

No to text conversion:

123 → one two three

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

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

```
#define p printf /* macro */
```

```
void main()
```

```
{
```

```
long m,n, rev=0; int r;
```

```
clrscr();
```

```
p("enter the no "); scanf("%ld",&n); if(n<0)p("-  
",n=-n);
```

```
m=n;
```

```
while(m!=0) { r=m%10; rev=rev*10+r; m=m/10;} /*  
rev */
```

```
do
```

```
{
```

```
switch(rev%10)
{
case 0: p("Zero");break;
case 1: p("One");break;
case 2: p("two");break;
case 3: p("Three");break;
case 4: p("Four");break;
case 5: p("Five");break;
case 6: p("Six");break;
case 7: p("Seven");break;
case 8: p("Eight");break;
case 9: p("Nine");
}

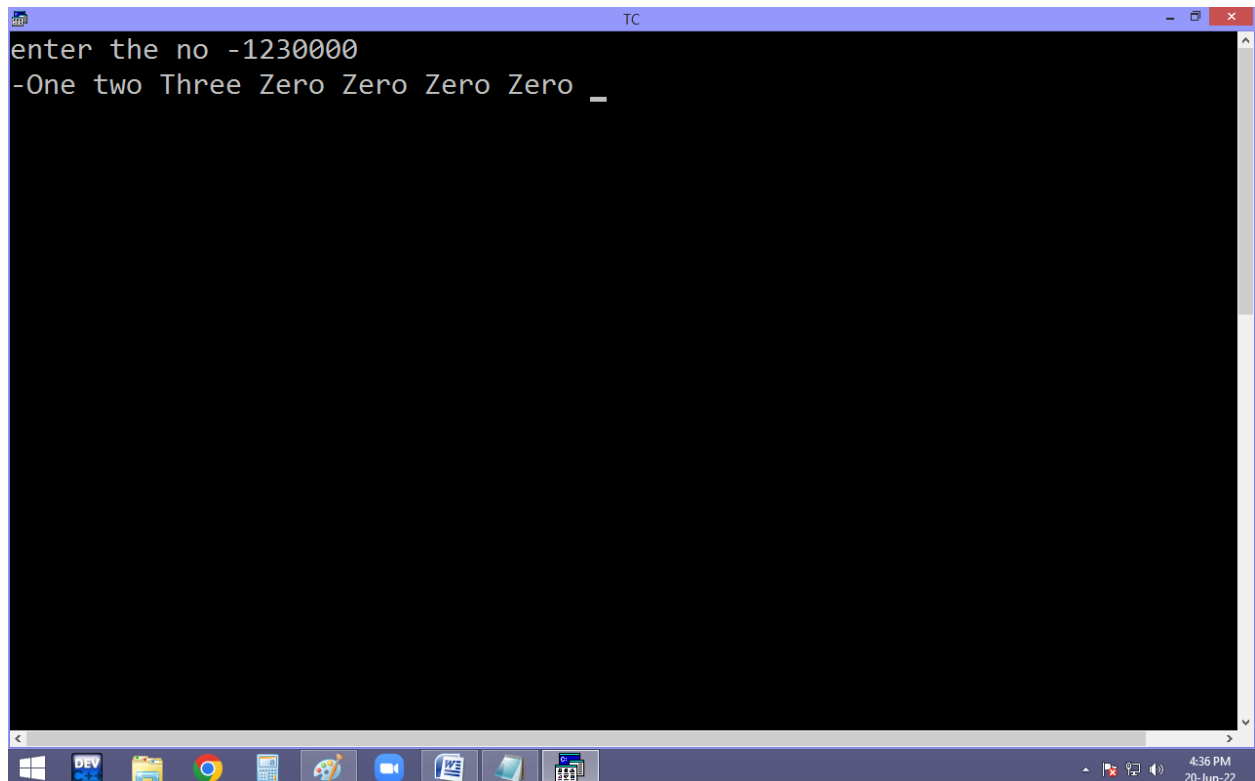
rev=rev/10; p(" ");

}while(rev!=0);

while(n%10==0&& n!=0)p("Zero ",n=n/10);
```

getch();

}



	<u>n</u>	<u>rev</u>
do		
switch(<u>rev%10</u>)	102%10=2	0*10+2=2
{	10%10=0	2*10+0=20
case 0: p("zero");break; ✓	1%10=1	20*10+1=201
case <u>1</u> : p(<u>"One"</u>);break;		201 % 10 = 1 One ✓
case 2: p("Two");break;		201 % 10 = 0 Zero ✓
case 9: p("Nine");		201 % 10 = 1 One ✓
}		
rev/=10; ✓		
p(" ");		
}while(rev!=0);		

$n = 1000 \% 10 = 0$

one Zero Zero

while(n%10==0 && n!=0) p("Zero", n=n/10);

for loop:

for loop:

It is an entry control loop.

for is a keyword.

It is also used to repeat a program several times based on a condition.

When compared with while and do while, for loop is looking to be smart. In for it is compulsory to maintain two semicolons.

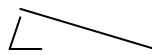
For works without condition also and default condition is always 1 i.e. true.

Generally for loop is having 3 expressions.

- 1. Initialization**
- 2. Test condition / expression**
- 3. Increment/decrement / updation**

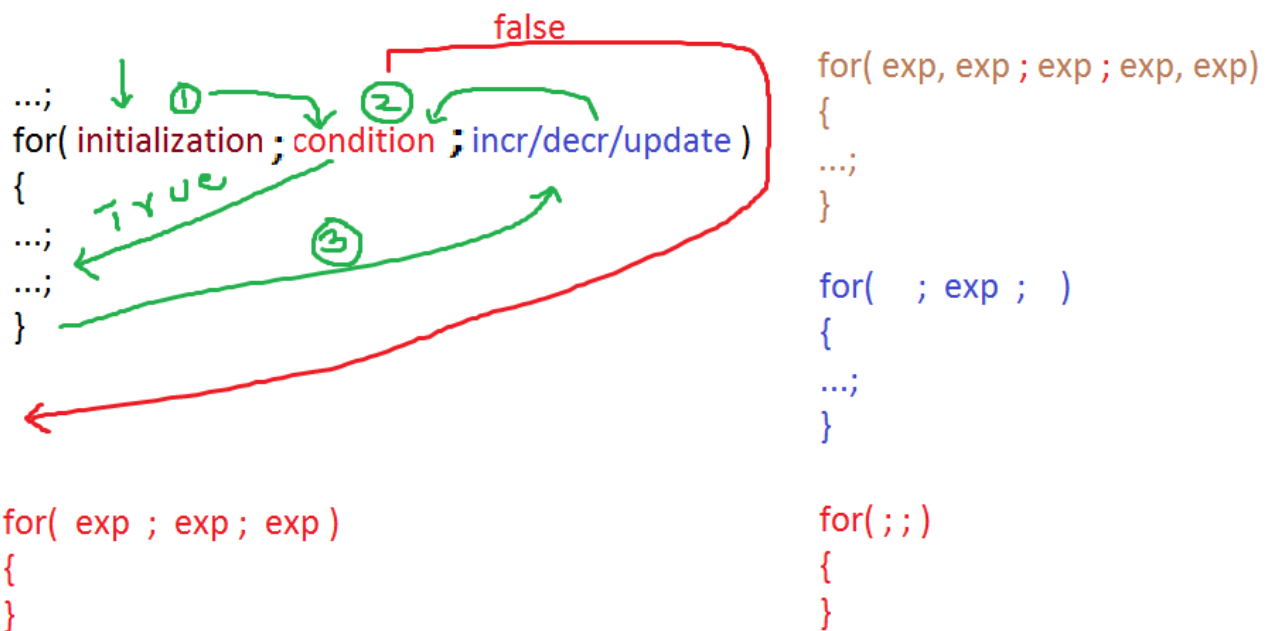
At first entry of for loop the initialization part is executed and later the test condition is checked. If the condition is true then the for block statements are executed. After completion of the block, the increment or decrement part is executed. Later once again the test condition is evaluated. If it is true then once again for block statements are executed. Like this the process is continued until the condition becomes false. Here the initialization part is executed only once, at the time of loop beginning.

It is mandatory to maintain 2 semicolon (;) in a for loop.

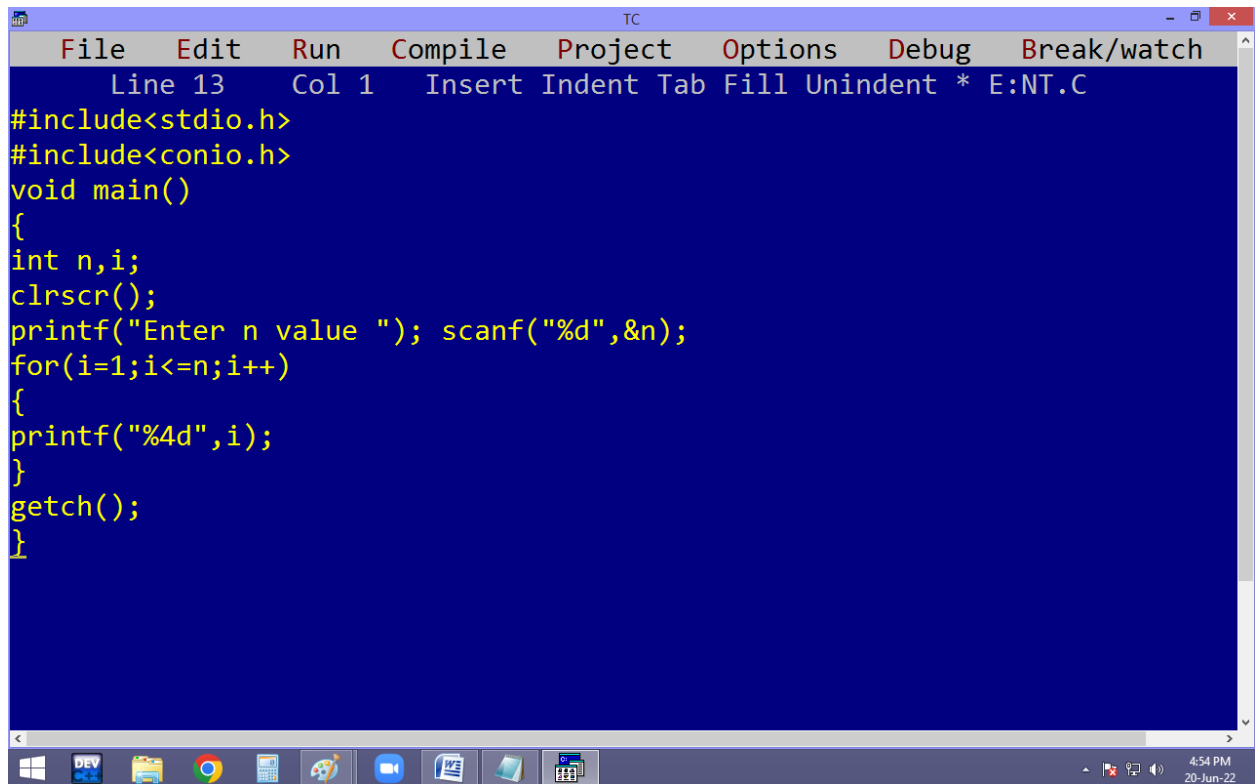


If the for loop is having more than three expressions, it is mandatory to separate the expressions with , separator.

If the for loop is having less than three expressions, then leave the expressions with empty semicolon.



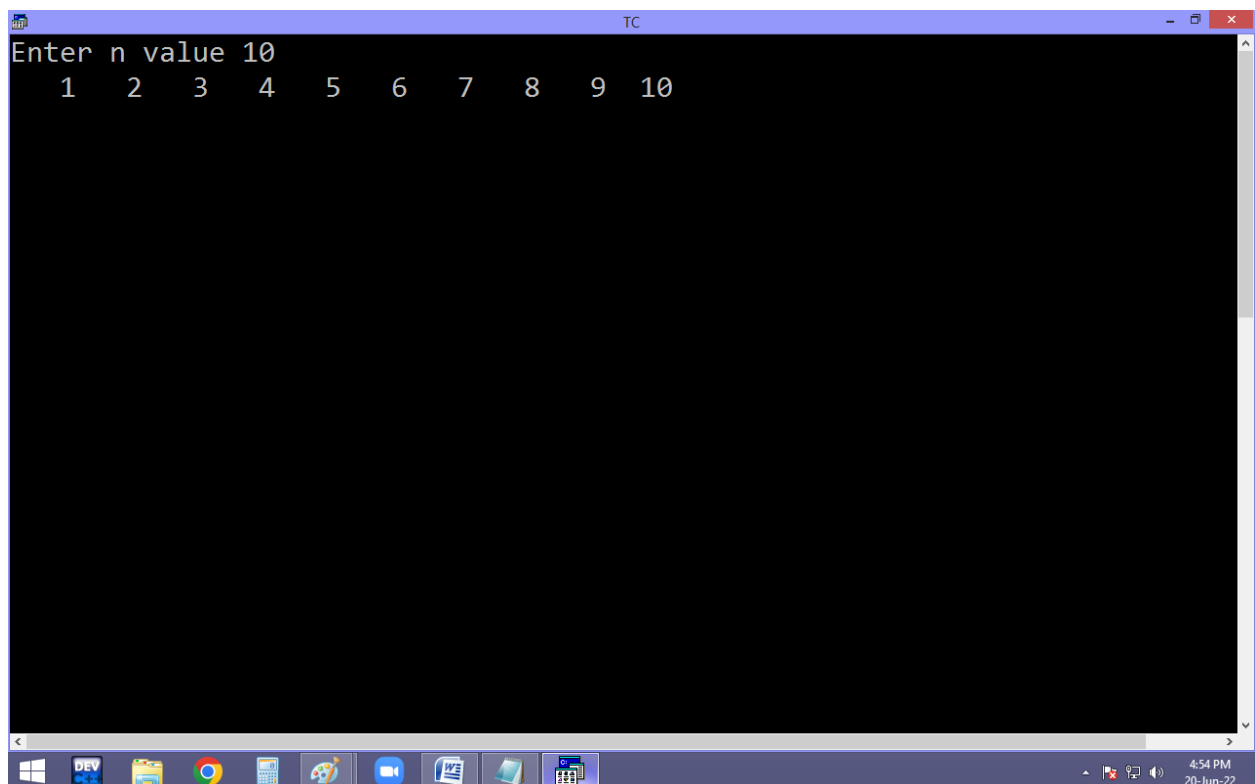
Eg: printing 1..n numbers using for loop



The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 13, Col 1, Insert, Indent, Tab, Fill, Unindent, * E:NT.C). The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int n,i;
    clrscr();
    printf("Enter n value "); scanf("%d",&n);
    for(i=1;i<=n;i++)
    {
        printf("%4d",i);
    }
    getch();
}
```

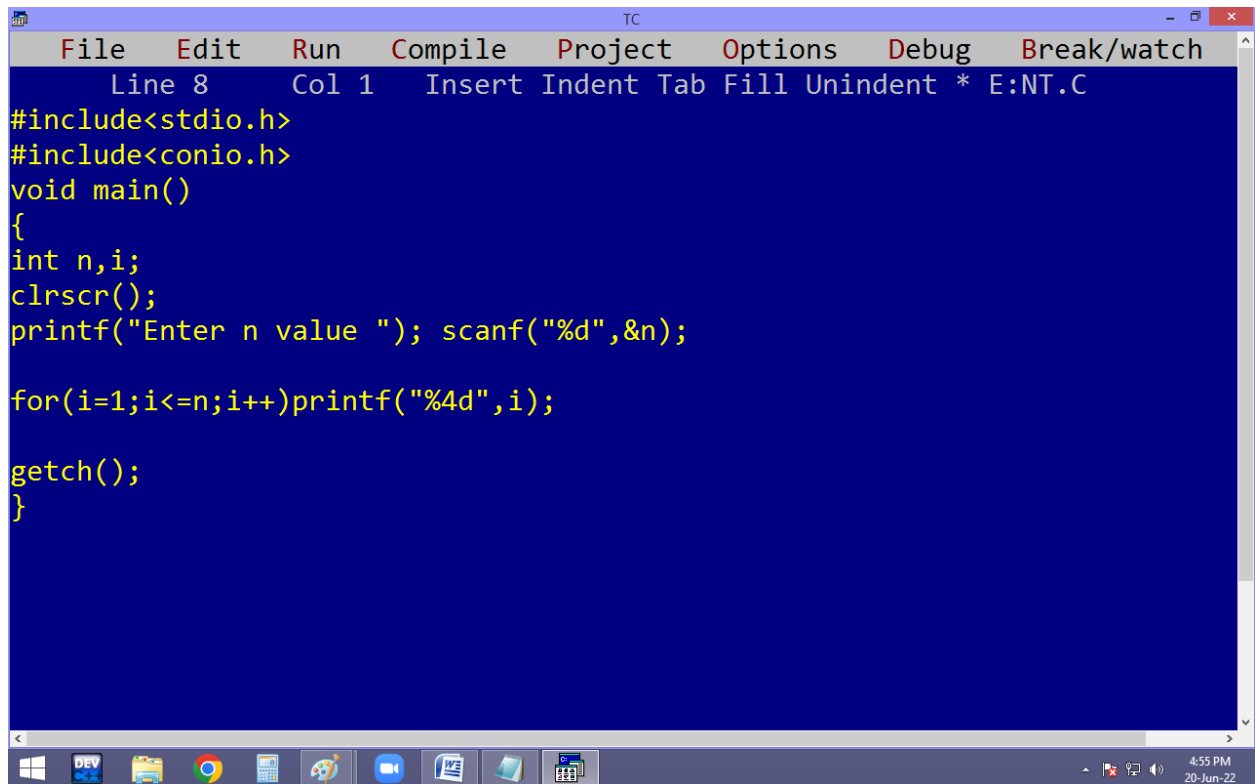
The Windows taskbar at the bottom shows the time as 4:54 PM on 20-Jun-22.



The screenshot shows the Turbo C++ (TC) IDE with the same menu bar and status bar. The output of the program is displayed in the console window:

```
Enter n value 10
    1    2    3    4    5    6    7    8    9   10
```

The Windows taskbar at the bottom shows the time as 4:54 PM on 20-Jun-22.



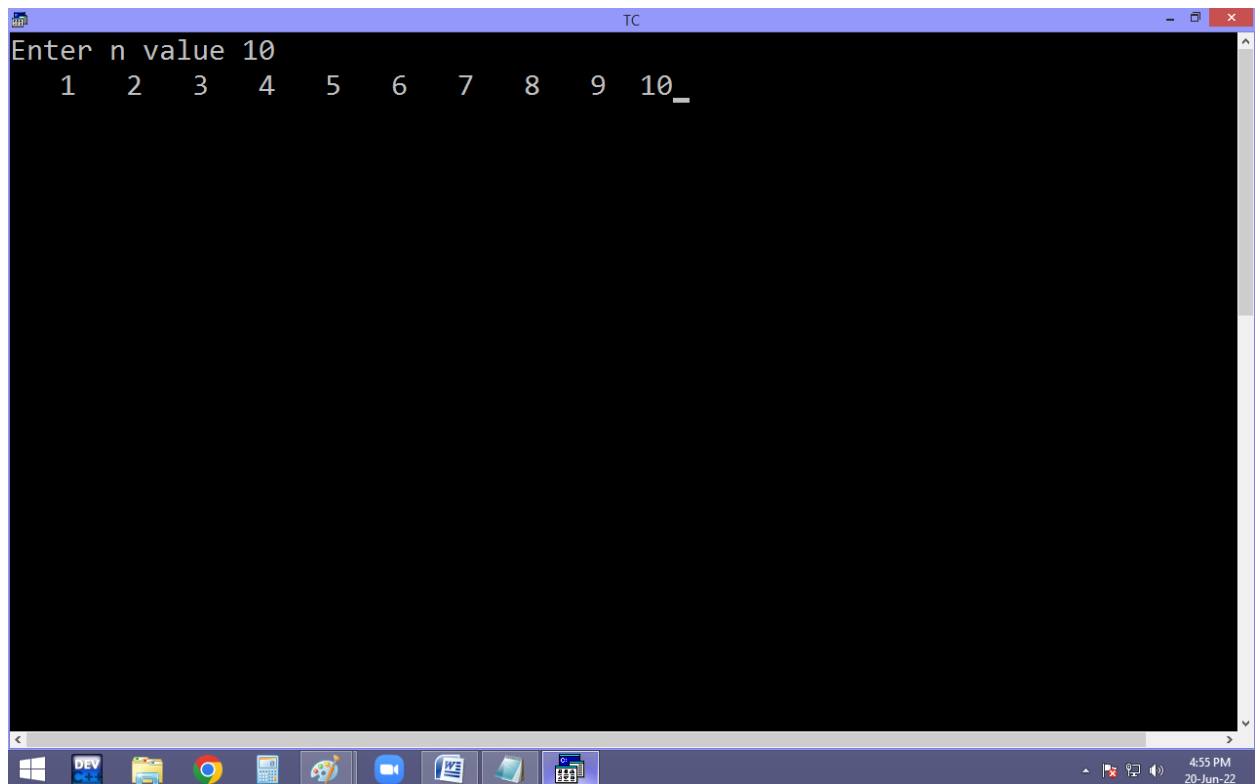
The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 8, Col 1, Insert, Indent, Tab, Fill, Unindent, * E:NT.C). The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i;
clrscr();
printf("Enter n value "); scanf("%d",&n);

for(i=1;i<=n;i++)printf("%4d",i);

getch();
}
```

The Windows taskbar at the bottom shows the Start button and several application icons, including DEV C++, File Explorer, Google Chrome, and others. The system clock indicates 4:55 PM on 20-Jun-22.



The screenshot shows the Turbo C++ (TC) IDE with the same menu bar and status bar as the first image. The output window displays the result of the program execution:

```
Enter n value 10
 1  2  3  4  5  6  7  8  9 10_
```

The Windows taskbar at the bottom is identical to the first image, showing the Start button and application icons, with the system clock at 4:55 PM on 20-Jun-22.

Eg. printing given table.

Eg. $n=9 \rightarrow 9^{\text{th}}$ table

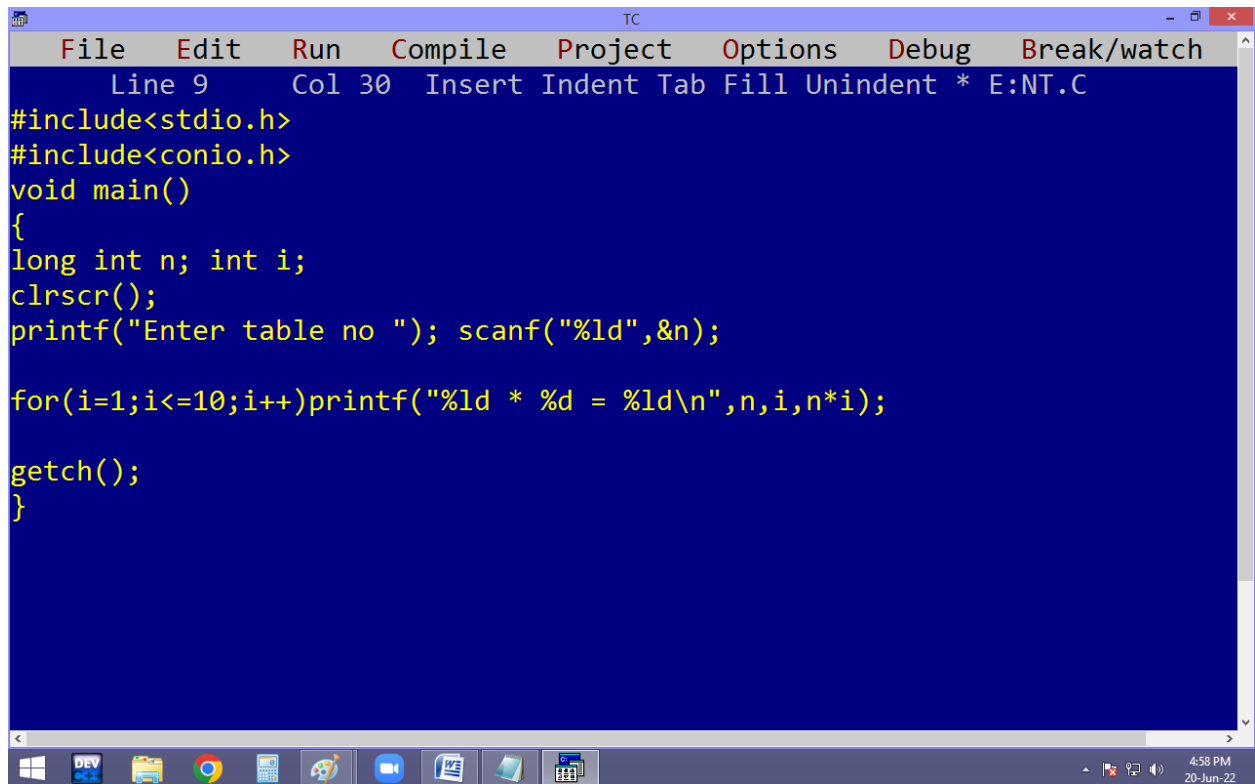
$$9*1=9$$

$$9*2=18$$

...

...

$$9*10=90$$



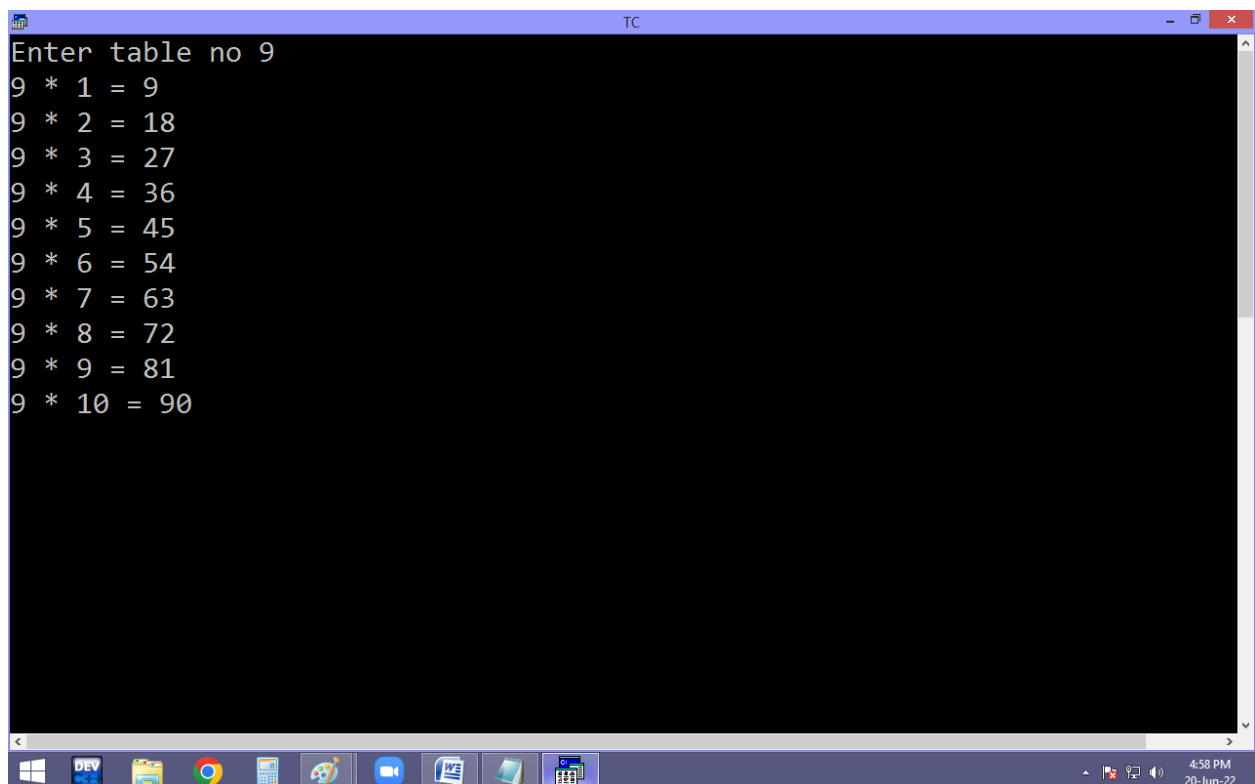
The screenshot shows the Turbo C++ (TC) IDE with a blue background. The menu bar includes File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. The status bar at the top indicates 'Line 9', 'Col 30', and 'Insert Indent Tab Fill Unindent * E:NT.C'. The code is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
    long int n; int i;
    clrscr();
    printf("Enter table no "); scanf("%ld",&n);

    for(i=1;i<=10;i++)printf("%ld * %d = %ld\n",n,i,n*i);

    getch();
}
```

The Windows taskbar at the bottom shows the Start button and several application icons, including DEV, File Explorer, Chrome, and others. The system clock in the bottom right corner displays '4:58 PM' and '20-Jun-22'.



The screenshot shows the Turbo C++ (TC) IDE with a black background, displaying the output of the program. The output is as follows:

```
Enter table no 9
9 * 1 = 9
9 * 2 = 18
9 * 3 = 27
9 * 4 = 36
9 * 5 = 45
9 * 6 = 54
9 * 7 = 63
9 * 8 = 72
9 * 9 = 81
9 * 10 = 90
```

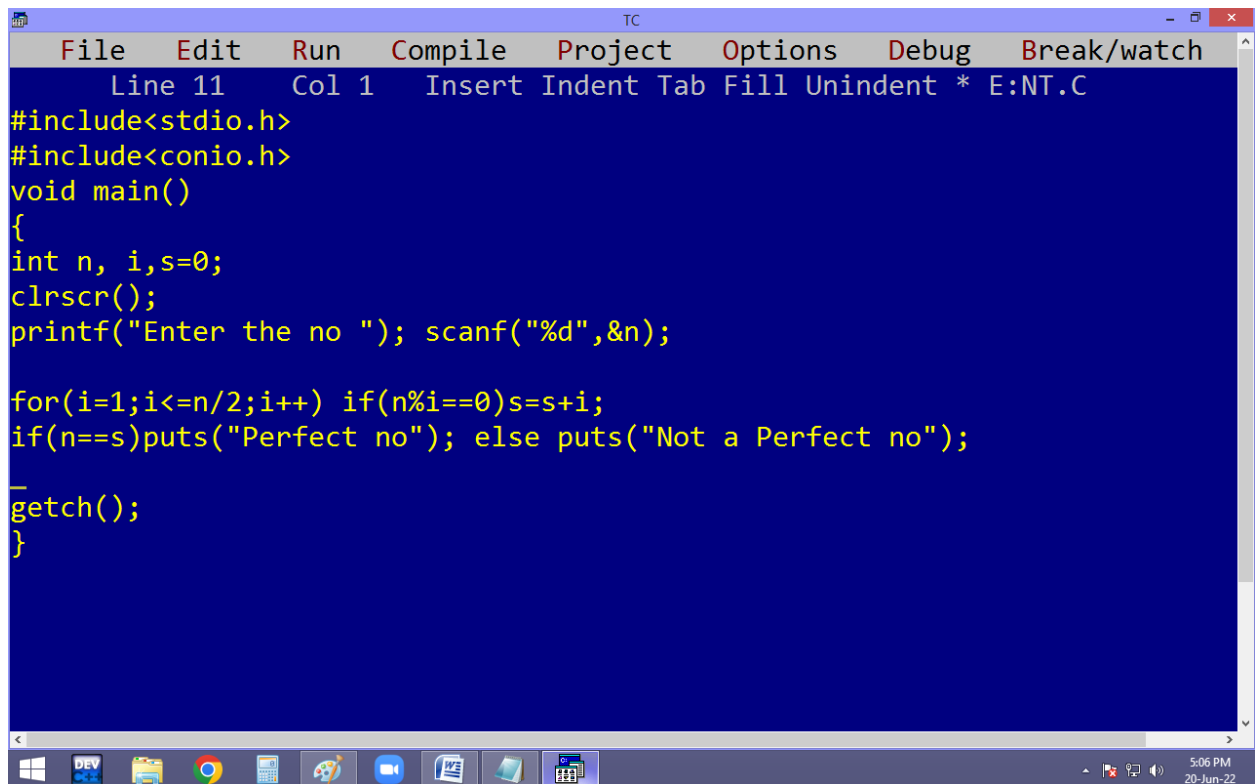
The Windows taskbar at the bottom is identical to the first screenshot, showing the Start button, application icons, and the system clock displaying '4:58 PM' and '20-Jun-22'.

Eg. finding perfect no.

6 factors sum is $1+2+3=6$

28 factors sum is $1+2+4+7+14=28$

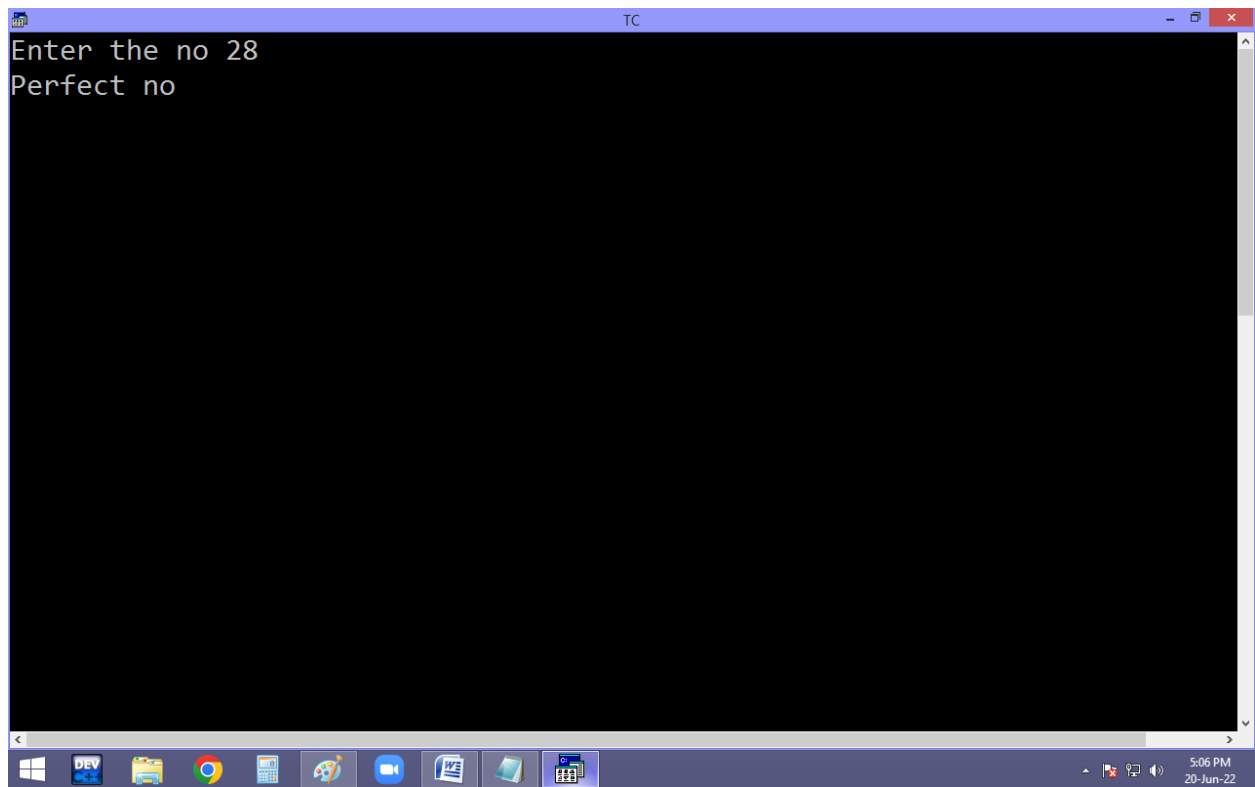
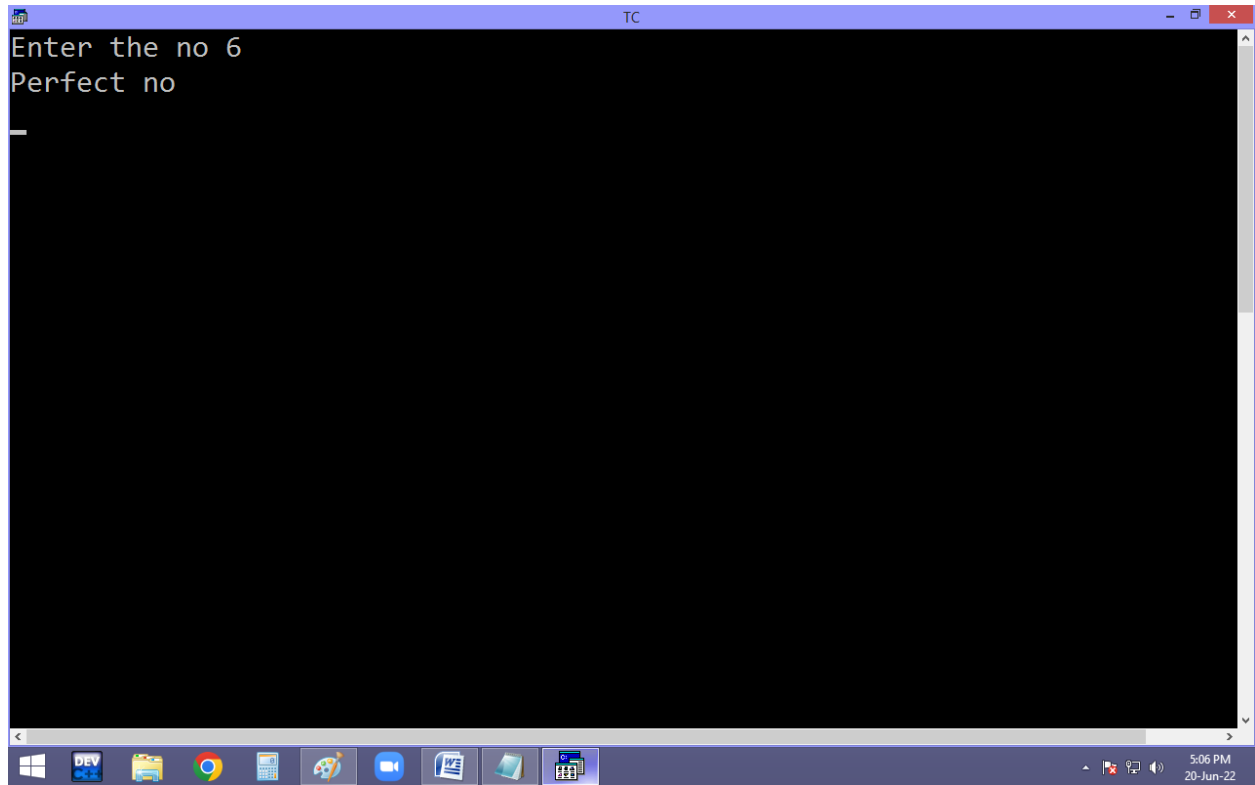
4 factors sum is $1 + 2 = 3$ ← not a perfect no



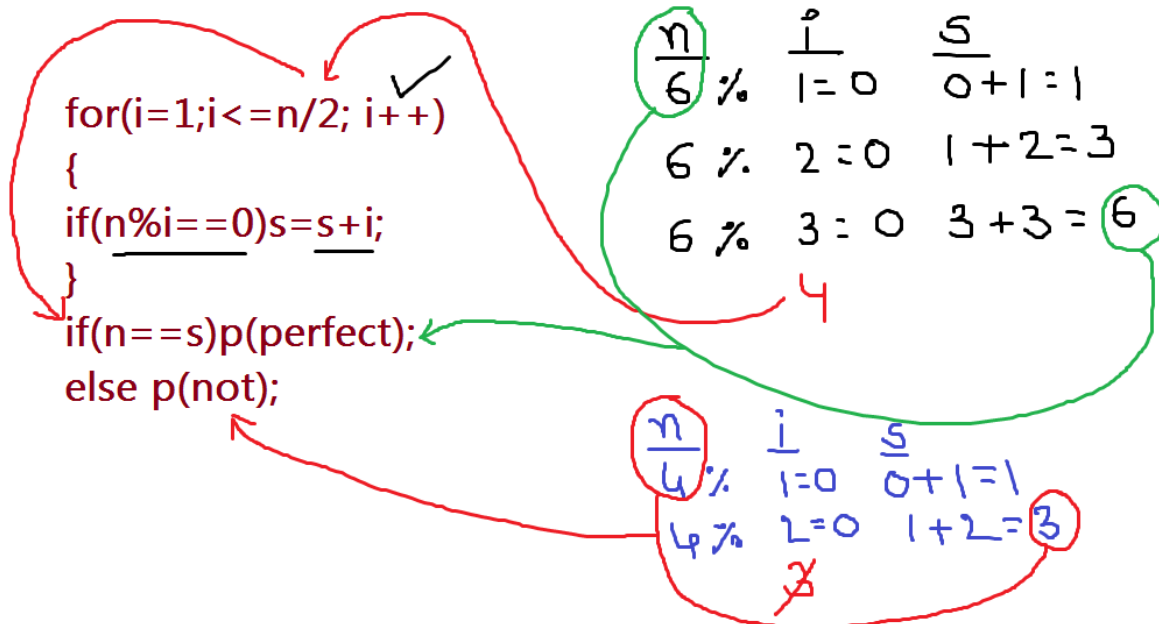
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 11 Col 1 Insert Indent Tab Fill Unindent * E:NT.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n, i,s=0;
clrscr();
printf("Enter the no "); scanf("%d",&n);

for(i=1;i<=n/2;i++) if(n%i==0)s=s+i;
if(n==s)puts("Perfect no"); else puts("Not a Perfect no");

getch();
}
```



```
Enter the no 4
Not a Perfect no
```



Eg. finding prime no.

The no divisible with 1 and itself only

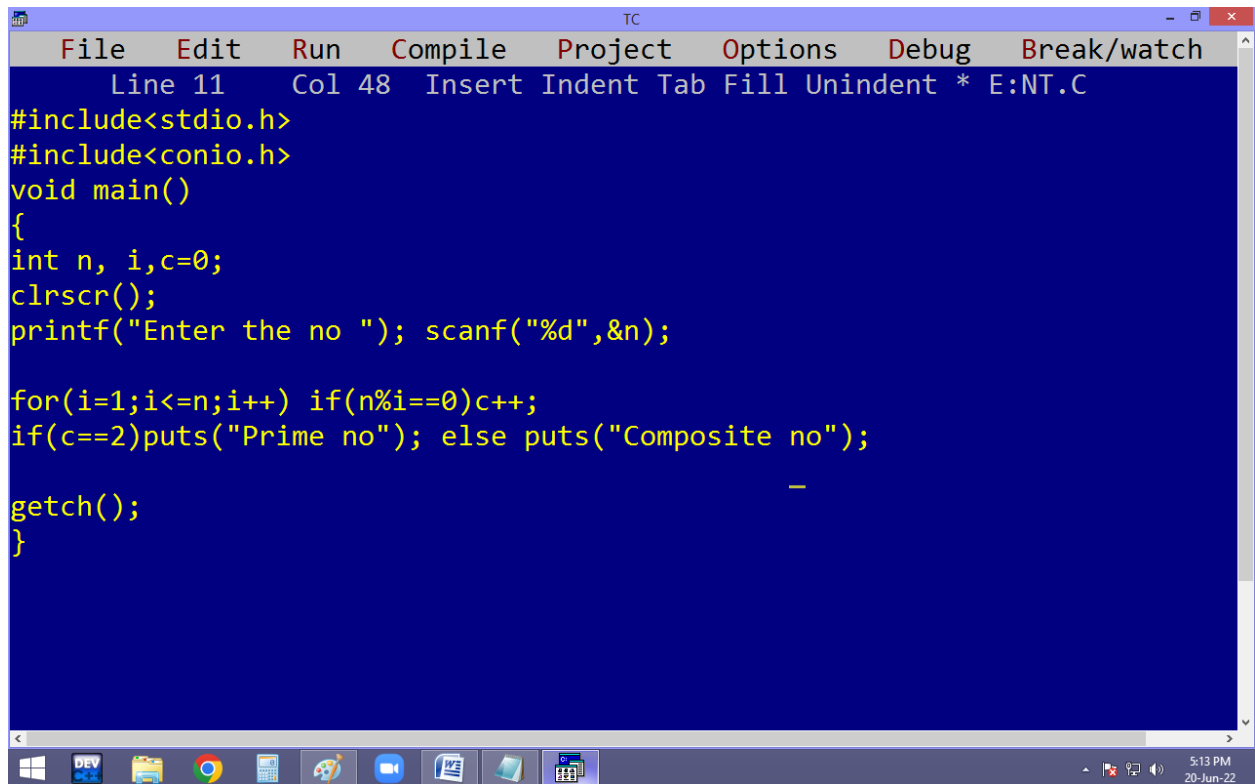
The no having 2 factors is called prime.

1 factor 1 ← not

2 factors 1 , 2

3 factors 1, 3

4 factors 1, 2, 4 ← not



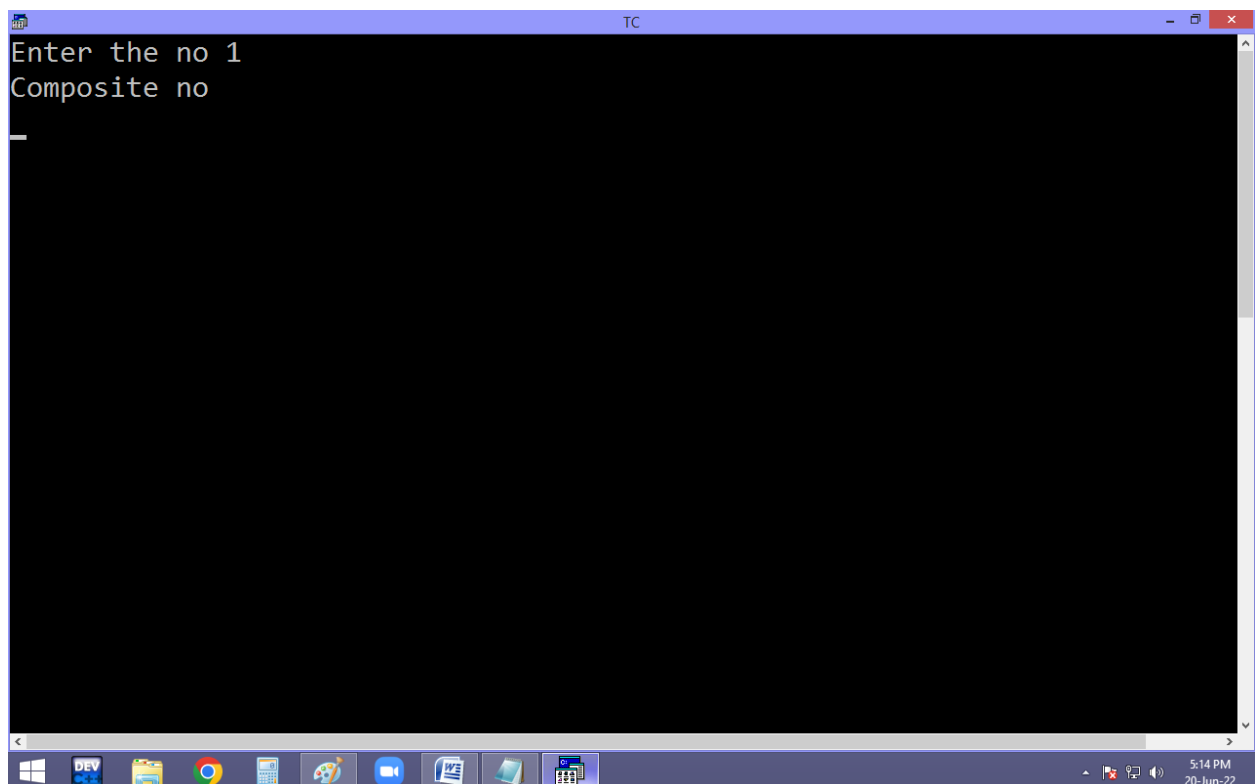
The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 11, Col 48, Insert, Indent, Tab, Fill, Unindent, * E:NT.C). The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n, i,c=0;
clrscr();
printf("Enter the no "); scanf("%d",&n);

for(i=1;i<=n;i++) if(n%i==0)c++;
if(c==2)puts("Prime no"); else puts("Composite no");

getch();
}
```

The Windows taskbar at the bottom shows the Start button, taskbar search, and several application icons including DEV C++, File Explorer, Google Chrome, Calculator, Paint, VLC, Word, and a folder icon. The system tray on the right shows the time as 5:13 PM on 20-Jun-22.

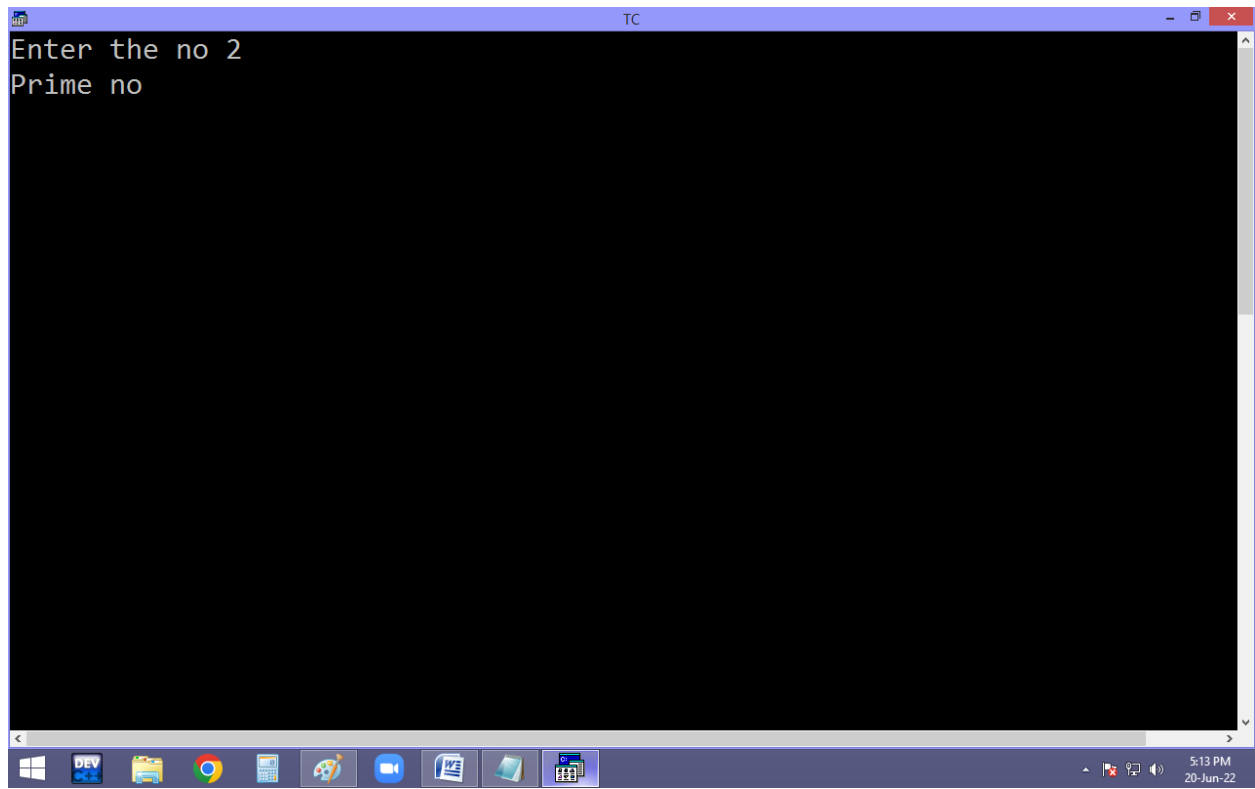


The screenshot shows the Turbo C++ (TC) IDE with the same menu bar and status bar. The output window displays the results of the program's execution:

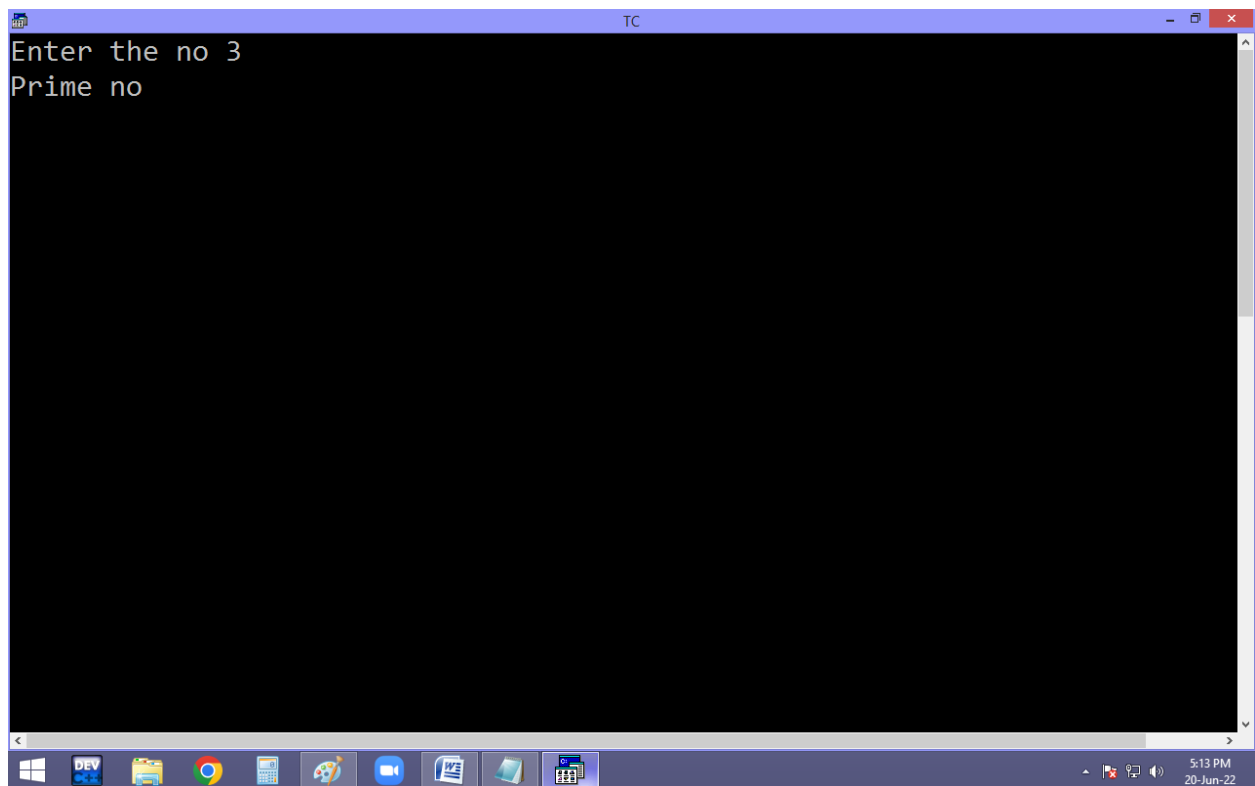
```
Enter the no 1
Composite no
```

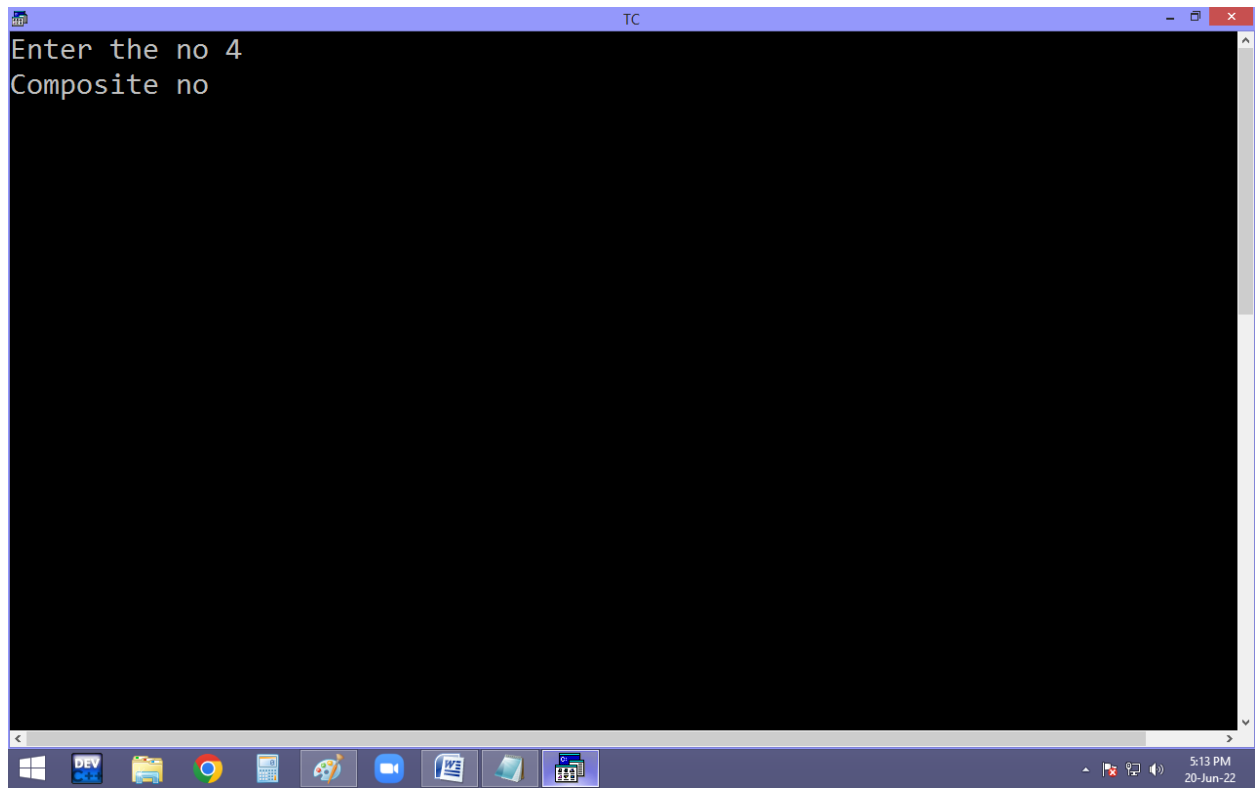
The Windows taskbar at the bottom is identical to the first screenshot, showing the same application icons and system tray information (5:14 PM on 20-Jun-22).

```
TC
Enter the no 2
Prime no
```



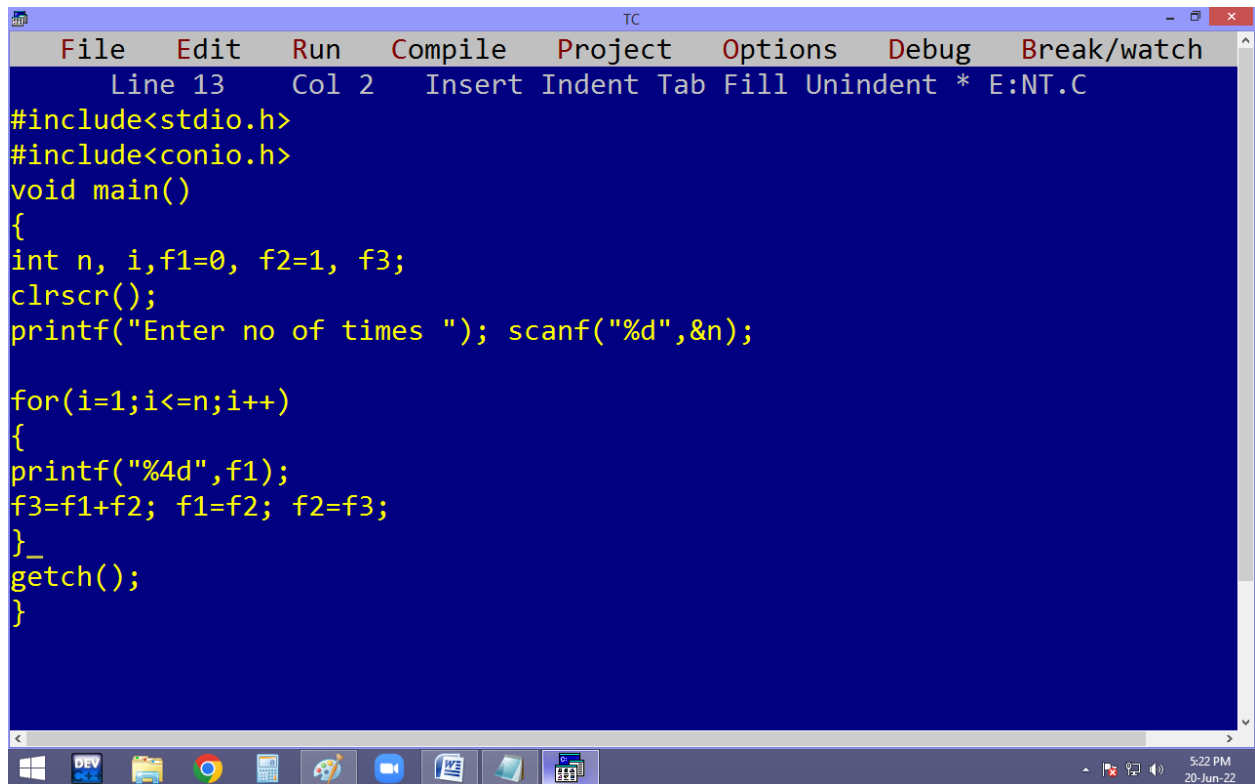
```
TC
Enter the no 3
Prime no
```





Fibonacci series.

5 fibonacci is 0 1 1 2 3

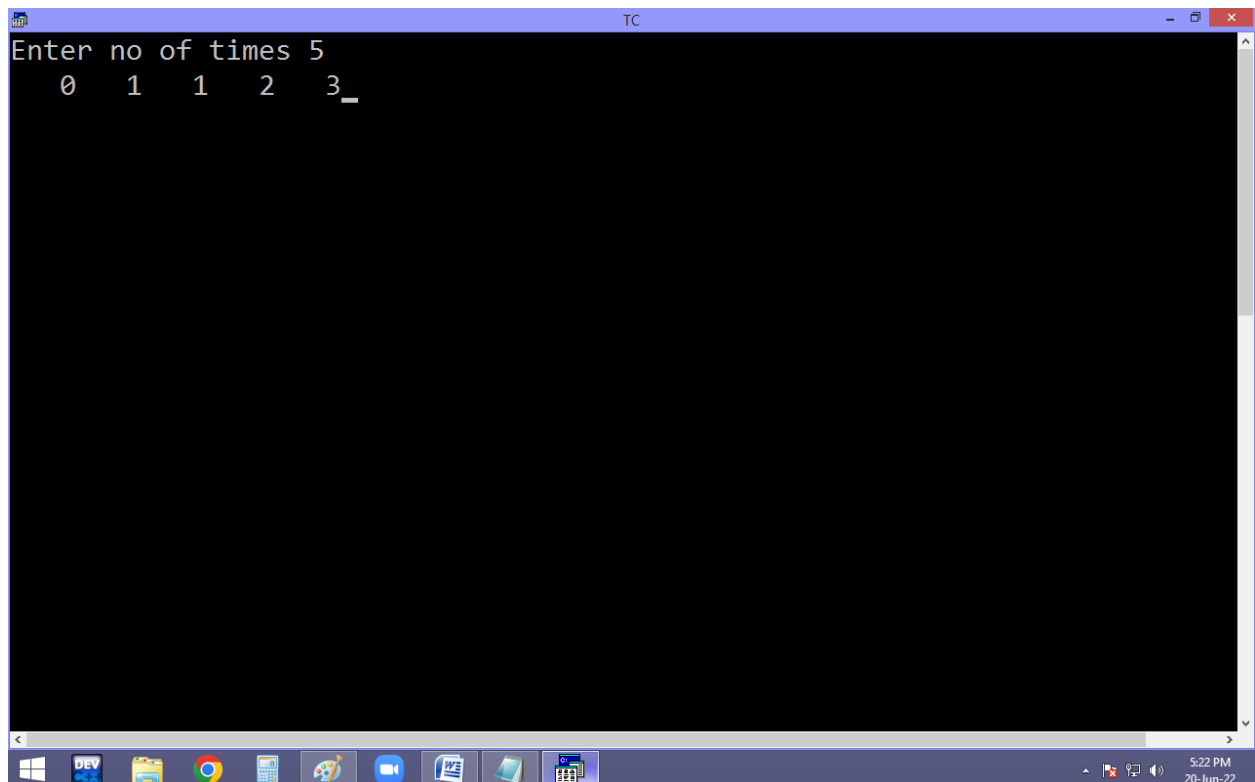


The screenshot shows the Turbo C++ (TC) IDE with a menu bar (File, Edit, Run, Compile, Project, Options, Debug, Break/watch) and a status bar (Line 13, Col 2, Insert, Indent, Tab, Fill, Unindent, * E:NT.C). The code in the editor is as follows:

```
#include<stdio.h>
#include<conio.h>
void main()
{
int n, i,f1=0, f2=1, f3;
clrscr();
printf("Enter no of times "); scanf("%d",&n);

for(i=1;i<=n;i++)
{
printf("%4d",f1);
f3=f1+f2; f1=f2; f2=f3;
}_
getch();
}
```

The Windows taskbar at the bottom shows the Start button and several application icons, including DEV, File Explorer, Google Chrome, and the TC application itself. The system clock indicates 5:22 PM on 20-Jun-22.



The screenshot shows the Turbo C++ (TC) IDE with the same menu bar and status bar as the first image. The output window displays the result of the program's execution:

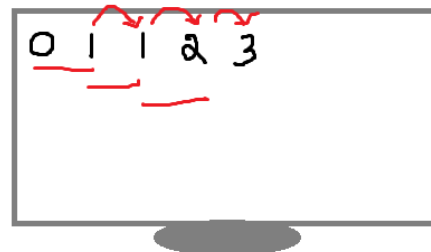
```
Enter no of times 5
0  1  1  2  3_
```

The Windows taskbar at the bottom is identical to the first image, showing the Start button, application icons, and the system clock at 5:22 PM on 20-Jun-22.

```
TC
Enter no of times 10
0 1 1 2 3 5 8 13 21 34
```

```
for(i=1; i<=n; i++)  
{  
    p(f1);  
    f3=f1+f2;  
    f1=f2;  
    f2=f3;  
}
```

<u>n</u>	<u>i</u>	<u>f1</u>	<u>f2</u>	<u>f3</u>
5	1	0	+	1 = 1
	2	1	+	1 = 2
	3	1	+	2 = 3
	4	2	+	3 = 5
	5	3		5
	6			



Eg. Finding Armstrong

1 is a single digit no $\rightarrow 1^1 = 1$

2 is a single digit no $\rightarrow 2^1 = 2$

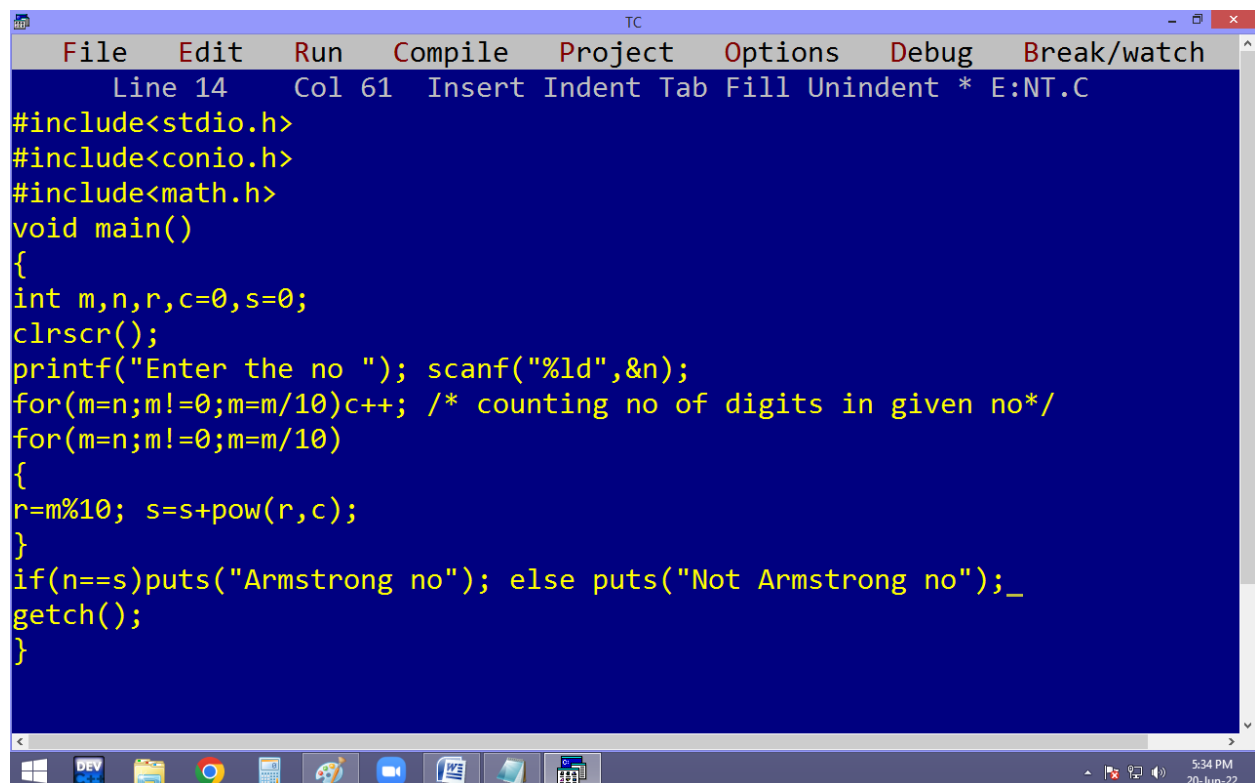
9 is a single digit no $\rightarrow 9^1 = 9$

153 is a 3 digit no $\rightarrow 1^3 + 5^3 + 3^3 = 1 + 125 + 27 = 153$

370, 371, 407,

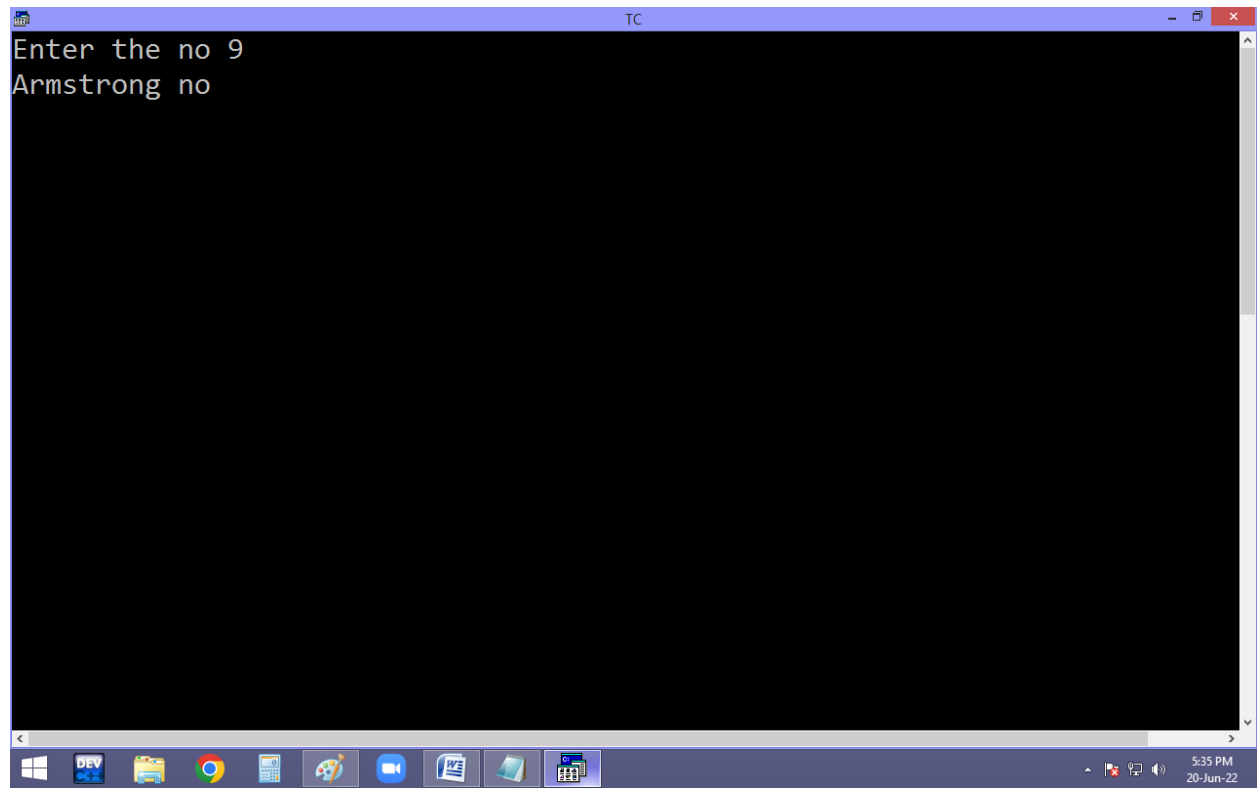
1634 is a 4 digit no $\rightarrow 1^4 + 6^4 + 3^4 + 4^4 = 1634$

8208 is a 4 digit no $\rightarrow 8^4 + 2^4 + 0^4 + 8^4 = 8208$

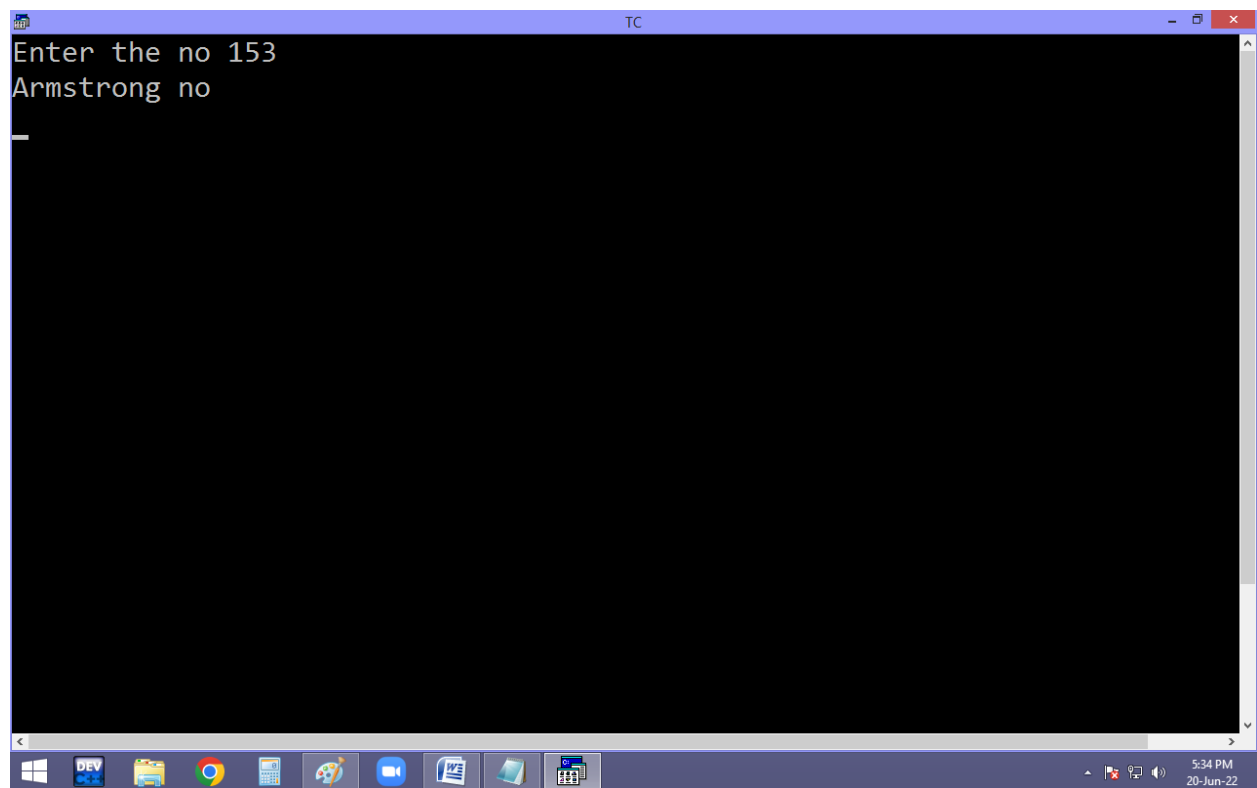


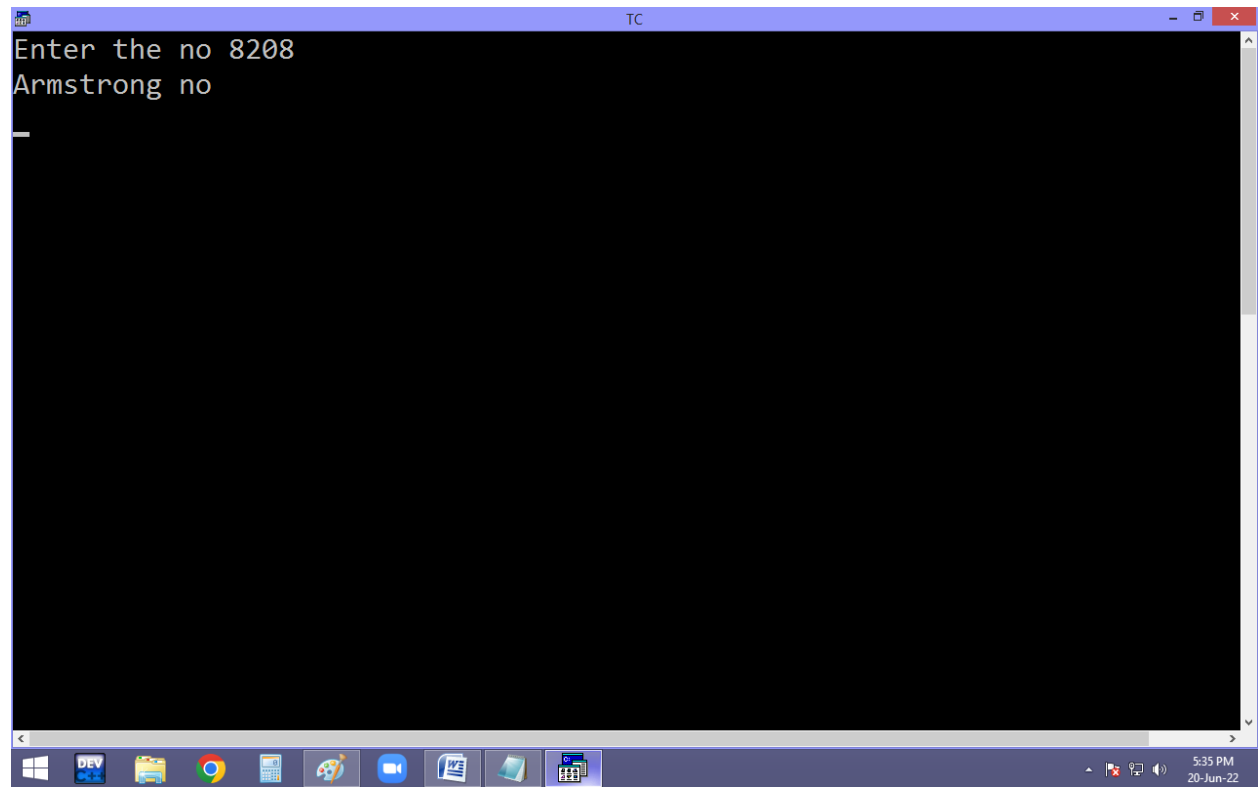
```
TC
File Edit Run Compile Project Options Debug Break/watch
Line 14 Col 61 Insert Indent Tab Fill Unindent * E:NT.C
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
int m,n,r,c=0,s=0;
clrscr();
printf("Enter the no "); scanf("%ld",&n);
for(m=n;m!=0;m=m/10)c++; /* counting no of digits in given no*/
for(m=n;m!=0;m=m/10)
{
r=m%10; s=s+pow(r,c);
}
if(n==s)puts("Armstrong no"); else puts("Not Armstrong no");_
getch();
}
```

```
TC
Enter the no 9
Armstrong no
```



```
TC
Enter the no 153
Armstrong no
_
```





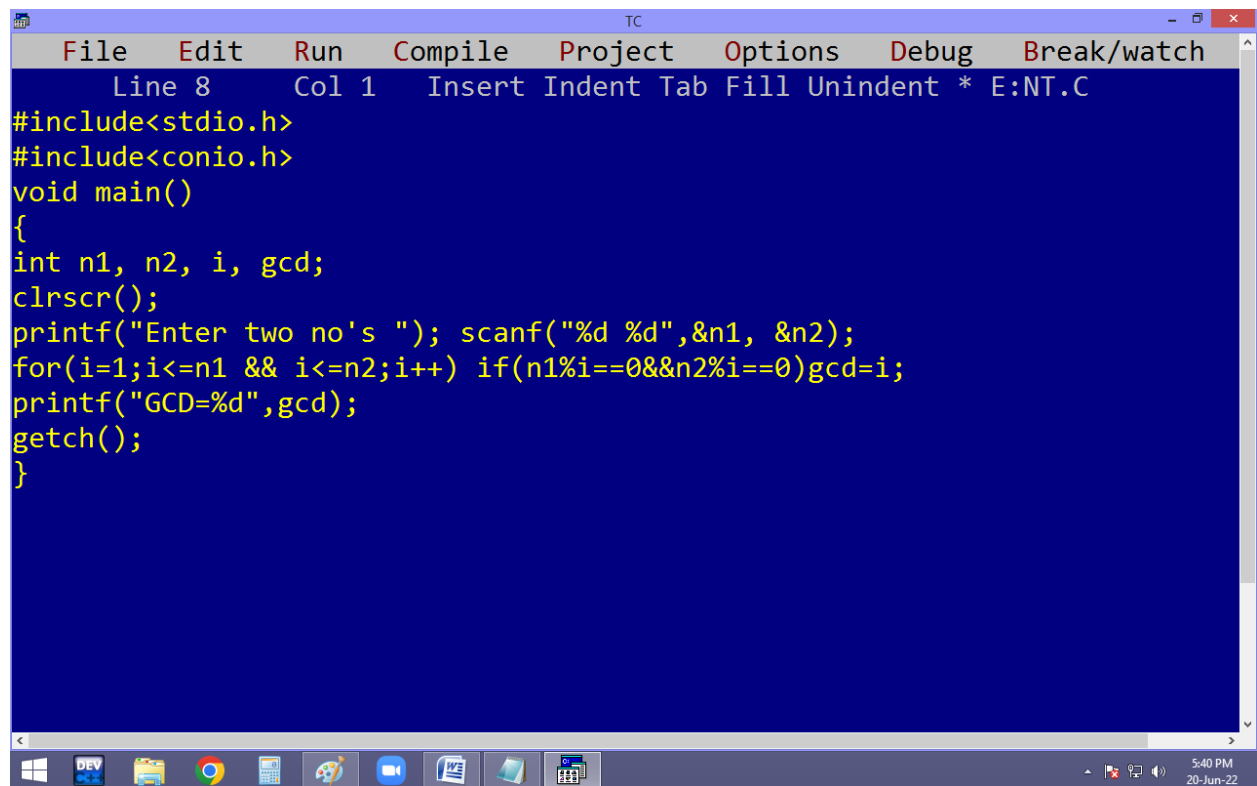
$$\begin{aligned}
 143 &= 1^3 + 4^3 + 3^3 \\
 &= 1 + 64 + 27 \\
 &= 92
 \end{aligned}$$

Eg. Finding hcf / gcd of given two numbers.

For example 4 and 10 gcd is 2

4 factors 1, 2, 4

10 factors 1, 2, 5, 10

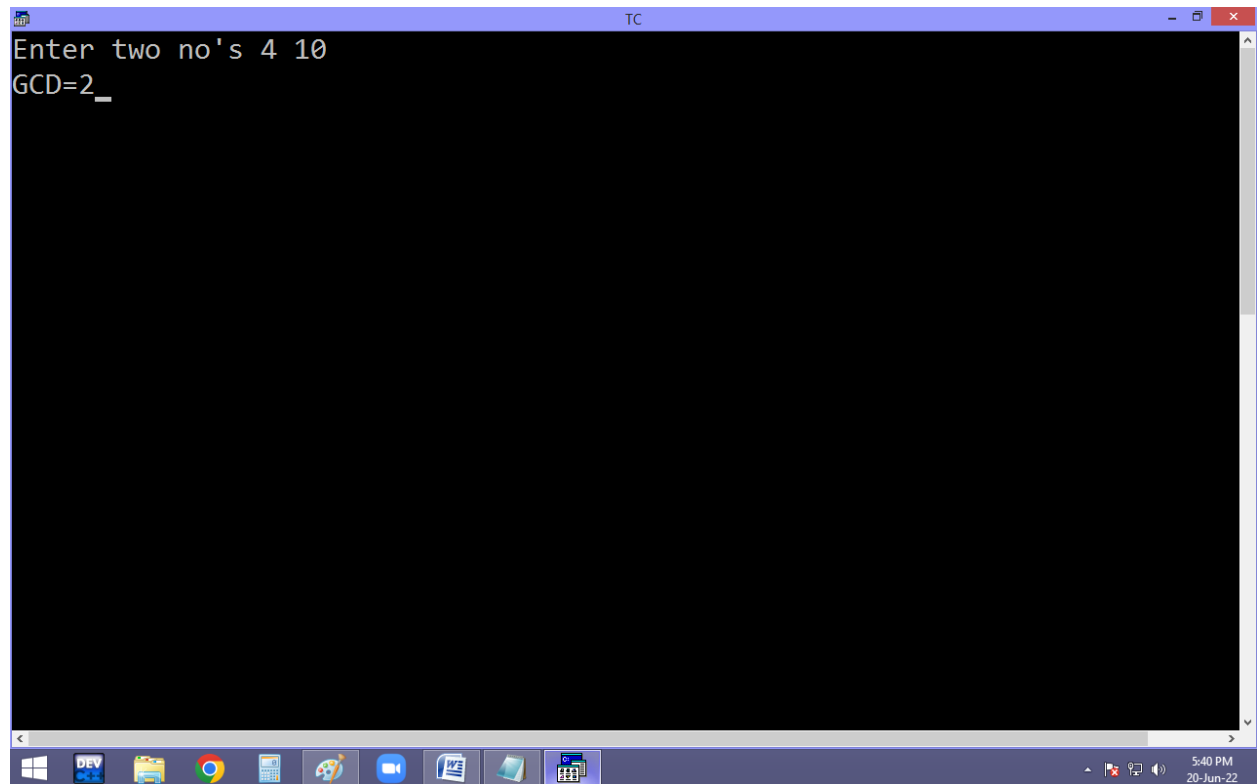


The image shows a screenshot of a Turbo C++ (TC) IDE window. The window has a menu bar with the following options: File, Edit, Run, Compile, Project, Options, Debug, and Break/watch. Below the menu bar, the status bar indicates 'Line 8', 'Col 1', and the file path 'E:NT.C'. The main editing area has a dark blue background with yellow text. The code is as follows:

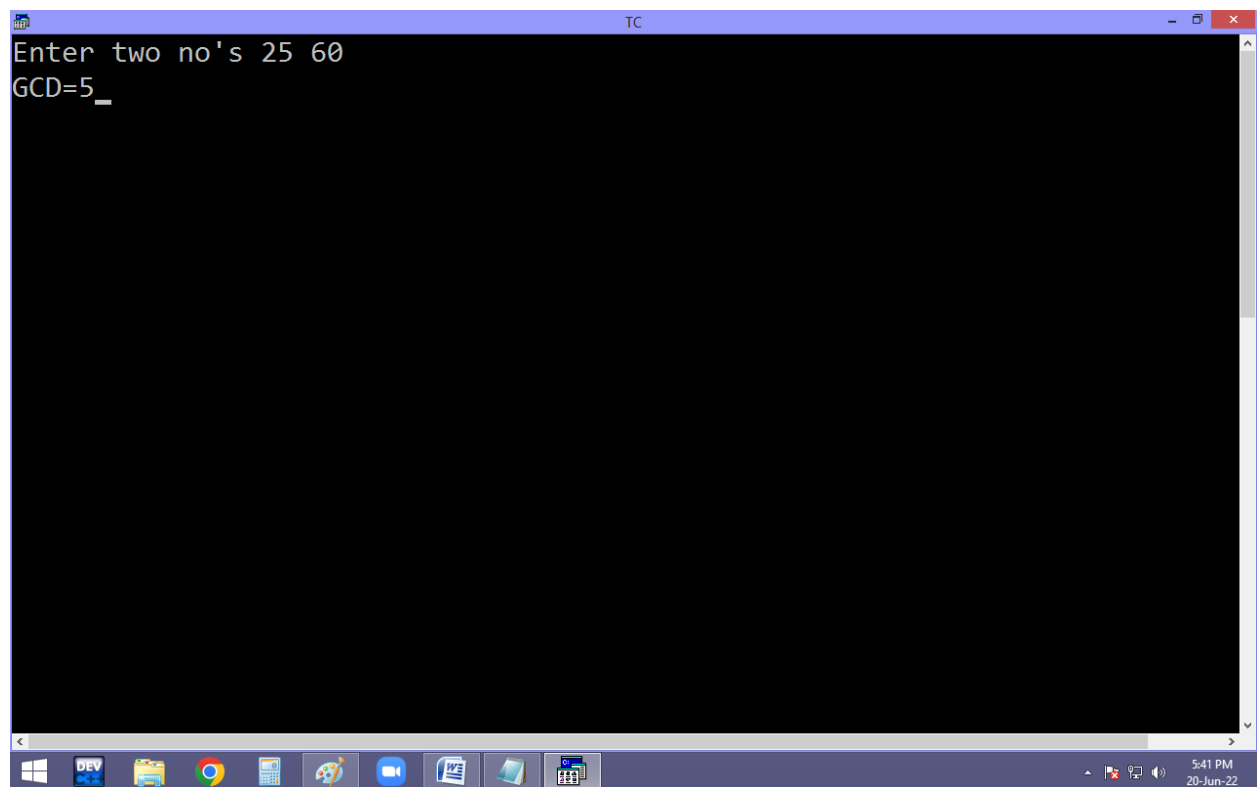
```
#include<stdio.h>
#include<conio.h>
void main()
{
int n1, n2, i, gcd;
clrscr();
printf("Enter two no's "); scanf("%d %d",&n1, &n2);
for(i=1;i<=n1 && i<=n2;i++) if(n1%i==0&&n2%i==0)gcd=i;
printf("GCD=%d",gcd);
getch();
}
```


At the bottom of the window, there is a Windows taskbar with several icons: Windows Start button, Dev C++, File Explorer, Google Chrome, Calculator, Paint, Zoom, Word, and a folder icon. The system tray on the right shows the time as 5:40 PM and the date as 20-Jun-22.

```
TC
Enter two no's 4 10
GCD=2_
```



```
TC
Enter two no's 25 60
GCD=5_
```



$\frac{n1}{4 \%}$	$\frac{i}{1=0}$	$\frac{n2}{10 \%}$	$\frac{i}{1=0}$	$\frac{gcd}{1}$
$4 \% 1 = 0$		$10 \% 1 = 0$		
$4 \% 2 = 0$		$10 \% 2 = 0$		2 ✓
X $4 \% 3 = 1$				
$4 \% 4 = 0$		$10 \% 4 = 2$	X	
				

Home work:

Eg. finding lcm of given no.