data on the file you are going to compile.

**Screen display for compiling and linking**

During the compiling process, a window appears in the middle of the screen with the legend compiling at the top. This window contains several information about the program like errors, number of lines compiled, number of warning and available memory. While linking is taking place, a different window appears. It looks like compiling window but the legend Linking appear at the top. Other information is also displayed on the screen.

**BASIC STRUCTURE OF C PROGRAM**

**Header files**

The sub directory called INCLUDE contains header files. These files are text files, like the ones you generate with a word processor or the turbo C Editor. Header files can be combined with your program before it is compiled. Each header files has a **.h** files extension.

#include “stdio.h”

**OR**

#include <stdio.h>

.

This is the method to write the header files in the C Editor.

**Function Definition**

All C programs are divided into units called ‘functions’. Every C program consists of one or more function. Consider the following program:

void main (void)

{

printf (“ this is a program” ) ;

}

The above function program has only one function “main”, it is the first function executed. The word “void” preceding “main” specifies that the function “main” will not return a value. The second “void” in parenthesis specifies that the function takes no argument.

**Delimiters**

The braces after the function definition signal the beginning and end of the body if the function. The opening brace **({ )** indicates a block of code that forms a distinct unit is about to begin. The closing brace **( })** terminates the block of code.

Braces are also used to delimit blocks of code ion situations other than function. They are used in loops and decision making statements within programs.

**Statement terminator**

A statement in C language is terminated with a semicolon.

**The printf( ) function**

The **printf( )** functions causes the phrases in quotes to be printed on screen. The printf function is always followed by parenthesis containing the phrase to be printed surrounded by quotes. As C language distinguishes between uppercase and lowercase characters, thus the function **PRINTF( )** and **Printf( )** are not the same as **printf( )** .

**printf()** can be used to print numbers , string or characters.

Consider the following program line is:

**printf(“this is a program”) ;**

printf() can be used to print numbers , string or characters.

**Format Specifiers**

Format Specifiers tell the printf statement where to put the text and how to display the text.

The various format specifiers are:

%d => integer

%c => character

%f =>

**Printing numbers**

The printf( ) functions uses a unique format for printing constants and variable.

Consider the program:

void main (void)

{

printf (“ number one %d” , 1) ;

}

It will print ‘1’ instead of ‘%d’. Similarly you can use the printf function to generate output according to your desired format.

**Printing string**

The printf() function can be used to print any string by specifying its format. Consider the following program:

void main (void)

{

printf (“ %s is a planet”, “Earth” ) ;

}

**Printing characters**

The printf function can also print characters separately by utilizing its specific format. Another way to define the character:

void main (void)

{

printf (“ %c is a character” , ‘a’ ) ;

}

This program will print ‘a’ instead of ‘%c’. Not only a single character is printed using this function but you can print number of character at a time in a single statement and even string and character are also printed using appropriate format. Consider the following program:

void main (void)

{

printf (“ %c is a pronounced as %s ” , ‘j’ , “jay”) ;

}

The output of the above program: **j is pronounced as jay**

**Escape Sequences**

Escape Sequence causes the program to escape from the normal interpretation of a string, so

That the next character is recognized as having a special meaning. The back slash “\”

Character is called the Escape Character”. The escape sequence includes the following:

\n => new line

\b => back space

\r => carriage return

\” => double quotations

\t => Blank Spaces

**TASKS TO BE PERFORMED**

1. Get familiar with the Turbo C environment. Learn how to save, compile and run a simple C program.

In the Top menu there is a compile menu. Under compile menu there are options to compile project, make project, link project and built project.

To save your project select save under file, select save and assign desired location.

To run project select run under run menu.

1. Write the method how to open the TC folder and also write the path?

If opening from file explorer we write the path C:\TurboC4 in URL bar.

From turbo c select file then select open and enter turbo c path C:\TurboC4.

1. Write a program that generates the following output :

Mr. Brown is 45 years

Mr. Green is 42 years

# PROGRAM

#include <conio.h>

#include <stdio.h>

int main(){

char name[20]="Mr.Brown", lname[20]="Mr. Green";

int age=45, age2=42;

printf("%s is %d years \n%s is %d years",name,age,lname,age2);

getch();

}

Write a program that prints the string “This is Sir Syed University of Engineering and Technology”.

# PROGRAM

1. What will be the output of the given program :

#include <stdio.h>

void main(void)

{

printf( "Keep looking!" );

printf( "You will find it!" );

}

# OUTPUT

Output will be “Keep looking!You will find it!”