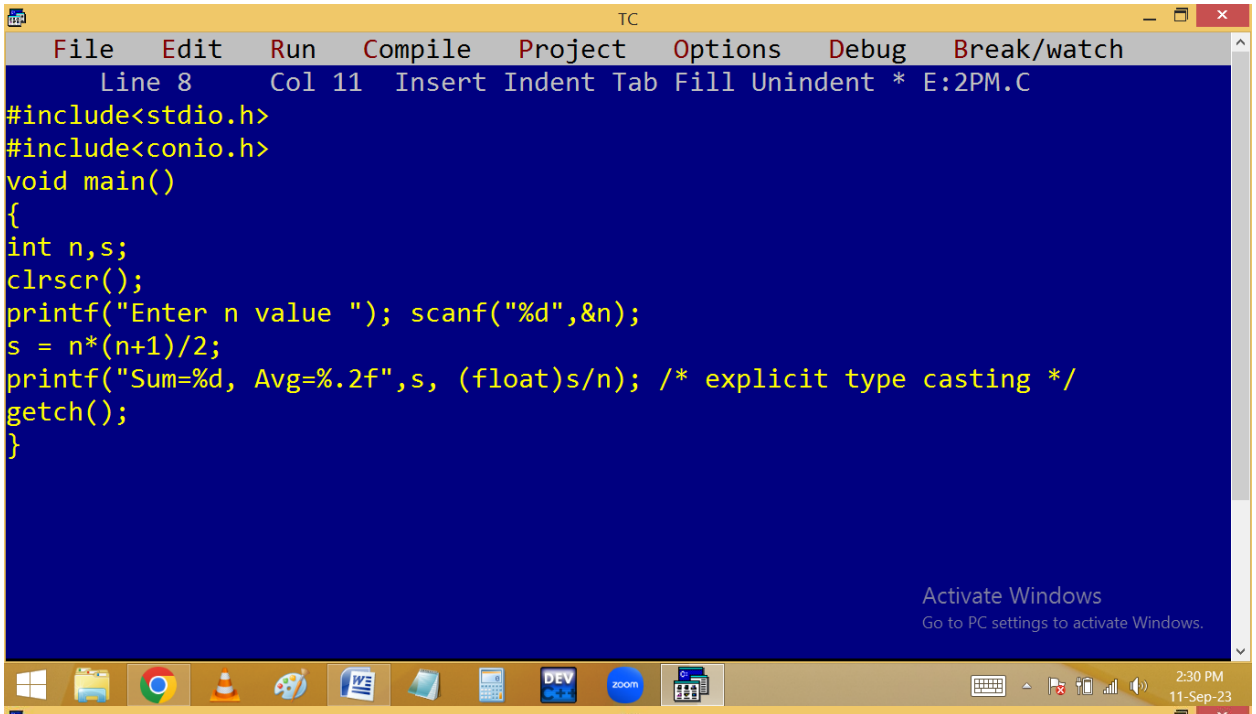
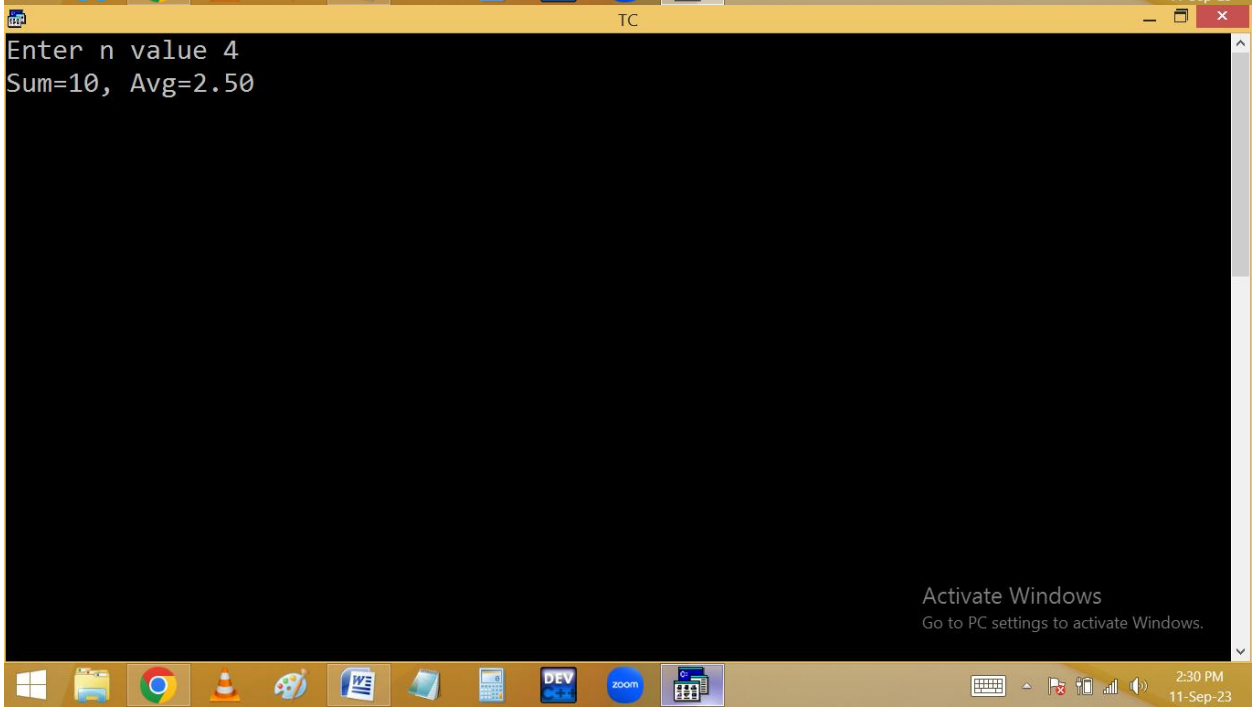
Finding 1..n numbers sum and mean without using loop:

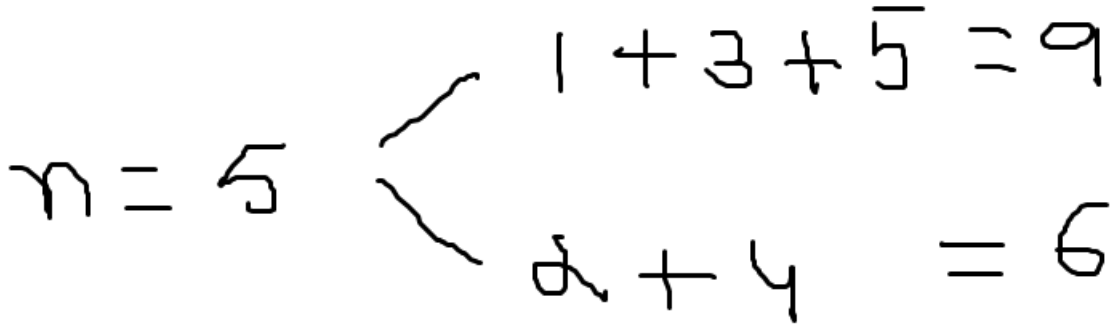
n*(n+1)/2

n=4 ➔ 4 * 5 / 2 = 10





Finding 1..n numbers Even and odd sum:



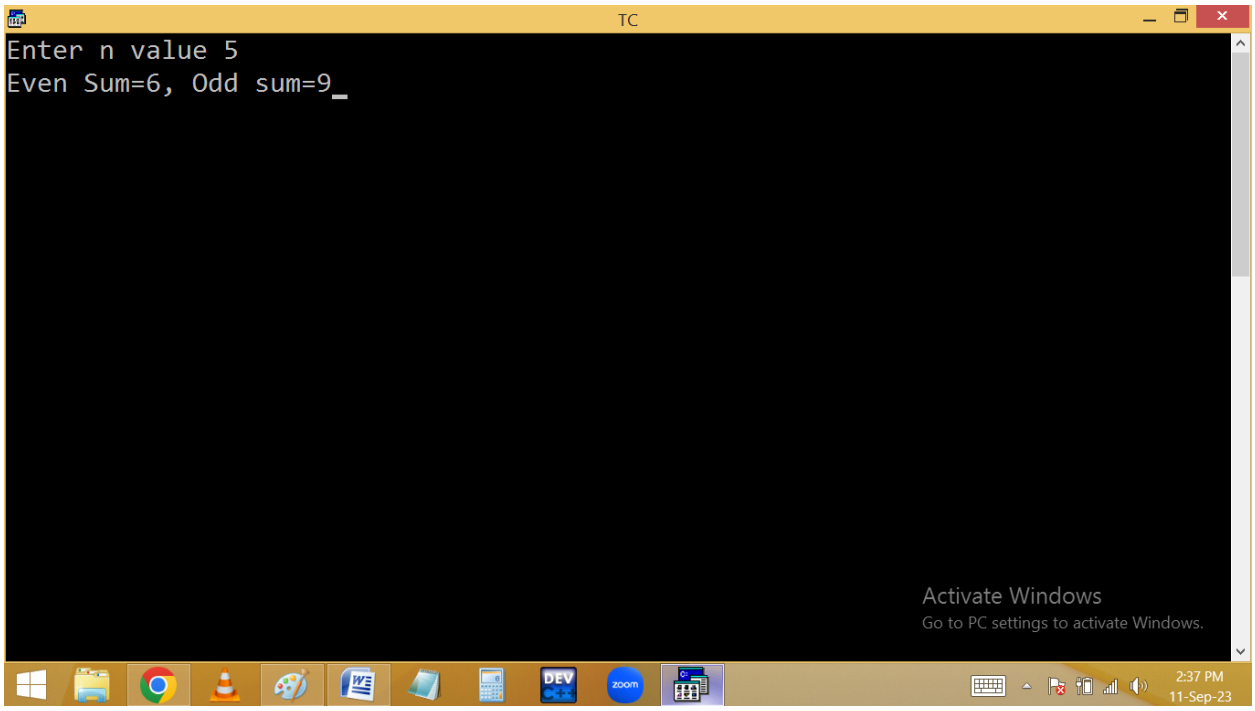
TC

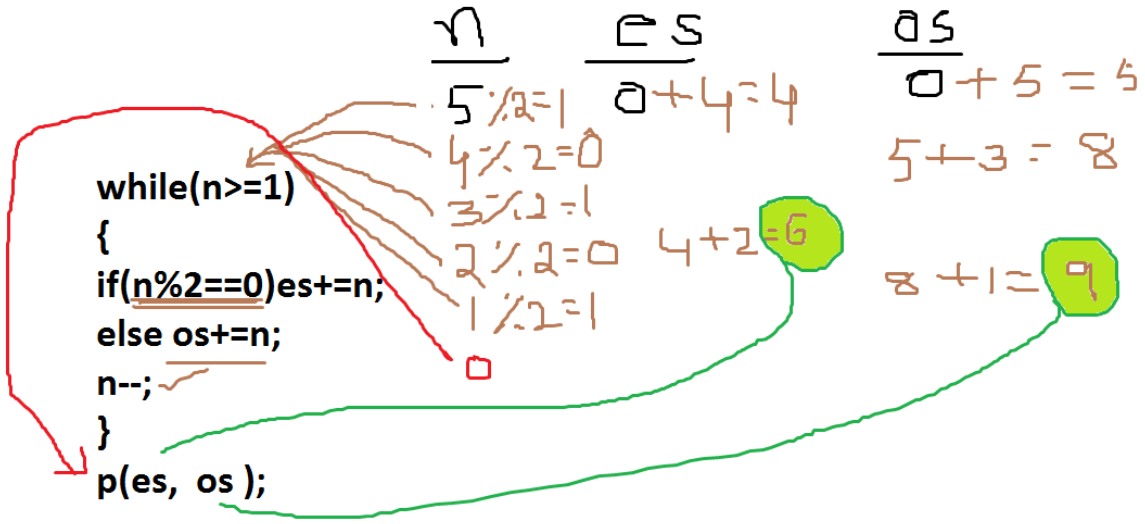
File Edit Run Compile Project Options Debug Break/watch

Line 14 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C

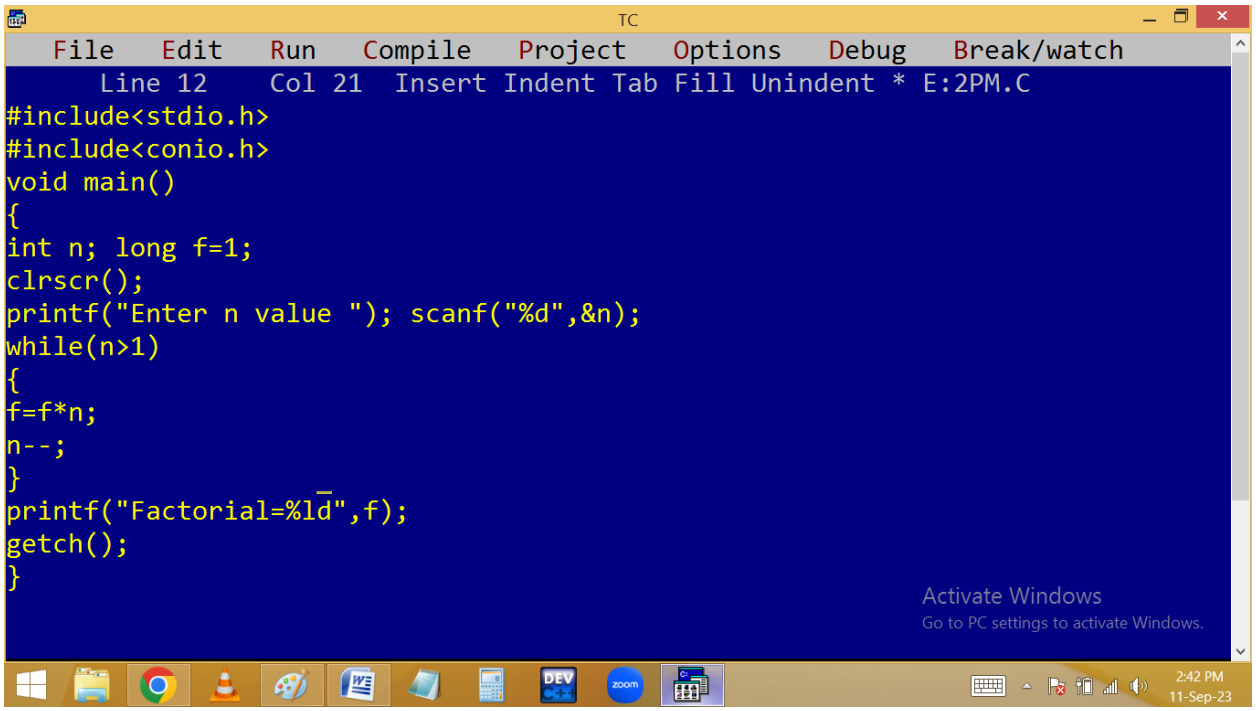
```
#include<stdio.h>
#include<conio.h>
void main()
{
int n,es=0, os=0;
clrscr();
printf("Enter n value "); scanf("%d",&n);
while(n>=1)
{
if(n%2==0)es+=n; else os+=n;
n--;
}
printf("Even Sum=%d, Odd sum=%d",es,os);
getch();
}
```

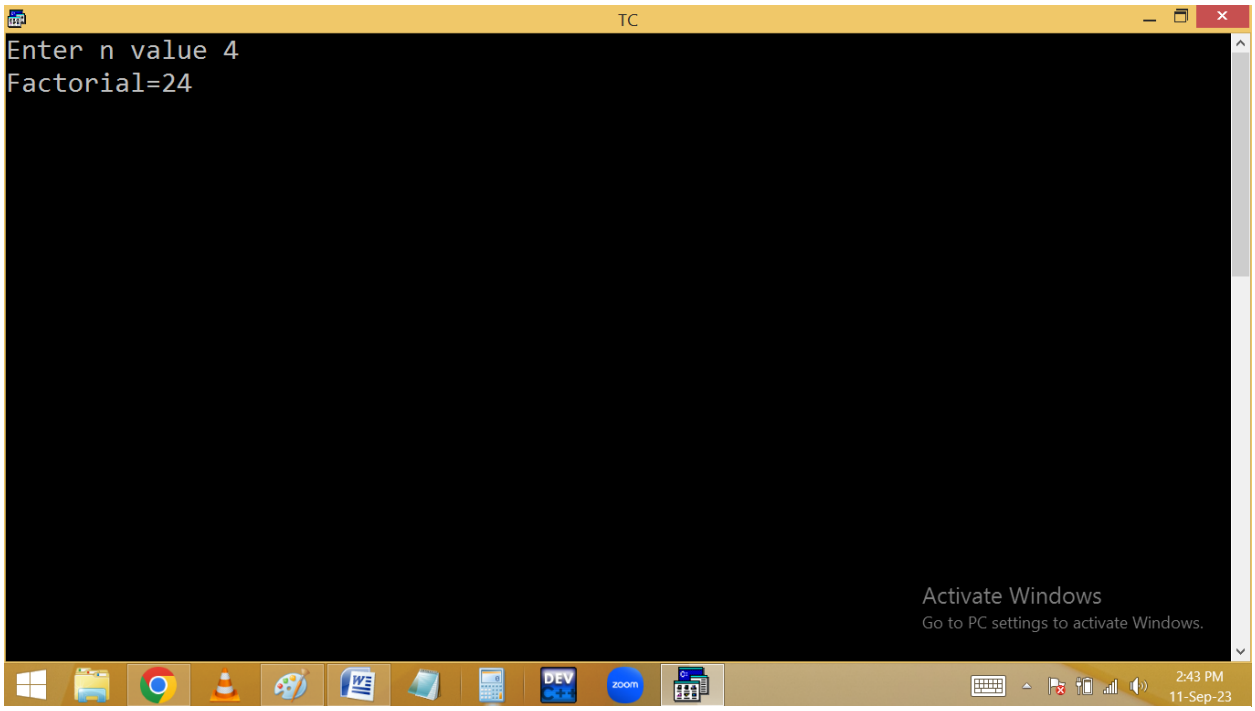

2:37 PM
11-Sep-23

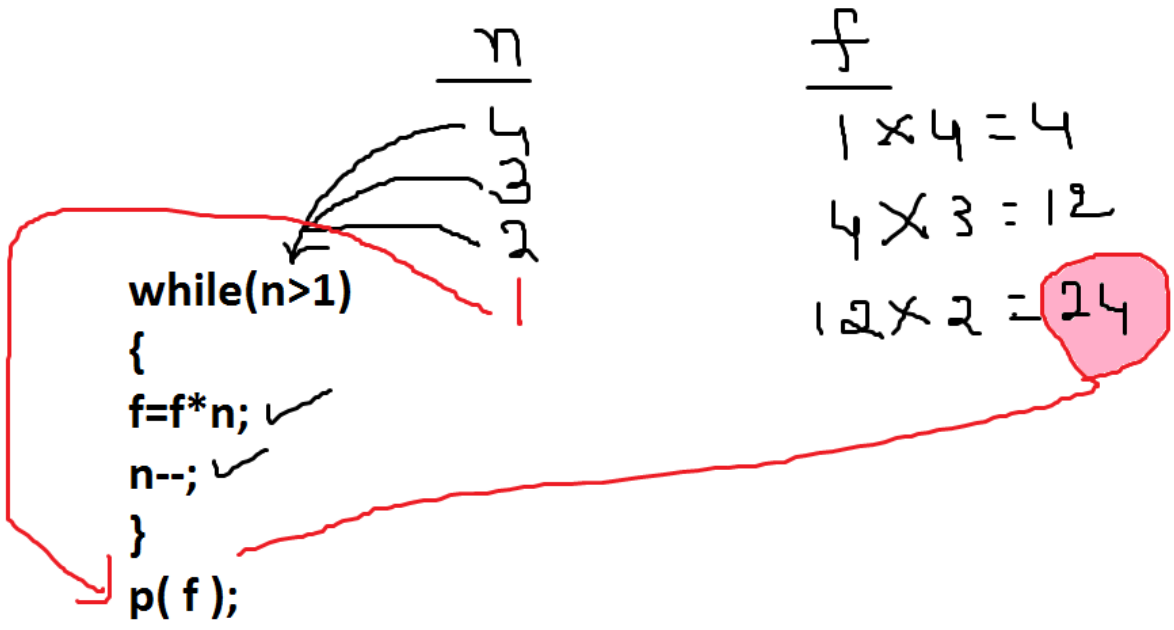




Finding factorial:


TC
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 21 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n; long f=1;
clrscr();
printf("Enter n value "); scanf("%d",&n);
while(n>1)
{
f=f*n;
n--;
}
printf("Factorial=%ld",f);
getch();
}
Activate Windows
Go to PC settings to activate Windows.
2:42 PM
11-Sep-23

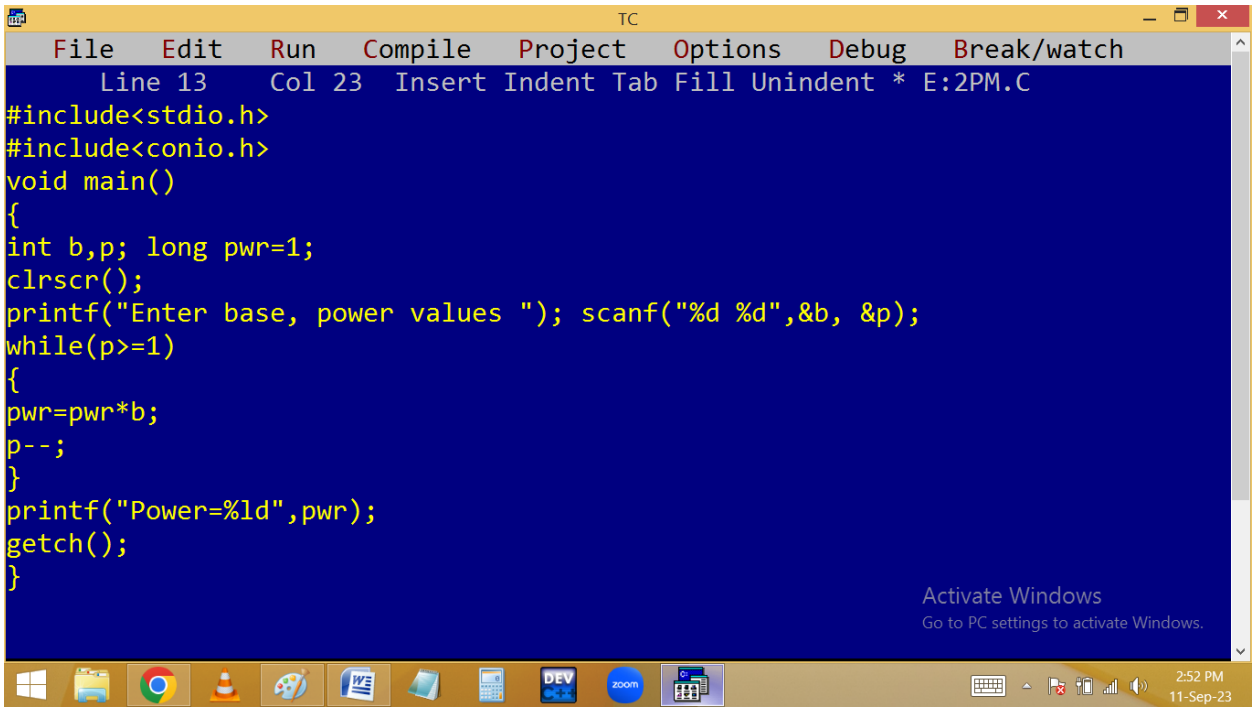


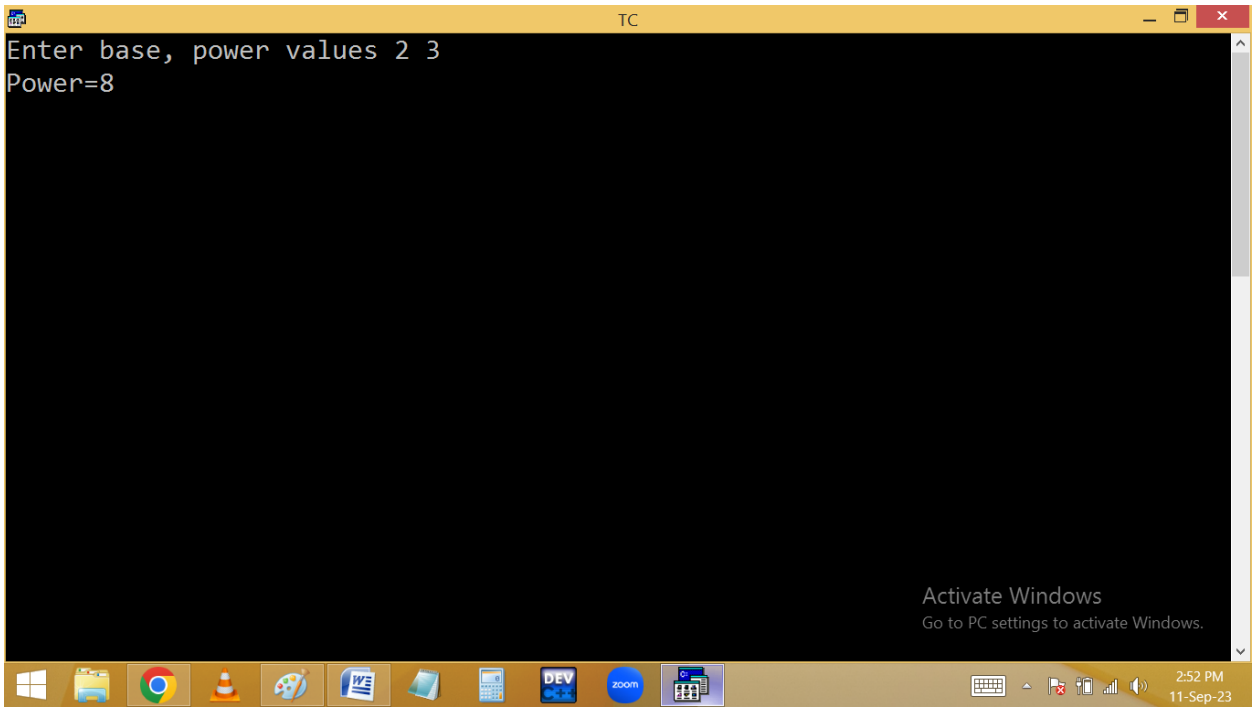


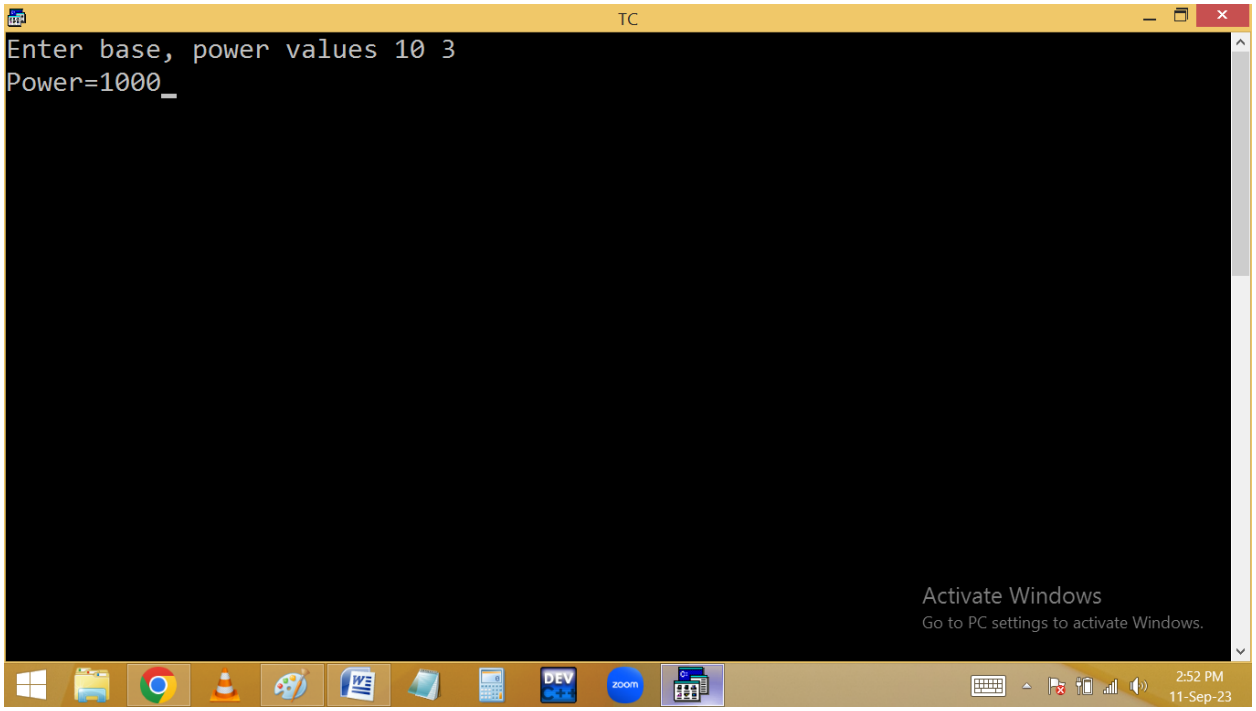
Finding power value using user def program:

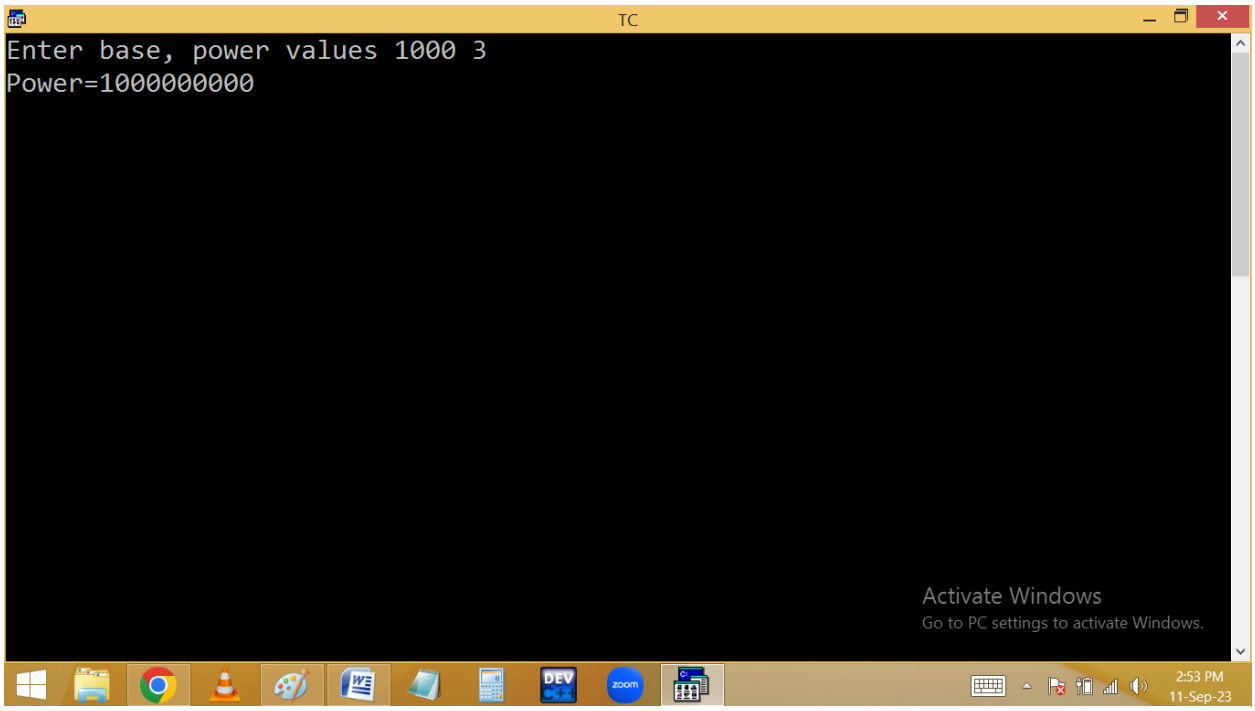
$2^3 = 8$

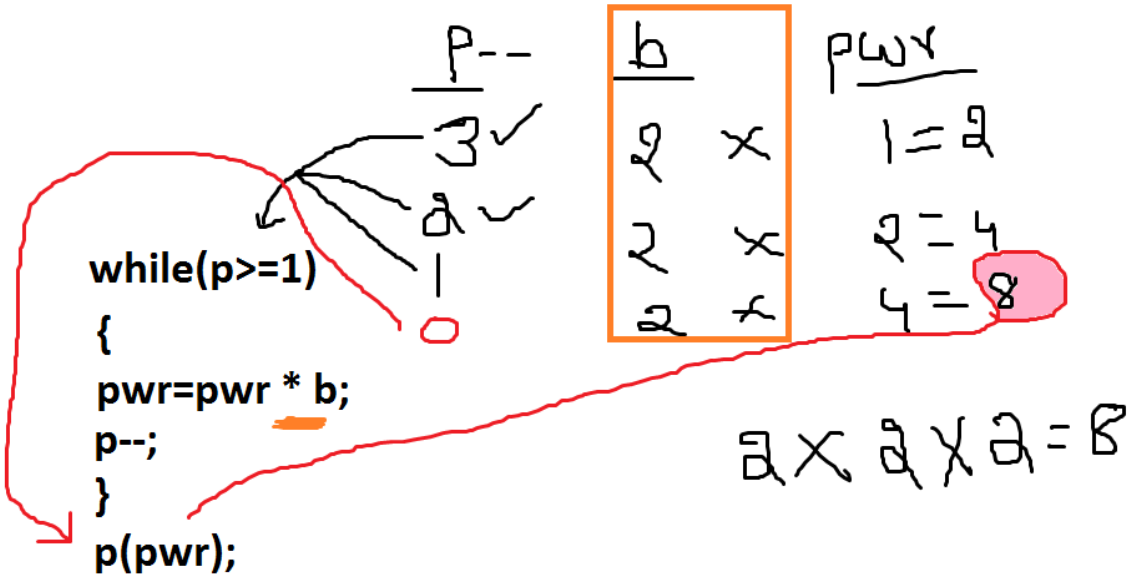
$2 \times 2 \times 2 = 8$




TC
Enter base, power values 2 3
Power=8
Activate Windows
Go to PC settings to activate Windows.
2:52 PM
11-Sep-23

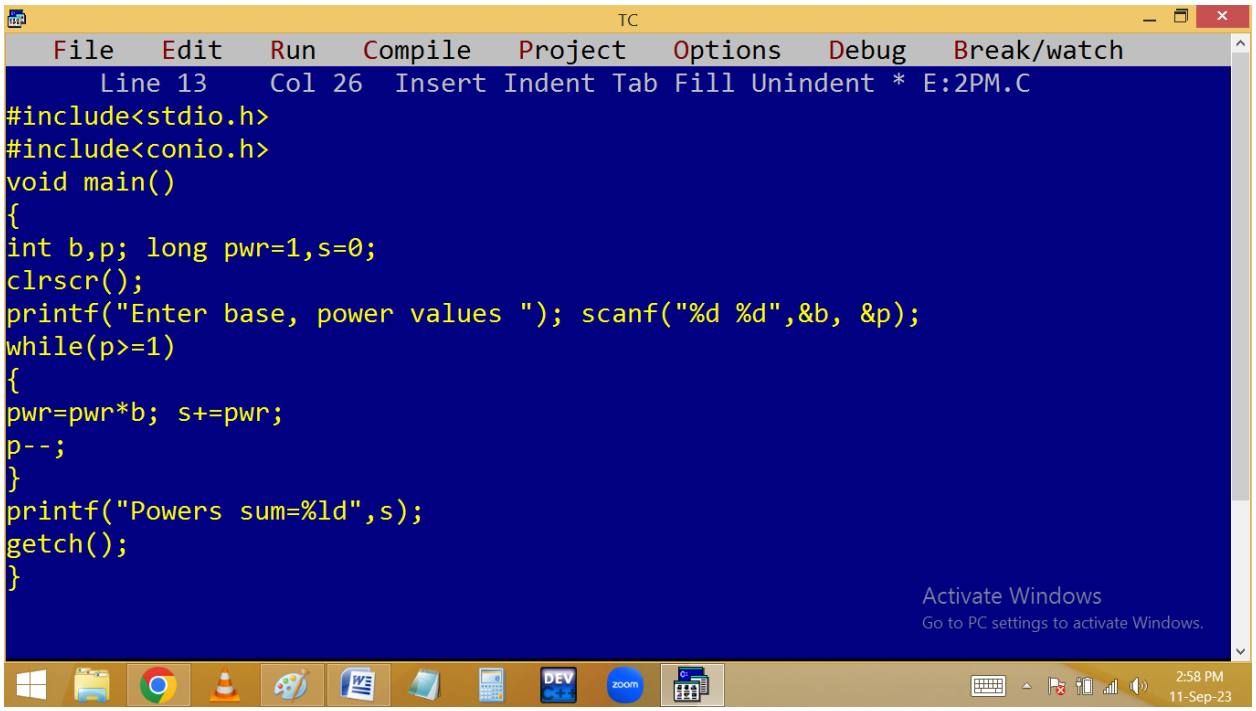

TC
Enter base, power values 10 3
Power=1000
Activate Windows
Go to PC settings to activate Windows.
2:52 PM
11-Sep-23

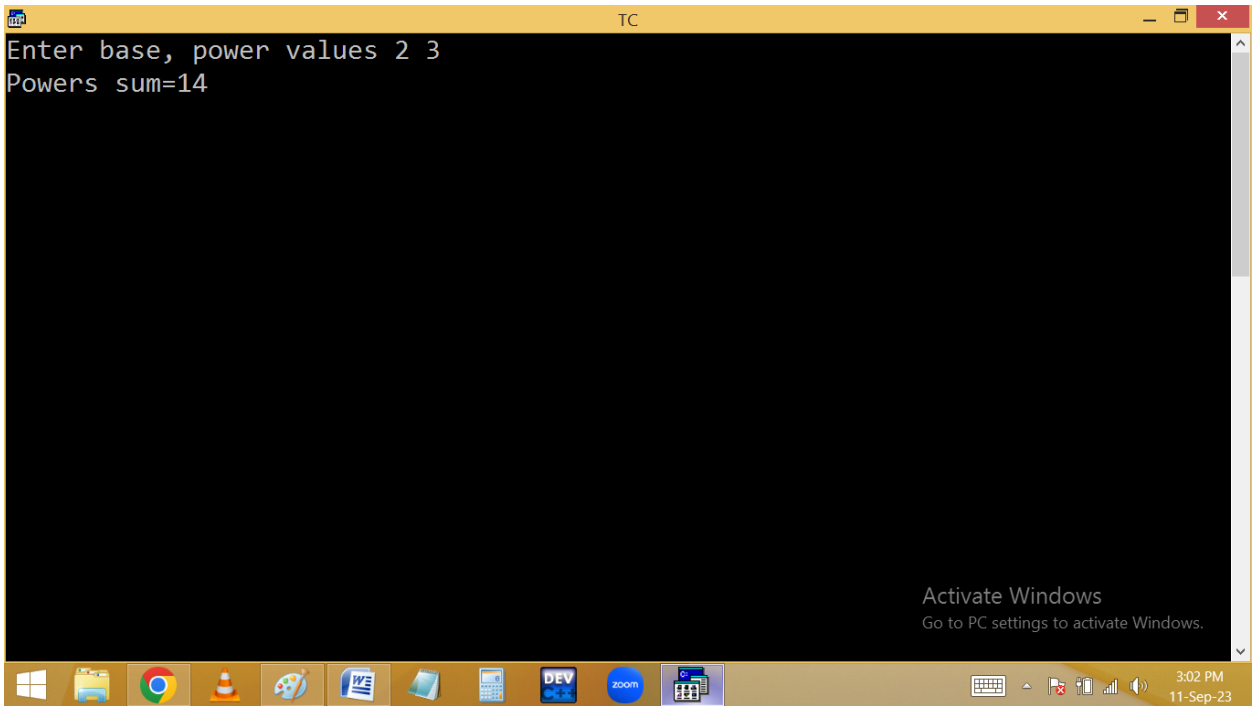


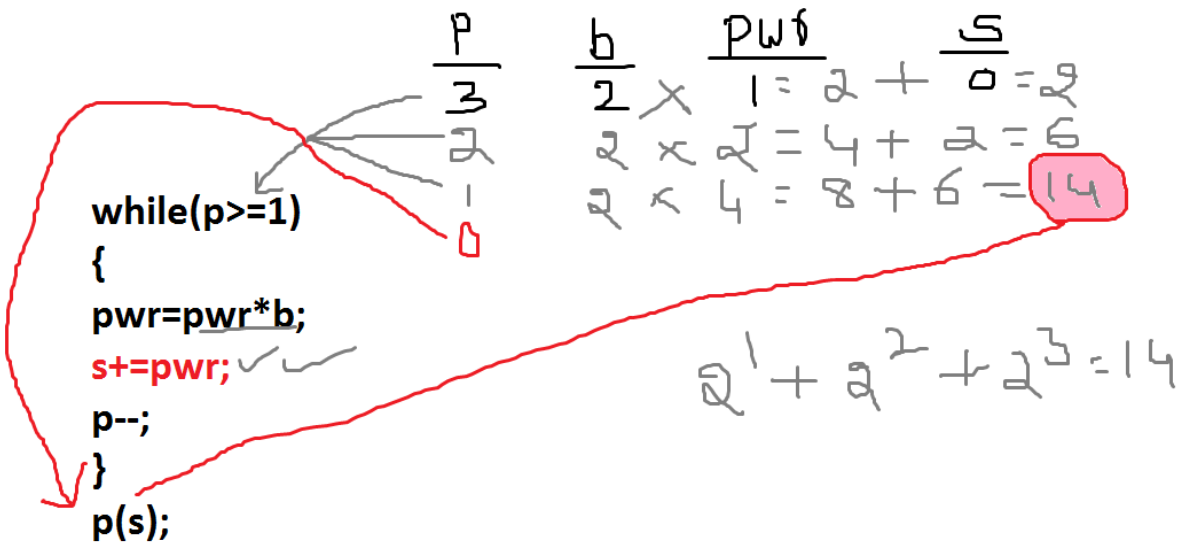


Finding powers sum:

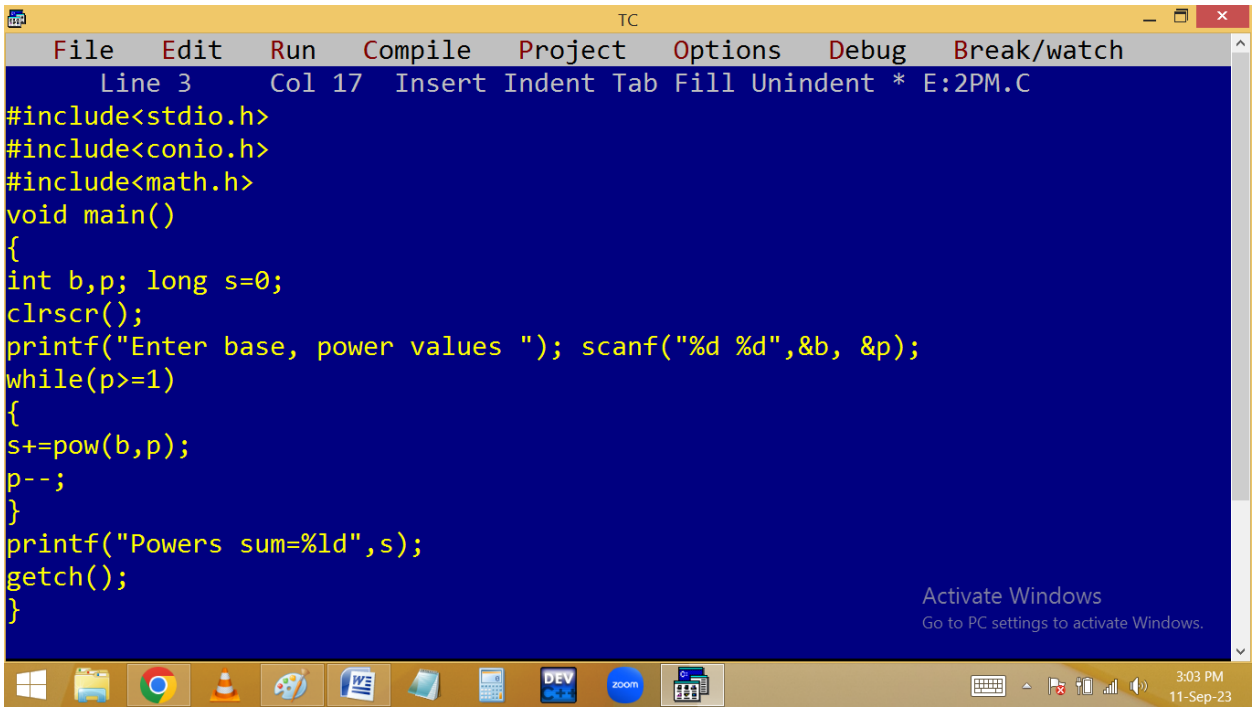
$2^3 = 2^1 + 2^2 + 2^3 = 2 + 4 + 8 = 14$

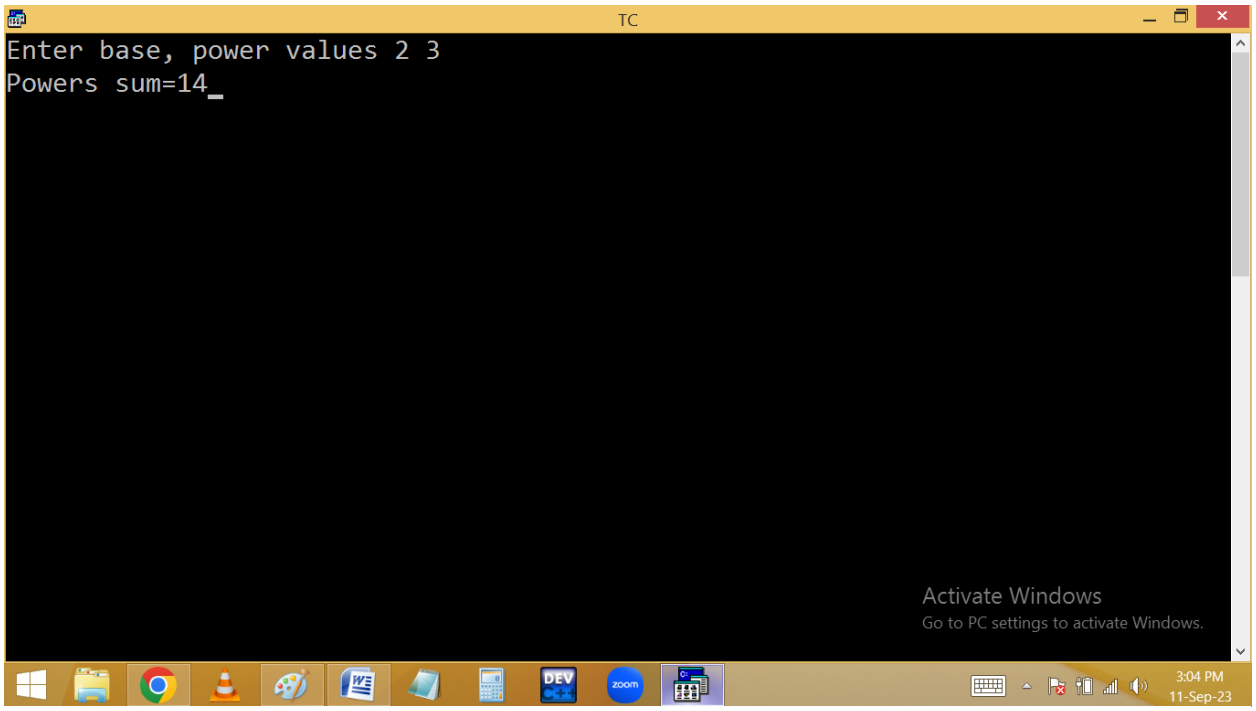

TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 26 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int b,p; long pwr=1,s=0;
clrscr();
printf("Enter base, power values "); scanf("%d %d",&b, &p);
while(p>=1)
{
pwr=pwr*b; s+=pwr;
p--;
}
printf("Powers sum=%ld",s);
getch();
}
Activate Windows
Go to PC settings to activate Windows.
2:58 PM
11-Sep-23

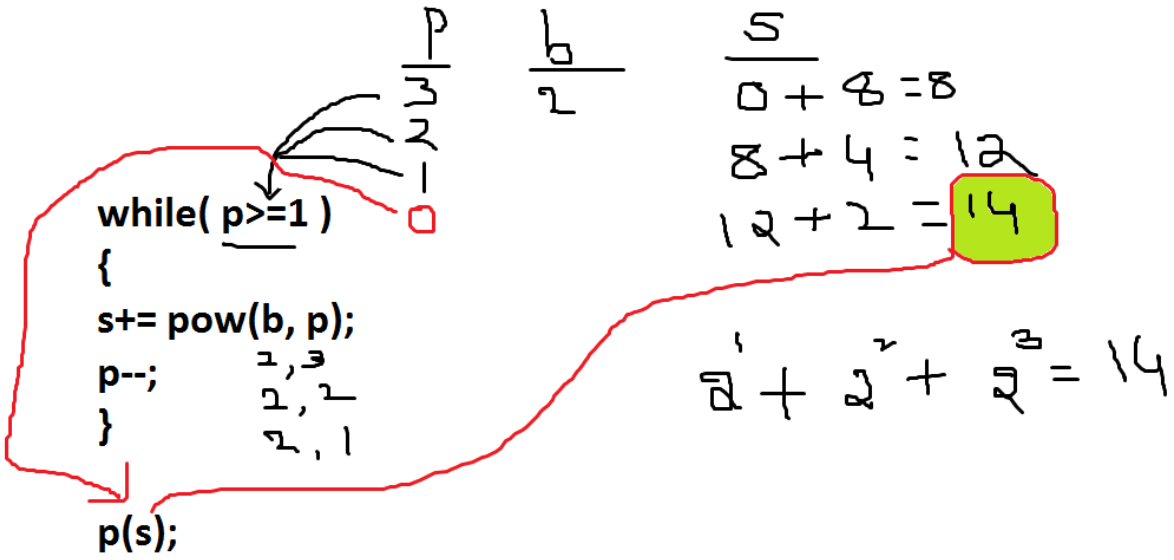

TC
Enter base, power values 2 3
Powers sum=14
Activate Windows
Go to PC settings to activate Windows.
3:02 PM
11-Sep-23


while(p>=1)
{
pwr=pwr*b;
s+=pwr;
p--;
}
p(s);

Using pow():


TC
File Edit Run Compile Project Options Debug Break/watch
Line 3 Col 17 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
int b,p; long s=0;
clrscr();
printf("Enter base, power values "); scanf("%d %d",&b, &p);
while(p>=1)
{
s+=pow(b,p);
p--;
}
printf("Powers sum=%ld",s);
getch();
}
Activate Windows
Go to PC settings to activate Windows.
3:03 PM
11-Sep-23

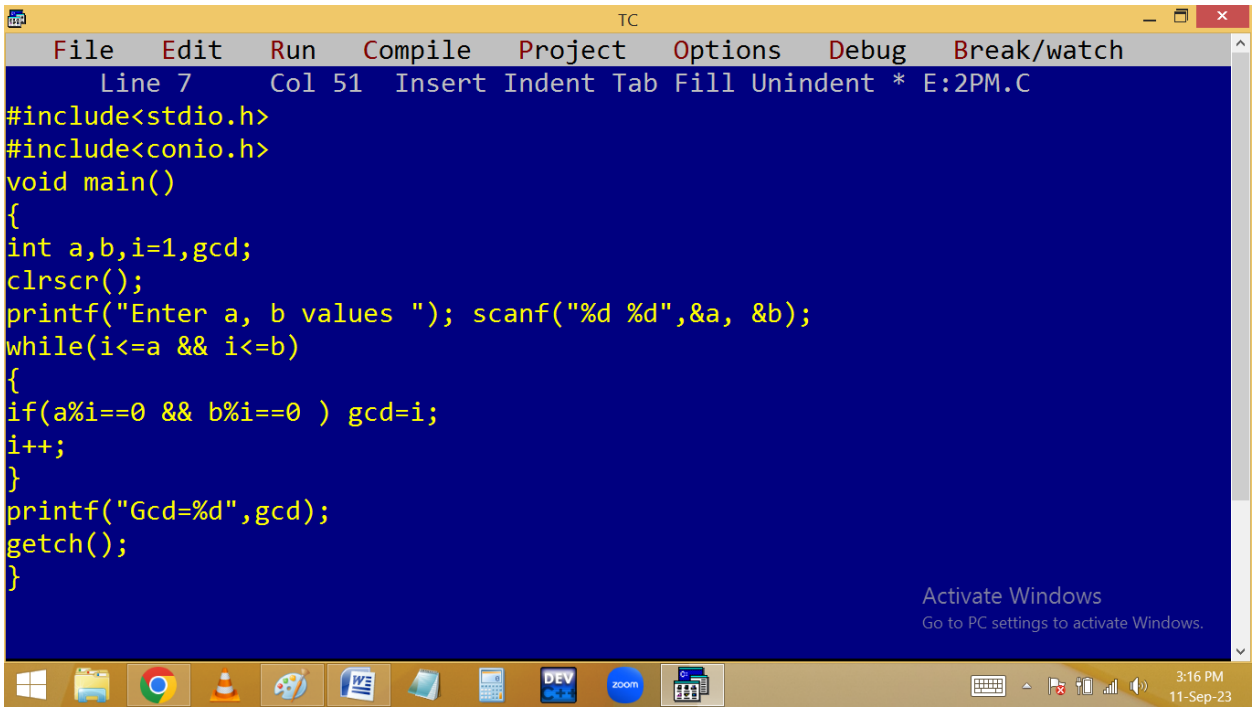


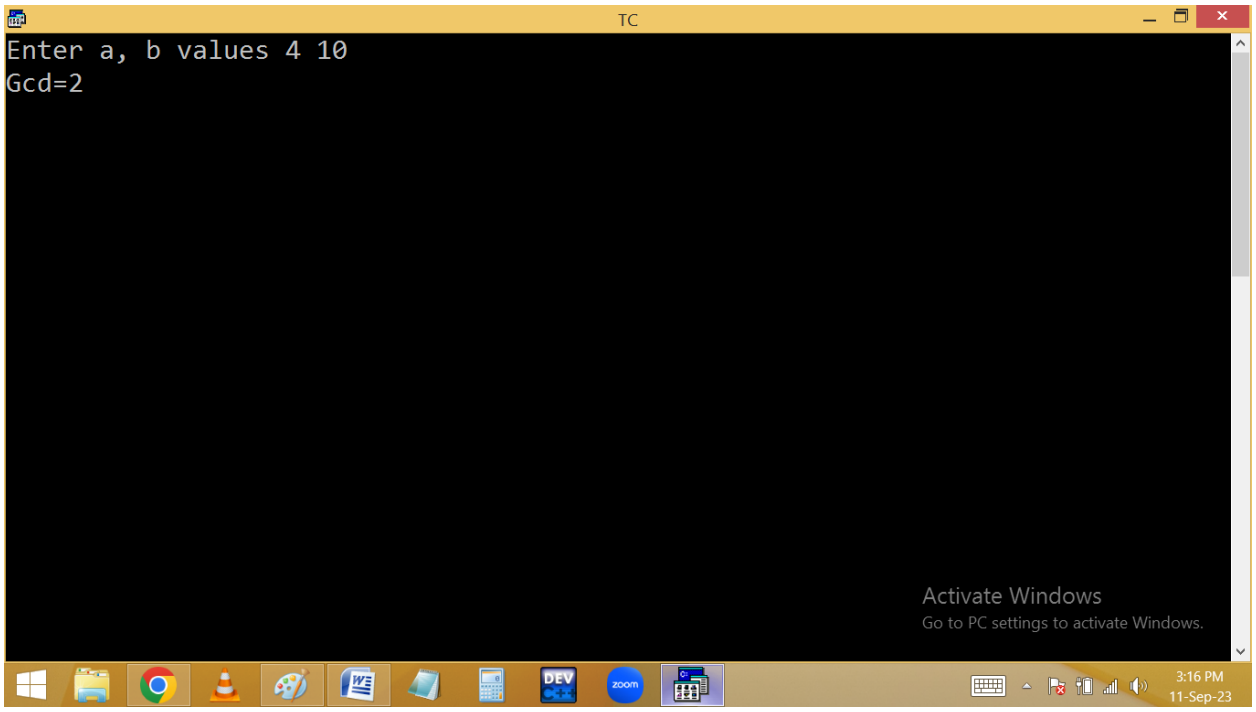


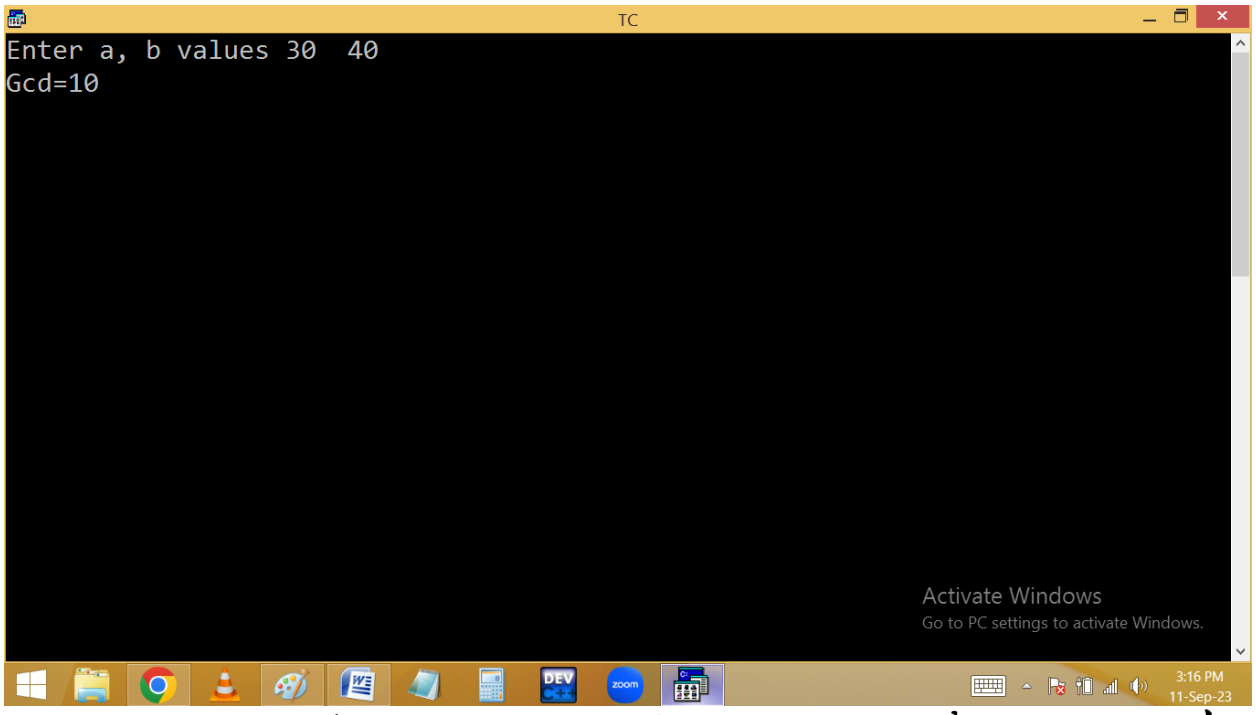
Finding gcd / hcf of given two numbers.

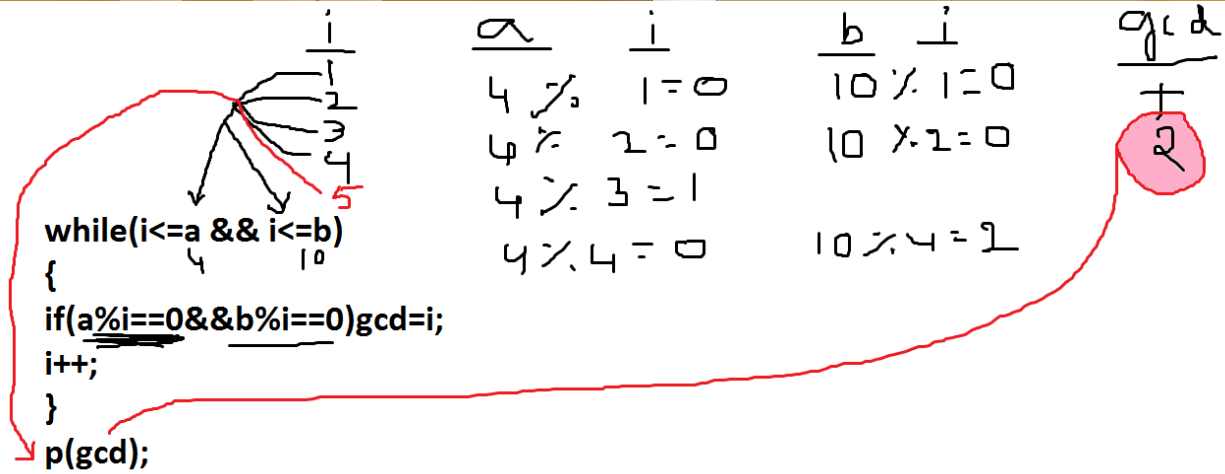
4 divisible with 1, 2, 4

10 divisible with 1, 2, 5, 10


TC
File Edit Run Compile Project Options Debug Break/watch
Line 7 Col 51 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,i=1,gcd;
clrscr();
printf("Enter a, b values "); scanf("%d %d",&a, &b);
while(i<=a && i<=b)
{
if(a%i==0 && b%i==0) gcd=i;
i++;
}
printf("Gcd=%d",gcd);
getch();
}
Activate Windows
Go to PC settings to activate Windows.
3:16 PM
11-Sep-23

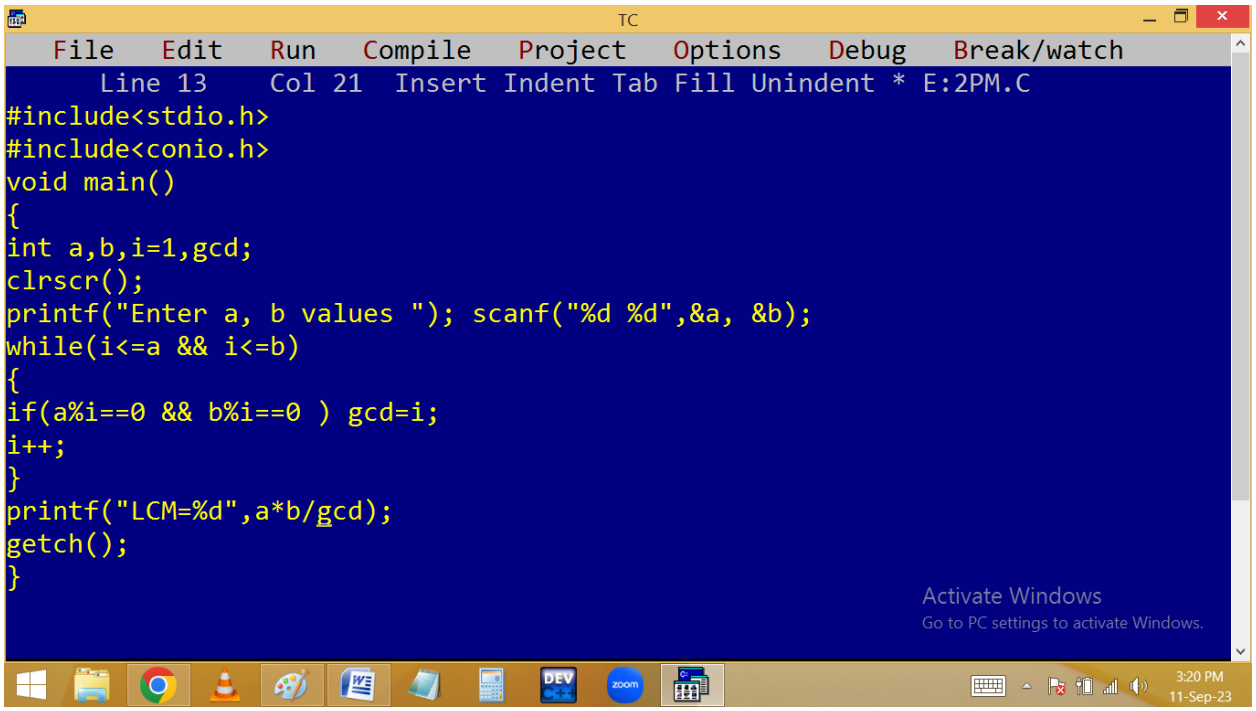

TC
Enter a, b values 4 10
Gcd=2
Activate Windows
Go to PC settings to activate Windows.
3:16 PM
11-Sep-23

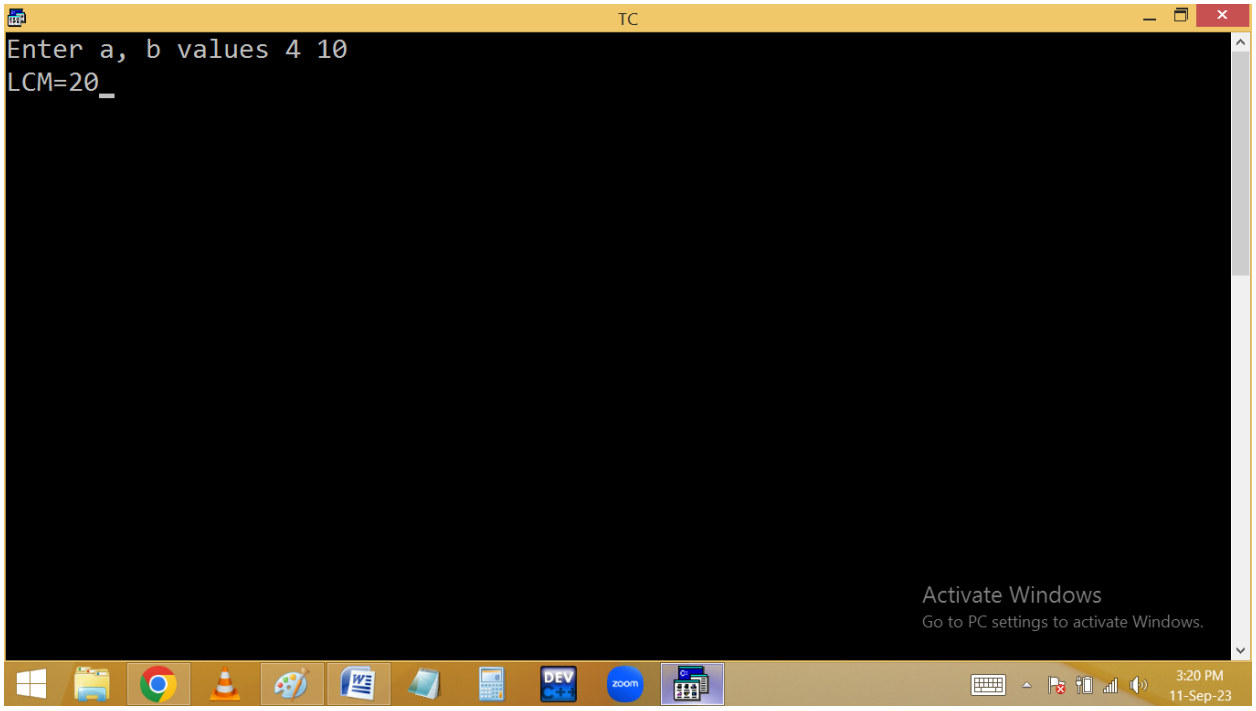


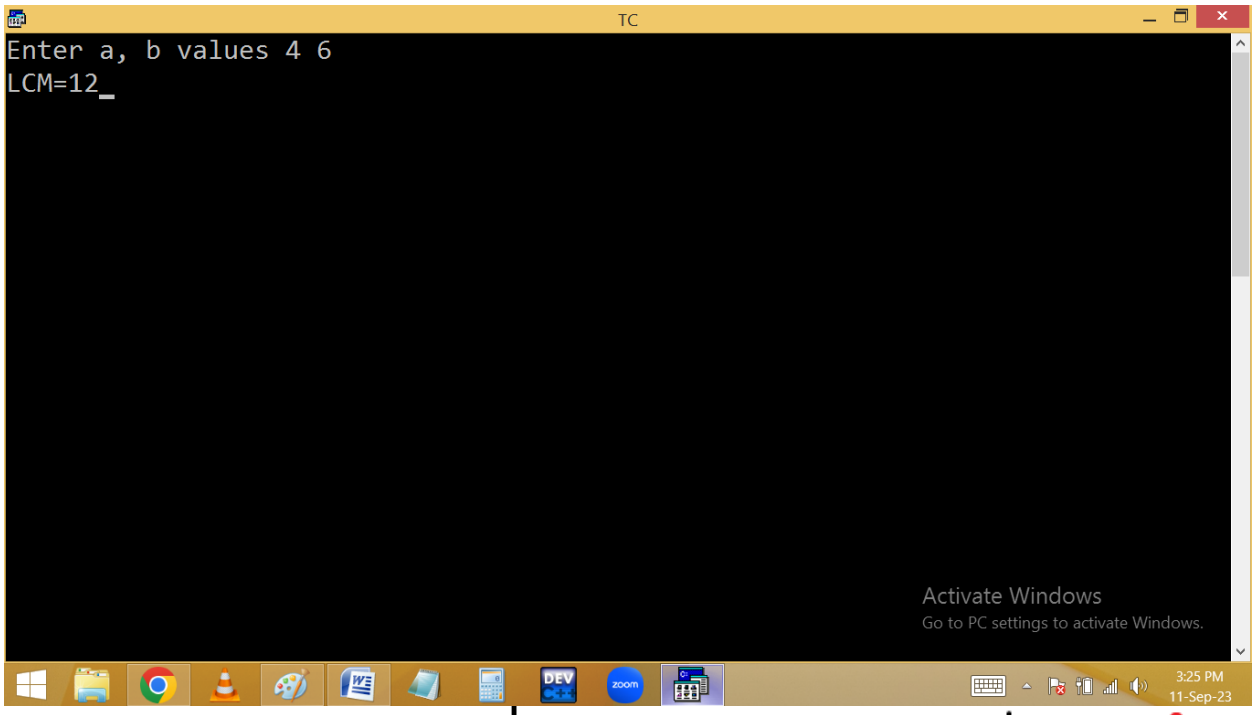


Finding LCM of given two numbers:

Using gcd:


TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 21 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,i=1,gcd;
clrscr();
printf("Enter a, b values "); scanf("%d %d",&a, &b);
while(i<=a && i<=b)
{
if(a%i==0 && b%i==0) gcd=i;
i++;
}
printf("LCM=%d",a*b/gcd);
getch();
}
Activate Windows
Go to PC settings to activate Windows.
3:20 PM
11-Sep-23

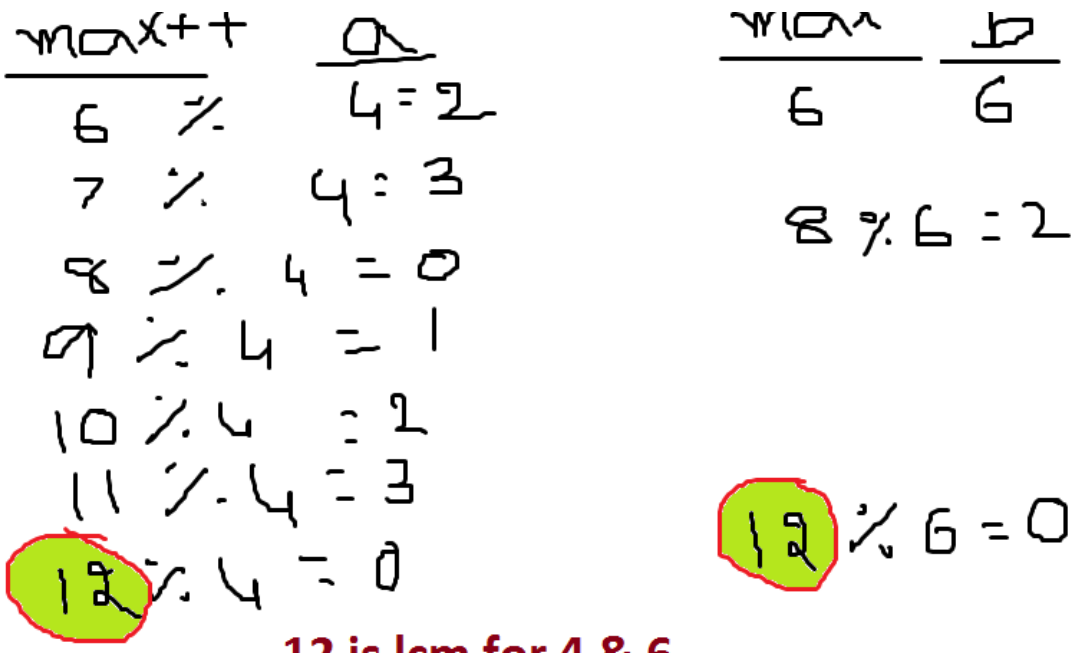

TC
Enter a, b values 4 10
LCM=20
Activate Windows
Go to PC settings to activate Windows.
3:20 PM
11-Sep-23



a b gcd LCM

4 * 10 = 40 / 2 = 20

Without gcd:



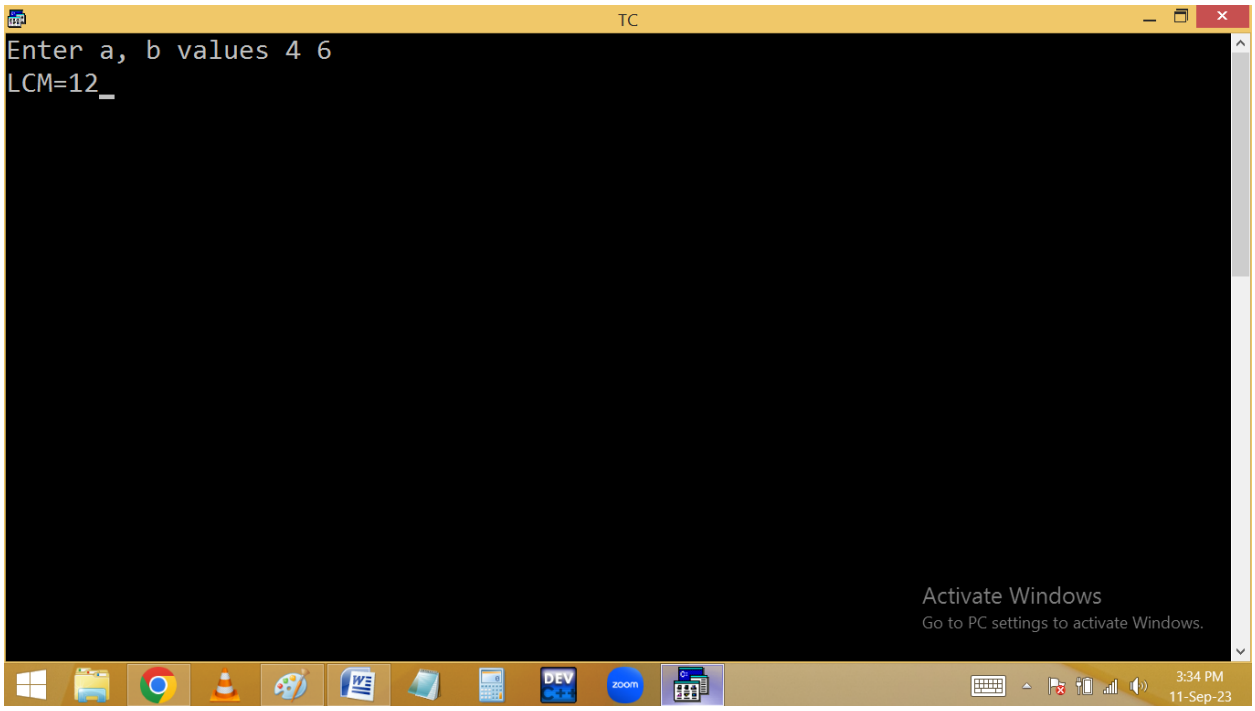
TC

File Edit Run Compile Project Options Debug Break/watch

Line 13 Col 1 Insert Indent Tab Fill Unindent * E:2PM.C

```
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,max,gcd;
clrscr();
printf("Enter a, b values "); scanf("%d %d",&a, &b); max=a>b?a:b;
while(max)
{
if(max%a==0 && max%b==0 ) {printf("LCM=%d",max);break; }
max++;
}
getch();
}
```


3:34 PM
11-Sep-23



max = a > b ? a : b; ==> max = 4 > 6 ? 4 : 6 ==> max=6

```
while(max)
{
if(max%a==0&&max%b==0)
{p("Lcm=max");break;}
max++;
}
```

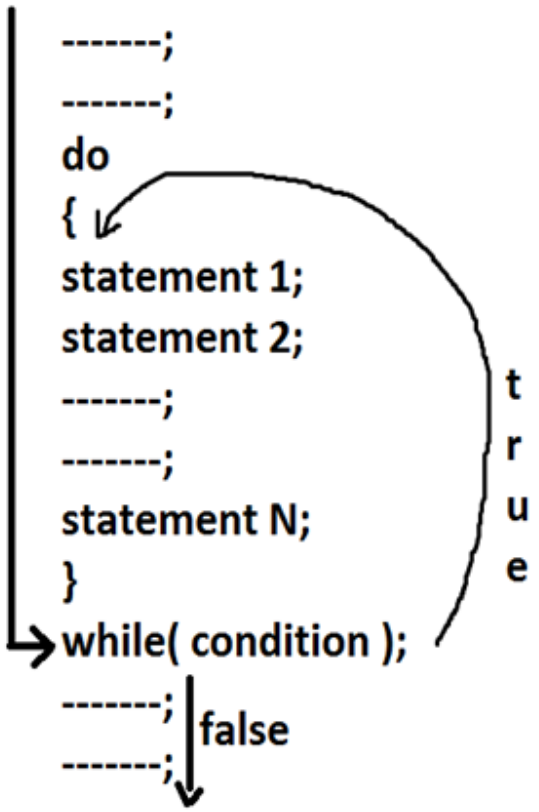
max	a	max	b
6	4=1	6	6
7	4=3	8	8%6=2
8	4=0		
9			
10			
11			
✓12	12%4=0		12%6=0

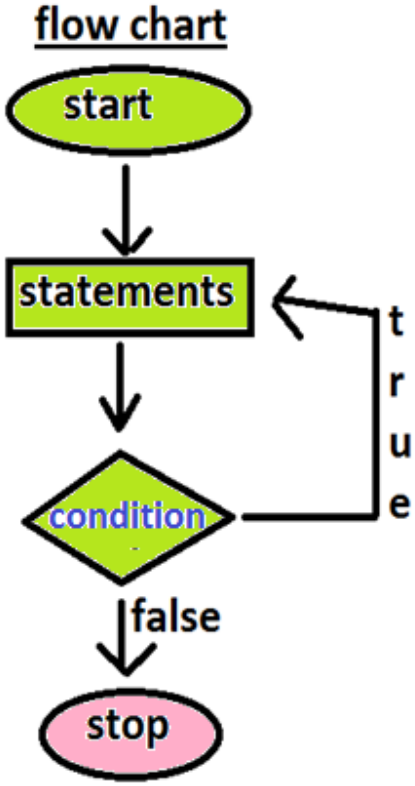
do..while:

- It is an exit control loop. i.e. in a do while the condition is tested at last.
- Here do , while are the keywords.

- It is also used to repeat a program several times based on a condition.
- In a do while, do block statements are executed first and later while condition is tested. If the while condition is true then once again the do block statements are repeated. Like this the process is continued until the while condition becomes false.
- In do while, the while should be end with semicolon (;) .
- Regardless of while condition, the do statements are executed at least one time. Due to this sometimes we are getting unwanted results [garbage values].

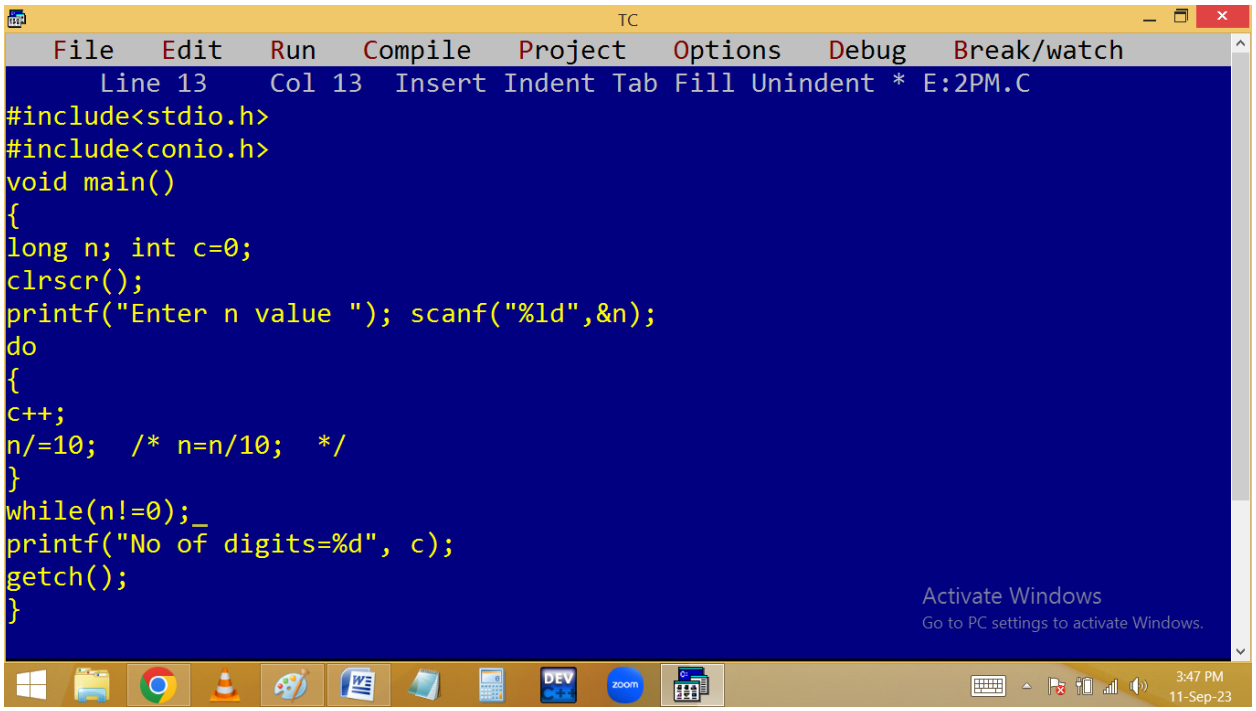
- **Use do while whenever it is compulsory because of in do while the program is controlled at the bottom / last.**

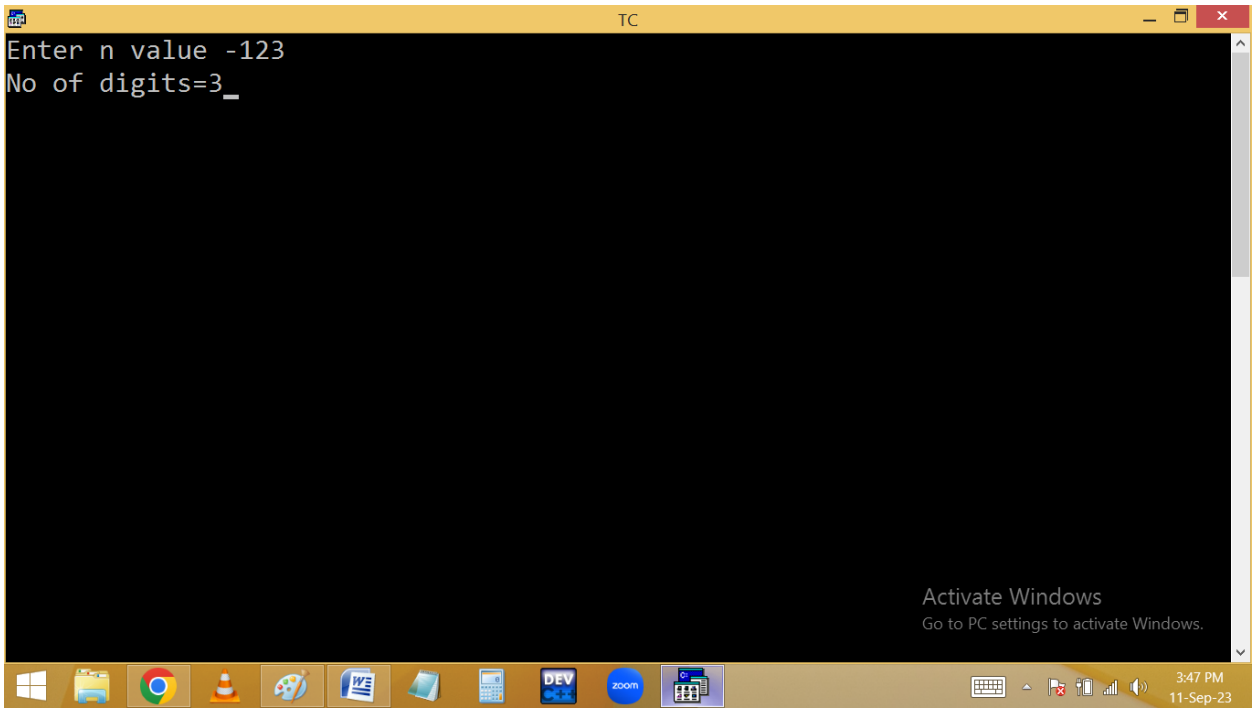


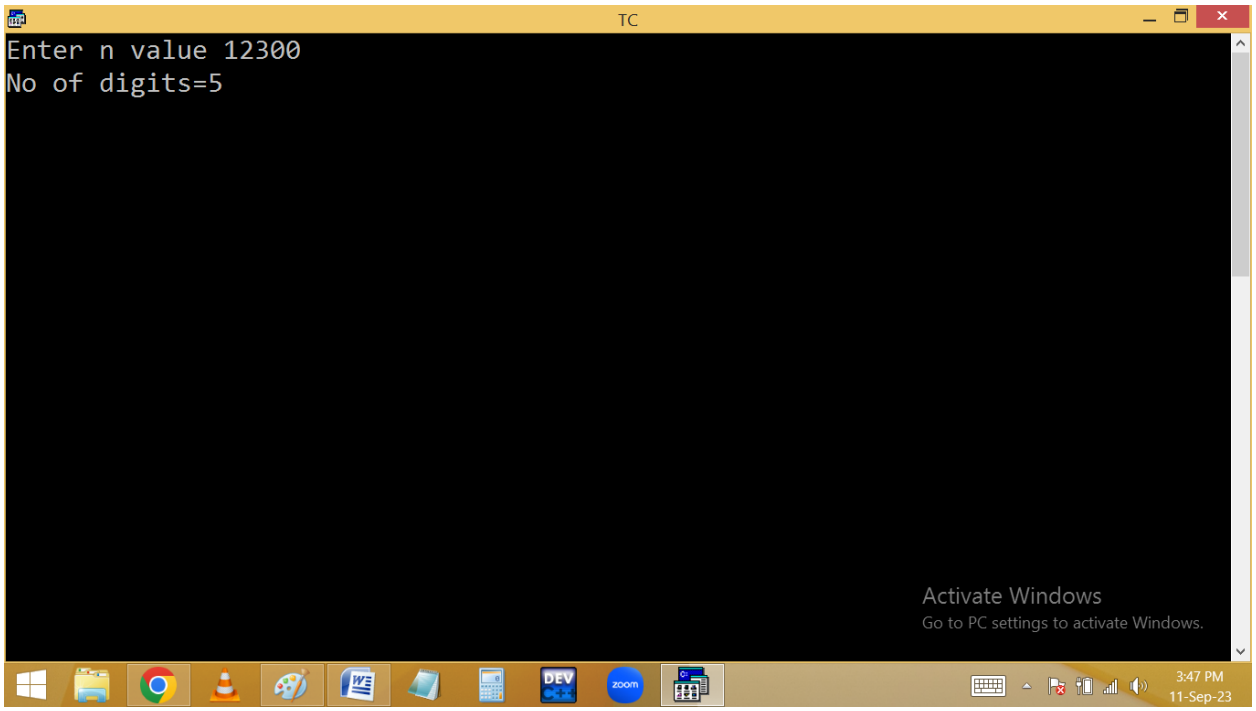


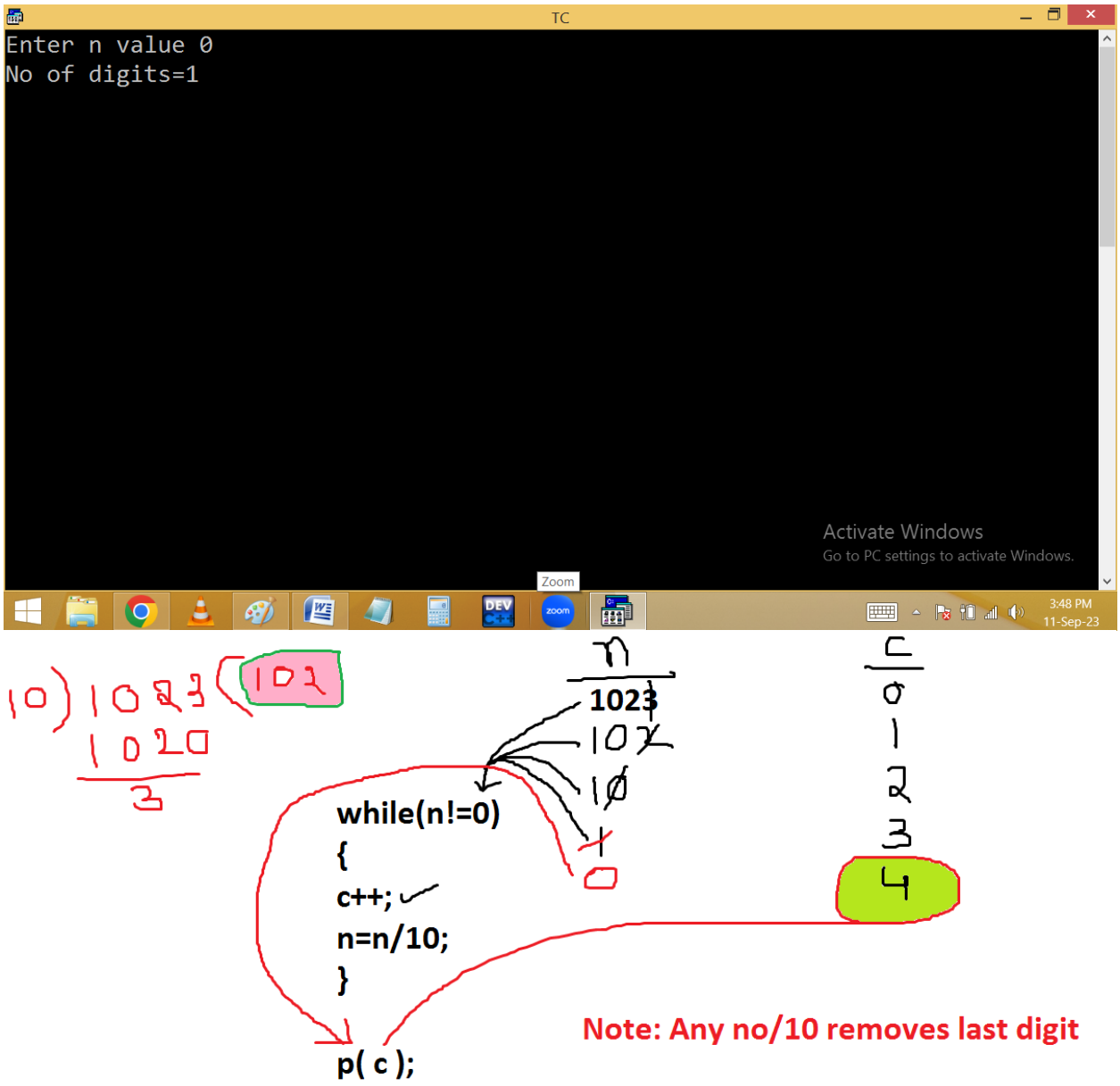
Finding no of digits in given no.

Eg: 1023 ➔ 4 digits no


TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 13 Insert Indent Tab Fill Unindent * E:2PM.C
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int c=0;
clrscr();
printf("Enter n value "); scanf("%ld",&n);
do
{
c++;
n/=10; /* n=n/10; */
}
while(n!=0);
printf("No of digits=%d", c);
getch();
}
Activate Windows
Go to PC settings to activate Windows.
3:47 PM
11-Sep-23


TC
Enter n value -123
No of digits=3
Activate Windows
Go to PC settings to activate Windows.
3:47 PM
11-Sep-23


TC
Enter n value 12300
No of digits=5
Activate Windows
Go to PC settings to activate Windows.
3:47 PM
11-Sep-23



Home work: Without using loop: