

Constants: Fixed values. We can't change a constant value during program execution. Constant value should be provided at the declaration only. i.e. further initializations not allowed.

Eg:

Numerical constants:

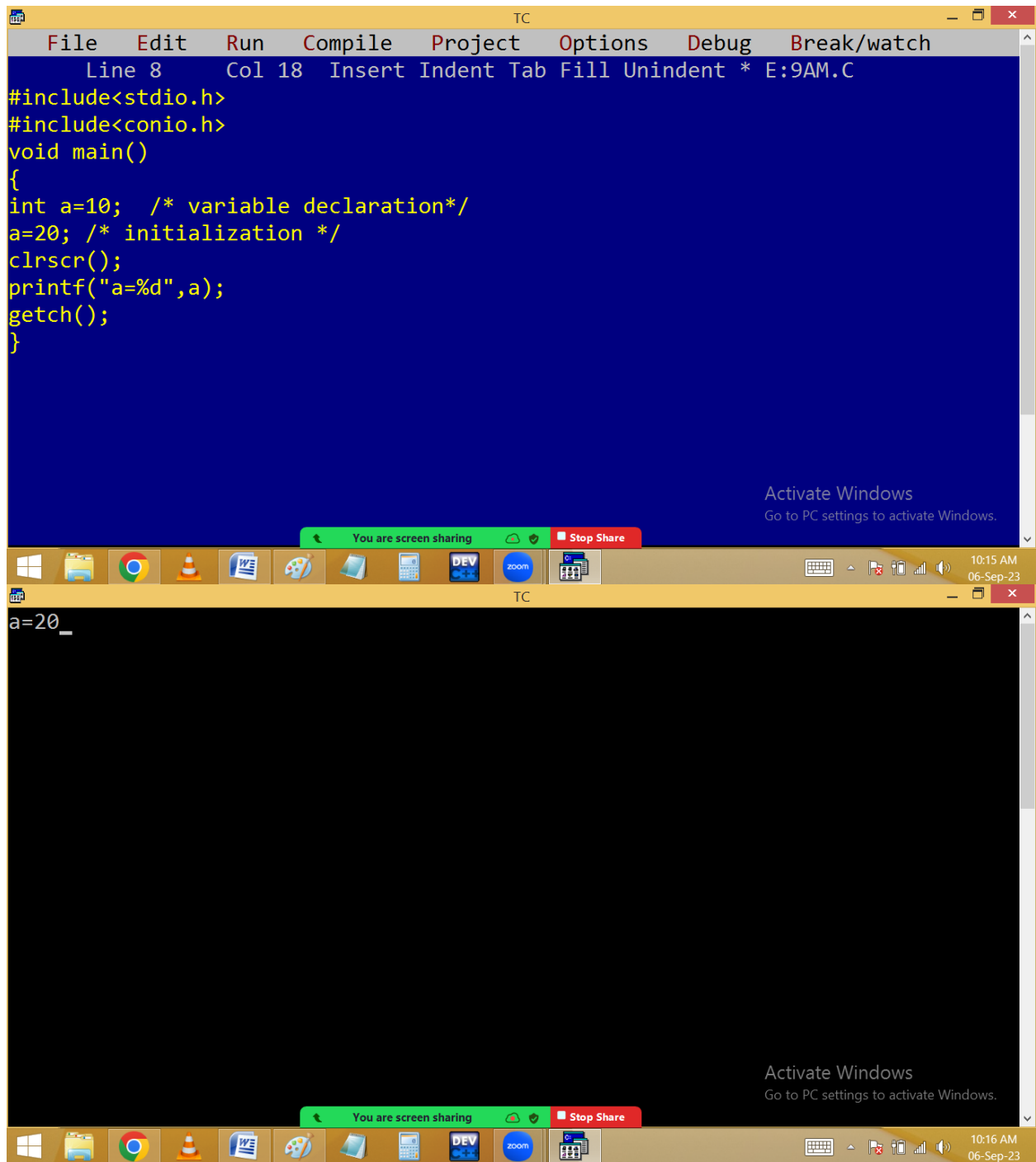
```
const float pi=3.14;
```

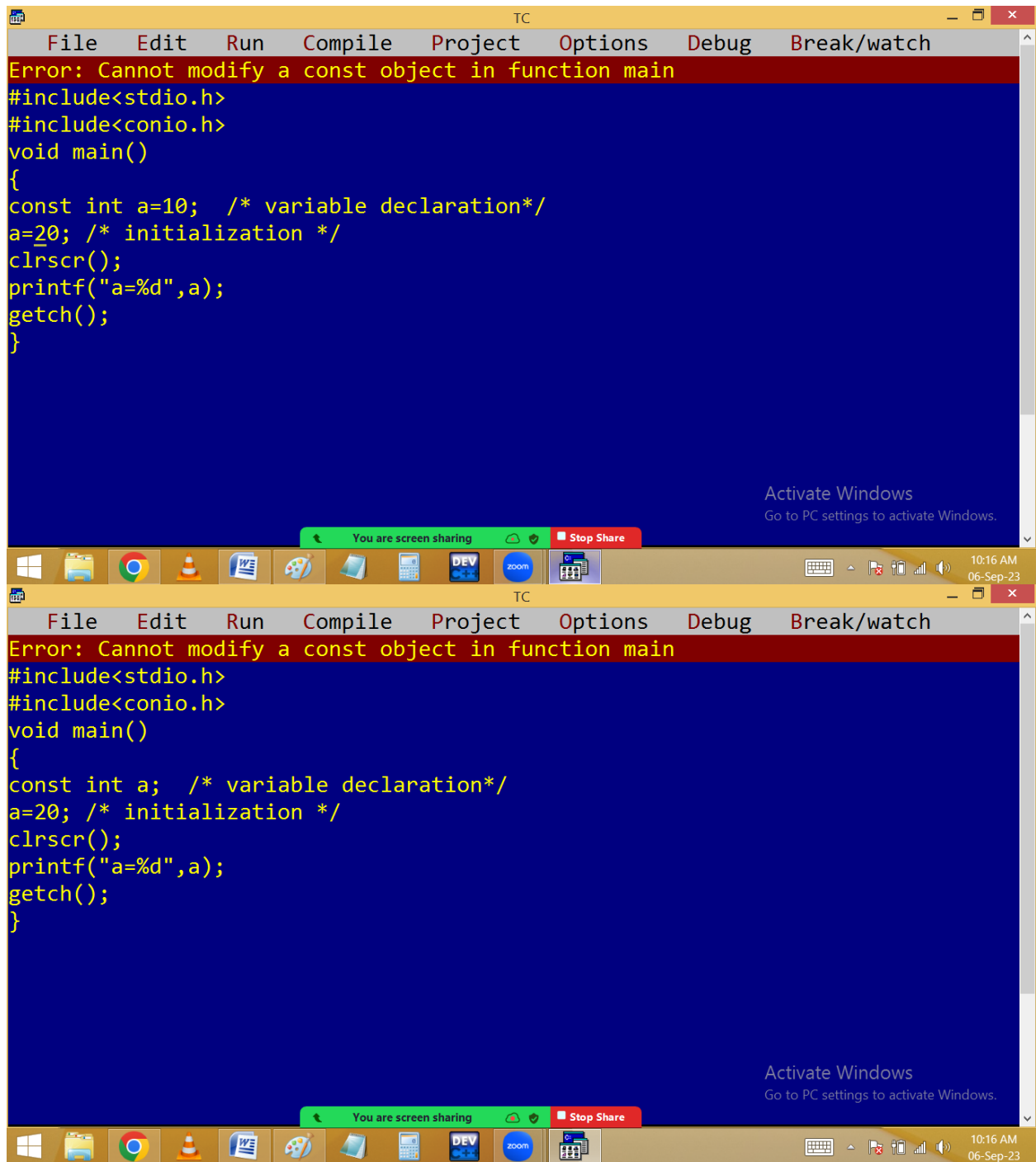
```
const int id=1234;
```

character constants:

```
const char name[ ]="Ravi"; ➔ String constant
```

```
const char gender = 'M'; ➔ char constant
```





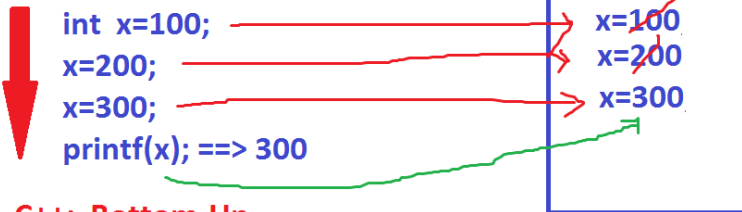
Identifiers: Names of variables, functions, files, array, pointer etc

Example for variables:

int a=10; a is used to identify 10.

int b=20; b is used to identify 20. hence a & b are identifiers.

Top-Down Approach



C++: Bottom-Up

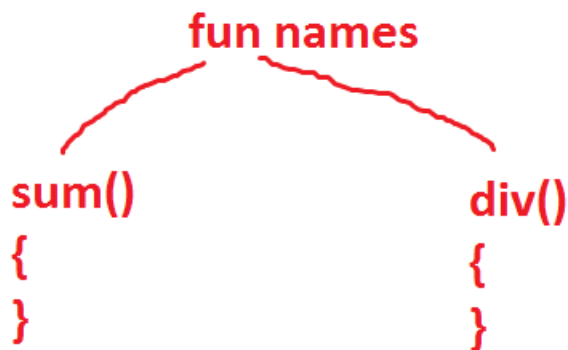
x is ready to change

change + ready

[vary + able = variable]



Example for functions:



Example for files:

a.c, b.cpp, c.java, d.py, e.doc, f.txt,.....

int a[10]; int array variable

int * a; int pointer variable

Naming rules:

1. Name should have to start with alphabet or underscore[_].

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File Edit Run Compile Project Options Debug Break/watch

Line 5 Col 6 Insert Indent Tab Fill Unindent * E:9AM.C

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

Linking

EXE file : 9AM.EXE
Linking : LIB\CS.LIB

	Total	Link
Lines compiled:	316	PASS 2
Warnings:	0	0
Errors:	0	0

Available memory: 250K

Success : Press any key

Activate Windows
Go to PC settings to activate Windows.

10:18 AM
06-Sep-23

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Error: Declaration syntax error in function main

```
#include<stdio.h>
#include<conio.h>
void main()
{
int 1;
}
```

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10:19 AM
06-Sep-23

```
File Edit Run Compile Project Options Debug Break/watch
Line 5 Col 8 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int _a_ ;
}
```

Linking

EXE file : 9AM.EXE
Linking : LIB\CS.LIB

	Total	Link
Lines compiled:	316	PASS 2
Warnings:	0	0
Errors:	0	0

Available memory: 250K

Success : Press any key

10:19 AM
06-Sep-23

2. Numbers allowed but not at first position.

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Line 5 Col 7 Insert Indent Tab Fill Unindent * E:9AM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a1 ;
}
```

Linking

EXE file : 9AM.EXE
Linking : LIB\CS.LIB

	Total	Link
Lines compiled:	316	PASS 2
Warnings:	0	0
Errors:	0	0

Available memory: 250K

Success : Press any key

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Edit

Error: Declaration syntax error in function main

```
#include<stdio.h>
#include<conio.h>
void main()
{
int 1a ;
}
```

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10:20 AM
06-Sep-23

3. Spaces not allowed.

The image displays two screenshots of a Turbo C++ IDE, illustrating the error 'Spaces not allowed' in a variable declaration.

Top Screenshot (Successful Compilation):

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

Compilation Output:

```
Main file: 9AM.C
Compiling: EDITOR -> 9AM.C

Total      File
Lines compiled: 316    316
Warnings: 0           0
Errors: 0             0

Available memory: 250K
Success : Press any key
```

Bottom Screenshot (Failed Compilation):

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a b ;
}
```

Compilation Output:

```
Main file: 9AM.C
Compiling: EDITOR -> 9AM.C

Total      File
Lines compiled: 315    315
Warnings: 0           0
Errors: 1             1

Available memory: 250K
Errors : Press any key
```

4. Special characters not allowed except underscore.

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File Edit Run Compile Project Options Debug Break/watch

Edit

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

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a$ ;
}
```

Compiling

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

	Total	File
Lines compiled:	315	315
Warnings:	0	0
Errors:	1	1

Available memory: 250K

Errors : Press any key

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Go to PC settings to activate Windows.

10:22 AM
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File Edit Run Compile Project Options Debug Break/watch

Edit

Line 5 Col 7 Insert Indent Tab Fill Unindent * E:9AM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a* ;
}
```

Compiling

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

	Total	File
Lines compiled:	315	315
Warnings:	0	0
Errors:	1	1

Available memory: 250K

Errors : Press any key

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Go to PC settings to activate Windows.

10:23 AM
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File Edit Run Compile Project Options Debug Break/watch

Line 5 Col 27 Insert Indent Tab Fill Unindent * E:9AM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int *a ; /* pointer var */
}
```

Compiling

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

	Total	File
Lines compiled:	316	316
Warnings:	0	0
Errors:	0	0

Available memory: 250K

Success : Press any key

Activate Windows
Go to PC settings to activate Windows.

10:23 AM
06-Sep-23

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File Edit Run Compile Project Options Debug Break/watch

Line 5 Col 15 Insert Indent Tab Fill Unindent * E:9AM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int _a_1_b_ ;
}
```

Compiling

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

	Total	File
Lines compiled:	316	316
Warnings:	0	0
Errors:	0	0

Available memory: 250K

Success : Press any key

Activate Windows
Go to PC settings to activate Windows.

10:24 AM
06-Sep-23

5. Keywords not allowed.

The image consists of two screenshots of a Turbo C++ IDE, illustrating the case sensitivity of identifiers in C++.

Top Screenshot: The code in `E:9AM.C` is as follows:

```
Line 5 Col 8 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int do ;
}
```

The compilation window shows the following results:

	Total	File
Lines compiled:	315	315
Warnings:	0	0
Errors:	1	1

Available memory: 250K
Errors : Press any key

Bottom Screenshot: The code in `E:9AM.C` is modified to use an uppercase identifier:

```
Line 6 Col 7 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int Do;
}
```

The compilation window shows the following results:

	Total	File
Lines compiled:	316	316
Warnings:	0	0
Errors:	0	0

Available memory: 250K
Success : Press any key

6. Identifiers are case sensitive. i.e. lower and upper are different.

The image shows a Windows IDE window with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a toolbar. The main editing area has a blue background and contains the following C code:

```
Line 8 Col 9 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10, A=20;
clrscr();
printf("a=%d, A=%d",a,A);
getch();
}
```

Below the code, a status bar indicates "Activate Windows Go to PC settings to activate Windows." The taskbar at the bottom shows various application icons, including Windows, File Explorer, Chrome, VLC, Word, Paint, and several development tools. The system clock shows 10:28 AM on 06-Sep-23.

Below the IDE window, a black console window is open, displaying the output of the program:

```
a=10, A=20_
```

The console window also has a status bar with the same "Activate Windows" message and the same system clock.

7. Duplicate identifiers not allowed in same function.

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File Edit Run Compile Project Options Debug Break/watch

Edit

Line 9 Col 17 Insert Indent Tab Fill Unindent * E:9AM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10;
int a=20;
int a=30;
clrscr();
printf("a=%d",a);
getch();
}
```

Compiling

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

	Total	File
Lines compiled:	320	320
Warnings:	0	0
Errors:	2	2

Available memory: 250K

Errors : Press any key

Activate Windows
Go to PC settings to activate Windows.

10:29 AM
06-Sep-23

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File Edit Run Compile Project Options Debug Break/watch

Edit

Error: Redeclaration of 'a' in function main

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10;
int a=20;
int a=30;
clrscr();
printf("a=%d",a);
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

10:29 AM
06-Sep-23

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File Edit Run Compile Project Options Debug Break/watch

Edit

Line 5 Col 15 Insert Indent Tab Fill Unindent * E:9AM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10;/*dec*/
float a=20.5;
clrscr();
printf("a=%d",a);
getch();
}
```

Compiling

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

	Total	File
Lines compiled:	320	320
Warnings:	0	0
Errors:	1	1

Available memory: 250K

Errors : Press any key

Activate Windows
Go to PC settings to activate Windows.

10:35 AM
06-Sep-23

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File Edit Run Compile Project Options Debug Break/watch

Edit

Error: Redeclaration of 'a' in function main

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a=10;/*dec*/
float a=20.5;
clrscr();
printf("a=%d",a);
getch();
}
```

Activate Windows
Go to PC settings to activate Windows.

10:41 AM
06-Sep-23

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Stop Share

FileEditRunCompileProjectOptionsDebugBreak/watch

Edit

Line 9Col 10InsertIndentTabFillUnindent * E:9AM.C

```
#include<stdio.h>
#include<conio.h>
void fun()
{
int a=10;/*dec*/
printf("a=%d",a);
getch();
}
void main()
{
int a=20;
clrscr();
printf("a=%d\n",a);
fun();
}
```

Activate Windows
Go to PC settings to activate Windows.

10:45 AM
06-Sep-23

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Stop Share

a=20
a=10_

Activate Windows
Go to PC settings to activate Windows.

10:45 AM
06-Sep-23