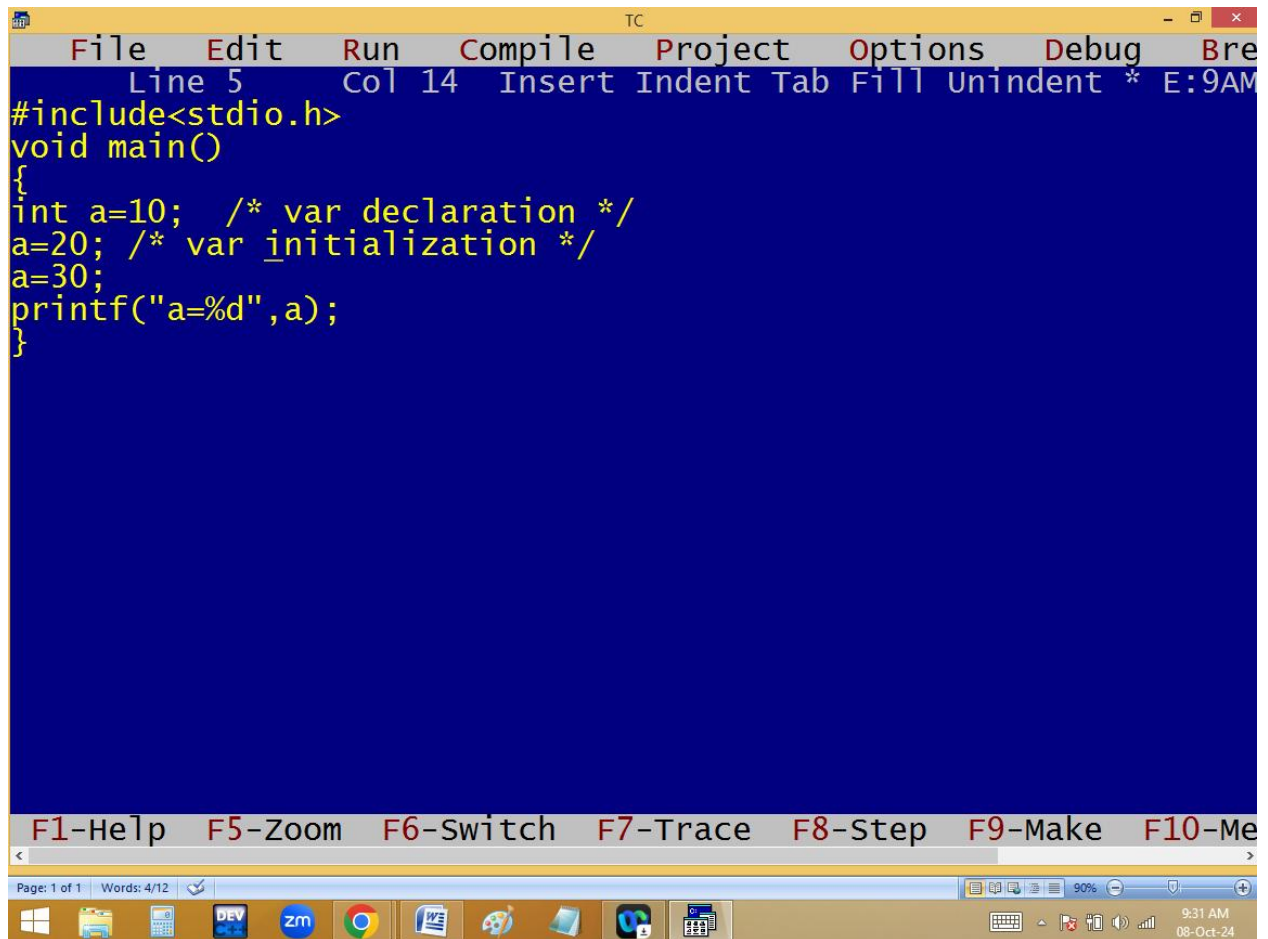


7. Duplicate names not allowed in same function or block { }.



The image shows a screenshot of the Turbo C++ (TC) IDE. The main window has a dark blue background with yellow text. The menu bar at the top includes File, Edit, Run, Compile, Project, Options, Debug, and Break. The status bar at the top shows 'Line 5', 'Col 14', and 'E:9AM'. The code in the editor is as follows:

```
#include<stdio.h>
void main()
{
int a=10; /* var declaration */
a=20; /* var initialization */
a=30;
printf("a=%d",a);
}
```

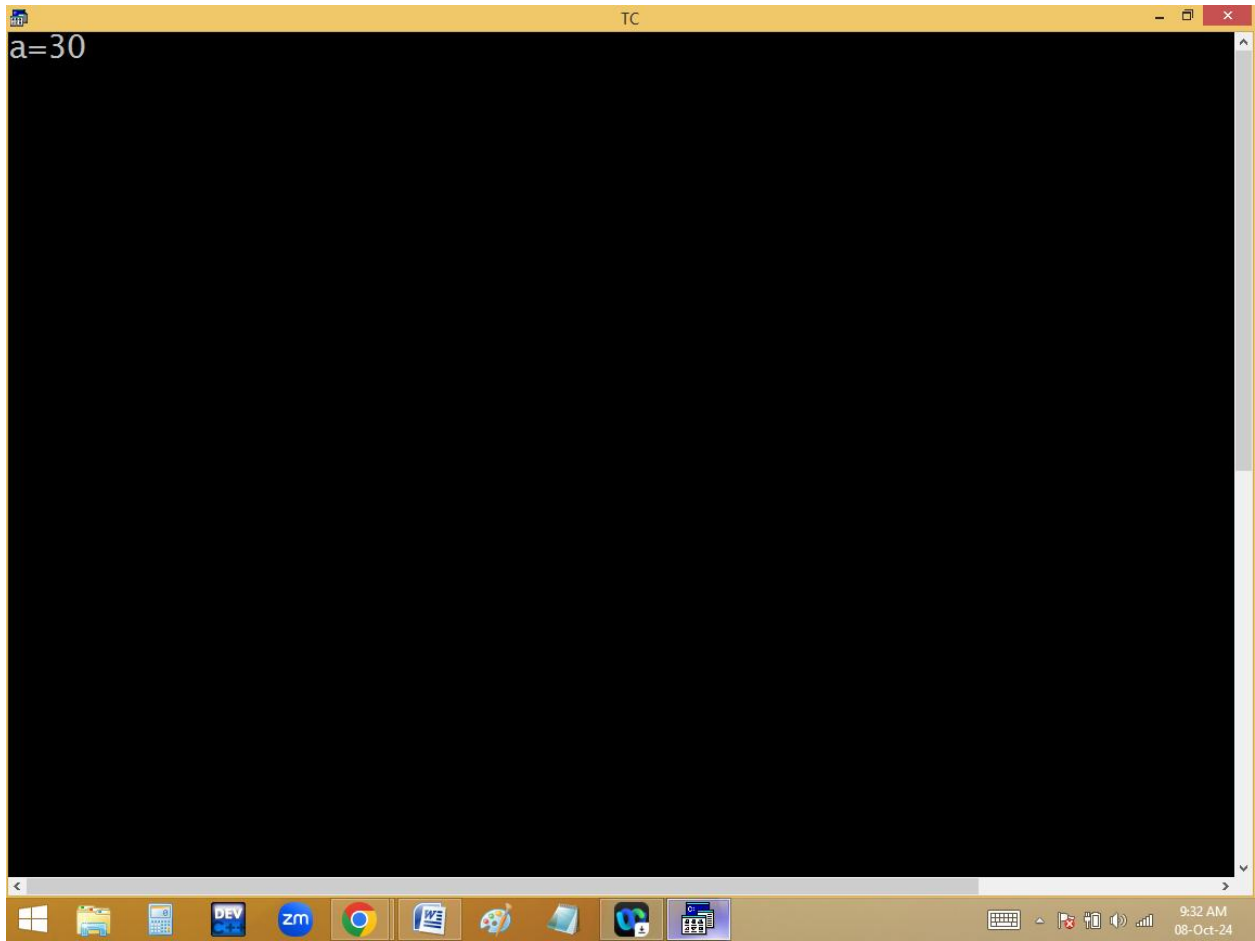
Below the code editor, there is a toolbar with icons for various functions. At the bottom of the IDE window, a status bar displays 'Page: 1 of 1' and 'Words: 4/12'. The Windows taskbar is visible at the very bottom, showing icons for Windows, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, and other applications. The system clock in the bottom right corner indicates '9:31 AM' on '08-Oct-24'.

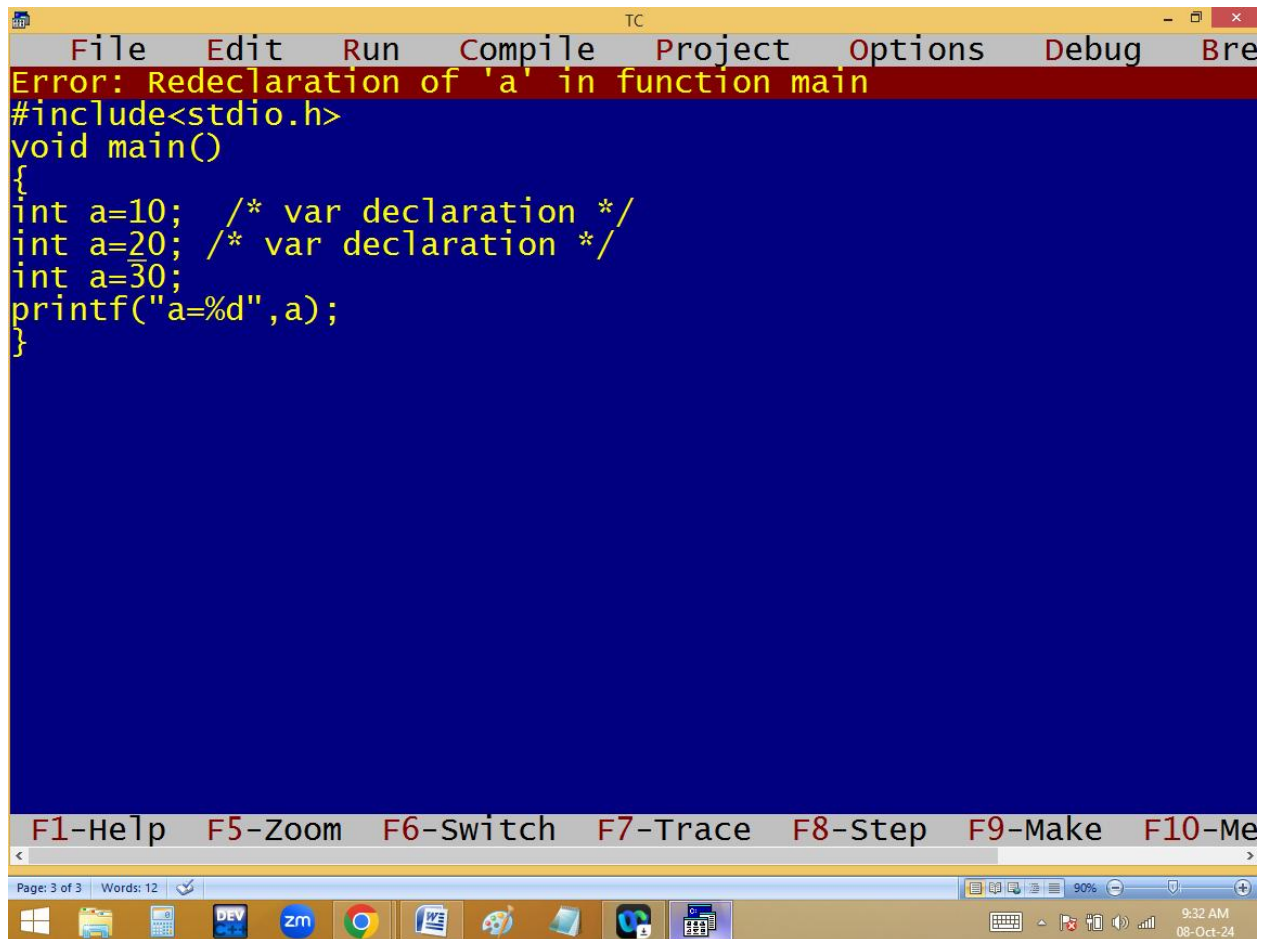
Line 5 Col 14 Insert Indent Tab Fill Unindent * E:9AM

```
#include<stdio.h>
void main()
{
int a=10; /* var declaration */
a=20; /* var initialization */
a=30;
printf("a=%d",a);
}
```

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Me

Page: 1 of 1 Words: 4/12 90% 9:31 AM 08-Oct-24

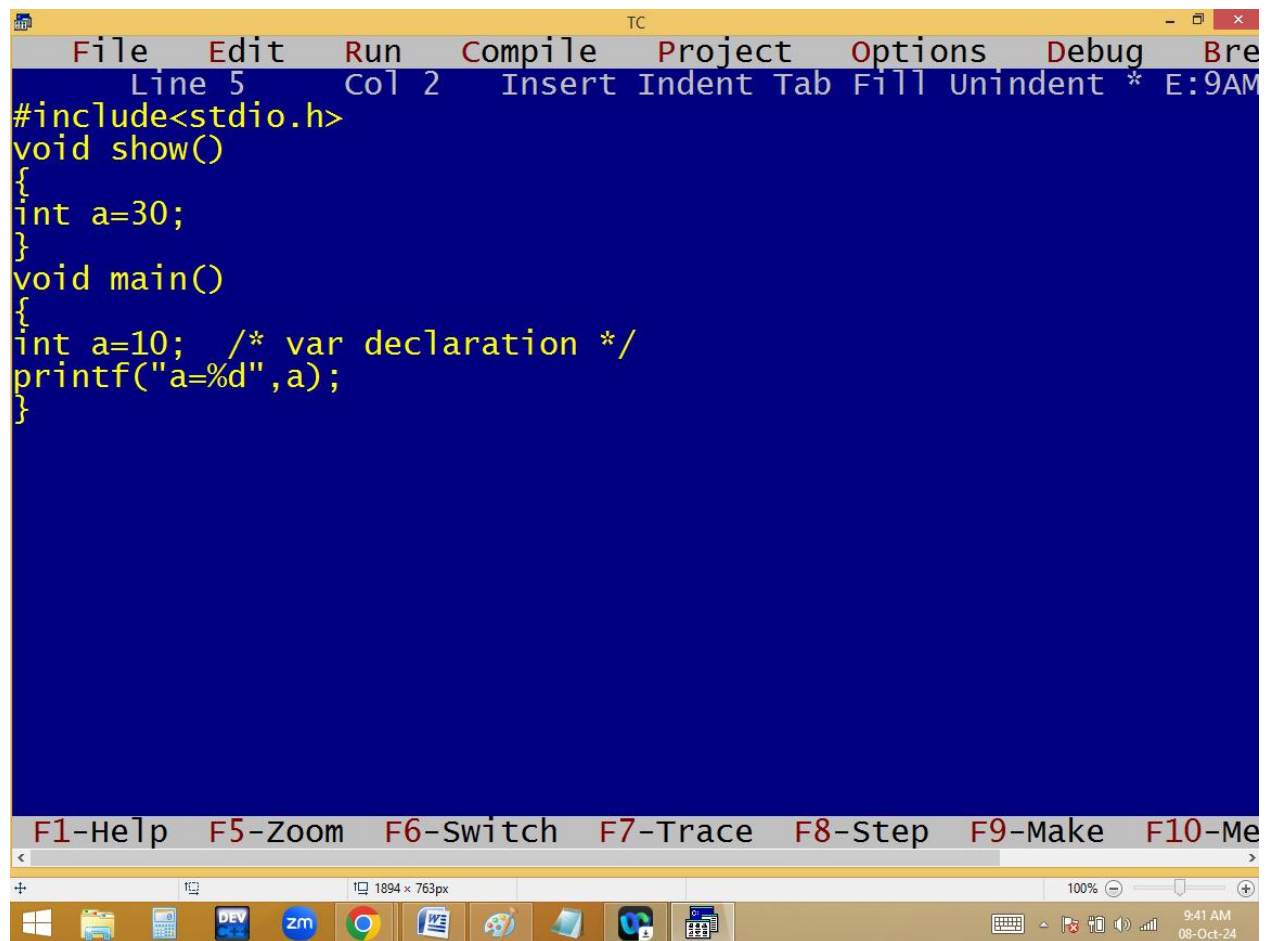




The image shows a screenshot of the Turbo C++ (TC) IDE. The title bar at the top reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Breakpoint". A red error message banner at the top states "Error: Redclaration of 'a' in function main". The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
void main()
{
int a=10; /* var declaration */
int a=20; /* var declaration */
int a=30;
printf("a=%d",a);
}
```

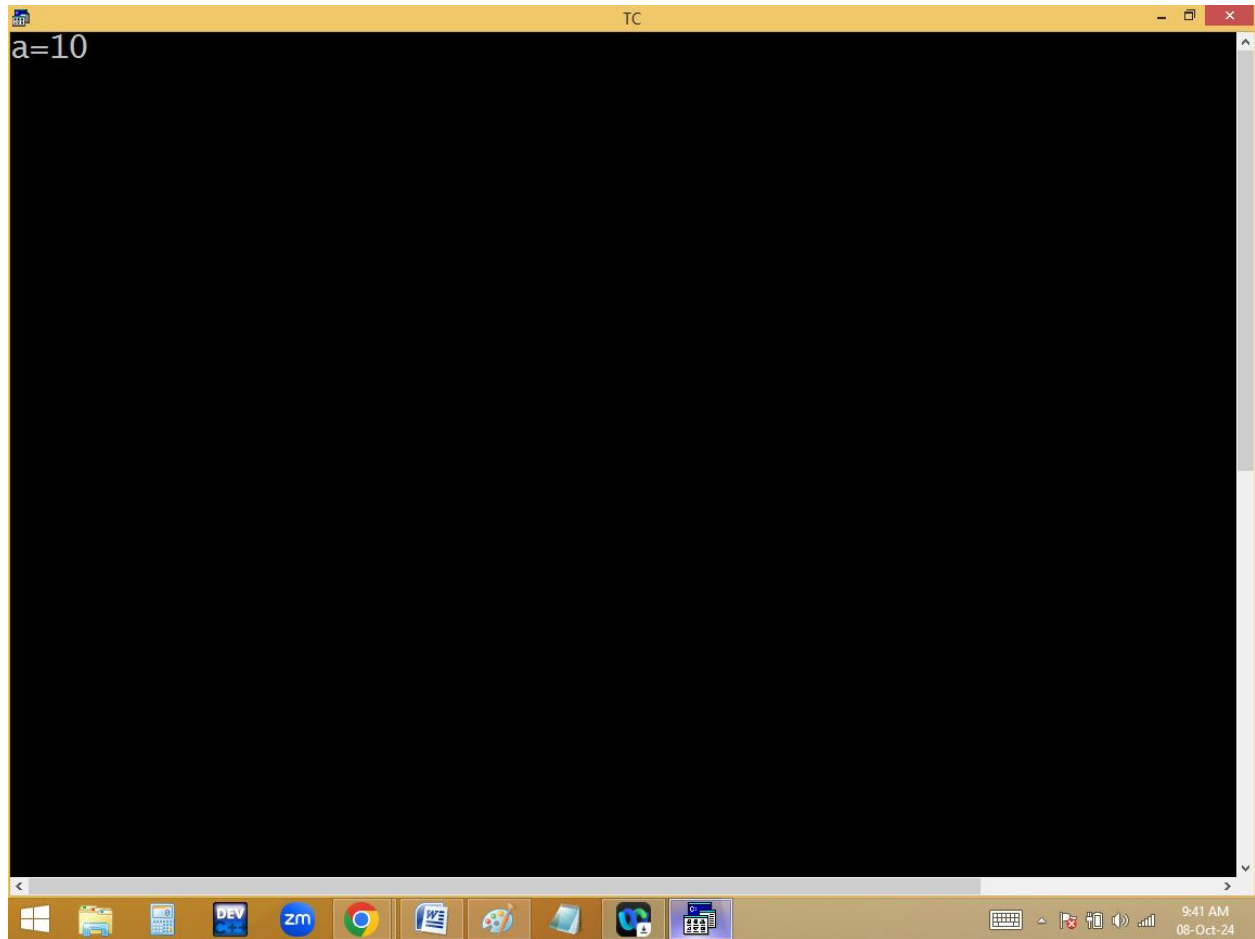
Below the code editor, there is a toolbar with function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", and "F10-Me". At the very bottom is the Windows taskbar, which includes icons for the Start button, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and other background applications. The system tray on the right shows the time as 9:32 AM and the date as 08-Oct-24.



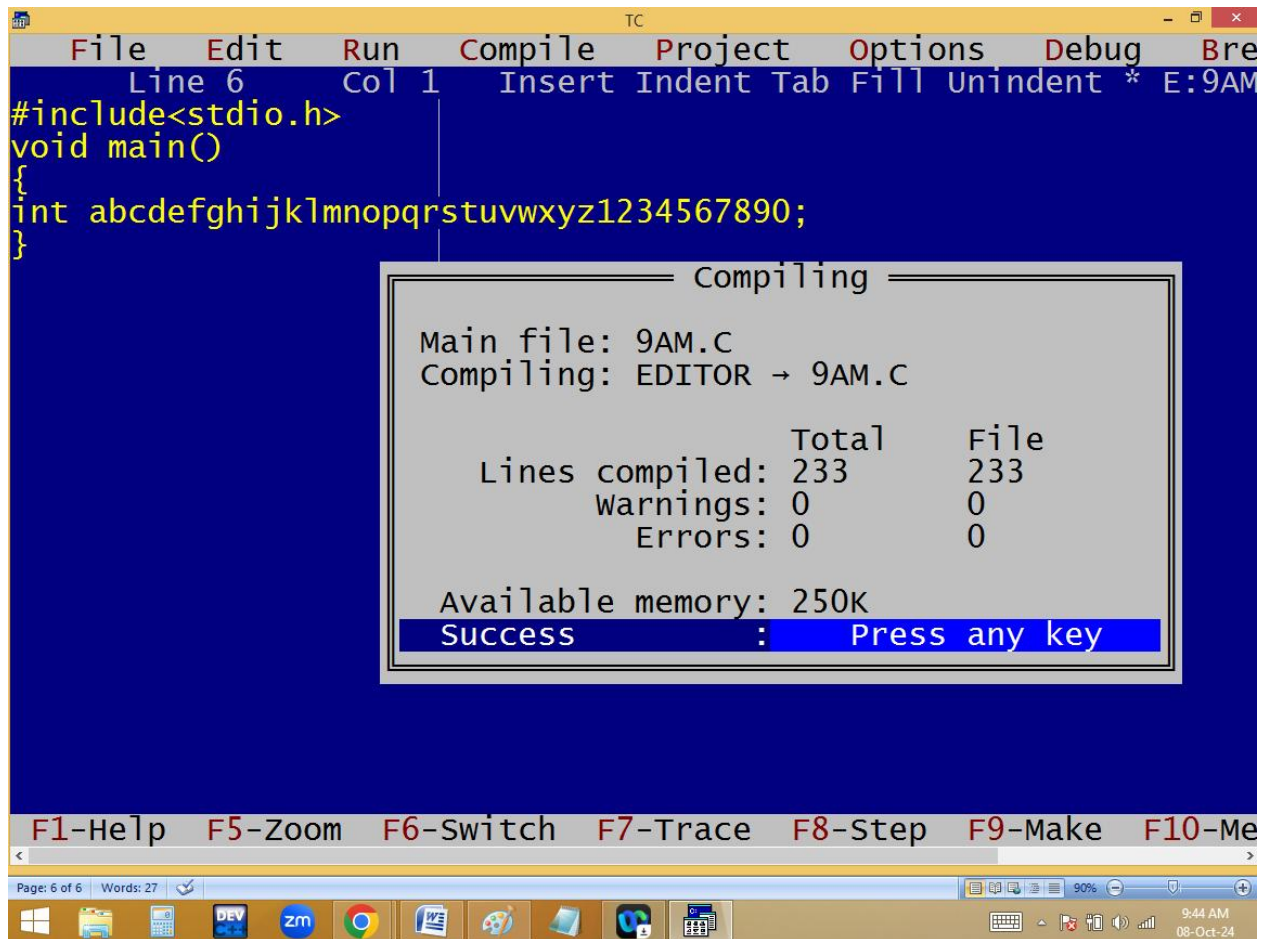
The image shows a screenshot of the Turbo C++ (TC) IDE. The main window has a dark blue background with yellow text. The menu bar at the top includes File, Edit, Run, Compile, Project, Options, Debug, and Break. The status bar at the top shows 'Line 5', 'Col 2', and 'E:9AM'. The code in the editor is as follows:

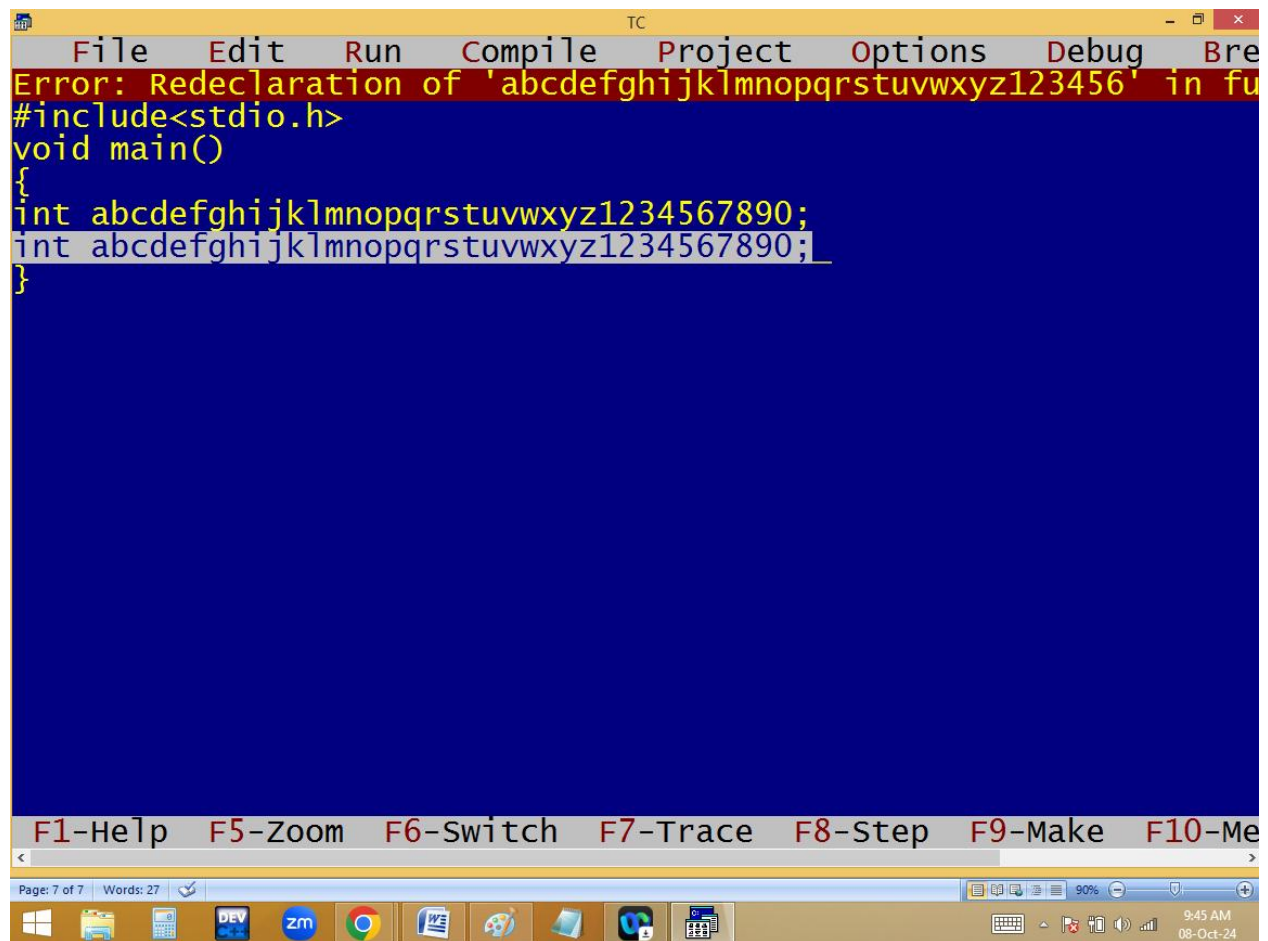
```
#include<stdio.h>
void show()
{
int a=30;
}
void main()
{
int a=10; /* var declaration */
printf("a=%d",a);
}
```

Below the code, there is a toolbar with icons for various functions. At the bottom of the IDE window, a secondary menu bar lists keyboard shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Me. The Windows taskbar is visible at the very bottom, showing the Start button, taskbar icons for File Explorer, Calculator, DEV C++, Zoom, Chrome, Word, Paint, and a folder, along with system tray icons for keyboard, network, and volume. The system clock shows 9:41 AM on 08-Oct-24.



8. Name may contain up to 32 characters and excess characters ignored by the compiler.



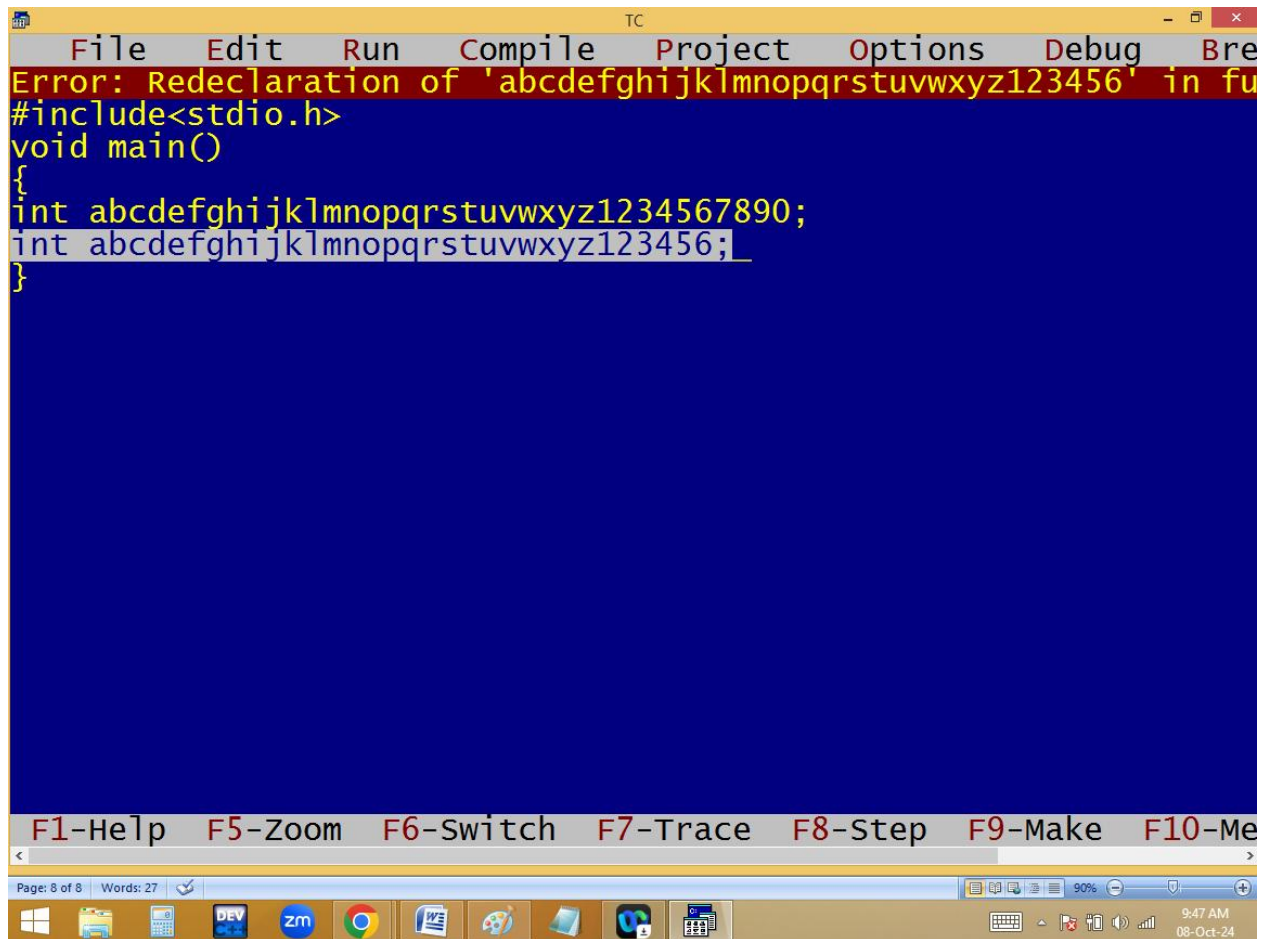


The image shows a screenshot of the Turbo C++ (TC) IDE. The title bar at the top reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Breakpoint". The main editing area has a blue background and contains the following C code:

```
Error: Redclaration of 'abcdefghijklmnopqrstuvwxyz123456' in fu
#include<stdio.h>
void main()
{
int abcdefghijklmnopqrstuvwxyz1234567890;
int abcdefghijklmnopqrstuvwxyz1234567890;
}
```

The error message "Error: Redclaration of 'abcdefghijklmnopqrstuvwxyz123456' in fu" is displayed in red text at the top of the code area. The code defines a variable with a long name twice, causing a redeclaration error. The status bar at the bottom of the IDE shows "Page: 7 of 7" and "Words: 27". Below the IDE window is the Windows taskbar, which includes icons for the Start button, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and other applications. The system clock in the bottom right corner shows "9:45 AM" and "08-Oct-24".

F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Me



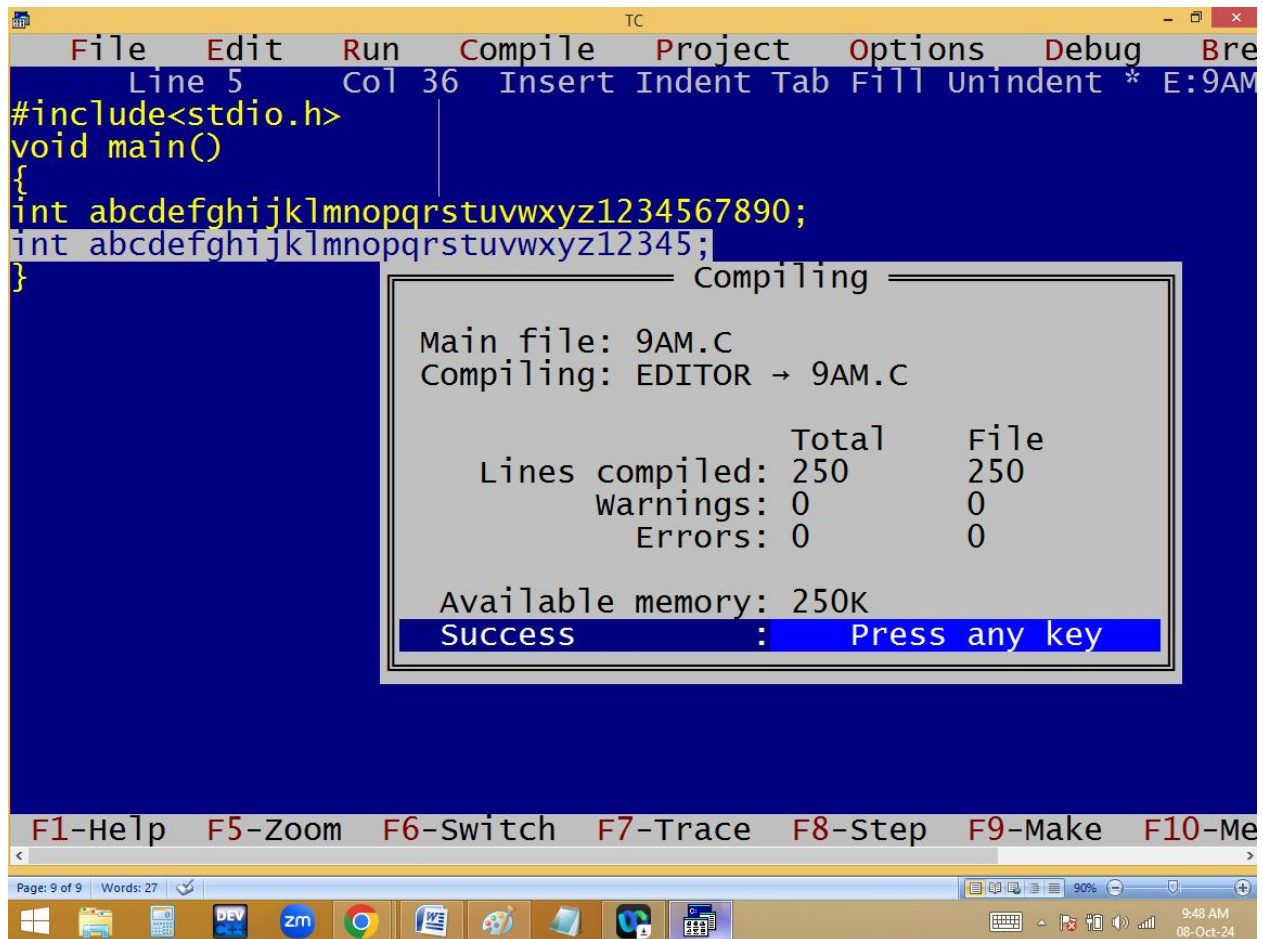
The image shows a screenshot of the Turbo C++ (TC) IDE. The title bar at the top reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Breakpoint". The main editing area has a blue background and displays the following C code:

```
Error: Redclaration of 'abcdefghijklmnopqrstuvwxyz123456' in fu
#include<stdio.h>
void main()
{
int abcdefghijklmnopqrstuvwxyz1234567890;
int abcdefghijklmnopqrstuvwxyz123456;_
}
```

The error message "Error: Redclaration of 'abcdefghijklmnopqrstuvwxyz123456' in fu" is visible at the top of the code area. The code defines two integer variables with names that are too long for the C standard. The first variable is declared on line 4, and the second is declared on line 5, causing a redeclaration error.

Below the code area, there is a status bar with the text "Page: 8 of 8" and "Words: 27". At the bottom of the window is a Windows taskbar with various application icons, including the Start button, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and others. The system clock in the bottom right corner shows "9:47 AM" and "08-Oct-24".

Below the code area, there is a status bar with the text "Page: 8 of 8" and "Words: 27". At the bottom of the window is a Windows taskbar with various application icons, including the Start button, File Explorer, Calculator, DEV C++, Zoom, Google Chrome, Word, Paint, and others. The system clock in the bottom right corner shows "9:47 AM" and "08-Oct-24".



The screenshot shows the Turbo C++ IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break. The status bar at the top indicates Line 5, Col 36, and the file name E:9AM. The code in the editor is as follows:

```
#include<stdio.h>
void main()
{
int abcdefghijklmnopqrstuvwxyz1234567890;
int abcdefghijklmnopqrstuvwxyz12345;
}
```

A "Compiling" dialog box is open in the center, displaying the following information:

Main file: 9AM.C
Compiling: EDITOR → 9AM.C

	Total	File
Lines compiled:	250	250
Warnings:	0	0
Errors:	0	0

Available memory: 250K
Success : Press any key

The bottom status bar shows keyboard shortcuts: F1-Help, F5-Zoom, F6-Switch, F7-Trace, F8-Step, F9-Make, and F10-Me. The Windows taskbar at the bottom shows the time as 9:48 AM on 08-Oct-24.

3. Constants: Fixed values are called constants. We can't change a constant value during program execution. i.e. constant value should be provided at the time of declaration only.

Eg:

Numerical constants:

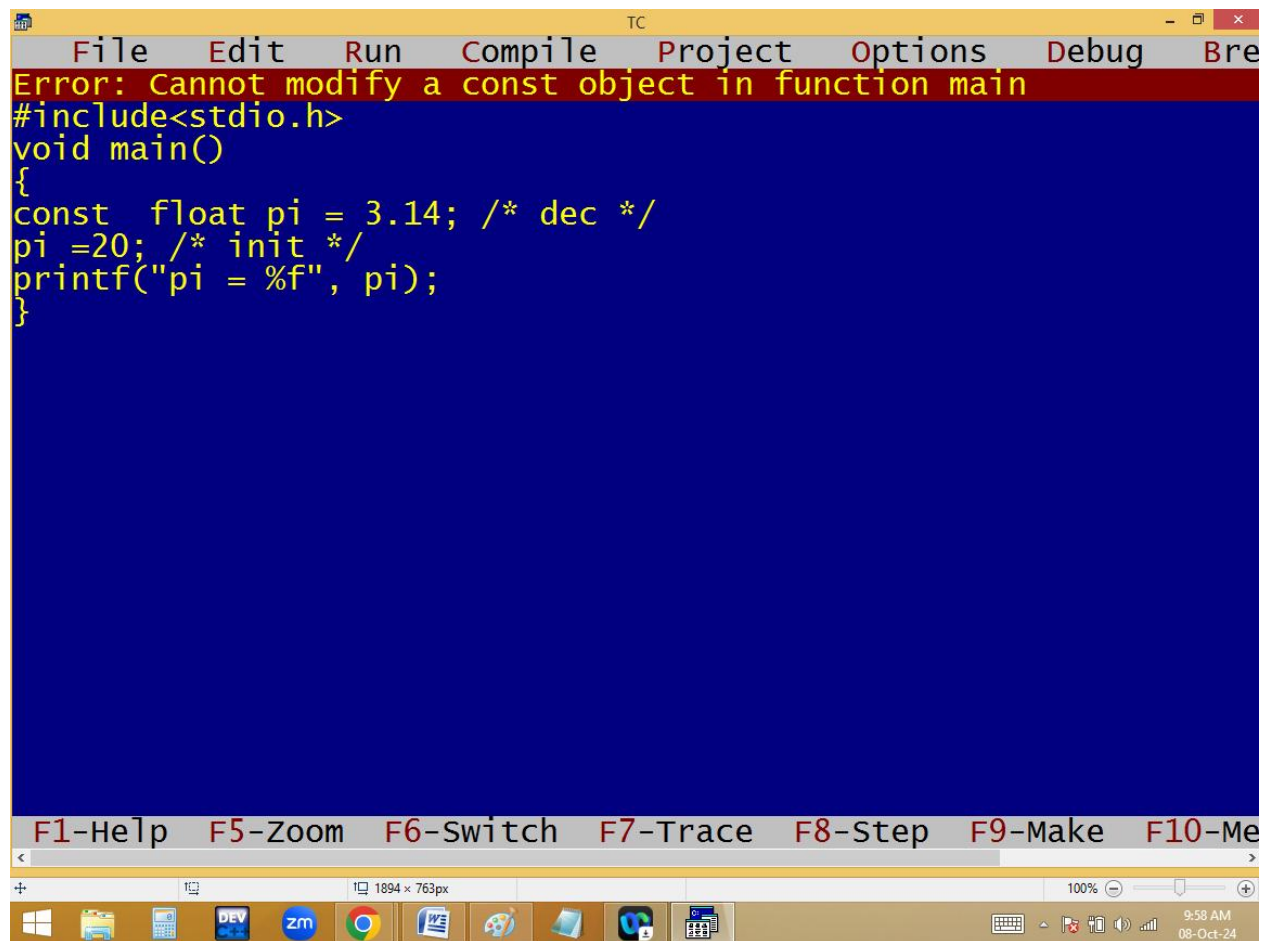
```
const int rollno=1234;
```

```
const float pi=3.14;
```

character constants:

```
const char name[ ]="Ravi"; ← string
```

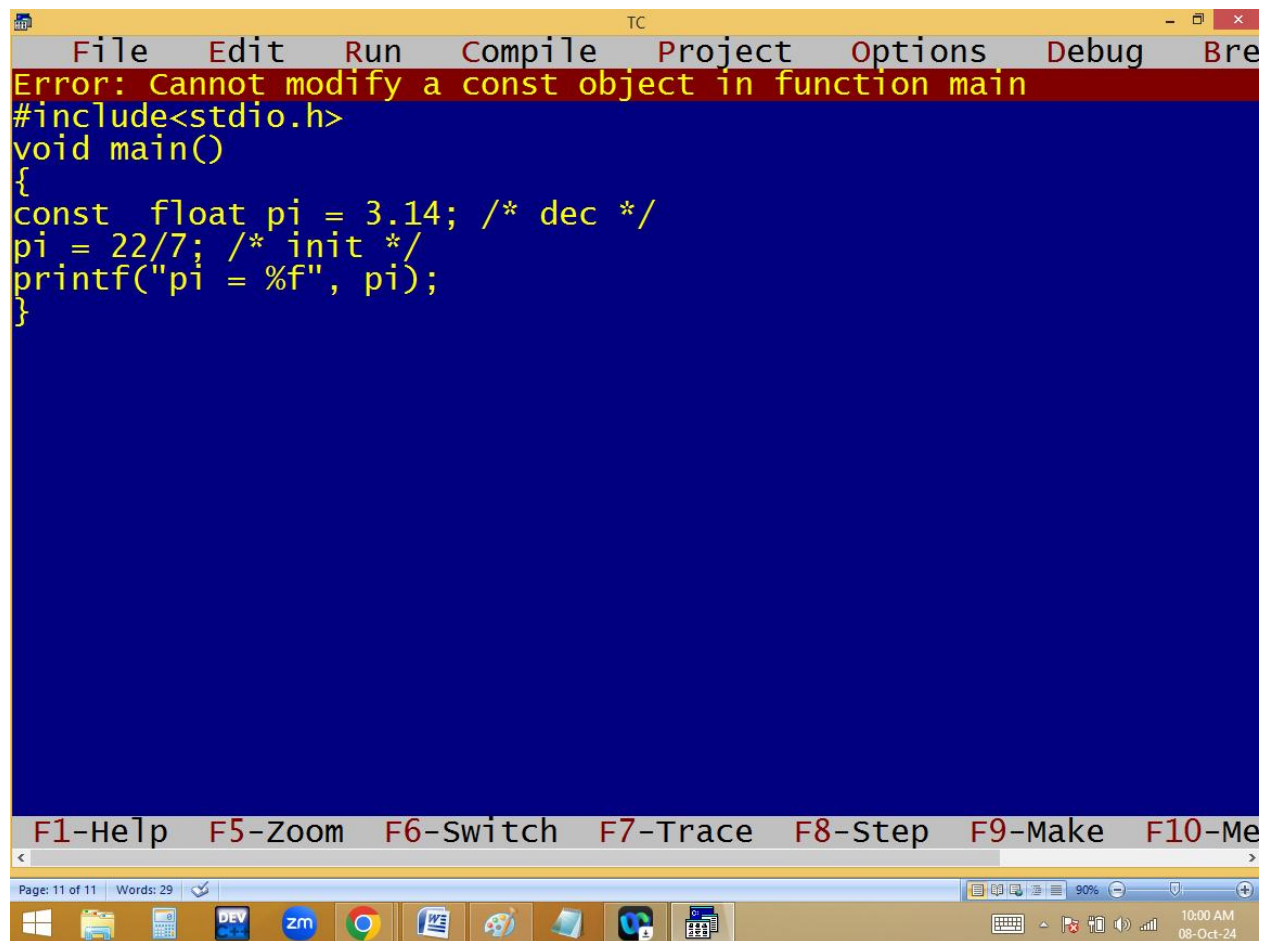
```
const char gender = 'M'; ← char
```



The image shows a screenshot of the Turbo C++ (TC) IDE. The main window has a dark blue background with yellow text. At the top, there is a menu bar with the following options: File, Edit, Run, Compile, Project, Options, Debug, and Bre. Below the menu bar, a red error message is displayed: "Error: Cannot modify a const object in function main". The code in the editor is as follows:

```
#include<stdio.h>
void main()
{
const float pi = 3.14; /* dec */
pi =20; /* init */
printf("pi = %f", pi);
}
```

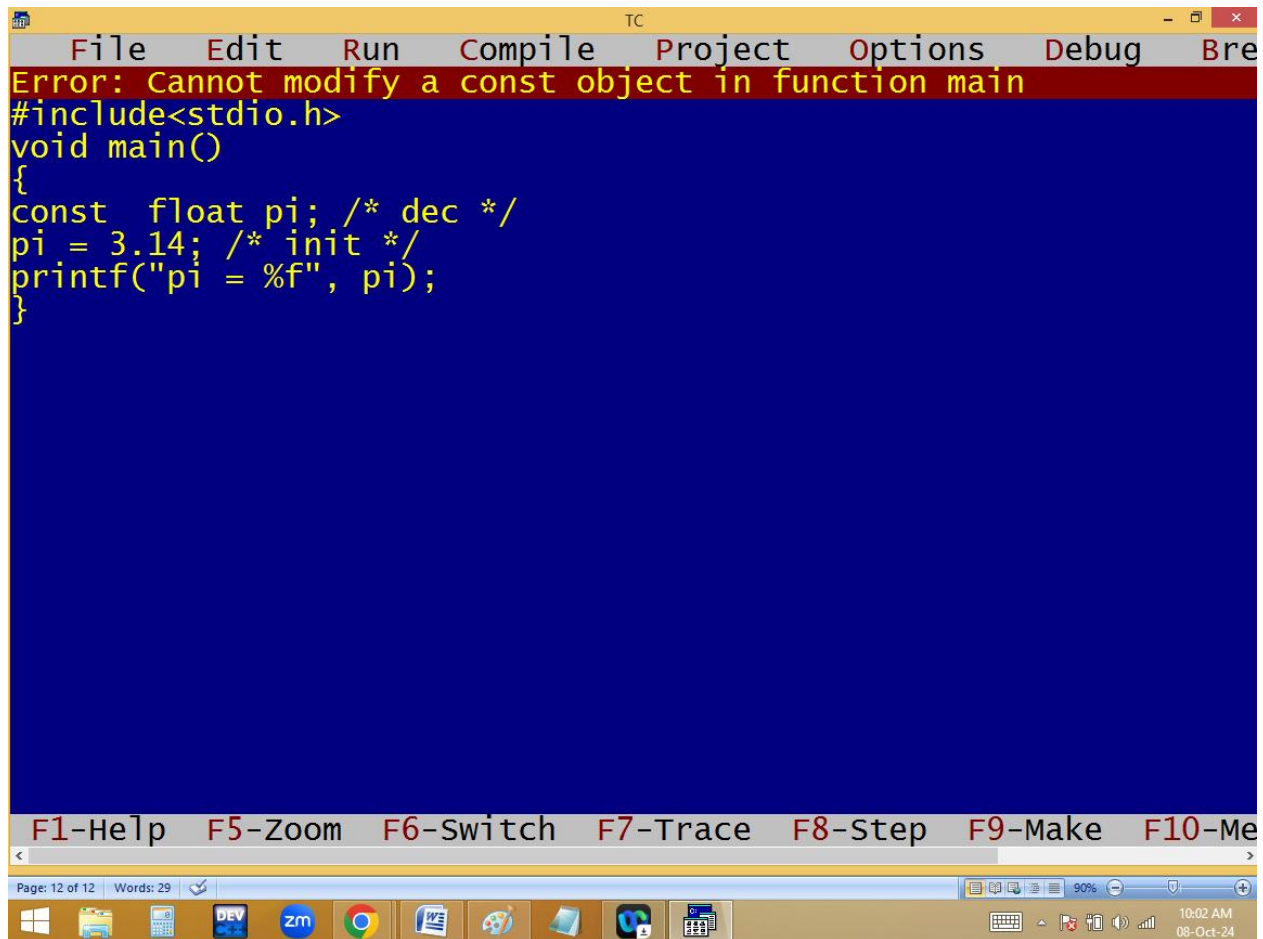
Below the code, there is a status bar with the following text: "F1-Help F5-Zoom F6-Switch F7-Trace F8-Step F9-Make F10-Me". At the bottom of the window, there is a taskbar with various icons, including the Windows logo, a folder icon, a calculator icon, a DEV icon, a zm icon, a Chrome icon, a VS Code icon, a Paint icon, a File Explorer icon, and a Task Manager icon. The system clock in the bottom right corner shows "9:58 AM" and "08-Oct-24".



The image shows a screenshot of the Turbo C++ (TC) IDE. The title bar at the top reads "TC". The menu bar includes "File", "Edit", "Run", "Compile", "Project", "Options", "Debug", and "Breakpoint". A red error message banner at the top states: "Error: Cannot modify a const object in function main". The main editing area has a blue background and contains the following C code:

```
#include<stdio.h>
void main()
{
const float pi = 3.14; /* dec */
pi = 22/7; /* init */
printf("pi = %f", pi);
}
```

Below the code editor, there is a toolbar with function key shortcuts: "F1-Help", "F5-Zoom", "F6-Switch", "F7-Trace", "F8-Step", "F9-Make", and "F10-Me". At the very bottom is the Windows taskbar, which includes icons for the Start button, File Explorer, Calculator, DEV C++, Zoom (zm), Google Chrome, Word, Paint, and other background applications. The system tray on the right shows the date and time as "10:00 AM 08-Oct-24".



The screenshot shows the Turbo C++ (TC) IDE interface. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break. A red error message banner at the top reads "Error: Cannot modify a const object in function main". The code editor contains the following C code:

```
#include<stdio.h>
void main()
{
const float pi; /* dec */
pi = 3.14; /* init */
printf("pi = %f", pi);
}
```

The status bar at the bottom shows "Page: 12 of 12" and "Words: 29". The Windows taskbar is visible at the very bottom with various application icons and a system clock showing 10:02 AM on 08-Oct-24.

DATA TYPES

Data type determines the type of value we are going to store in our computer. To store anything in our computer, we should have to allocate the memory. This memory allocation is depended on the data type we are using.

Data type determines the properties such as

1. No of bytes
2. Range

3. Type of value

In C language we are having 3 **basic** data types

1. **Int – To store non-decimal numbers**
2. **Float – To store decimal numbers**
3. **Char – To stores alphabets, numbers and special char**

Total data types are divided into 3 types.

1. **Primitive data types**
2. **Derived data types**
3. **User defined data types**

PRIMITIVE DATA TYPES:

These are the regular data types we are using in our c programs.

Data type	Bytes	Conversion Character / format specifier	Storage Range
int / signed int / short int	2	%d	-32768 to +32767
unsigned int	2	%u	0 to 65535
long int	4	%ld	-2147483648 to 2147483647
unsigned long int	4	%lu	0 to 4294967295

float	4	%f	$3.4 * 10^{-38}$ to $3.4 * 10^{+38}$
double	8	%lf	$1.7 * 10^{-308}$ to $1.7 * 10^{+308}$
long double	10	%Lf	$3.4 * 10^{-4932}$ to $1.1 * 10^{+4932}$
char	1	%c	1 character Signed char [-128 to +127] Unsigned char [0 to 255]
char[10] (STRING)	10	%s	9 char + 1 null char
void [empty data type]			nothing

DERIVED DATA TYPES:

They are derived from primitive data types.

- 1. Array [non-primitive]**
- 2. Pointer**
- 3. Function**

USER DEFINED DATA TYPES:

These are the data types created by the user.

1. structure
2. union
3. enum