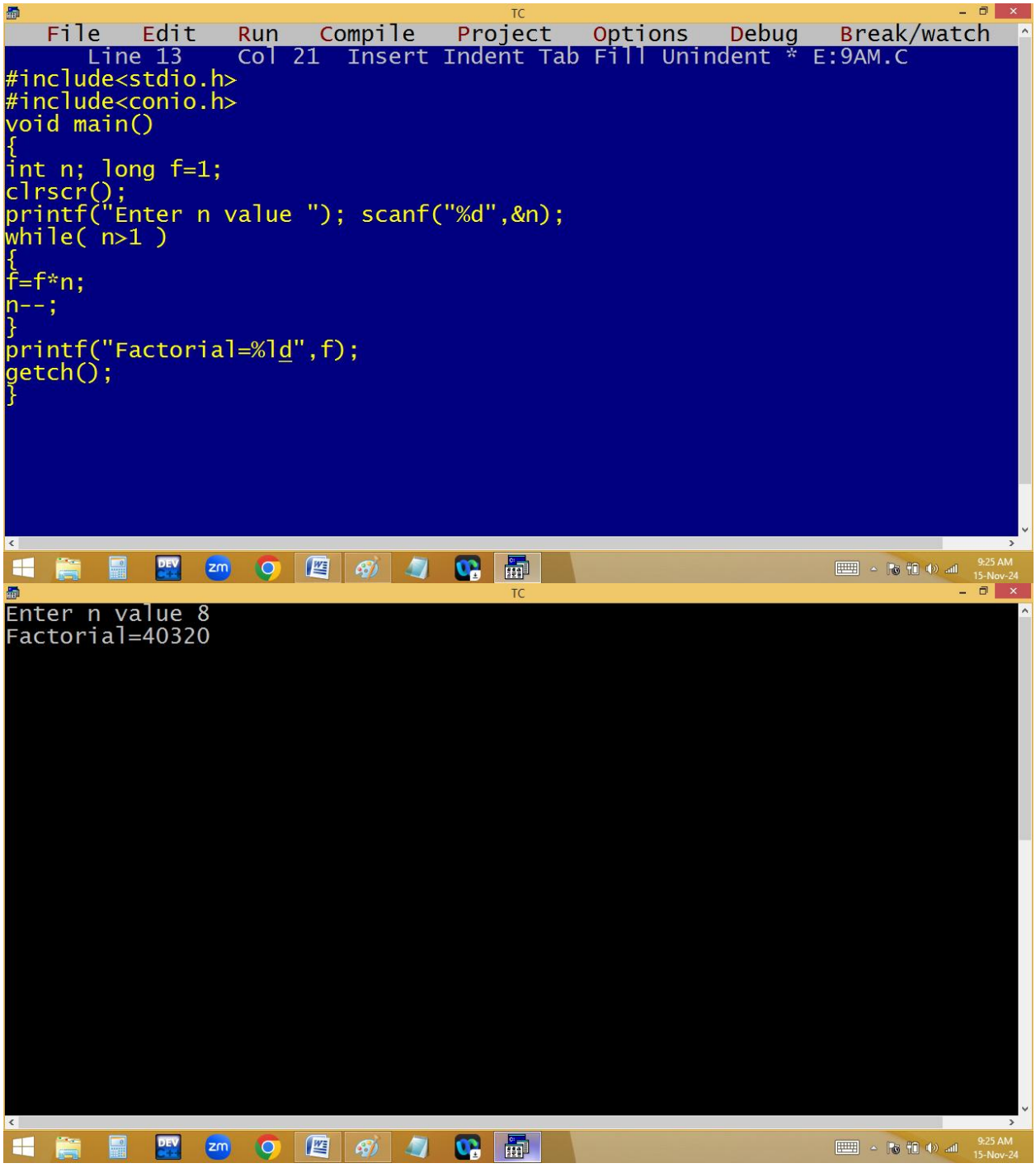
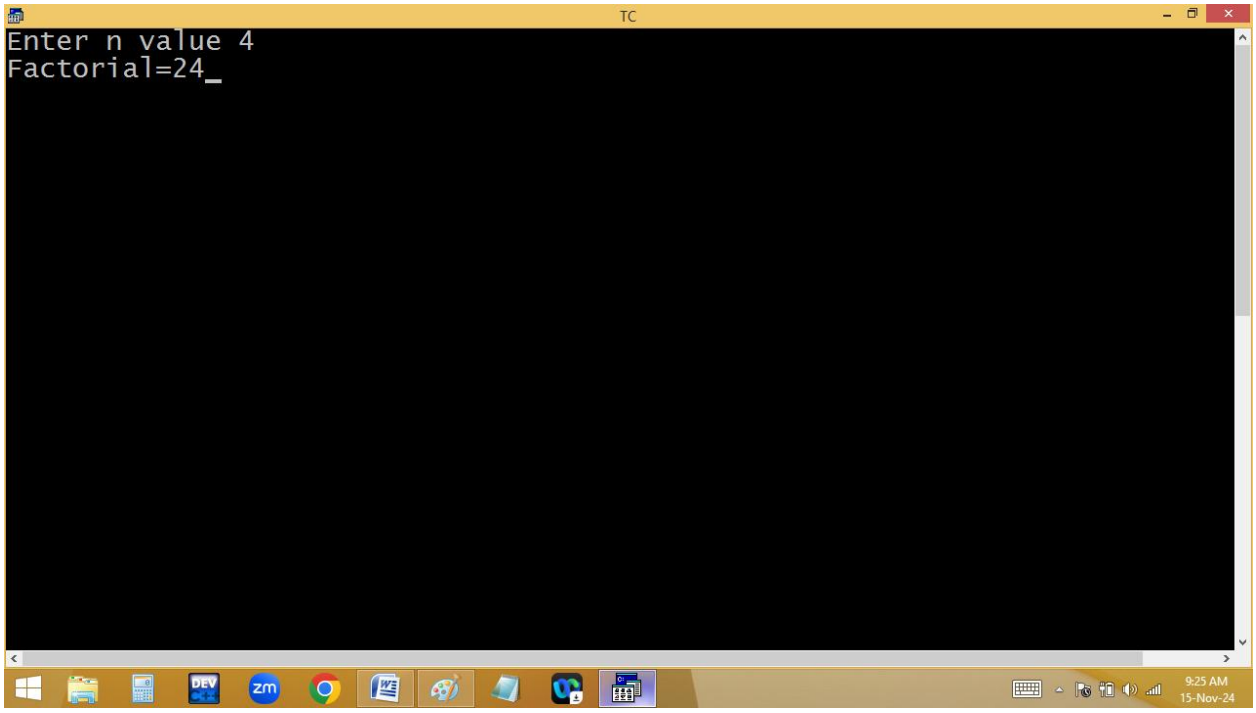
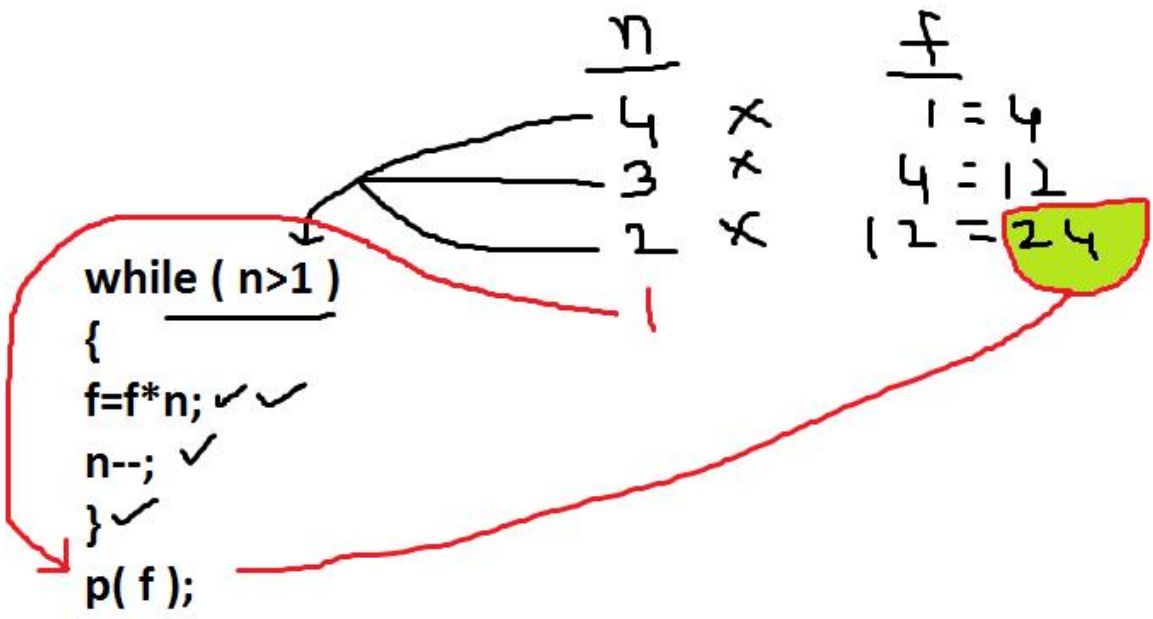
Finding factorial of given no:

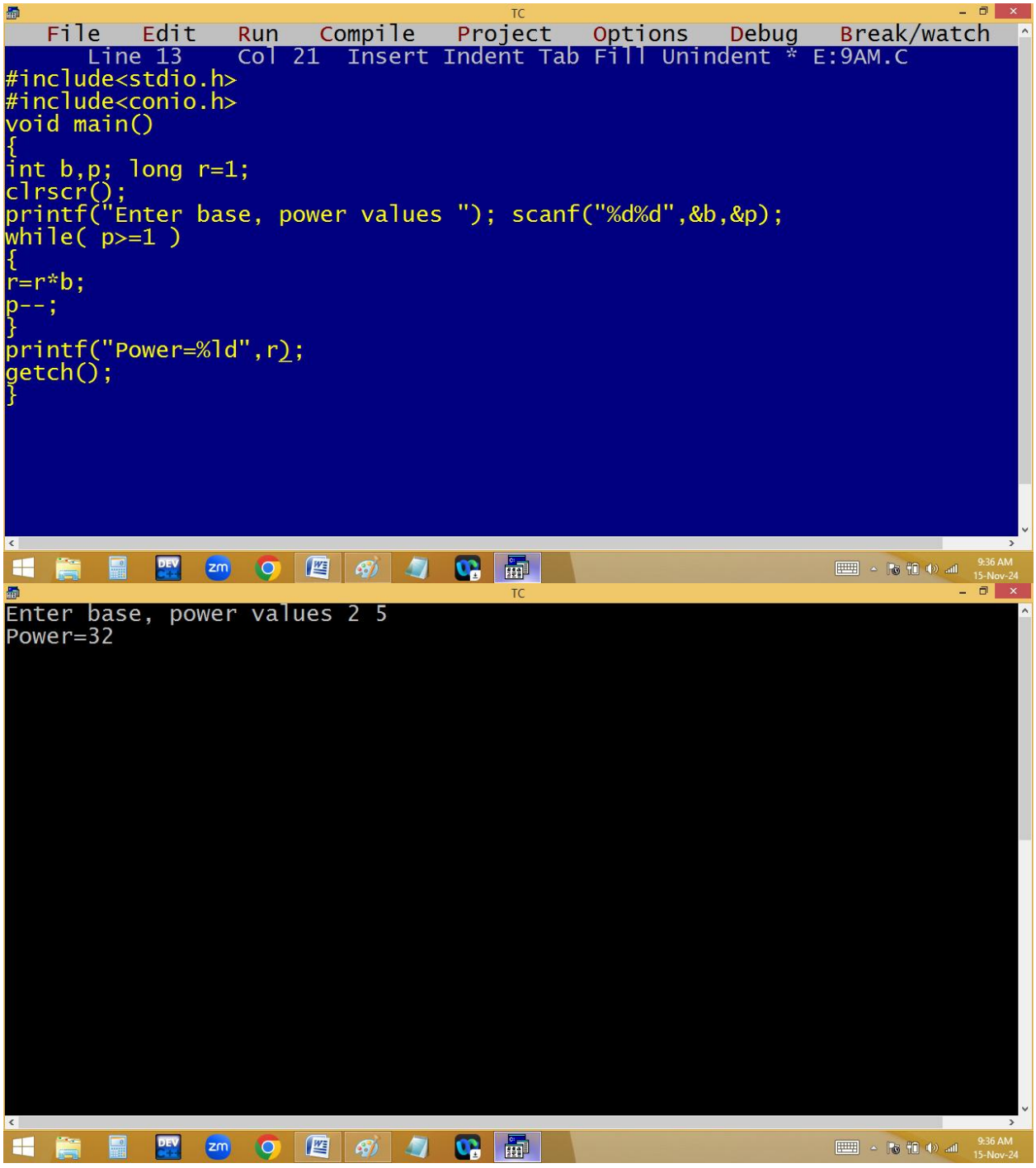

TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 21 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int n; long f=1;
clrscr();
printf("Enter n value "); scanf("%d",&n);
while(n>1)
{
f=f*n;
n--;
}
printf("Factorial=%ld",f);
getch();
}
9:25 AM
15-Nov-24
TC
Enter n value 8
Factorial=40320
9:25 AM
15-Nov-24

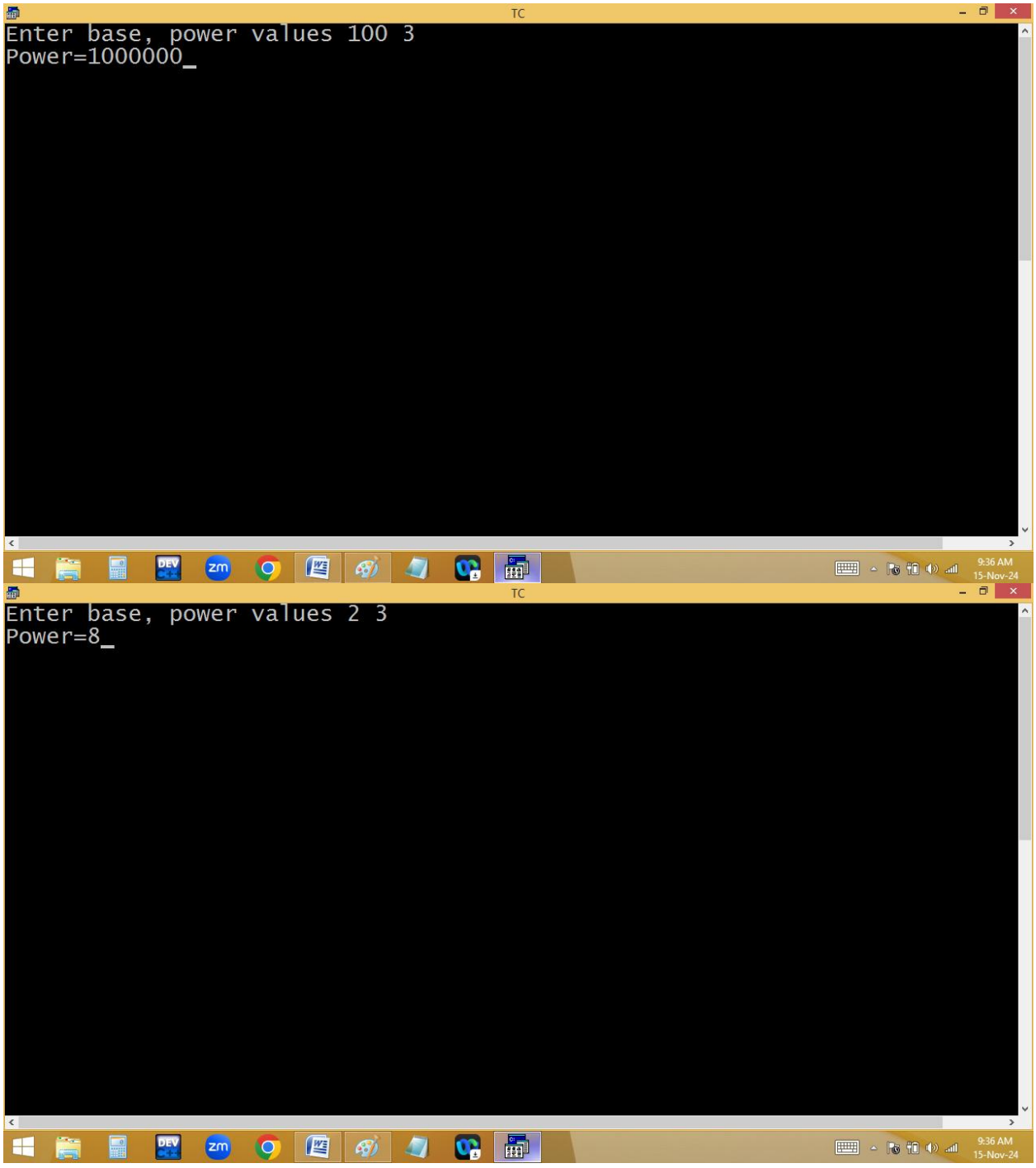


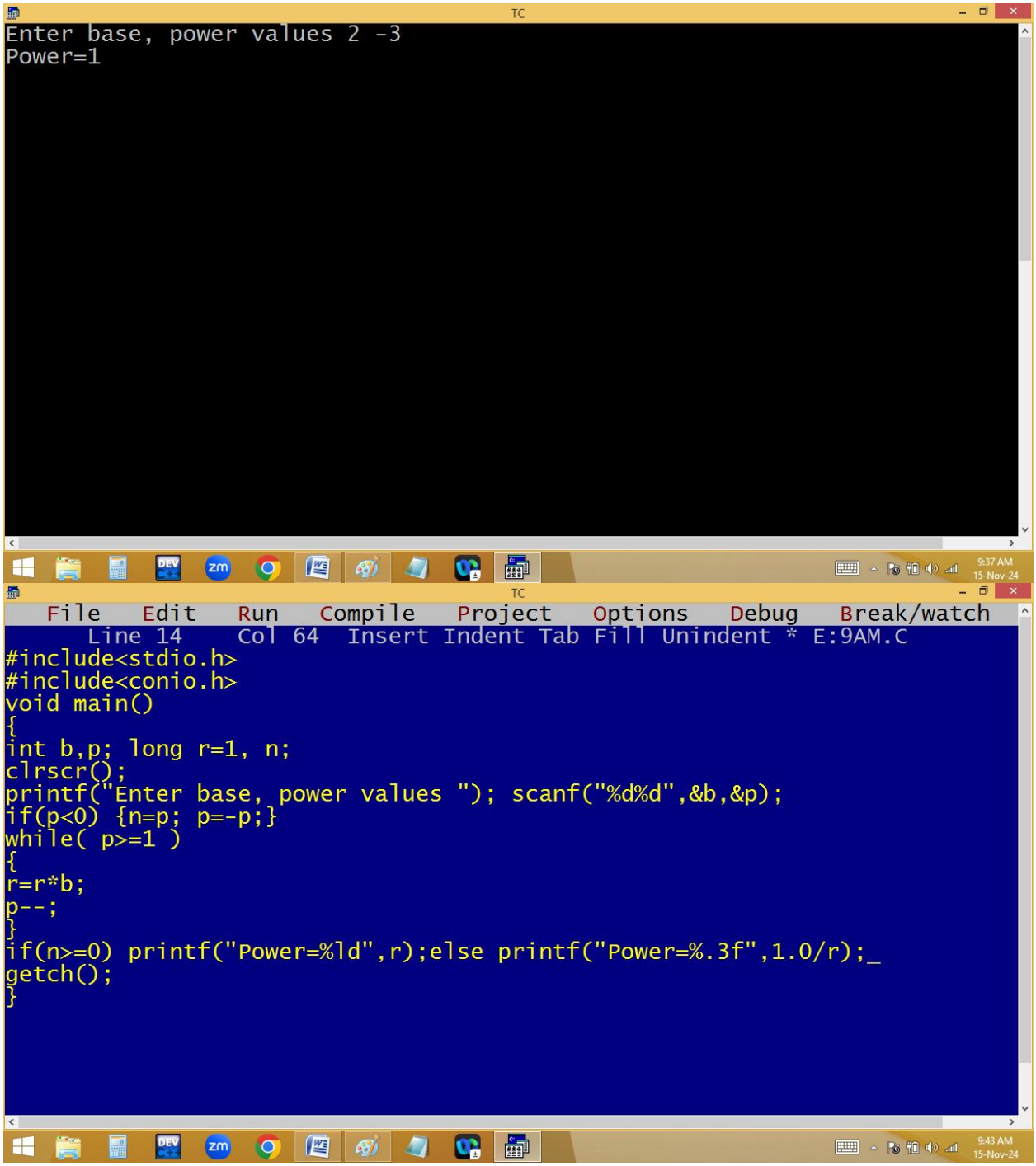


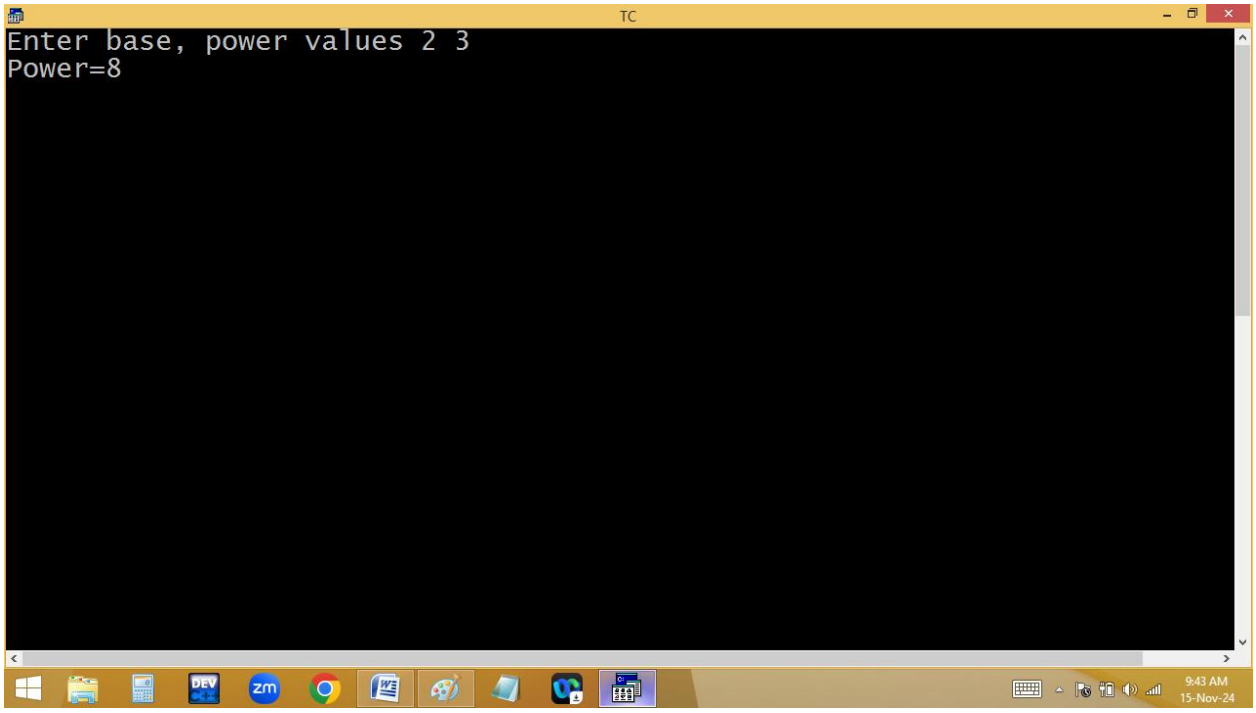
Finding power value using user defined program:

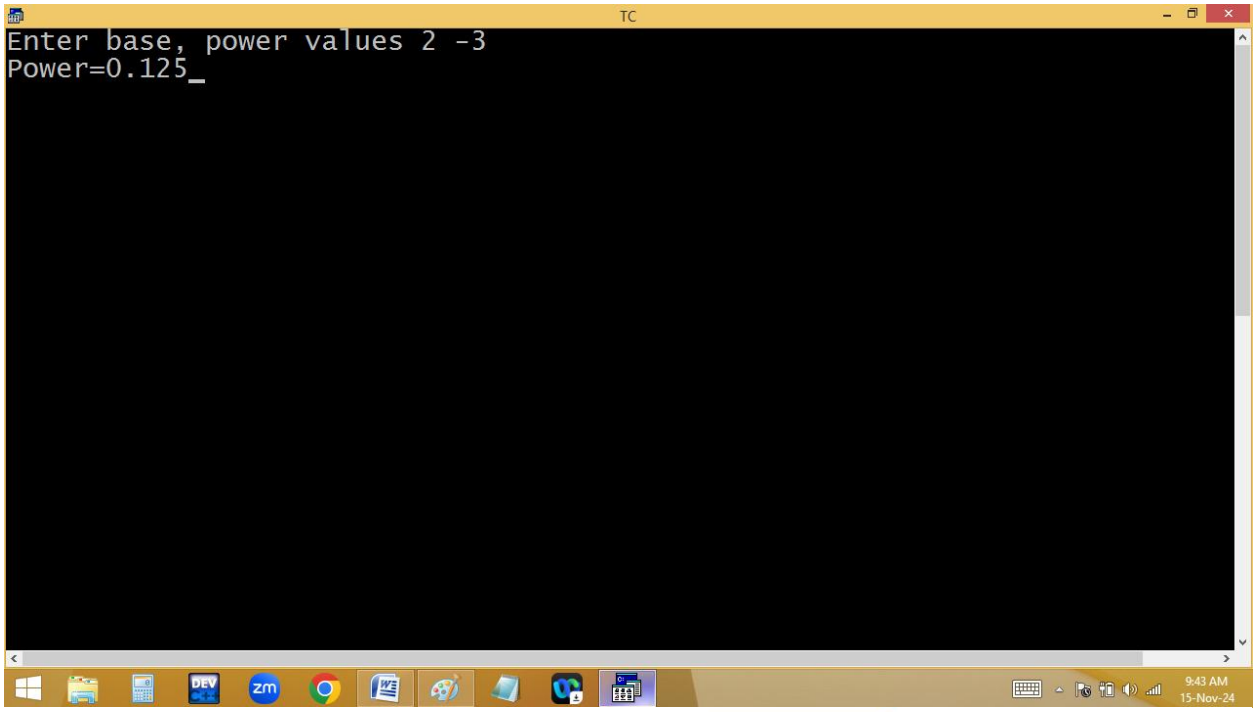
$2^5 = 32$

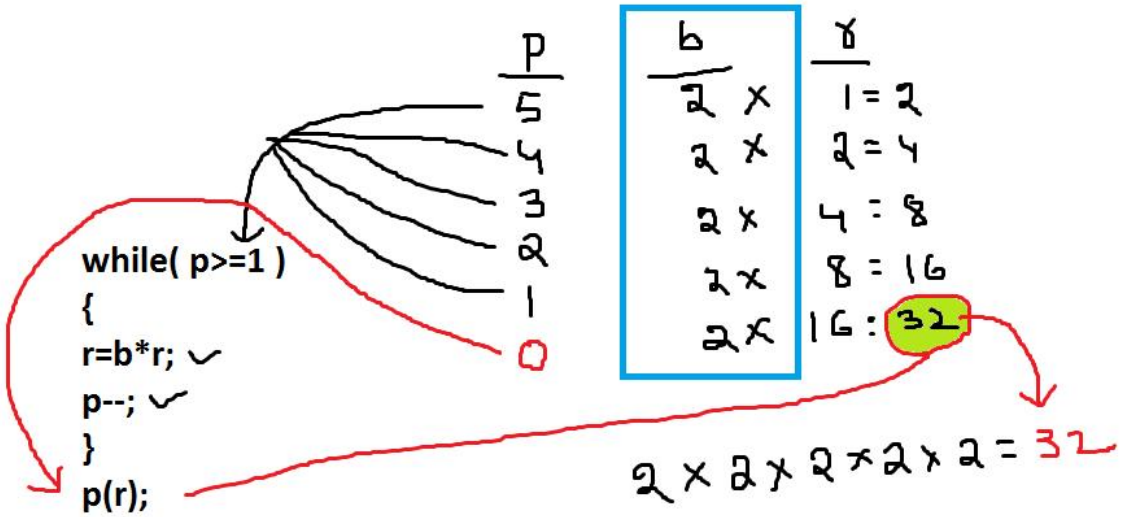

TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 21 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int b,p; long r=1;
clrscr();
printf("Enter base, power values "); scanf("%d%d",&b,&p);
while(p>=1)
{
r=r*b;
p--;
}
printf("Power=%ld",r);
getch();
}
TC
Enter base, power values 2 5
Power=32


TC
Enter base, power values 100 3
Power=1000000
TC
Enter base, power values 2 3
Power=8
9:36 AM
15-Nov-24
9:36 AM
15-Nov-24


TC
Enter base, power values 2 -3
Power=1
TC
File Edit Run Compile Project Options Debug Break/watch
Line 14 Col 64 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int b,p; long r=1, n;
clrscr();
printf("Enter base, power values "); scanf("%d%d",&b,&p);
if(p<0) {n=p; p=-p;}
while(p>=1)
{
r=r*b;
p--;
}
if(n>=0) printf("Power=%ld",r);else printf("Power=%.3f",1.0/r);
getch();
}

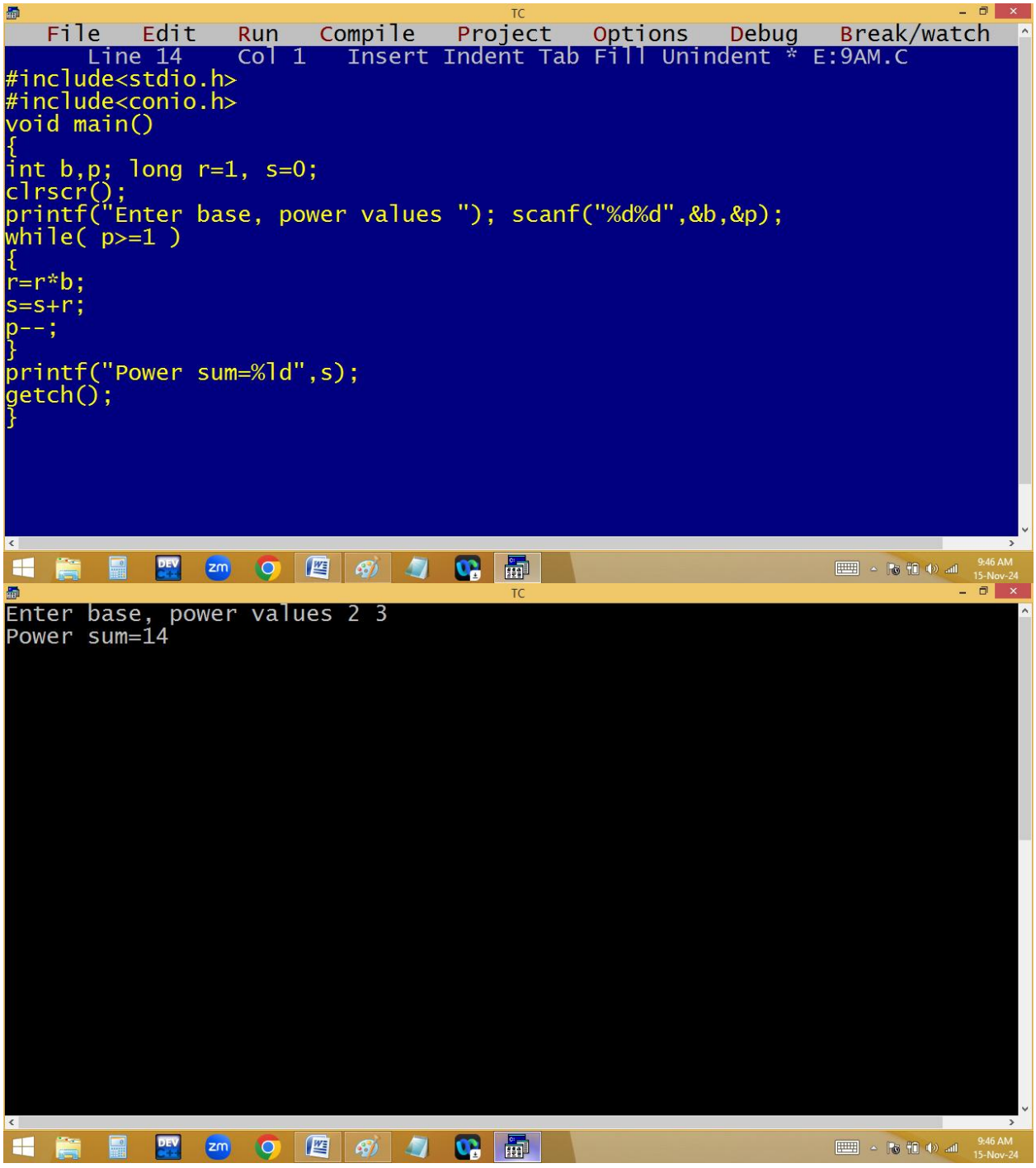

TC
Enter base, power values 2 3
Power=8
9:43 AM
15-Nov-24

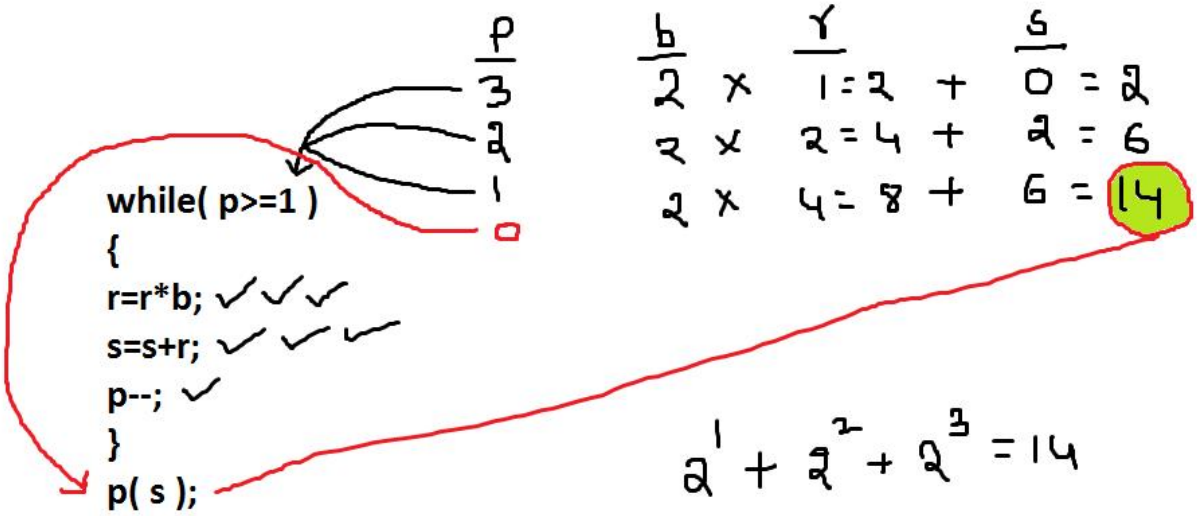




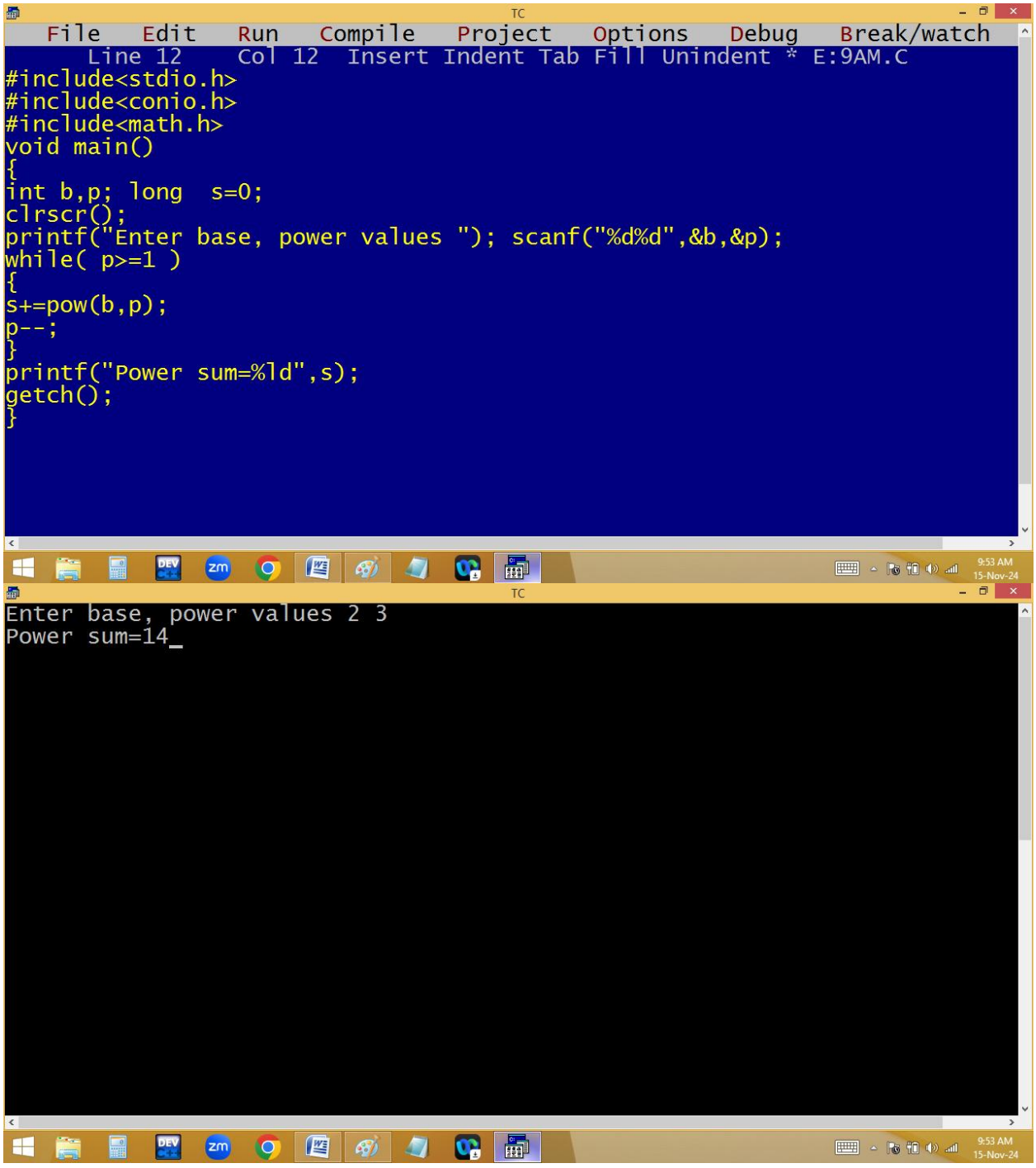
Find the powers sum:

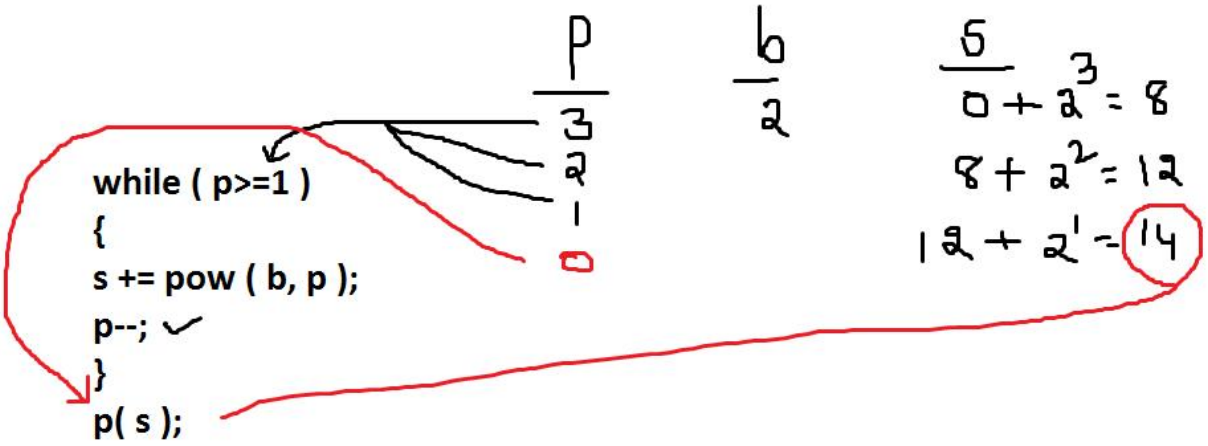
$2^3 = 2^1 + 2^2 + 2^3 = 2 + 4 + 8 = 14$


TC
File Edit Run Compile Project Options Debug Break/watch
Line 14 Col 1 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int b,p; long r=1, s=0;
clrscr();
printf("Enter base, power values "); scanf("%d%d",&b,&p);
while(p>=1)
{
r=r*b;
s=s+r;
p--;
}
printf("Power sum=%ld",s);
getch();
}
TC
Enter base, power values 2 3
Power sum=14


p
3
2
1
0
while(p>=1)
{
r=r*b;
s=s+r;
p--;
}
p(s);
b
r
s
2 x 1=2 + 0 = 2
2 x 2=4 + 2 = 6
2 x 4=8 + 6 = 14
2^1 + 2^2 + 2^3 = 14

Using pow():


TC
File Edit Run Compile Project Options Debug Break/watch
Line 12 Col 12 Insert Indent Tab Fill Unindent * E:9AM.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("Power sum=%ld",s);
getch();
}
TC
Enter base, power values 2 3
Power sum=14_

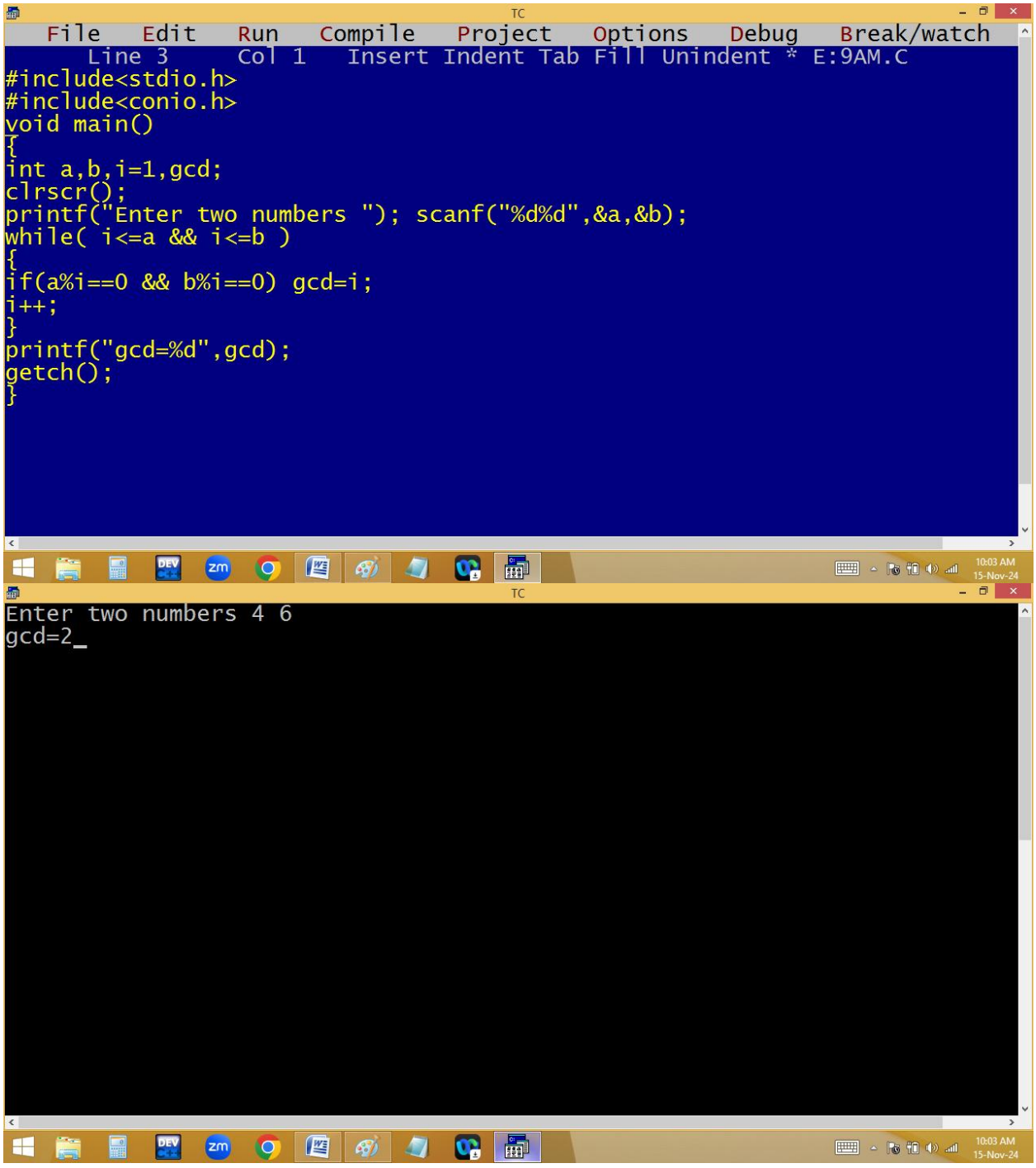


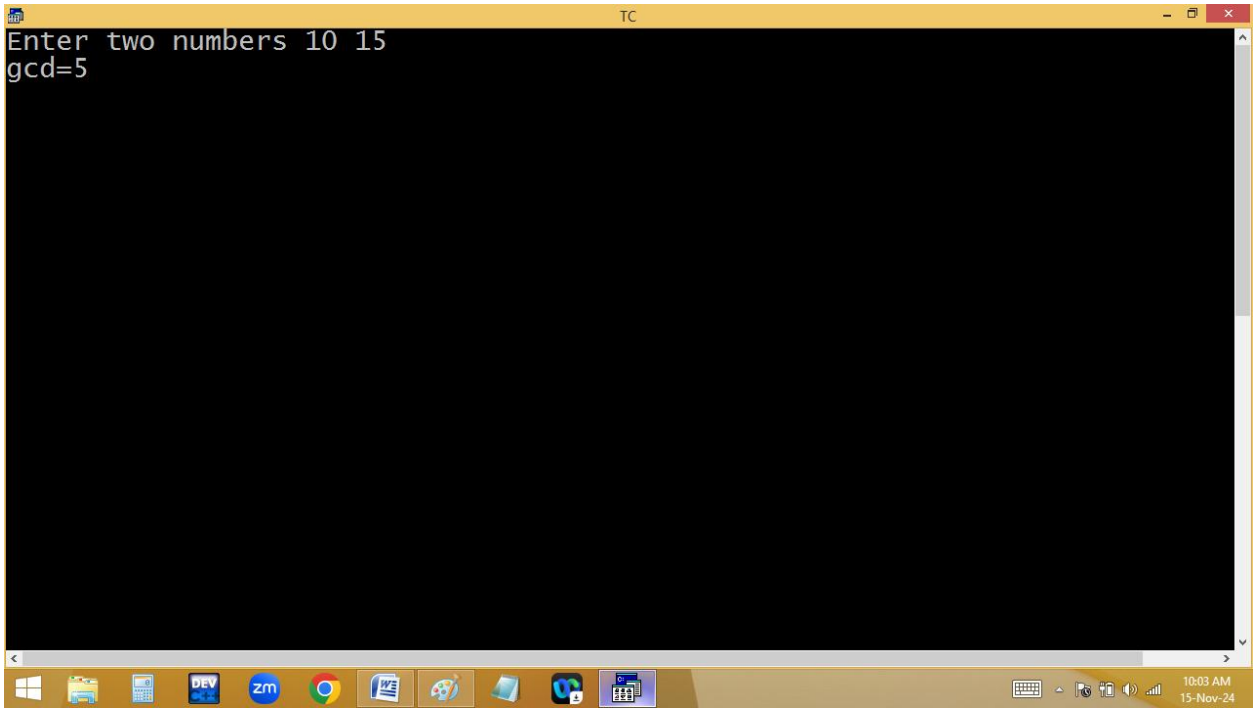
Finding gcd /hcf of given two numbers:

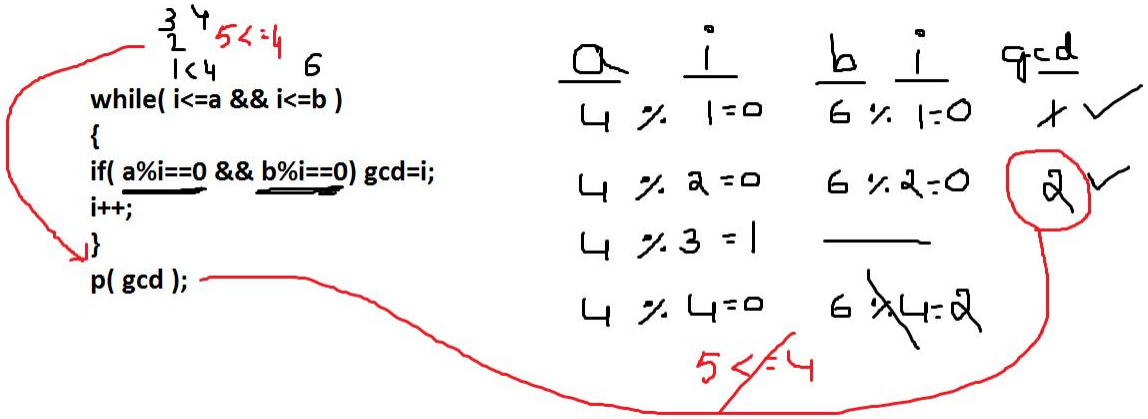
Greatest common divisor / highest common factor

4 factors are 1, **2**, 4

6 factors are 1, **2**, 3, 6


TC
File Edit Run Compile Project Options Debug Break/watch
Line 3 Col 1 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,i=1,gcd;
clrscr();
printf("Enter two numbers "); 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();
}
TC
Enter two numbers 4 6
gcd=2_





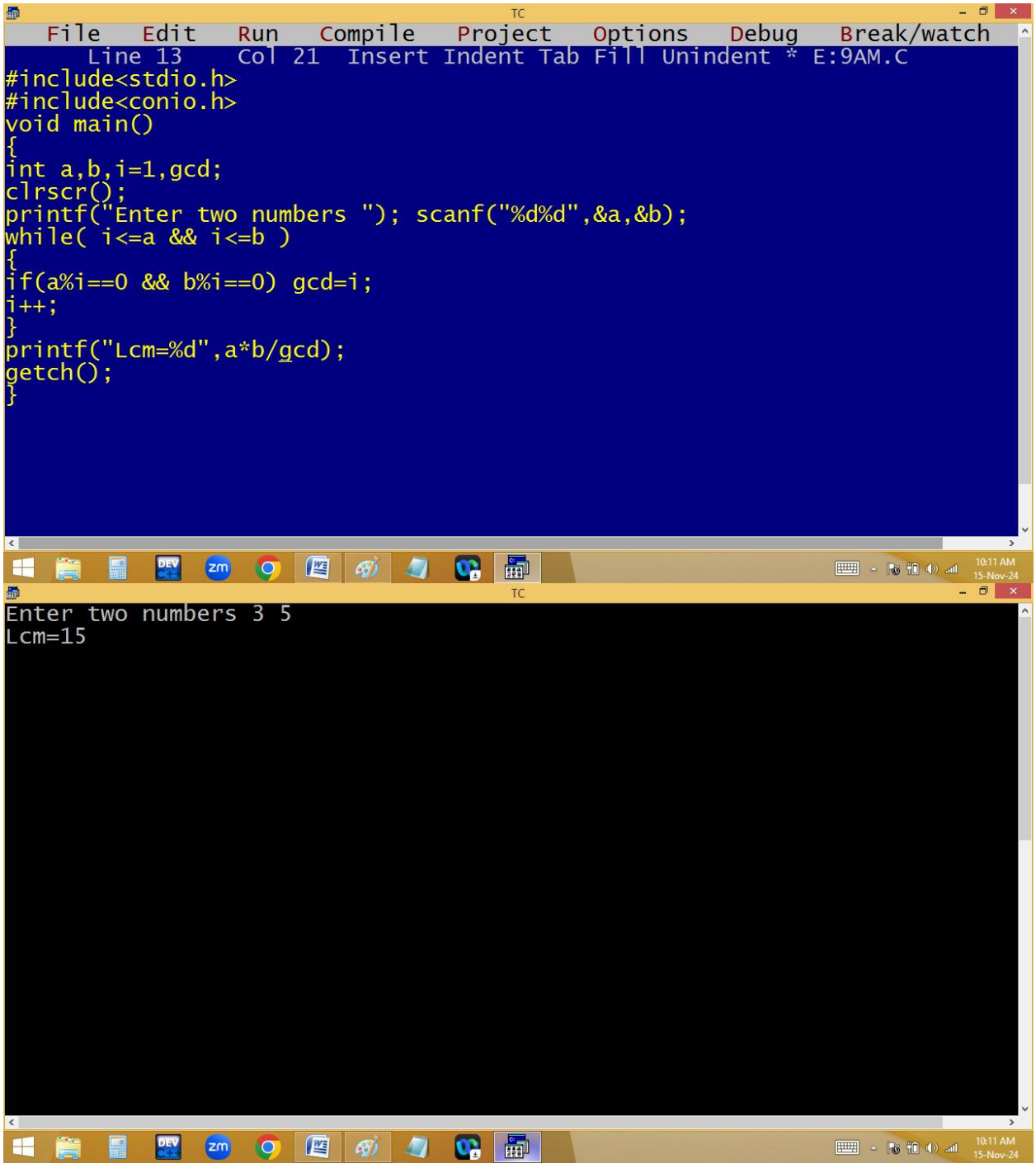
Finding lcm of given two numbers: [least common multiple]

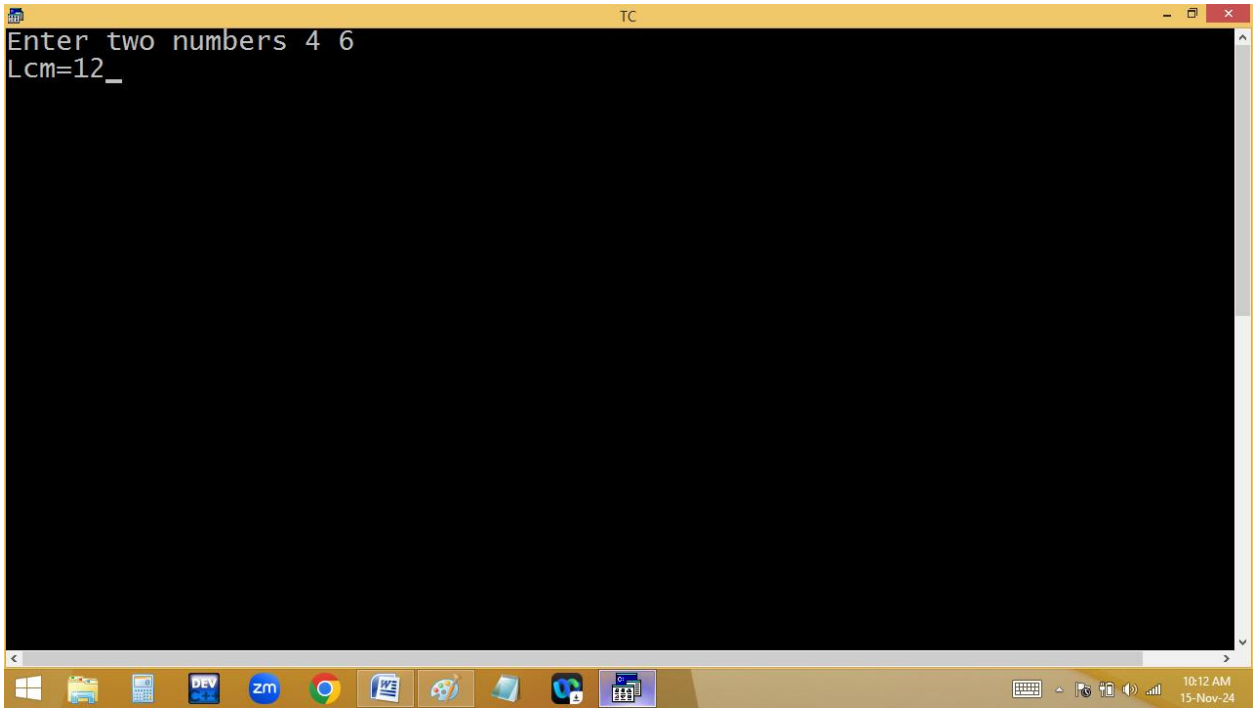
Using gcd:

a * b / gcd = lcm

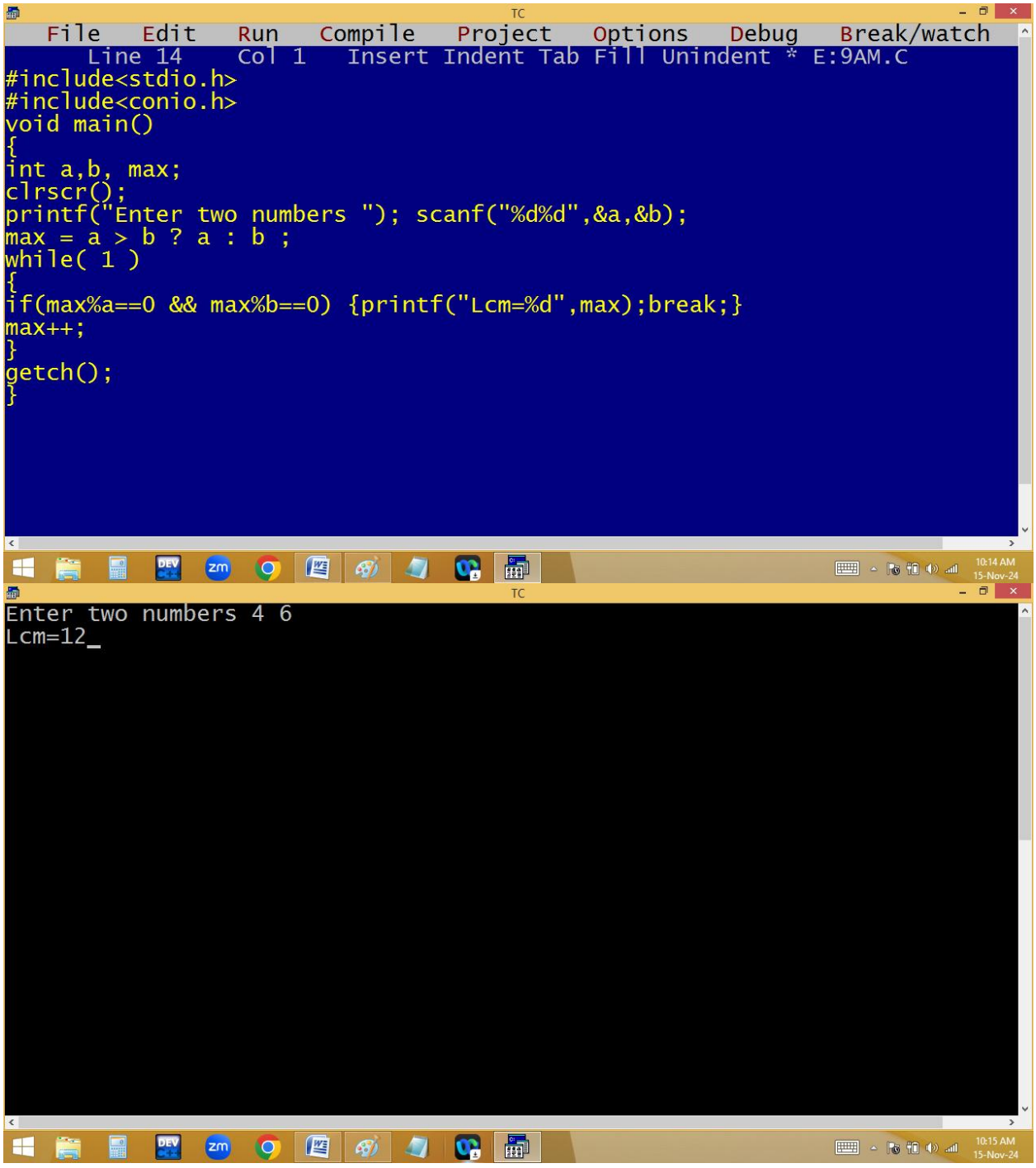
4 * 6 = 24/2=12

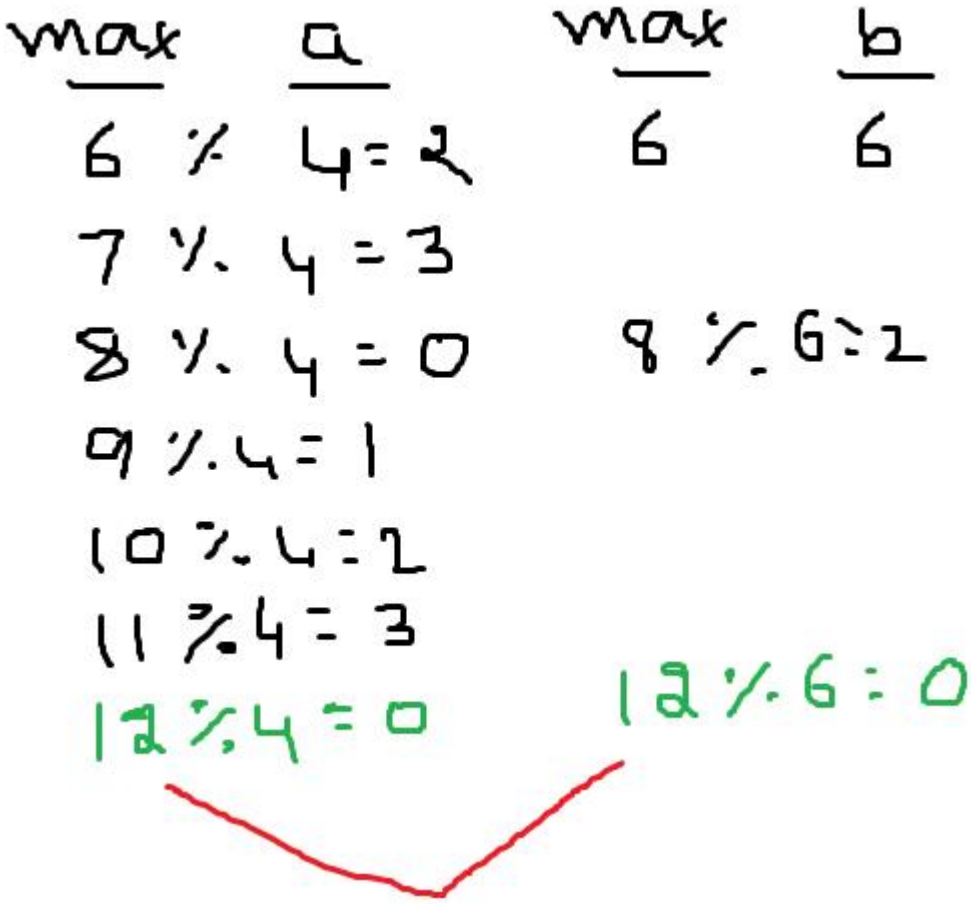
5*3=15/1=15


TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 21 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b,i=1,gcd;
clrscr();
printf("Enter two numbers "); 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();
}
TC
Enter two numbers 3 5
Lcm=15



Method 2 [without using gcd]:

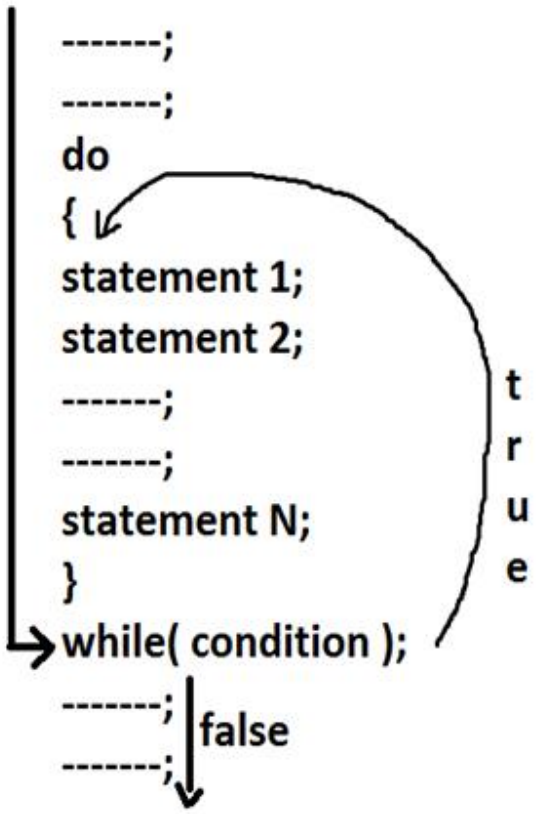

TC
File Edit Run Compile Project Options Debug Break/watch
Line 14 Col 1 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
int a,b, max;
clrscr();
printf("Enter two numbers "); scanf("%d%d",&a,&b);
max = a > b ? a : b ;
while(1)
{
if(max%a==0 && max%b==0) {printf("Lcm=%d",max);break;}
max++;
}
getch();
}
10:14 AM
15-Nov-24
TC
Enter two numbers 4 6
Lcm=12
10:15 AM
15-Nov-24

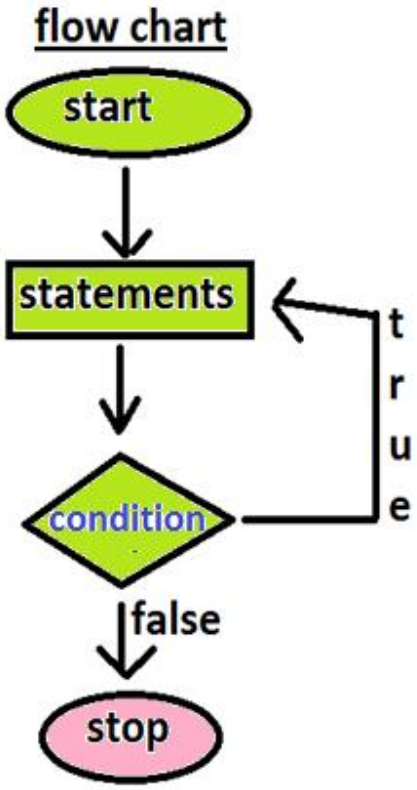


do .. while:

- **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.**

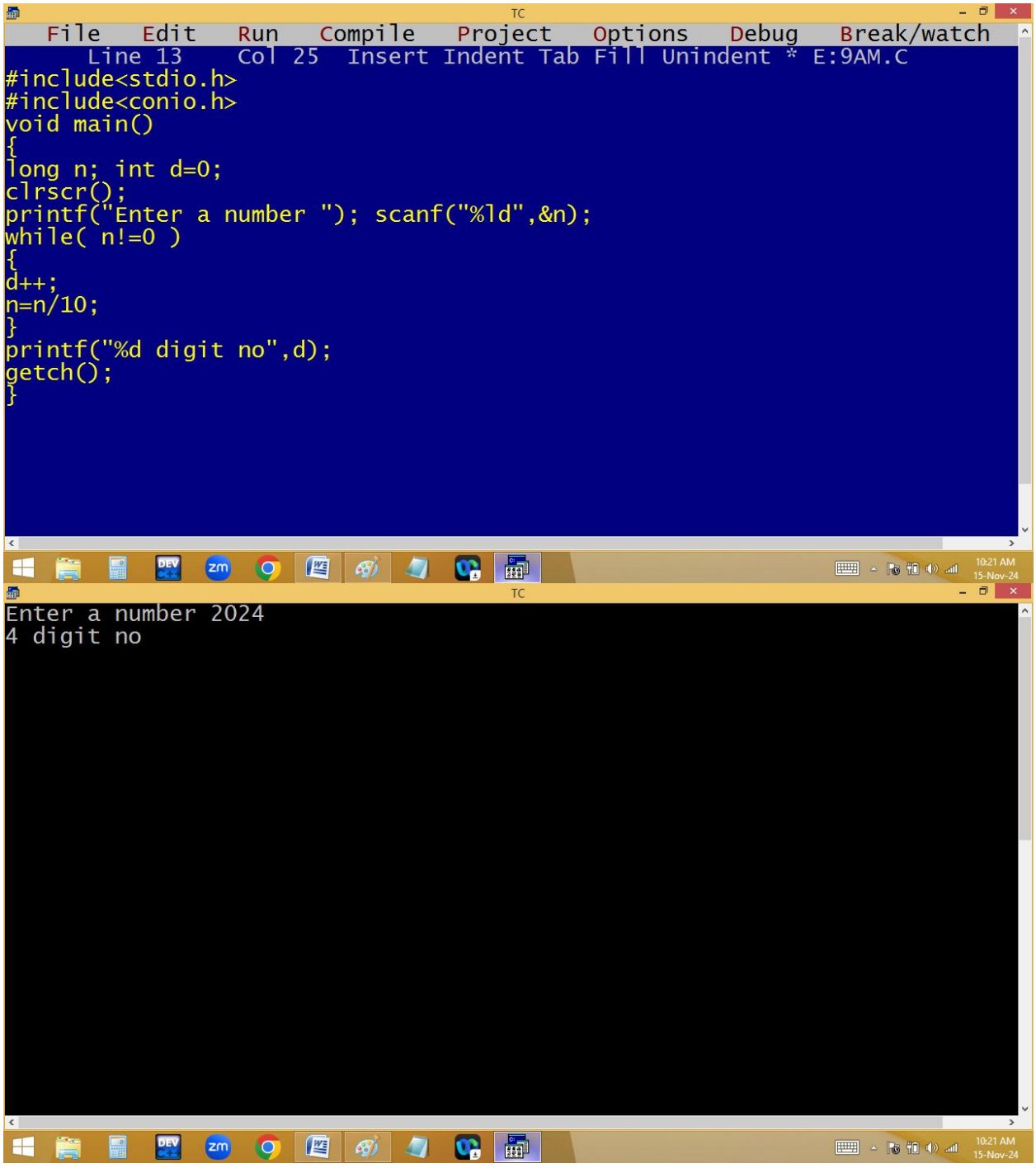
- **In a do while, do block statements are executed first and later while condition is tested. If the while condition is true then once again the do block statements are repeated. Like this the process is continued until the while condition becomes false.**
- **In do while, the while should be end with 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.**

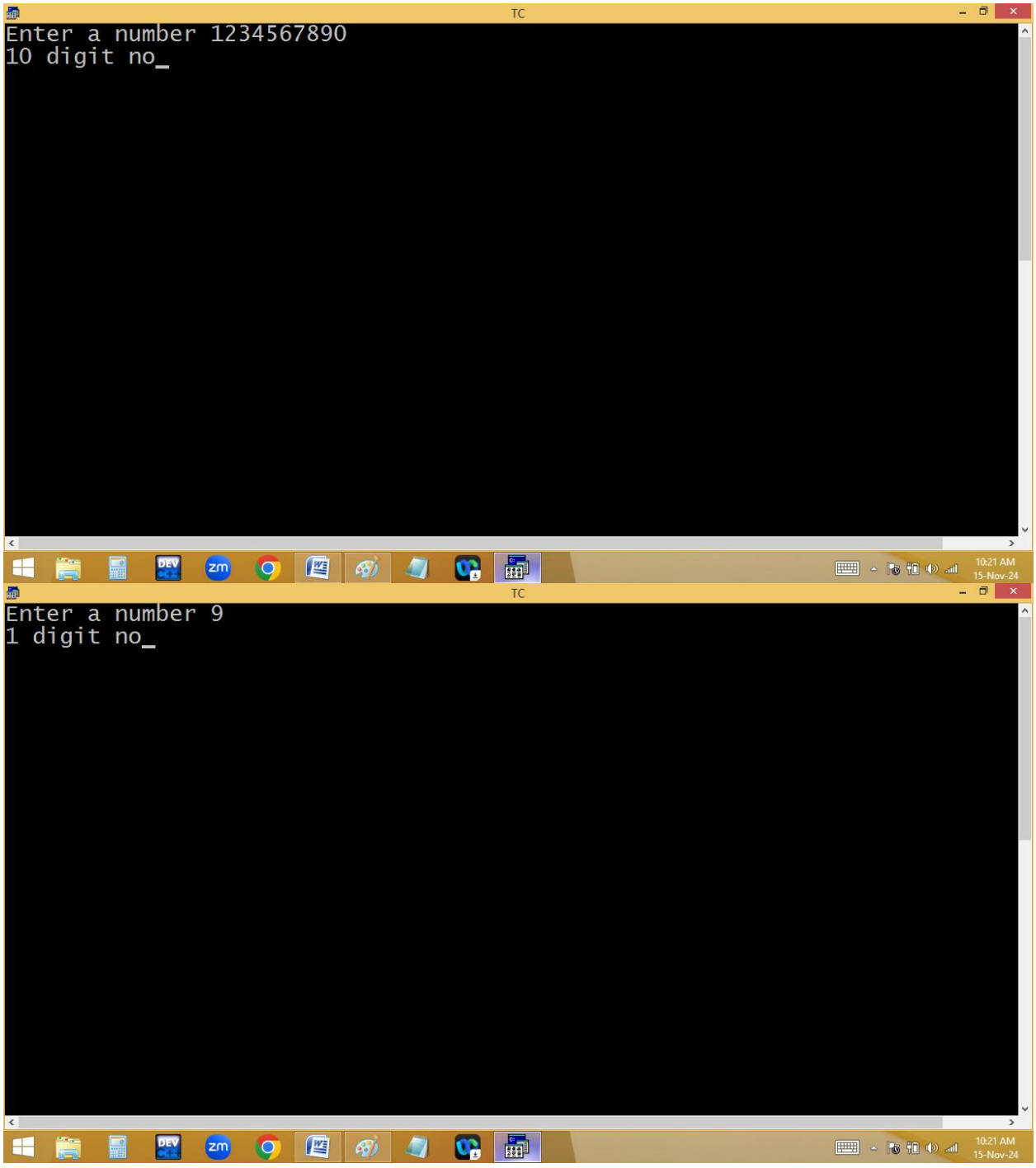


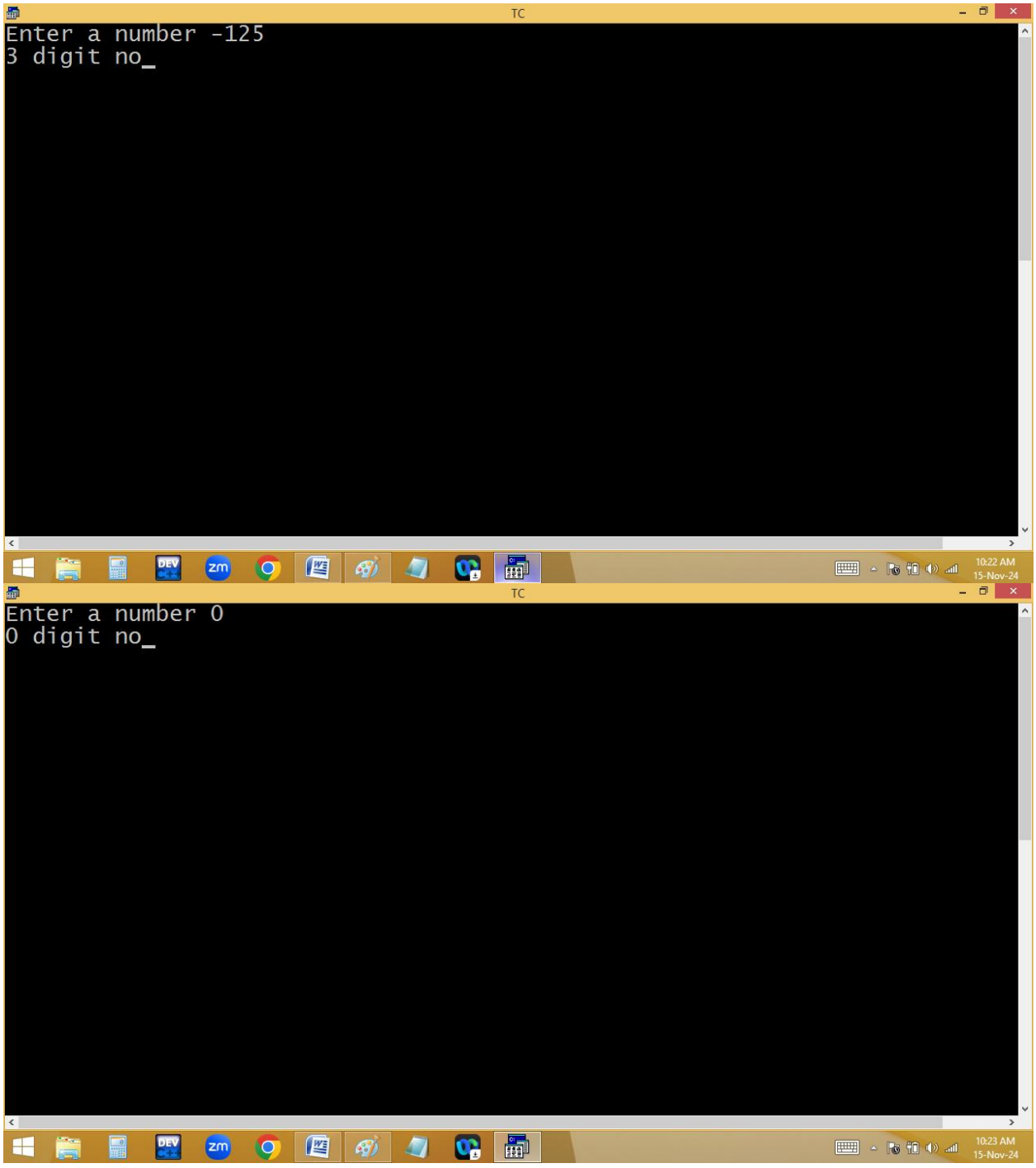


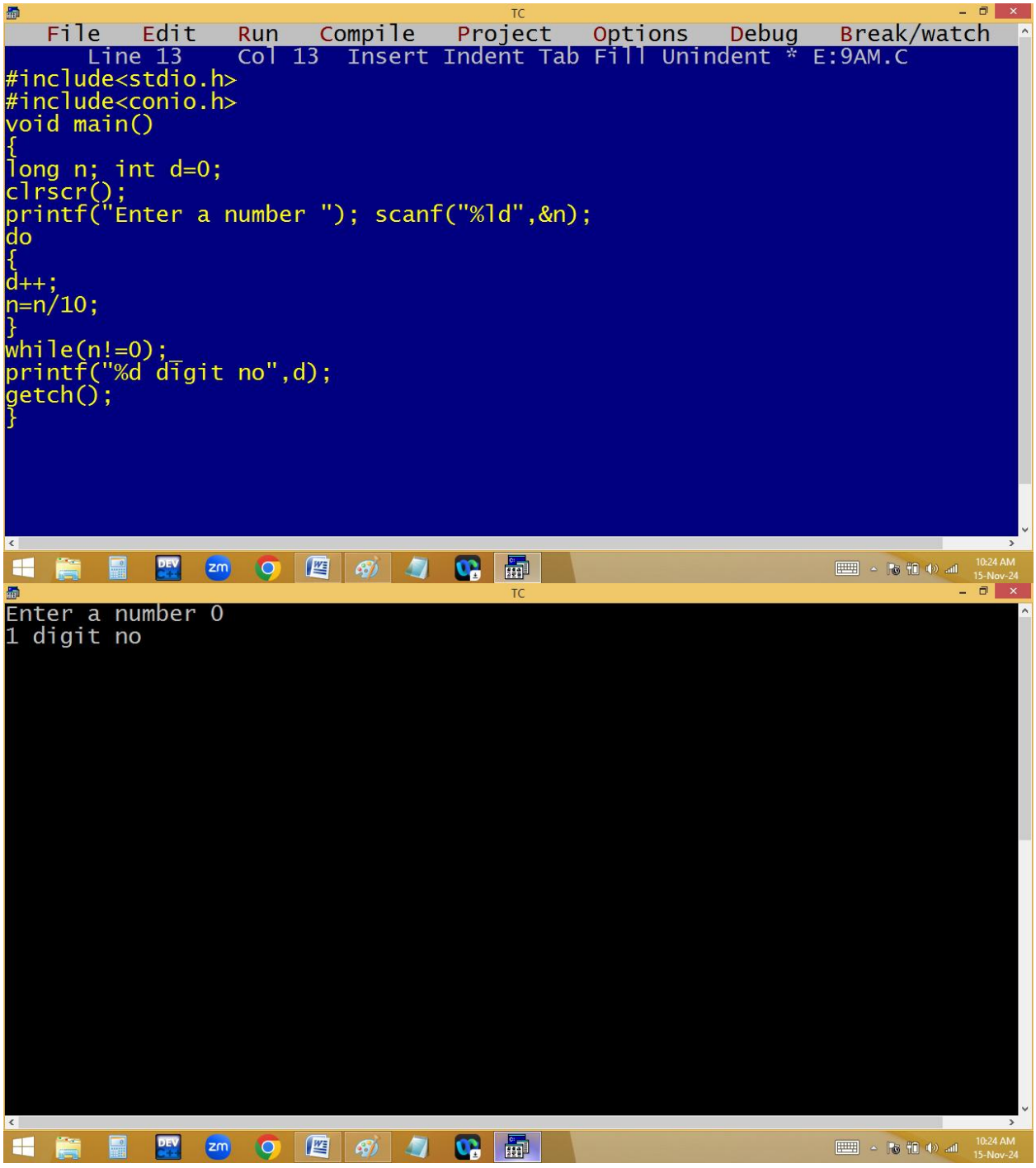
Find the no of digits in given no using a loop:

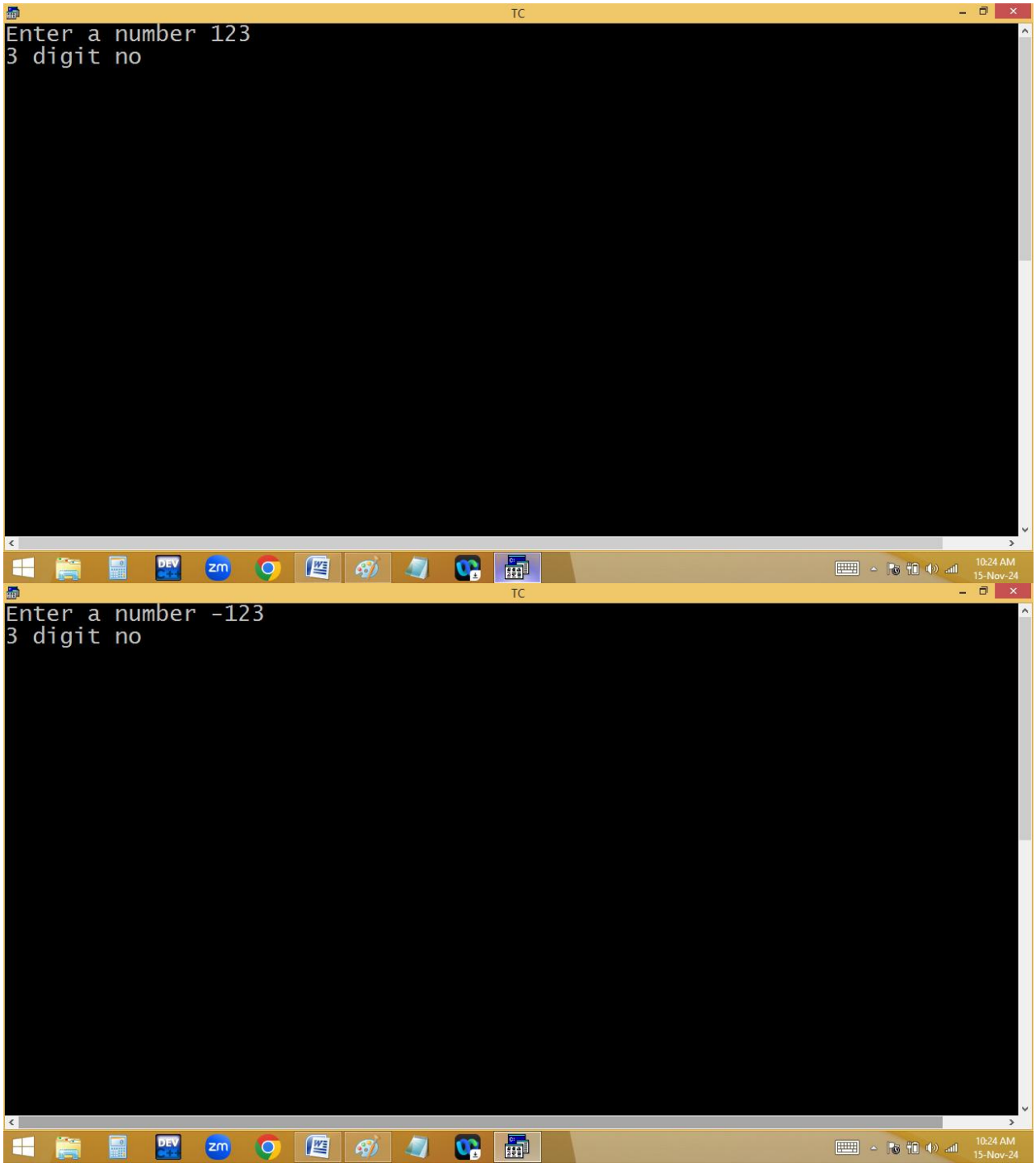
Eg: 2075 ➔ 4 digits


TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 25 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int d=0;
clrscr();
printf("Enter a number "); scanf("%ld",&n);
while(n!=0)
{
d++;
n=n/10;
}
printf("%d digit no",d);
getch();
}
TC
Enter a number 2024
4 digit no

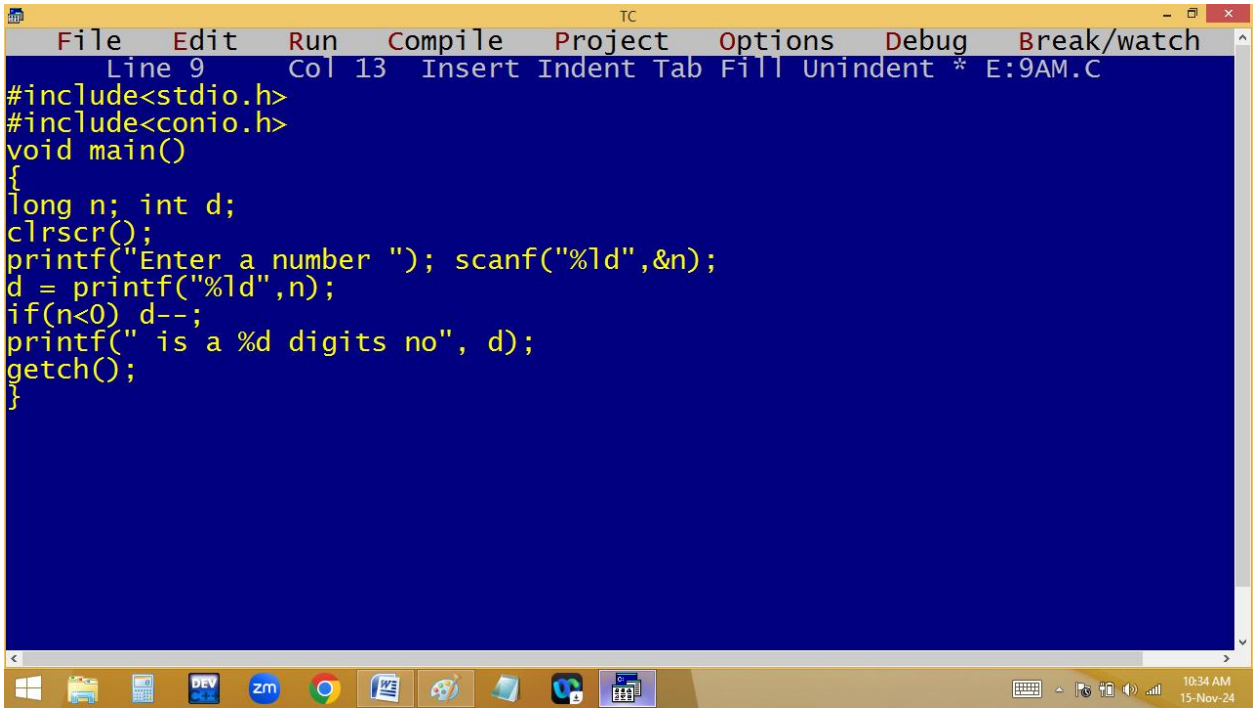

TC
Enter a number 1234567890
10 digit no_
10:21 AM
15-Nov-24
TC
Enter a number 9
1 digit no_
10:21 AM
15-Nov-24

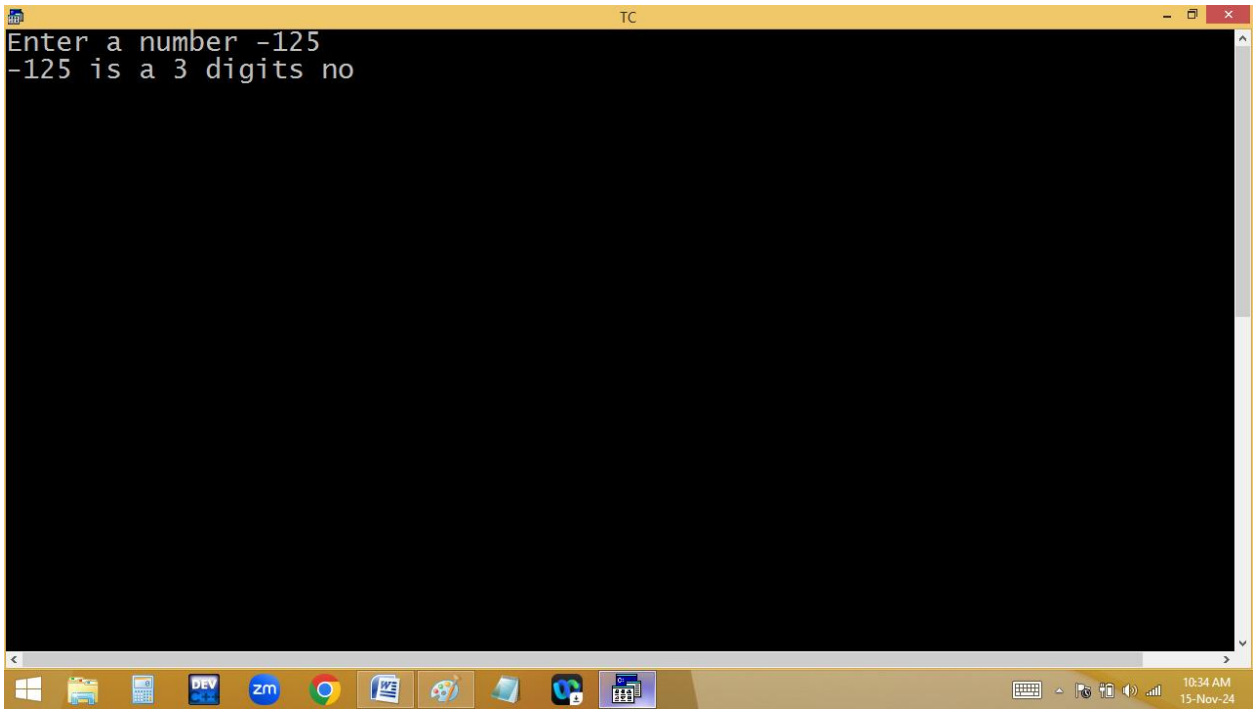

TC
Enter a number -125
3 digit no_
10:22 AM
15-Nov-24
TC
Enter a number 0
0 digit no_
10:23 AM
15-Nov-24

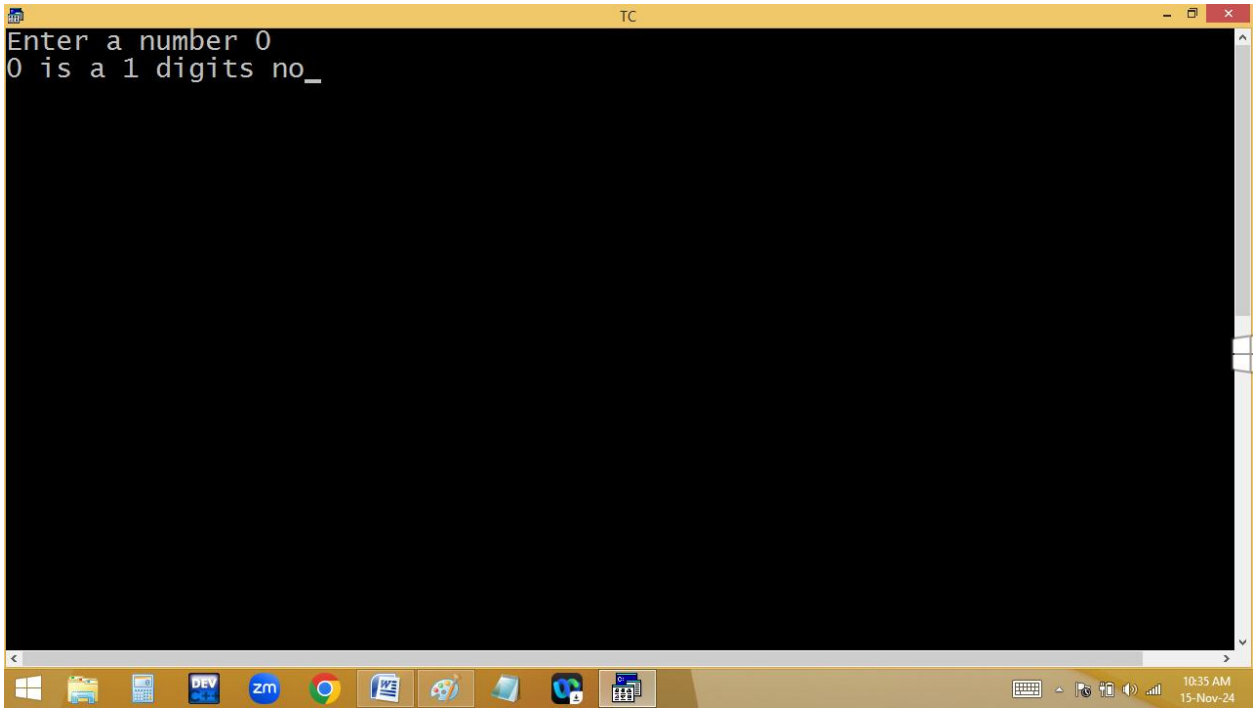

TC
File Edit Run Compile Project Options Debug Break/watch
Line 13 Col 13 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int d=0;
clrscr();
printf("Enter a number "); scanf("%ld",&n);
do
{
d++;
n=n/10;
}
while(n!=0);
printf("%d digit no",d);
getch();
}
TC
Enter a number 0
1 digit no

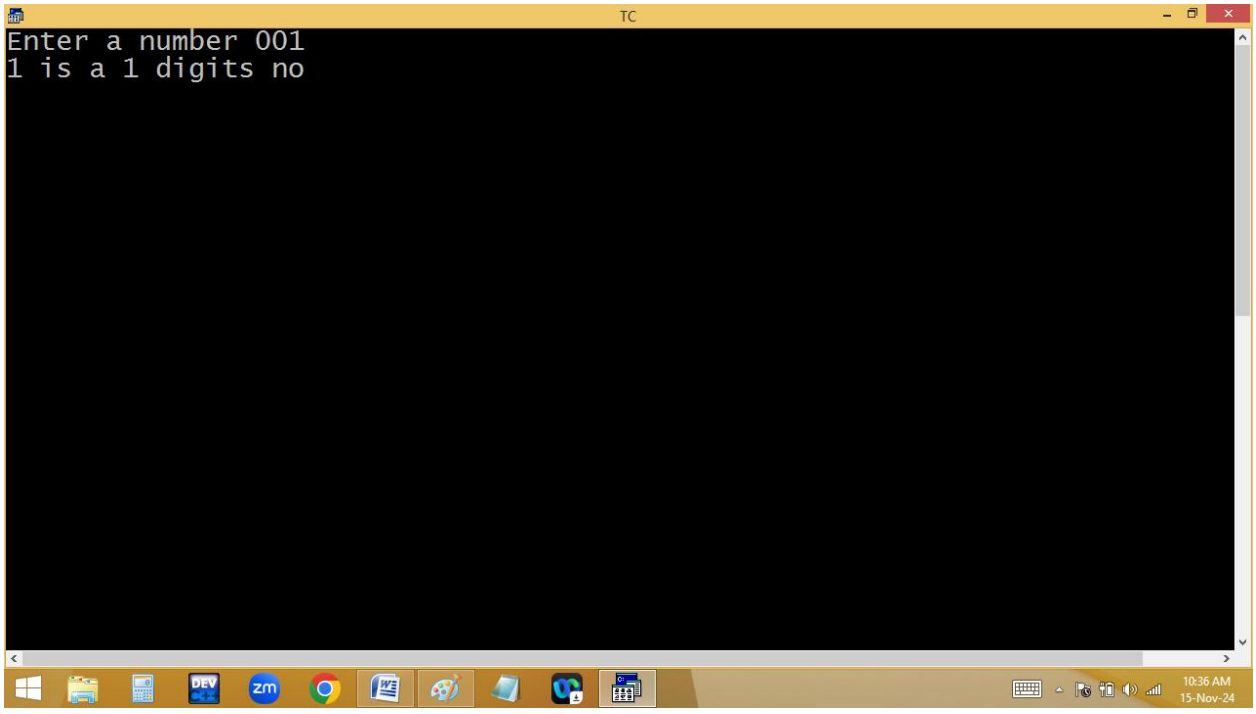


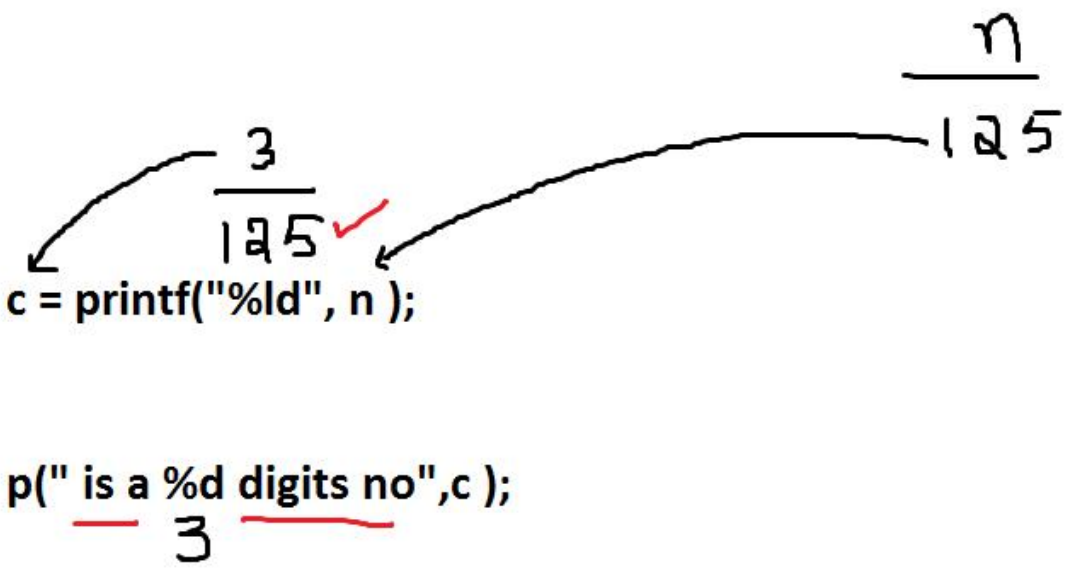
Without loop/ goto label:


TC
File Edit Run Compile Project Options Debug Break/watch
Line 9 Col 13 Insert Indent Tab Fill Unindent * E:9AM.C
#include<stdio.h>
#include<conio.h>
void main()
{
long n; int d;
clrscr();
printf("Enter a number "); scanf("%ld",&n);
d = printf("%ld",n);
if(n<0) d--;
printf(" is a %d digits no", d);
getch();
}


TC
Enter a number -125
-125 is a 3 digits no

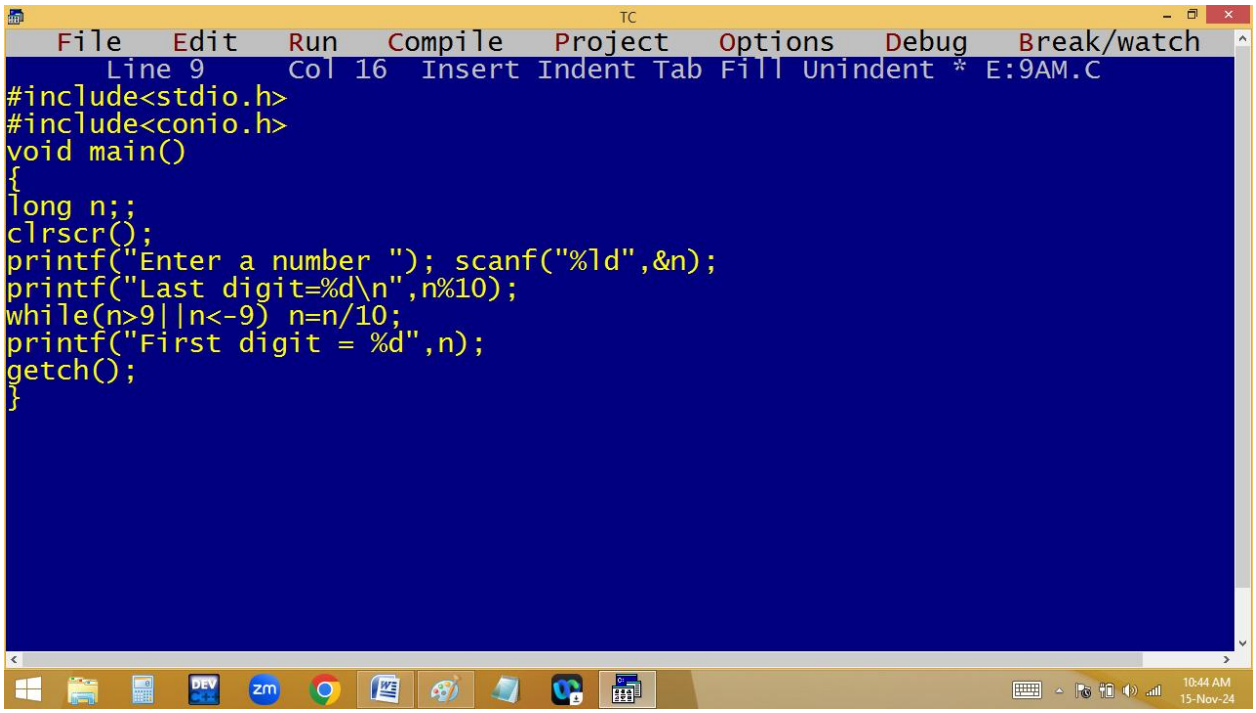

TC
Enter a number 0
0 is a 1 digits no_
10:35 AM
15-Nov-24

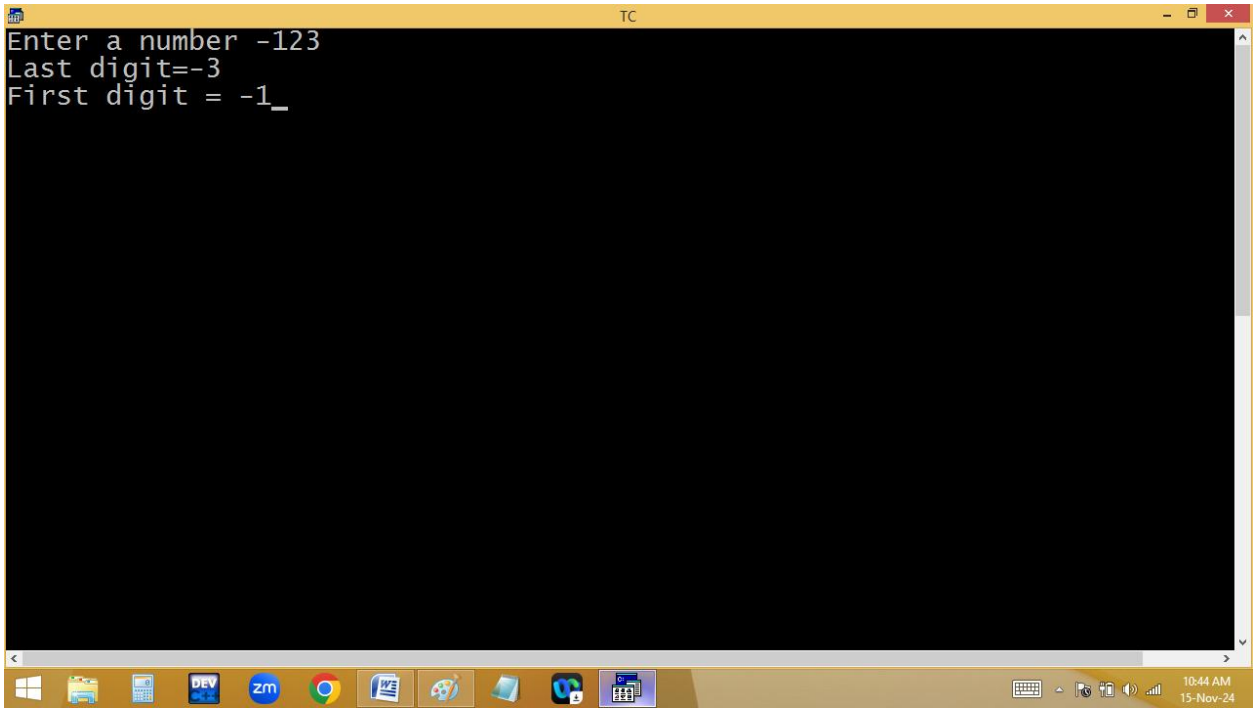

TC
Enter a number 001
1 is a 1 digits no
10:36 AM
15-Nov-24

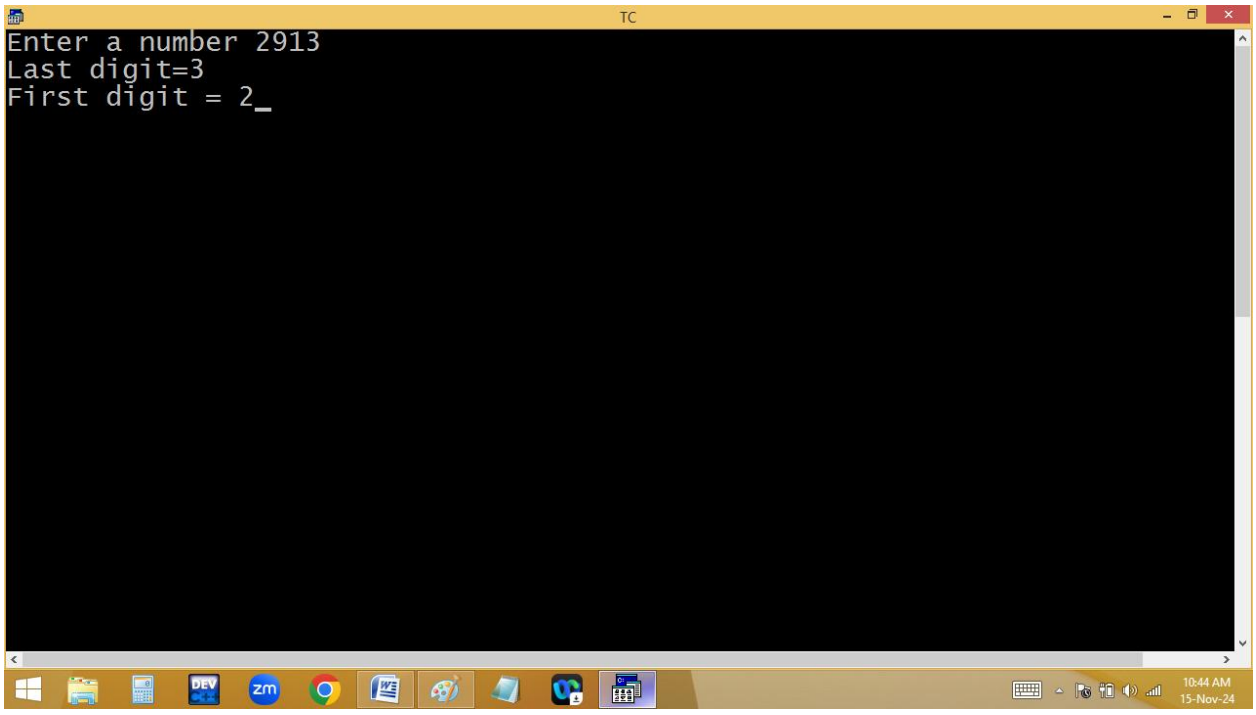


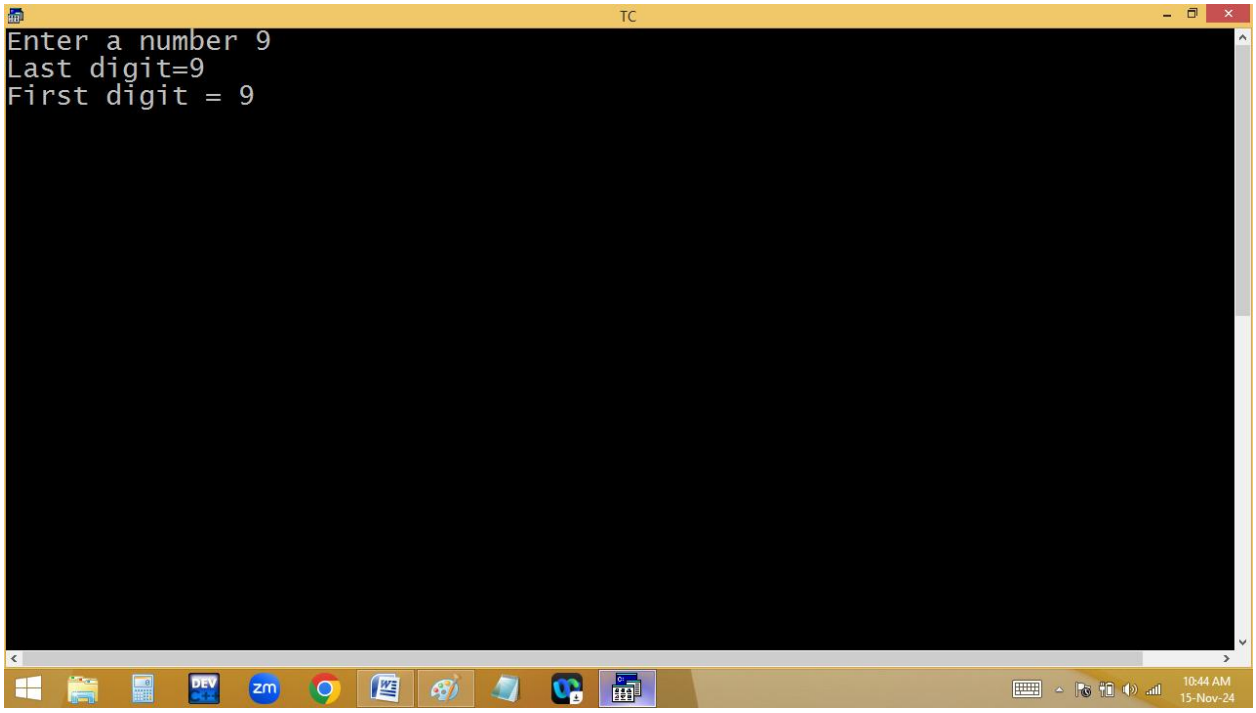
Finding first and last digits of given no:

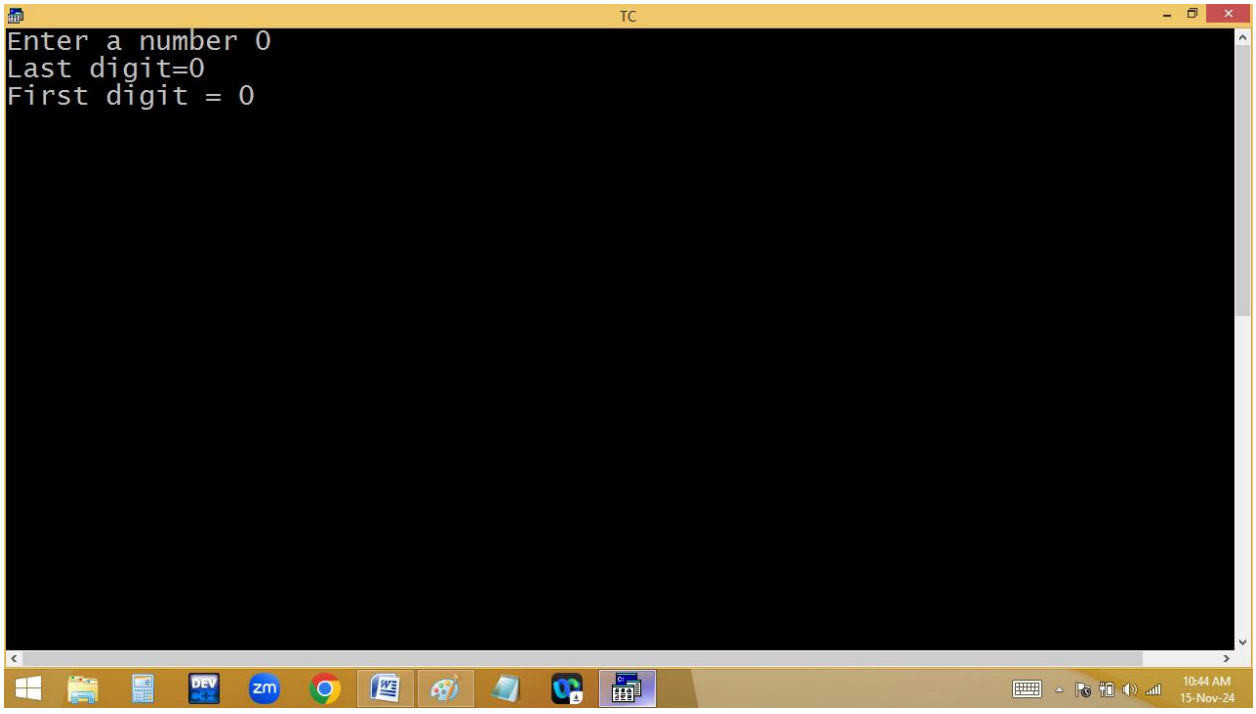
Eg: 2017 ➔ 7 is last digit and 2 is first digit.




TC
Enter a number -123
Last digit=-3
First digit = -1
10:44 AM
15-Nov-24


TC
Enter a number 2913
Last digit=3
First digit = 2
10:44 AM
15-Nov-24


TC
Enter a number 9
Last digit=9
First digit = 9


TC
Enter a number 0
Last digit=0
First digit = 0

Home work:

Finding max, min digits of given no.

2715 ➔ 7 max, 1 min

100 ➔ 001

Printf(“100 reverse is 001”);

102 ➔ One Zero Two