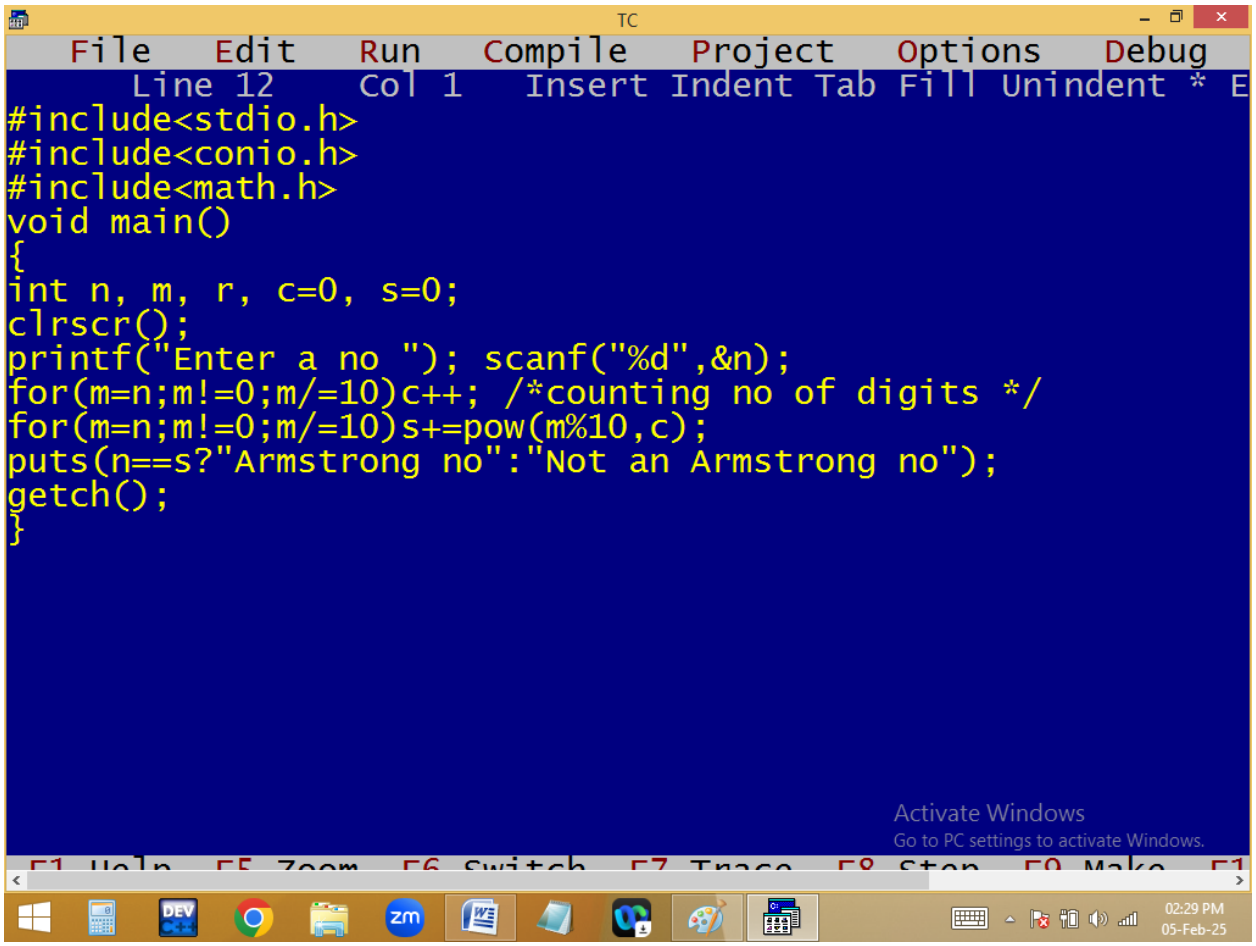
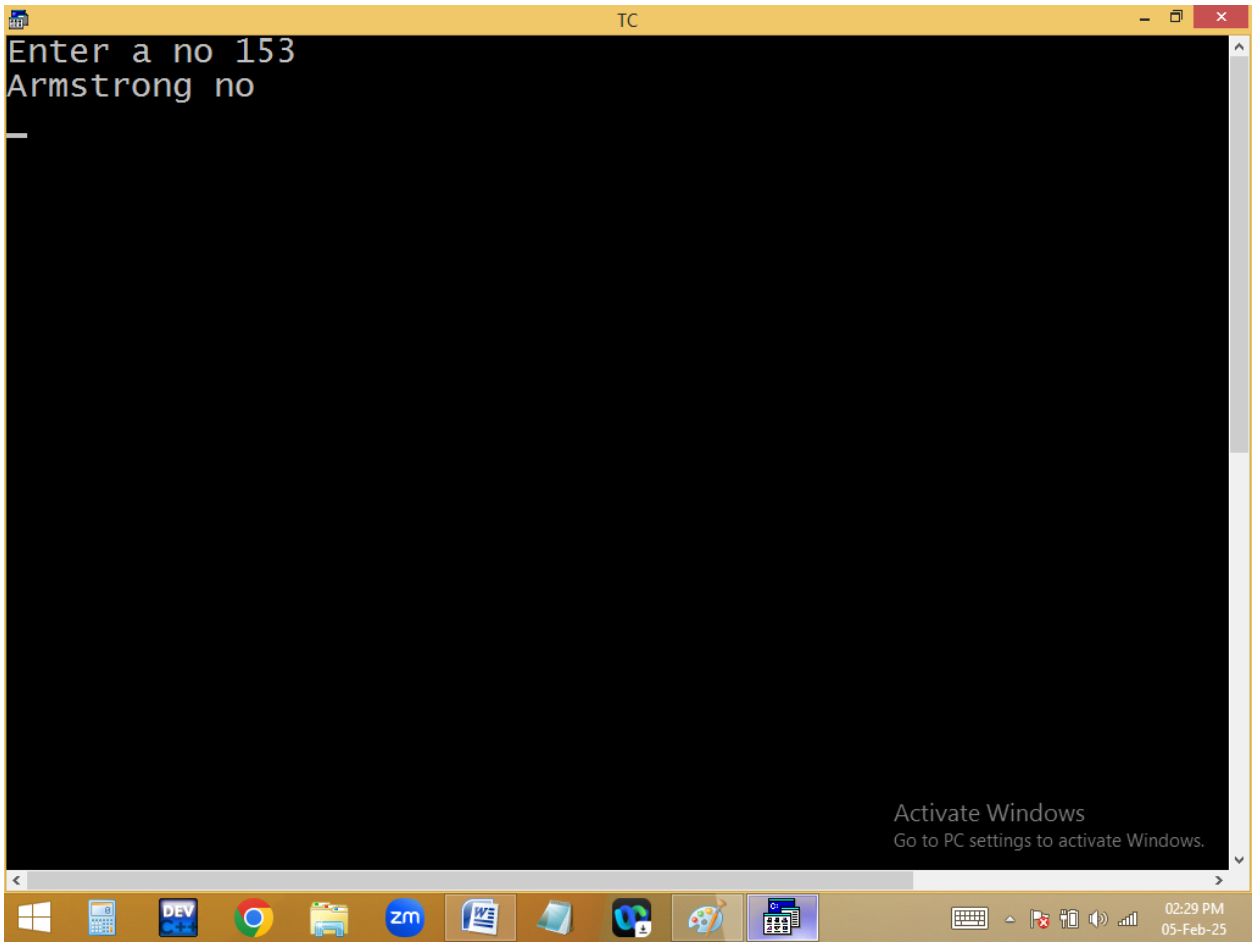
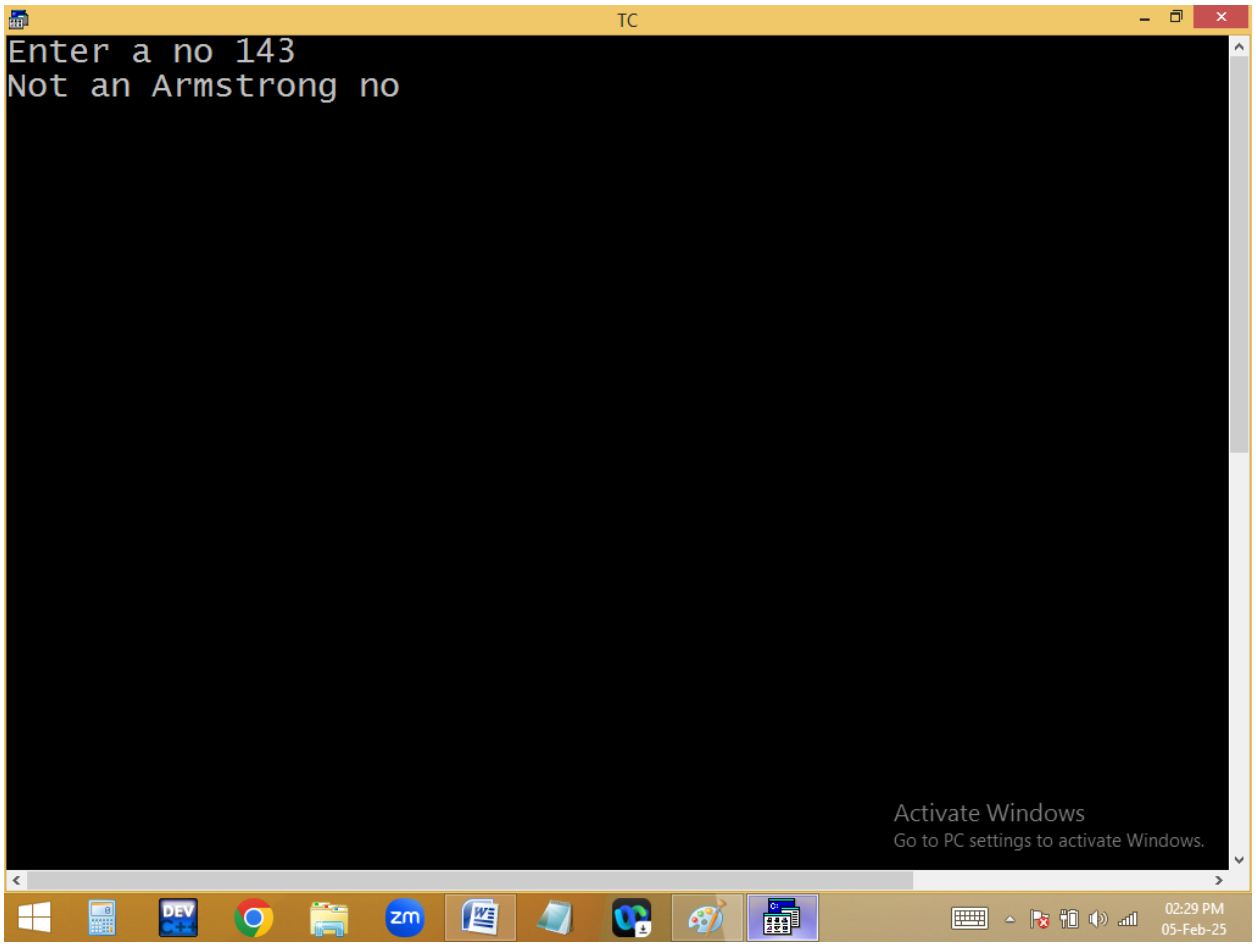
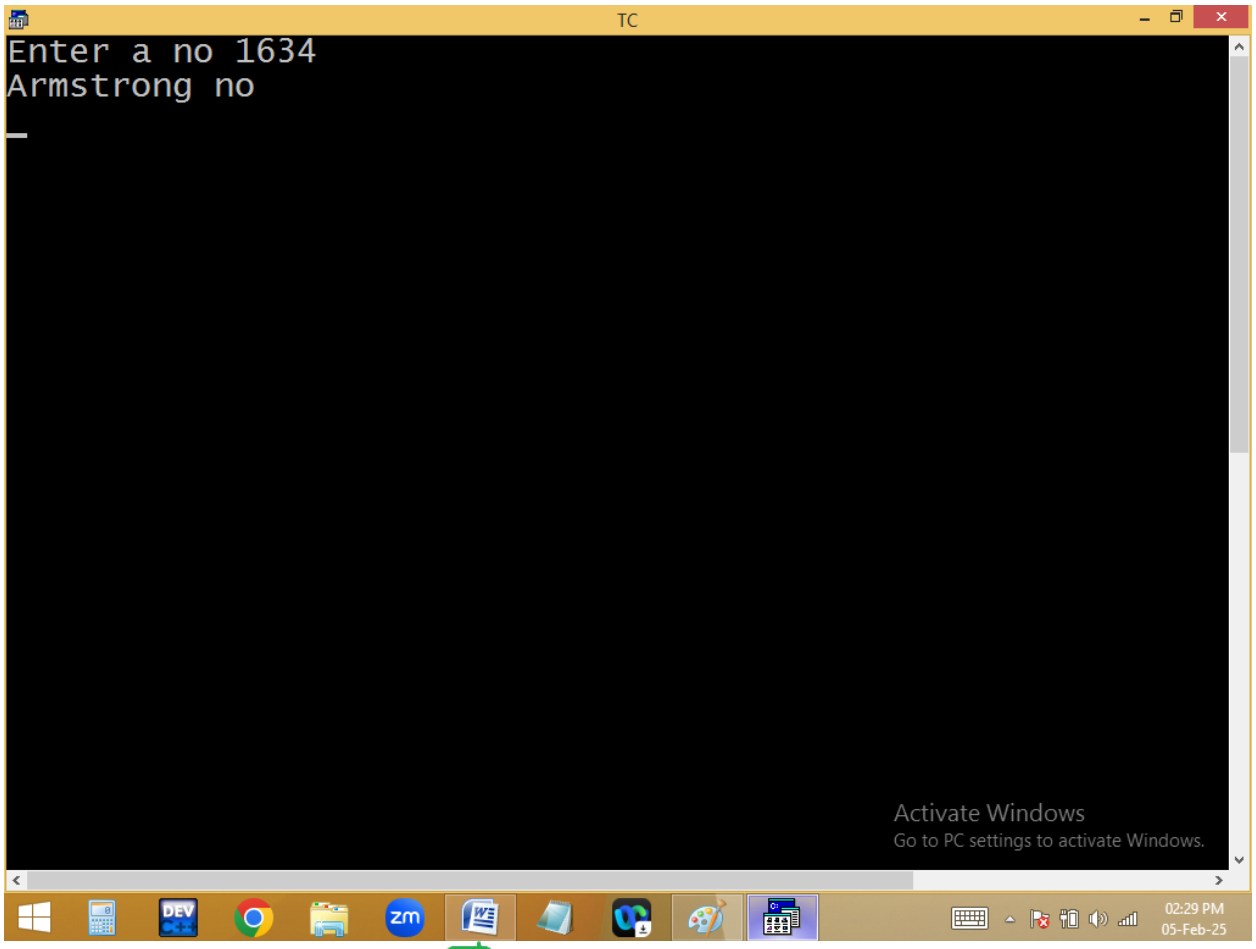
Finding Armstrong no or not?


TC
File Edit Run Compile Project Options Debug
Line 12 Col 1 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
#include<math.h>
void main()
{
int n, m, r, c=0, s=0;
clrscr();
printf("Enter a no "); scanf("%d",&n);
for(m=n;m!=0;m/=10)c++; /*counting no of digits */
for(m=n;m!=0;m/=10)s+=pow(m%10,c);
puts(n==s?"Armstrong no":"Not an Armstrong no");
getch();
}
Activate Windows
Go to PC settings to activate Windows.
02:29 PM
05-Feb-25


TC
Enter a no 153
Armstrong no
Activate Windows
Go to PC settings to activate Windows.
02:29 PM
05-Feb-25


TC
Enter a no 143
Not an Armstrong no
Activate Windows
Go to PC settings to activate Windows.
02:29 PM
05-Feb-25



n → m

153 | 0 153

for(m=n;m!=0;m/=10)c++; c: 0 1 2 3

m: 153 → 15 → 1 → 0

r: 153%10 = 3; 15%10 = 5; 1%10 = 1

s: 0 + 3^3 = 27; 27 + 5^3 = 152; 152 + 1^3 = 153

```
for( m=n; m!=0; m=m/10)
{
s=s+pow(m%10,c);
}
puts( n==s ?"Arm":"Not");
```

143 = 1+64+27 = 92

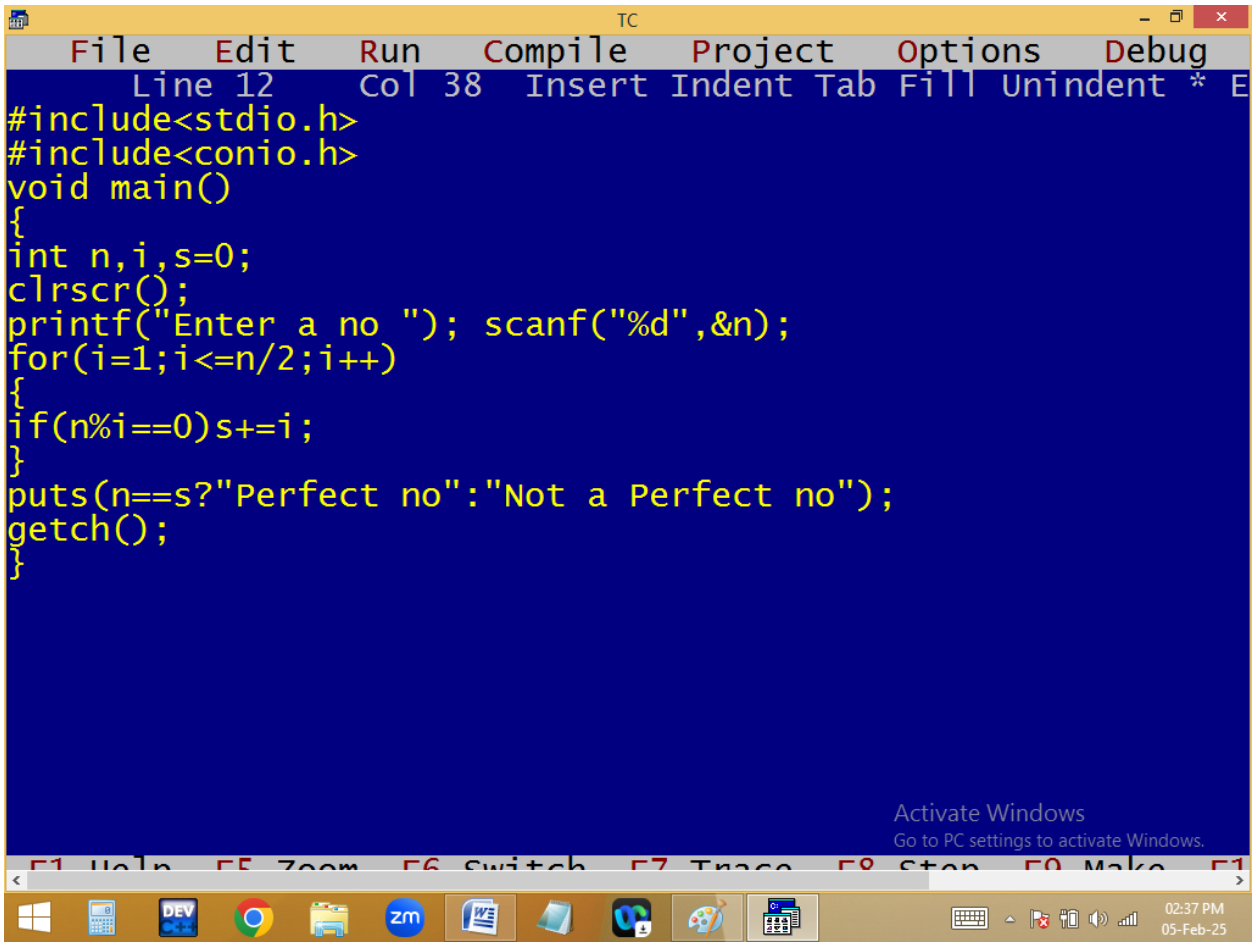
Finding perfect no or not?

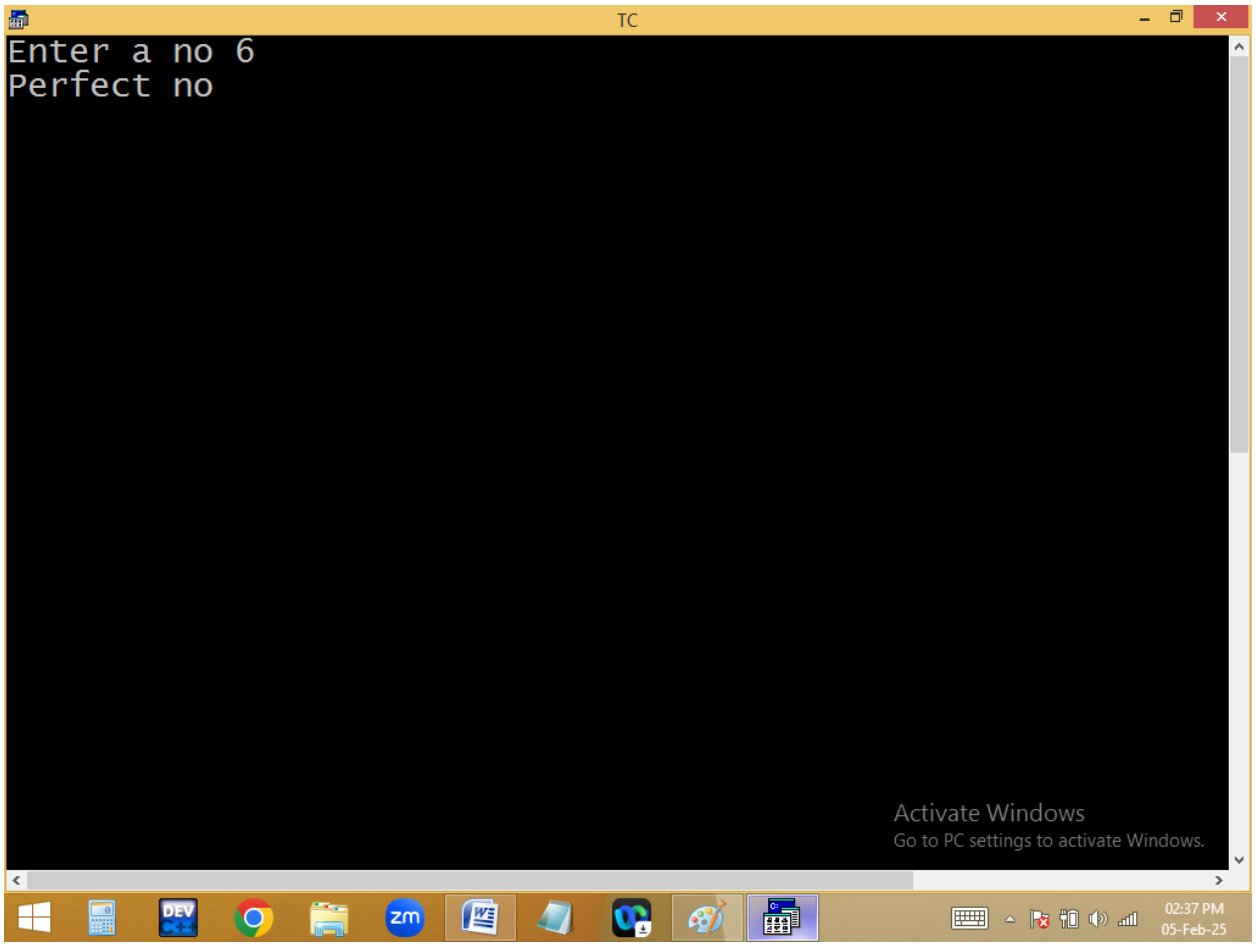
Sum of factors is equal to given no

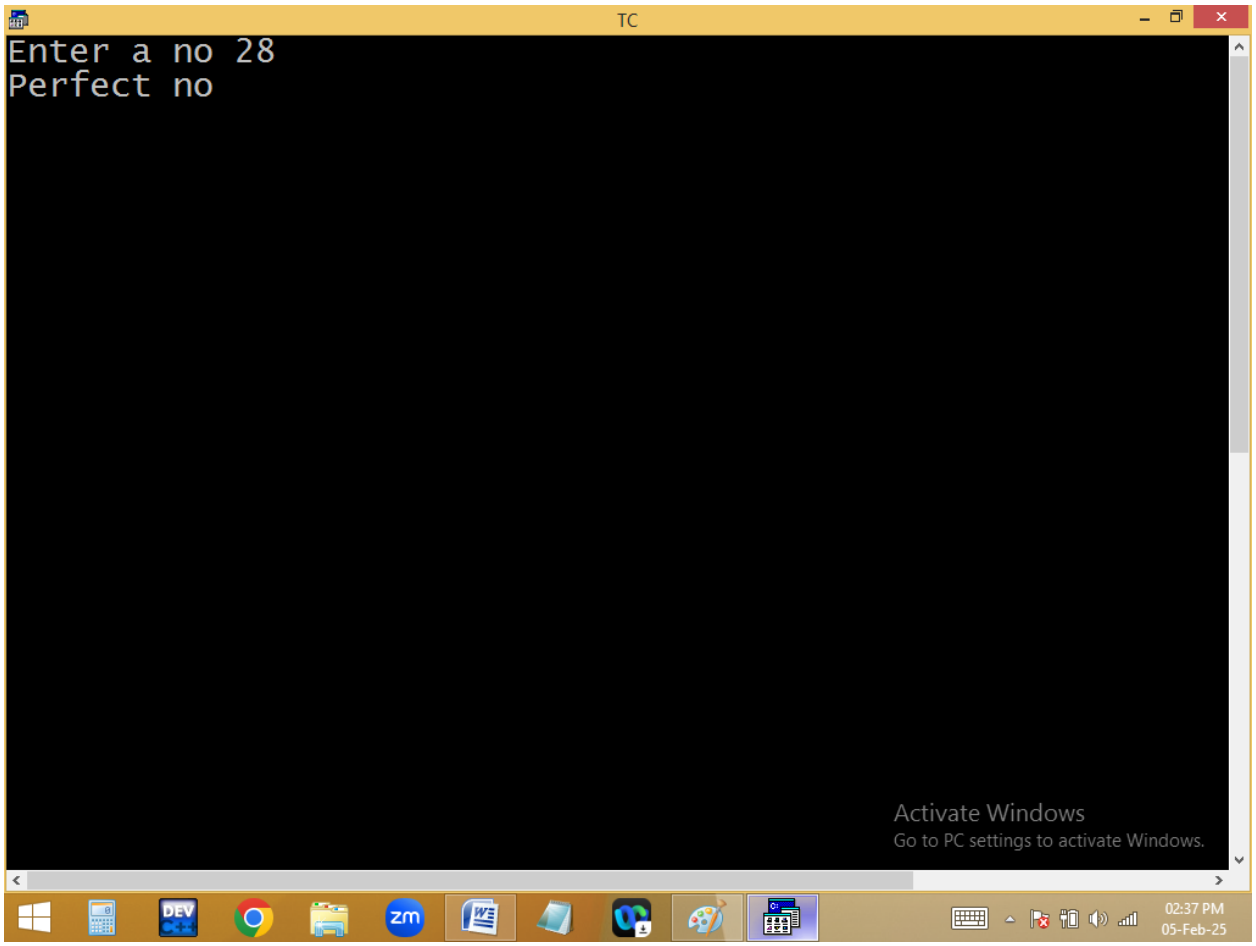
6 factors sum is 1+2+3=6

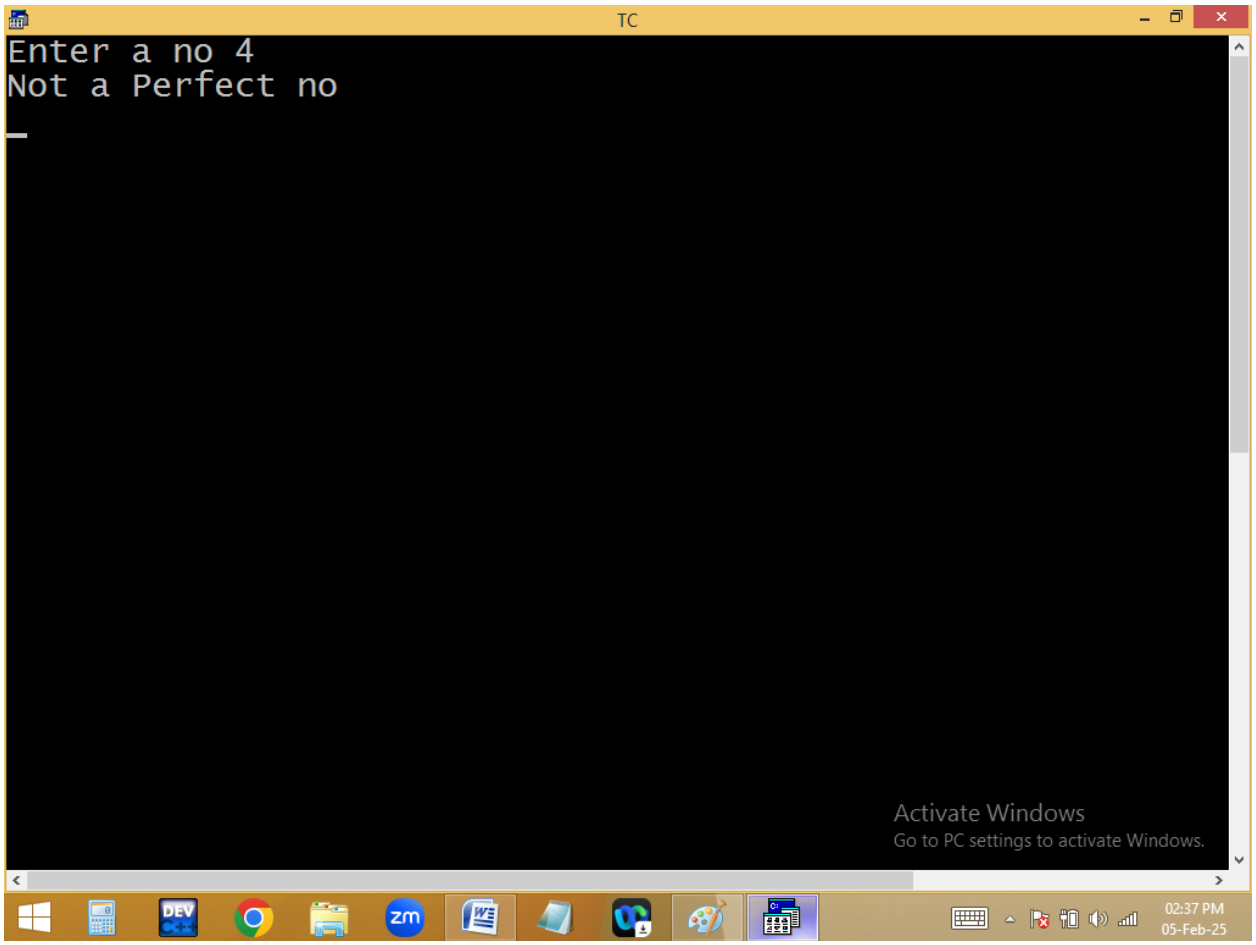
28 factors sum is 1+2+4+7+14=28

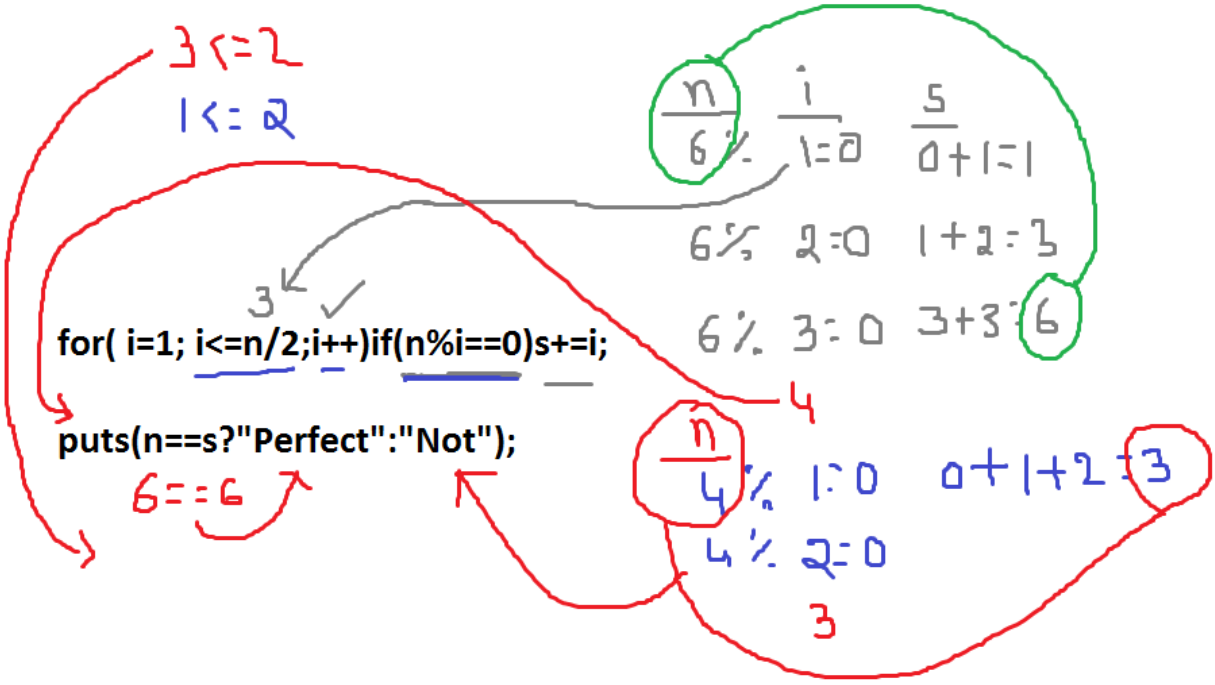
4 factors sum is 1+2=3 ← not a perfect no


TC
File Edit Run Compile Project Options Debug
Line 12 Col 38 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,s=0;
clrscr();
printf("Enter a no "); scanf("%d",&n);
for(i=1;i<=n/2;i++)
{
if(n%i==0)s+=i;
}
puts(n==s?"Perfect no":"Not a Perfect no");
getch();
}
Activate Windows
Go to PC settings to activate Windows.
02:37 PM
05-Feb-25


TC
Enter a no 6
Perfect no
Activate Windows
Go to PC settings to activate Windows.
02:37 PM
05-Feb-25


TC
Enter a no 28
Perfect no
Activate Windows
Go to PC settings to activate Windows.
02:37 PM
05-Feb-25


TC
Enter a no 4
Not a Perfect no
Activate Windows
Go to PC settings to activate Windows.
02:37 PM
05-Feb-25


for(i=1; i<=n/2;i++)if(n%i==0)s+=i;
puts(n==s?"Perfect":"Not");
n
6
i
1=0
s
0+1=1
6%2=0
1+2=3
6%3=0
3+3=6
4
n
4
1=0
0+1+2=3
4%2=0
3

Finding prime / composite no?

No divisible with 1 and itself only is called prime

Or

No having 2 factors is called prime

1%1=1

1%1=1

1 is neither not a prime / composite no

2%1=0

2%2=0

3%1=0

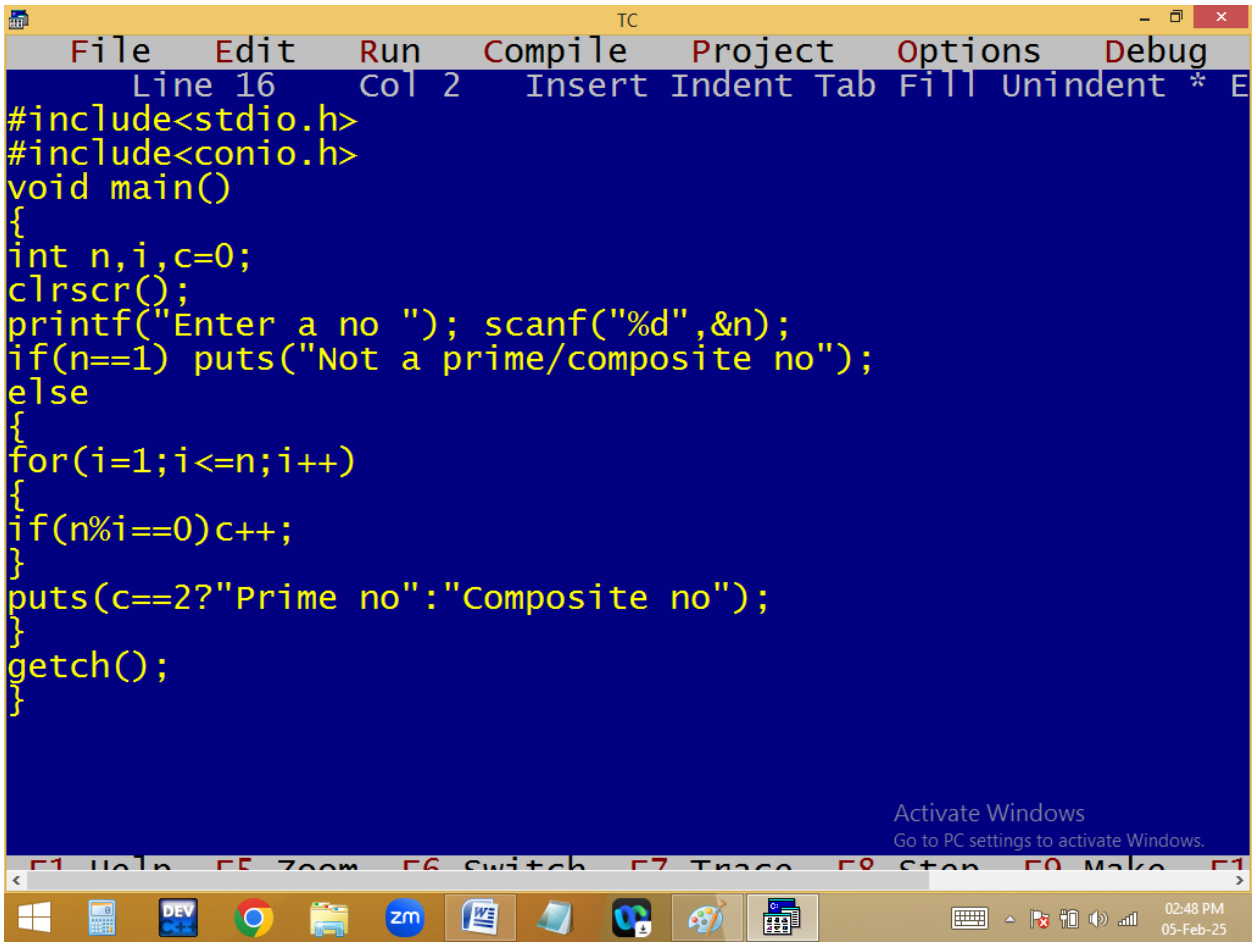
3%2=1

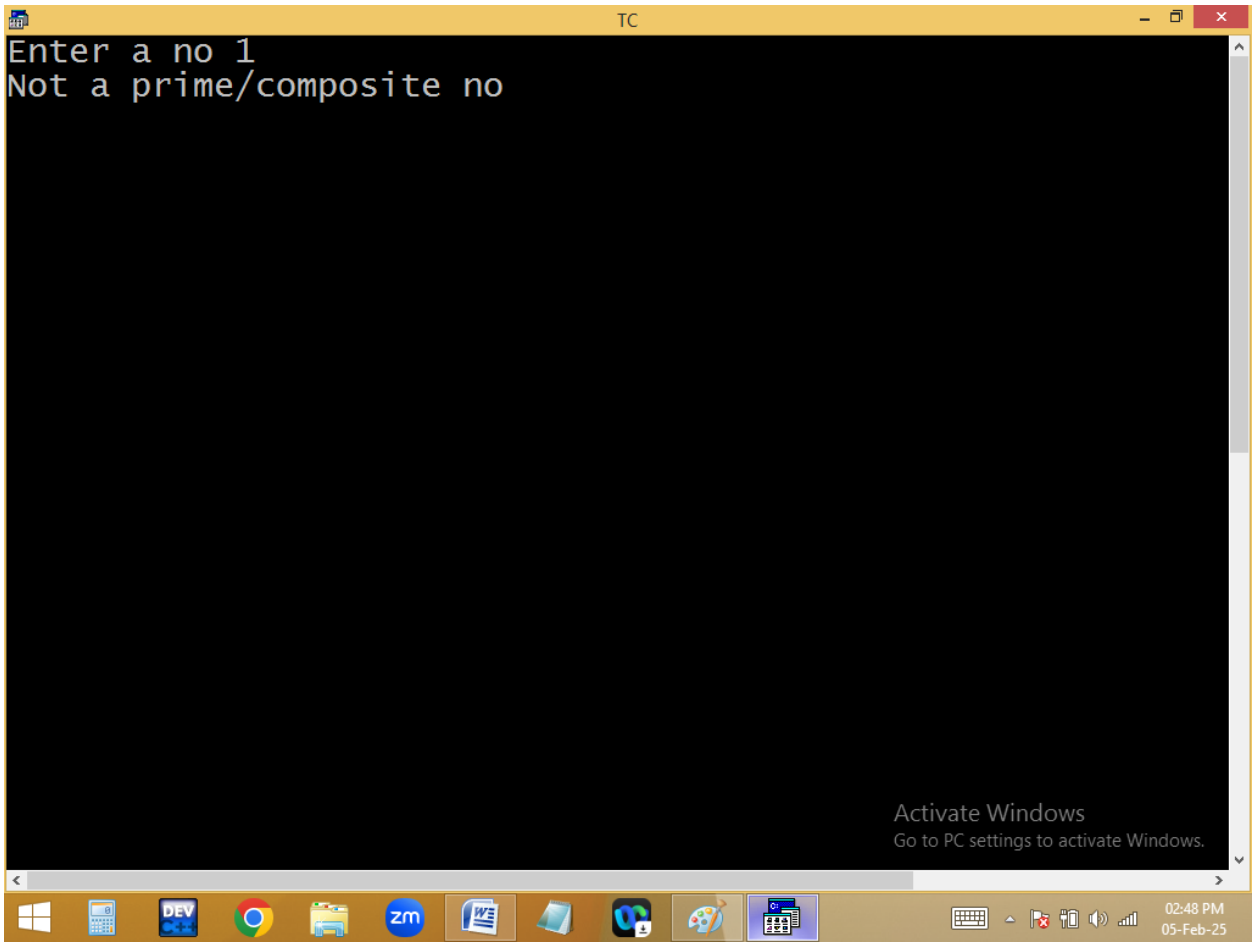
3%3=0

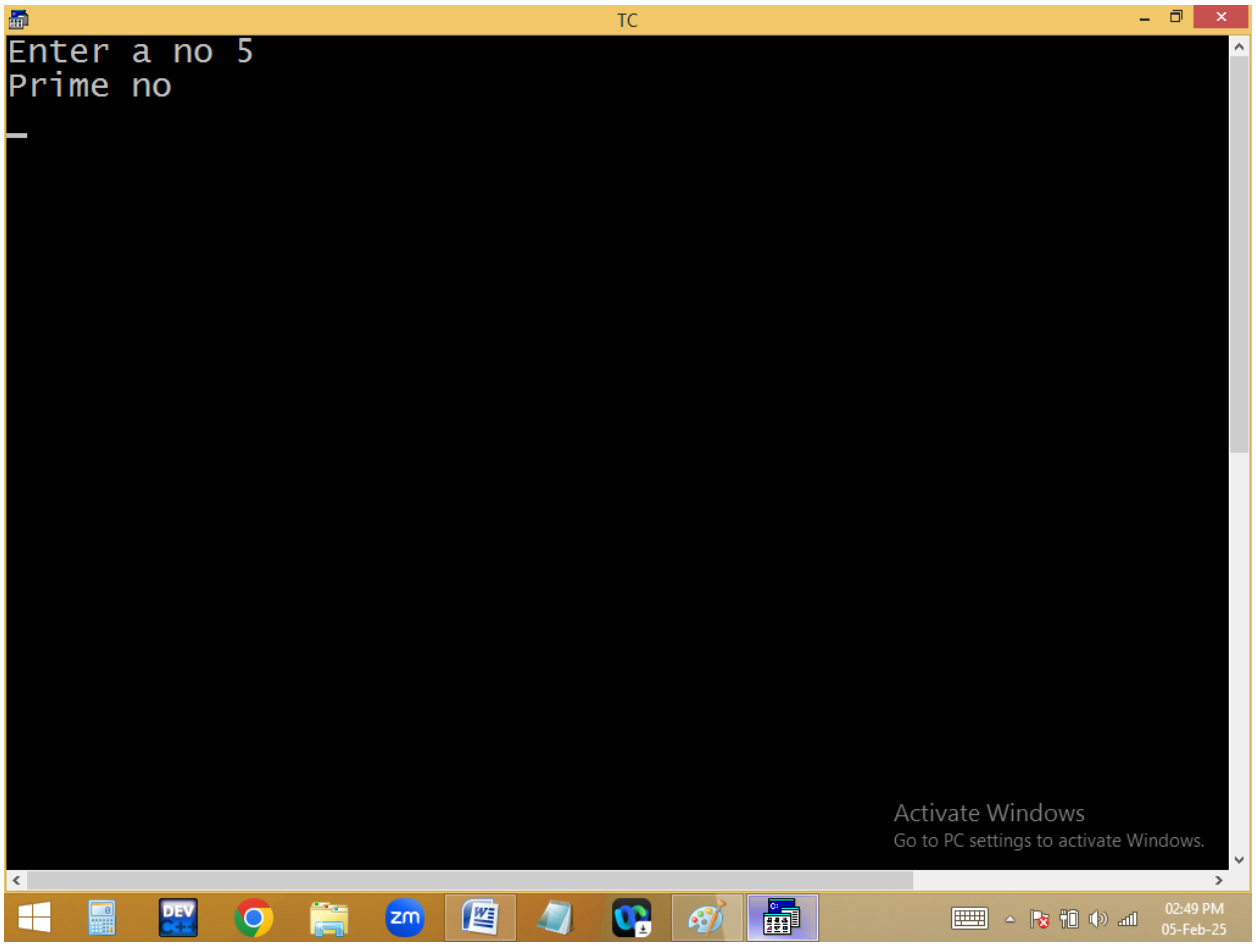
4%1=0

4%2=0

4%4=0


TC
File Edit Run Compile Project Options Debug
Line 16 Col 2 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,c=0;
clrscr();
printf("Enter a no "); scanf("%d",&n);
if(n==1) puts("Not a prime/composite no");
else
{
for(i=1;i<=n;i++)
{
if(n%i==0)c++;
}
puts(c==2?"Prime no":"Composite no");
}
getch();
}
Activate Windows
Go to PC settings to activate Windows.
02:48 PM
05-Feb-25


TC
Enter a no 1
Not a prime/composite no
Activate Windows
Go to PC settings to activate Windows.
02:48 PM
05-Feb-25


TC
Enter a no 5
Prime no
Activate Windows
Go to PC settings to activate Windows.
02:49 PM
05-Feb-25


```
for( i=1; i<=n ; i++ ) if(n%i==0)c++;

puts( c==2 ?"Prime":"composite");
```

n / i / c

2 % 1 = 0 → c = 1

2 % 2 = 0 → c = 2

3

n / i / c

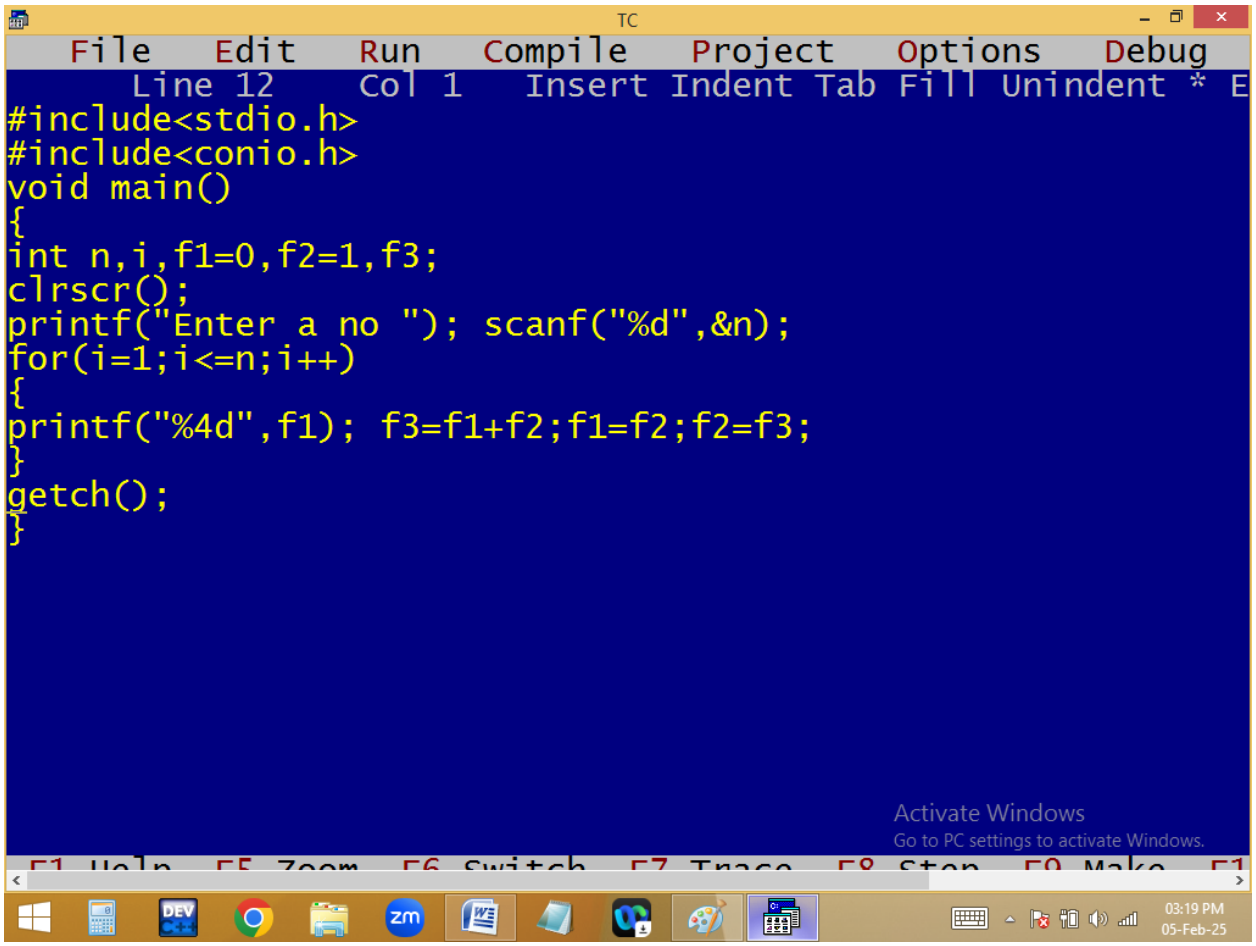
4 % 1 = 0 → c = 1

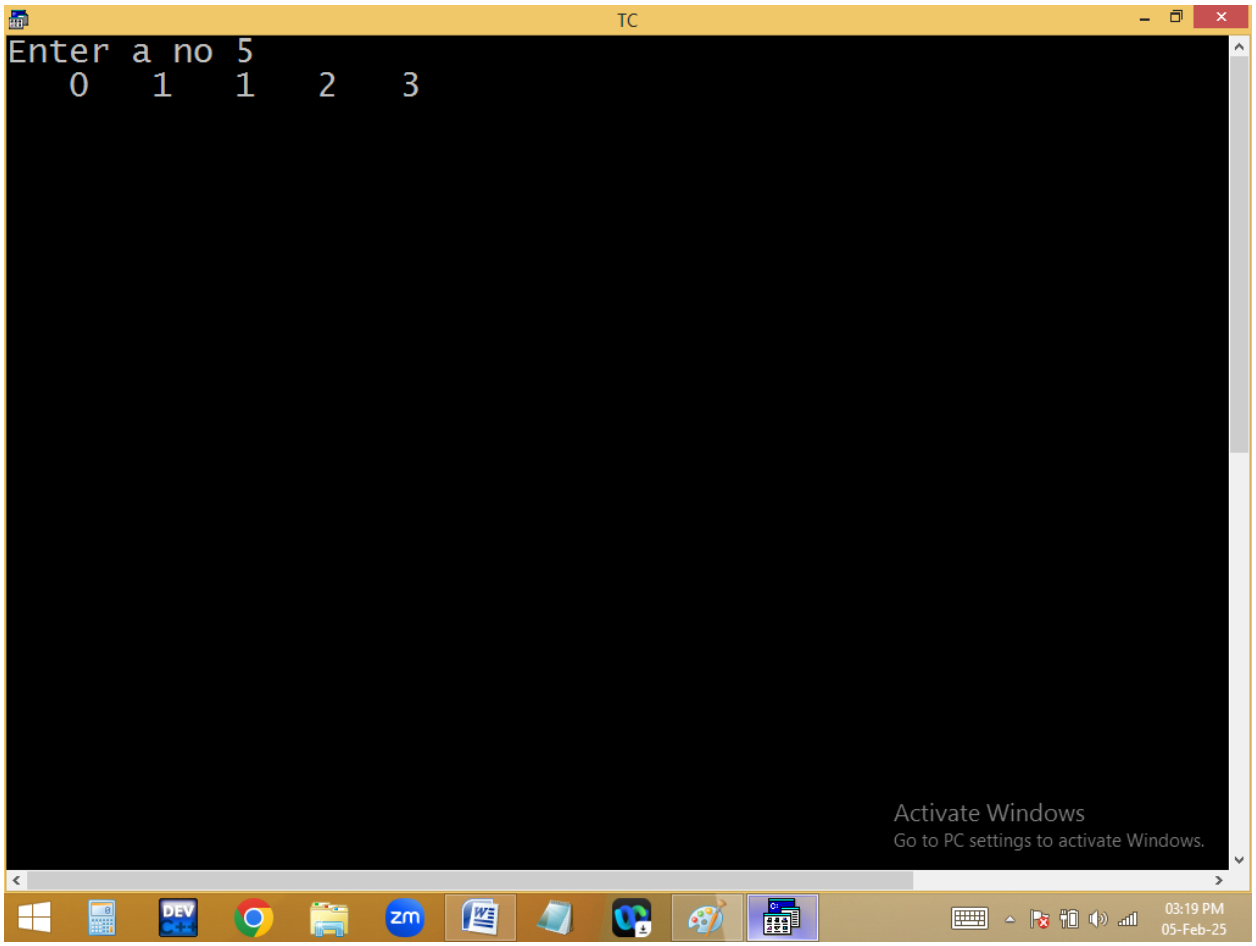
4 % 2 = 0 → c = 2

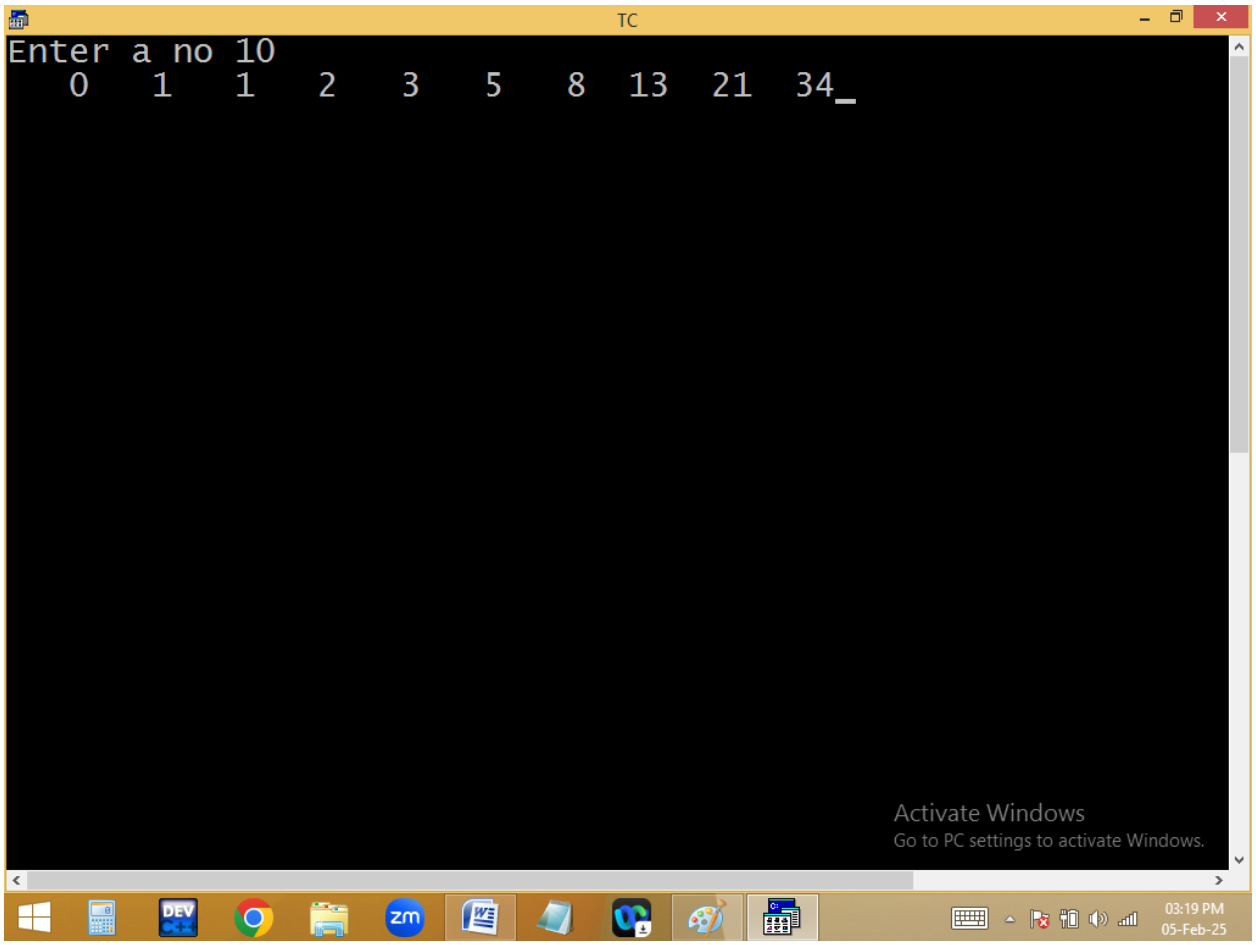
4 % 4 = 0 → c = 3

Fibonacci series:

n = 5 ➔ 0 1 1 2 3


TC
File Edit Run Compile Project Options Debug
Line 12 Col 1 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int n,i,f1=0,f2=1,f3;
clrscr();
printf("Enter a no "); scanf("%d",&n);
for(i=1;i<=n;i++)
{
printf("%4d",f1); f3=f1+f2;f1=f2;f2=f3;
}
getch();
}
Activate Windows
Go to PC settings to activate Windows.
03:19 PM
05-Feb-25


TC
Enter a no 5
0 1 1 2 3
Activate Windows
Go to PC settings to activate Windows.
03:19 PM
05-Feb-25



n	i	f1		f2		f3
5	1	✓ 0	+	1	=	1
	2	✓ 1	+	1	=	2
	3	✓ 1	+	2	=	3
	4	✓ 2	+	3	=	5
	5	3	+	5	=	8
	6					

✓

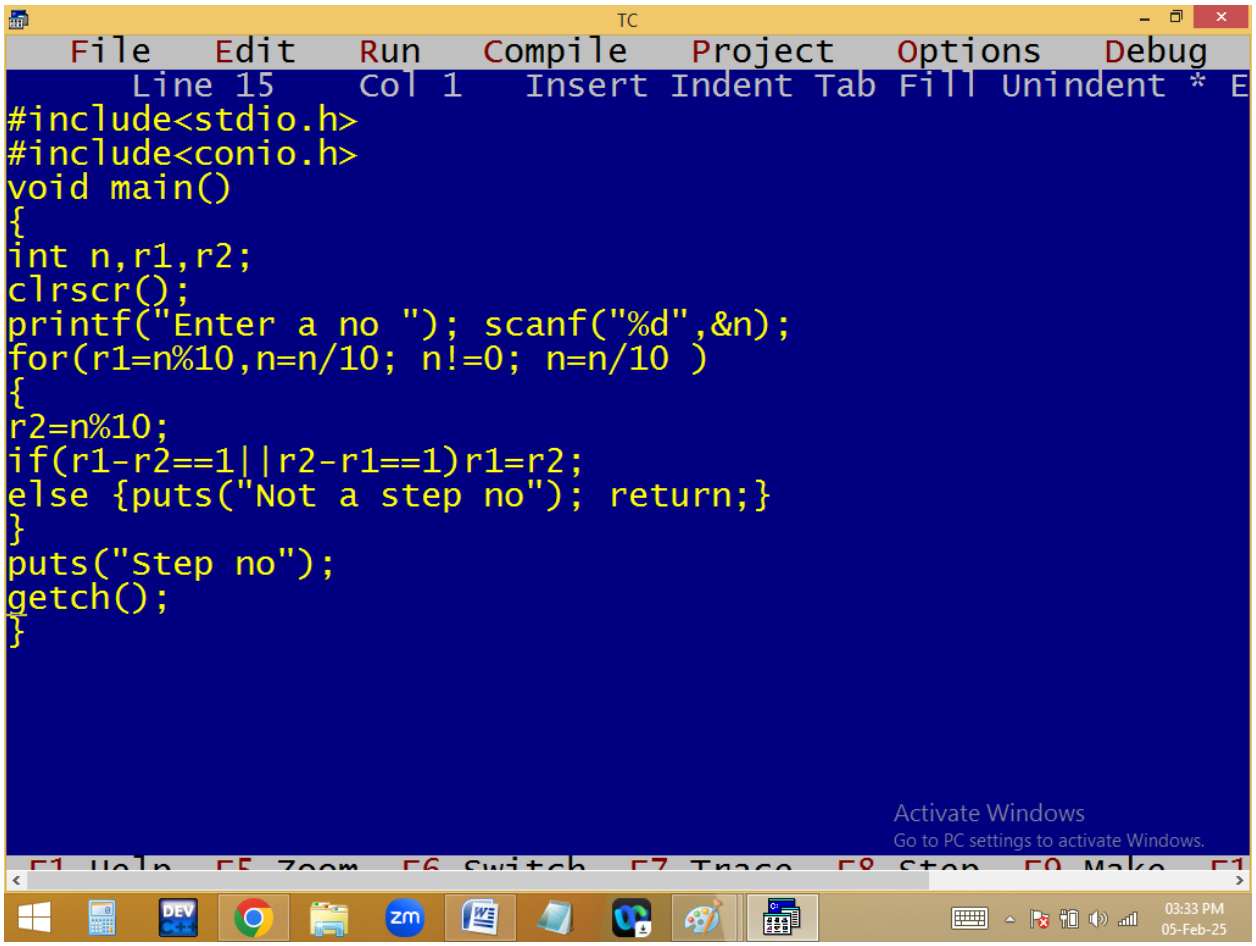
0 1 1 2 3

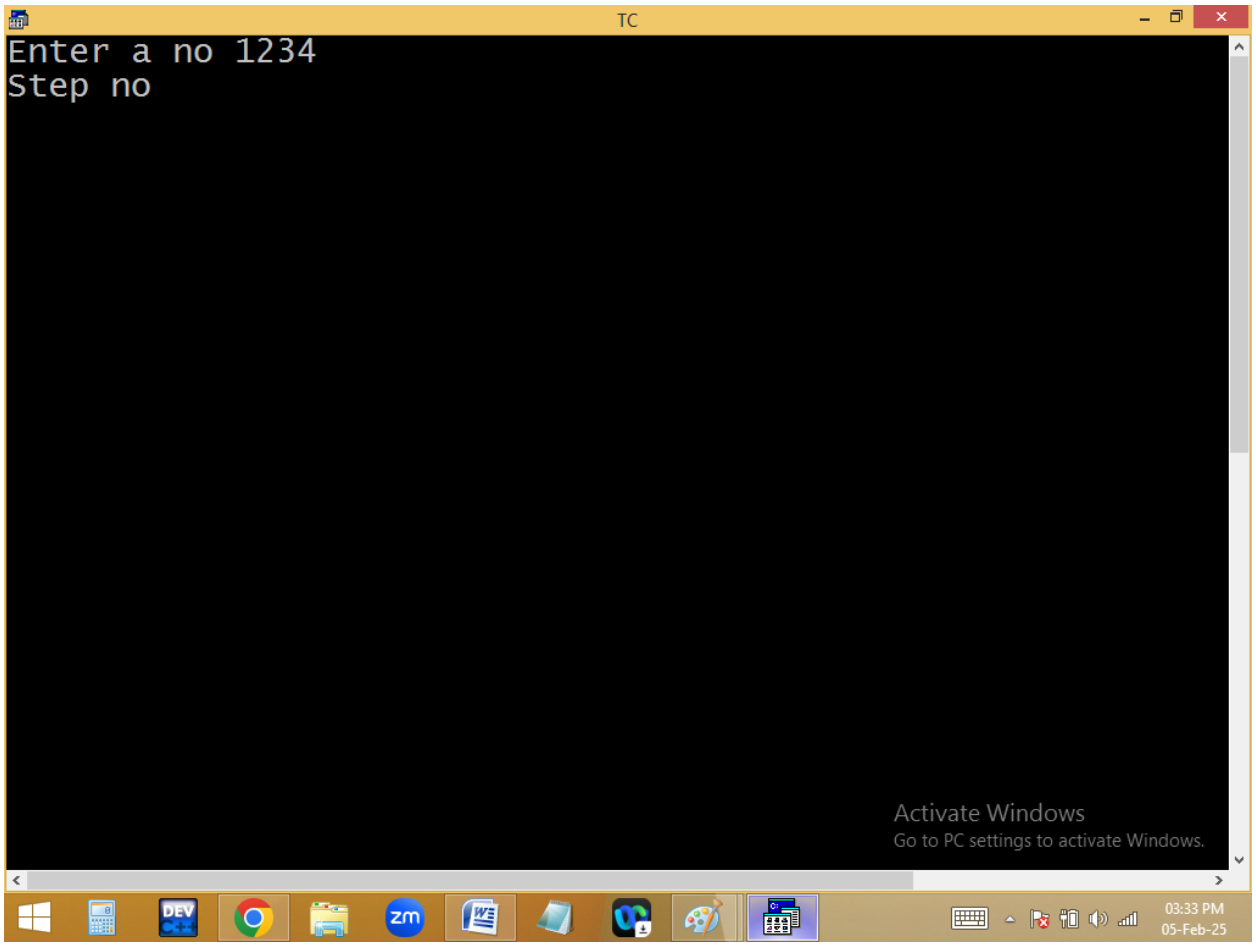
```
for( i=1; i<=5; i++ )
{
p( f1 );
f3=f1+f2;
f1=f2;
f2=f3;
}
```

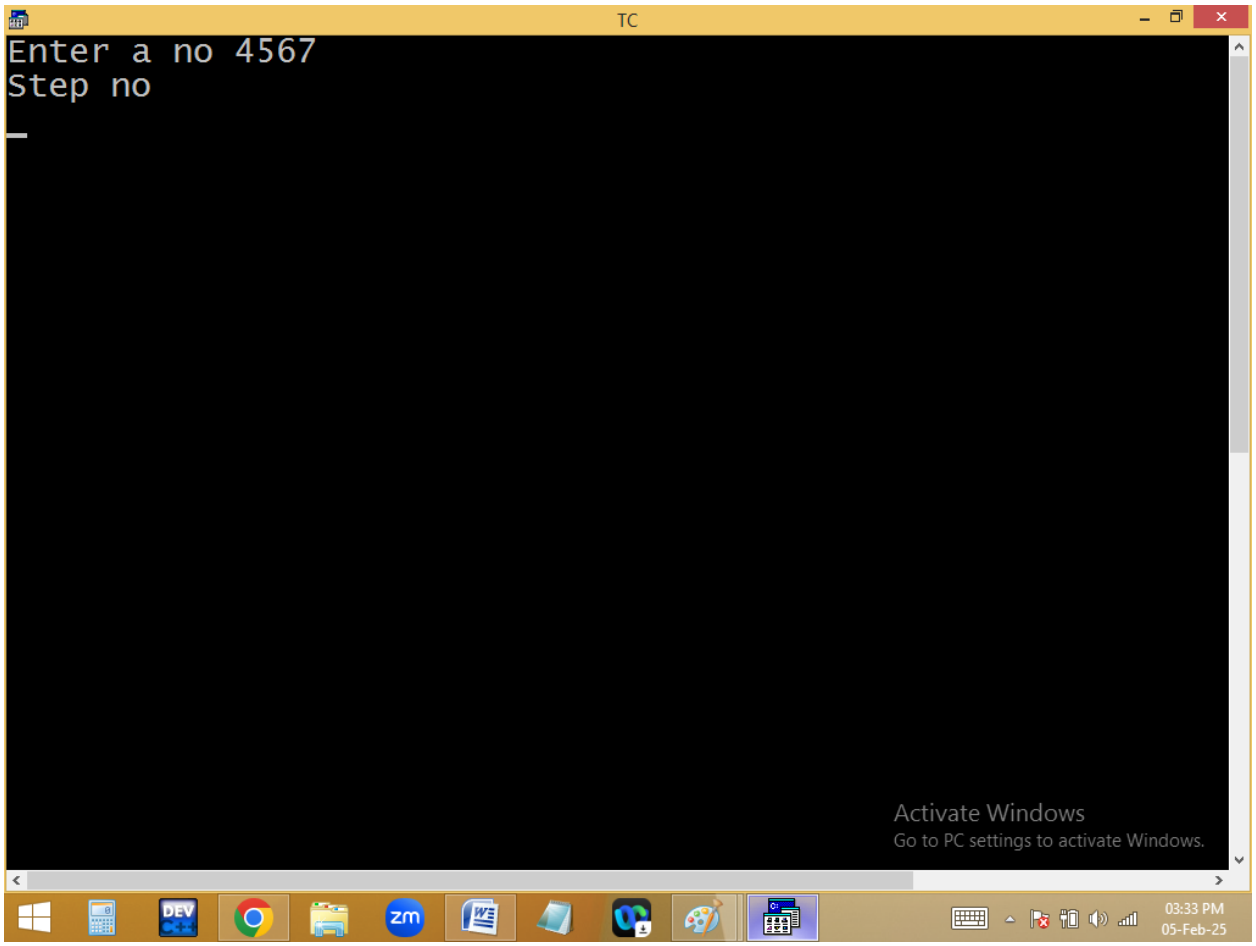
Finding step no or not?

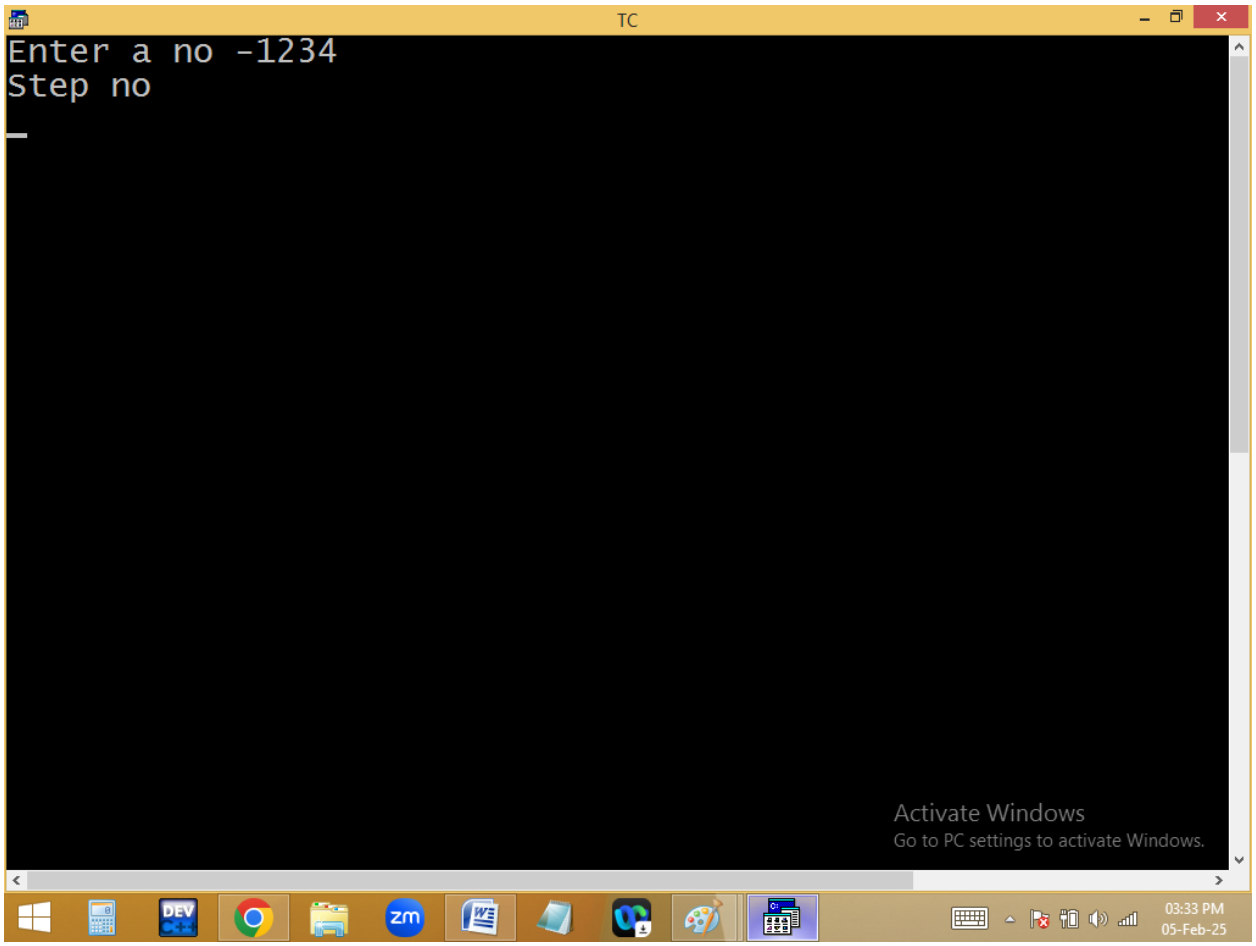
1234, 4321,

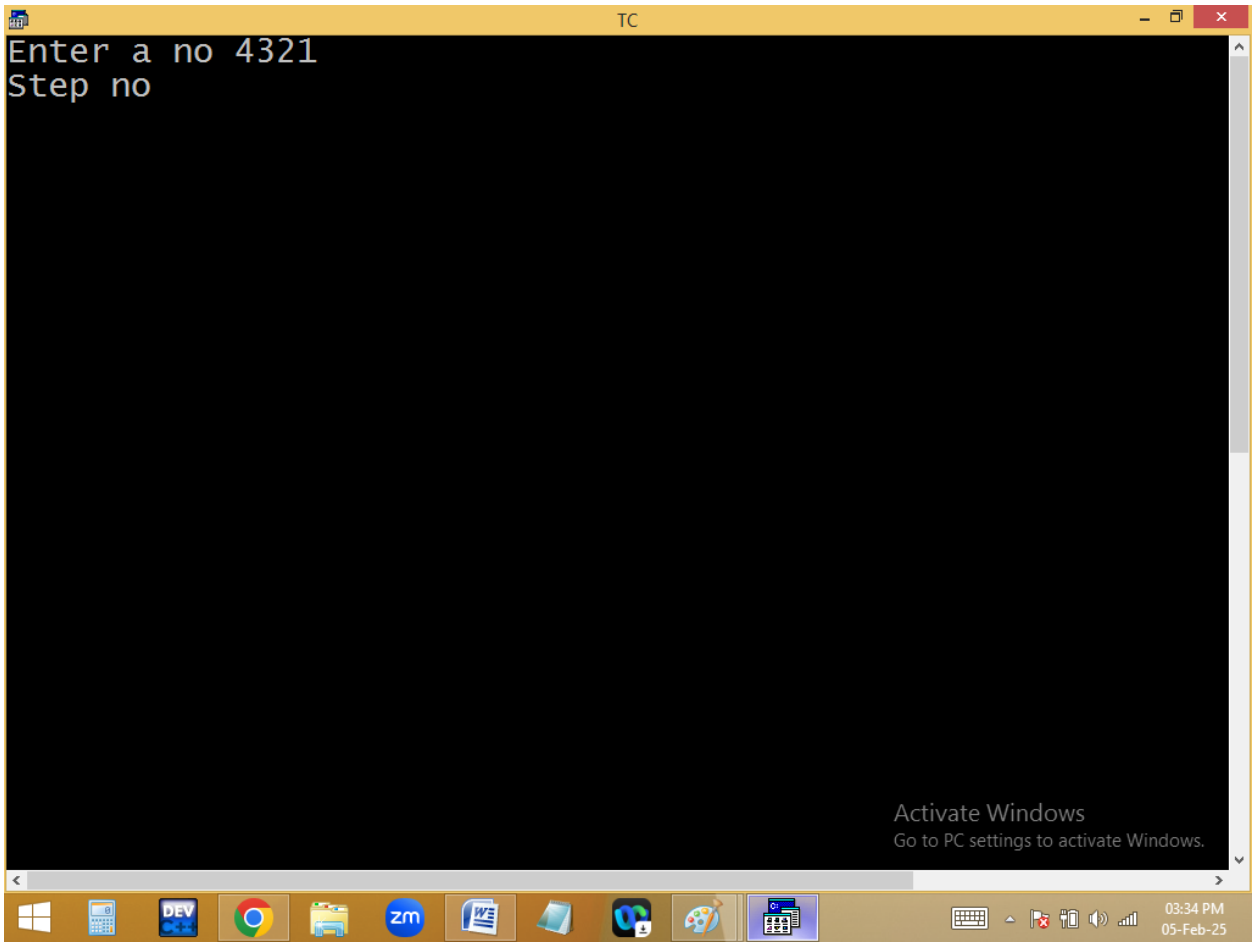
4568 ← not a step no

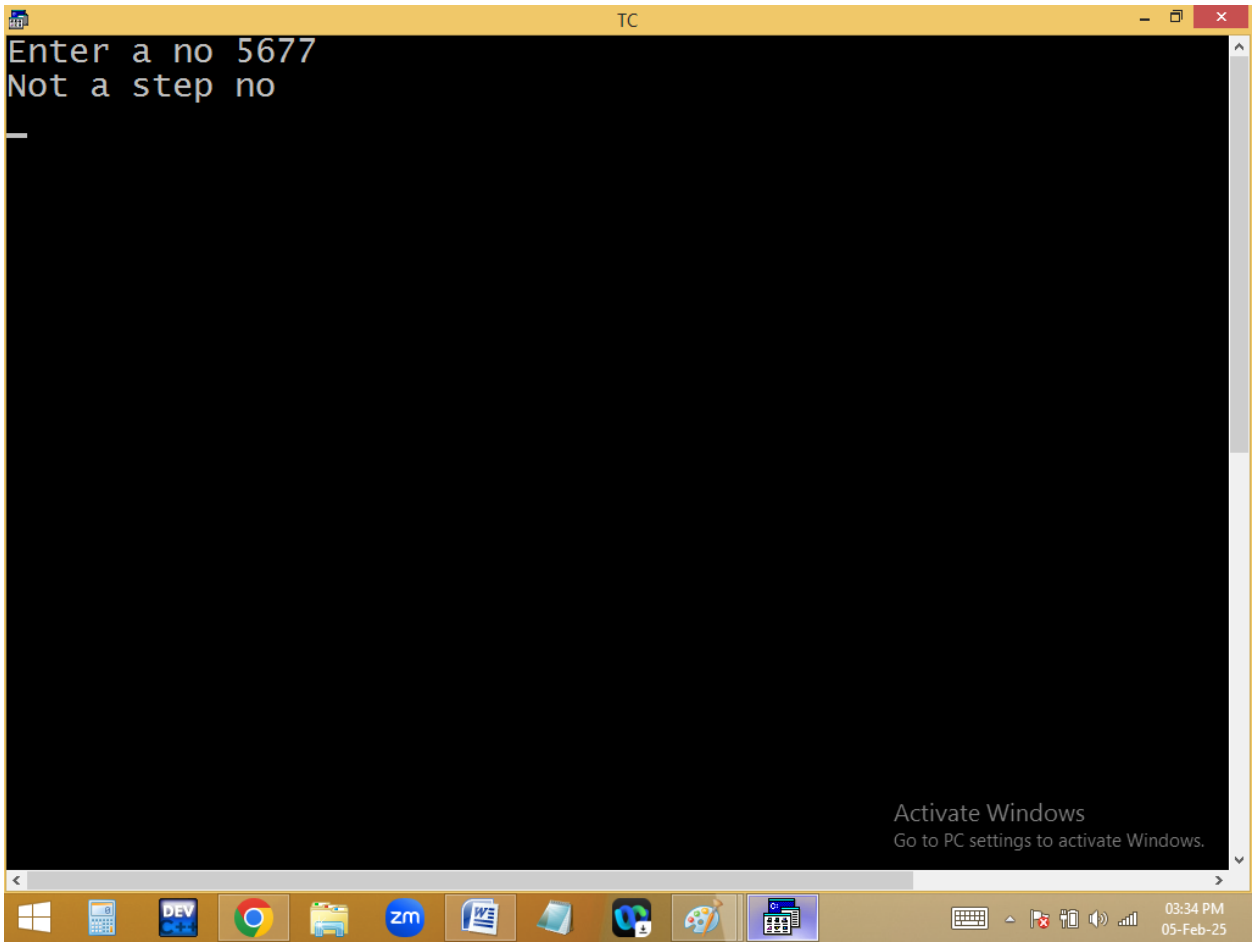

TC
File Edit Run Compile Project Options Debug
Line 15 Col 1 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
int n,r1,r2;
clrscr();
printf("Enter a no "); scanf("%d",&n);
for(r1=n%10,n=n/10; n!=0; n=n/10)
{
r2=n%10;
if(r1-r2==1||r2-r1==1)r1=r2;
else {puts("Not a step no"); return;}
}
puts("Step no");
getch();
}
Activate Windows
Go to PC settings to activate Windows.
03:33 PM
05-Feb-25

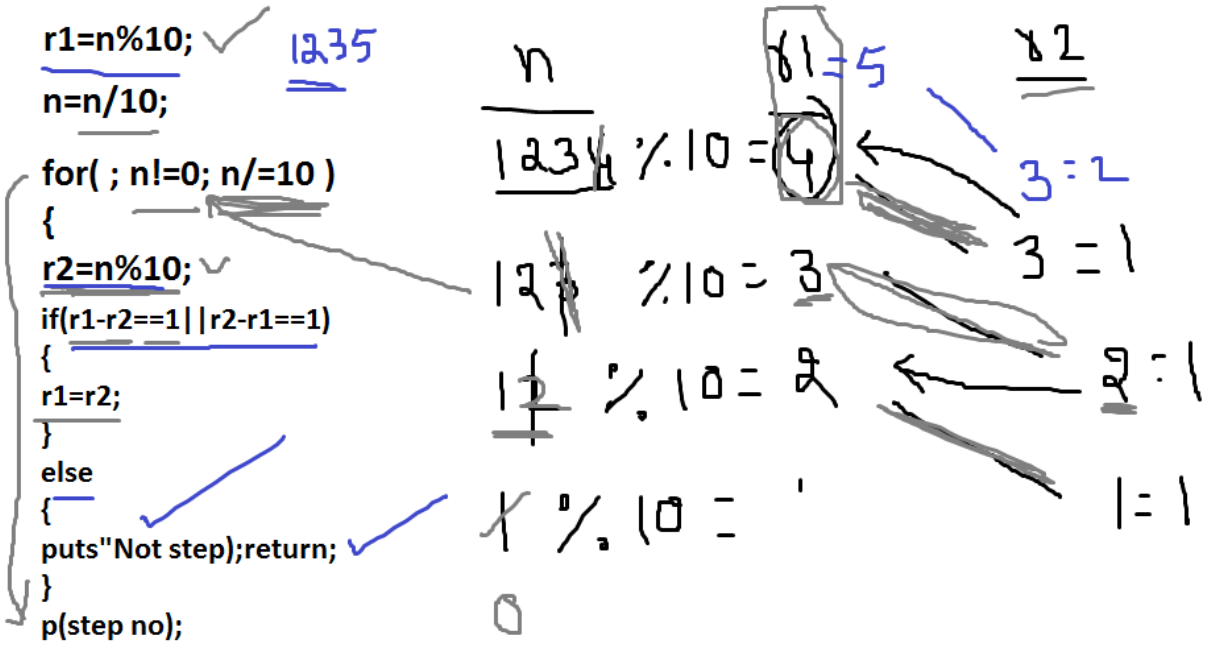

TC
Enter a no 1234
Step no
Activate Windows
Go to PC settings to activate Windows.
03:33 PM
05-Feb-25


TC
Enter a no 4567
Step no
Activate Windows
Go to PC settings to activate Windows.
03:33 PM
05-Feb-25


TC
Enter a no -1234
Step no
Activate Windows
Go to PC settings to activate Windows.
03:33 PM
05-Feb-25


TC
Enter a no 4321
Step no
Activate Windows
Go to PC settings to activate Windows.
03:34 PM
05-Feb-25


TC
Enter a no 5677
Not a step no
Activate Windows
Go to PC settings to activate Windows.
03:34 PM
05-Feb-25



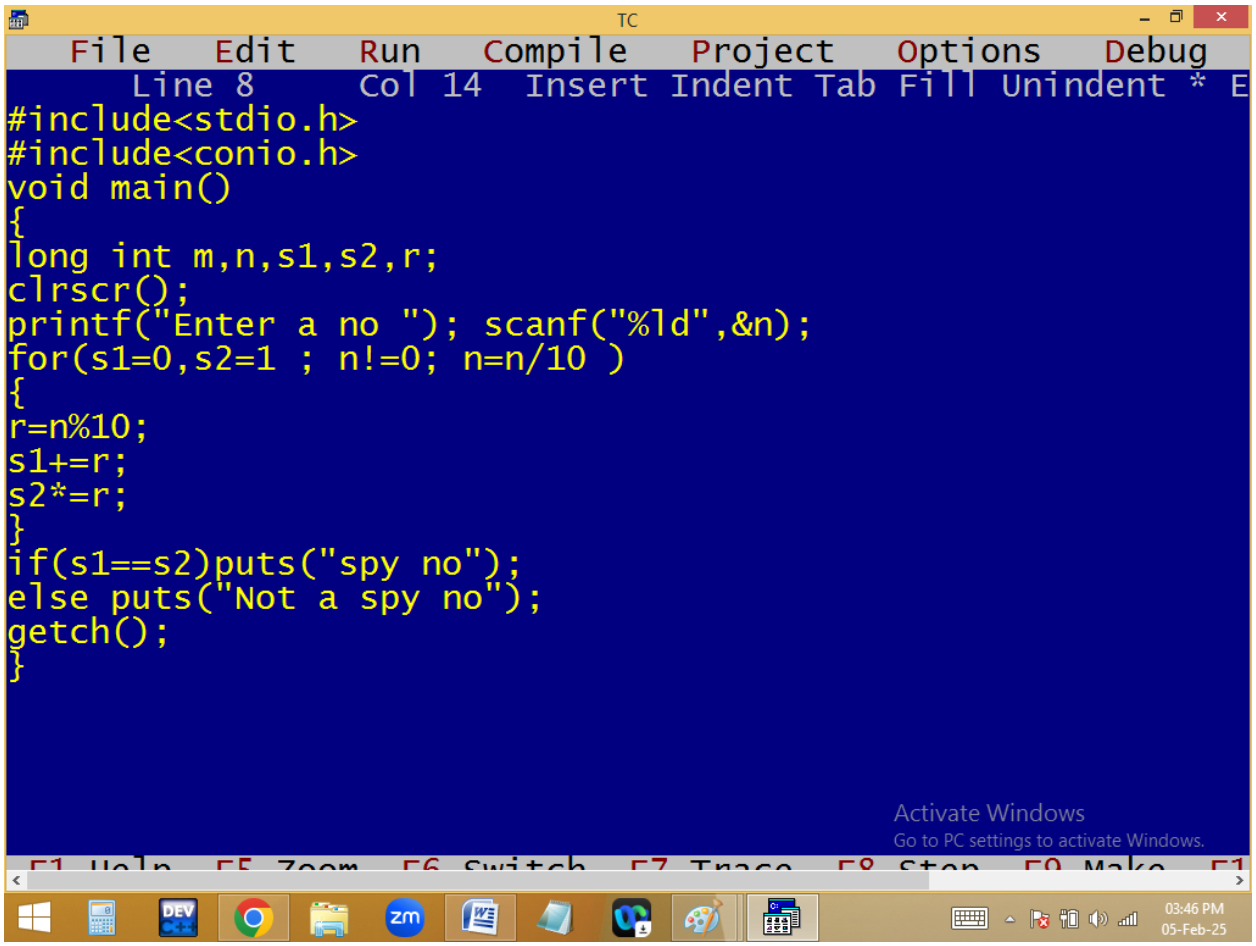
Finding spy no?

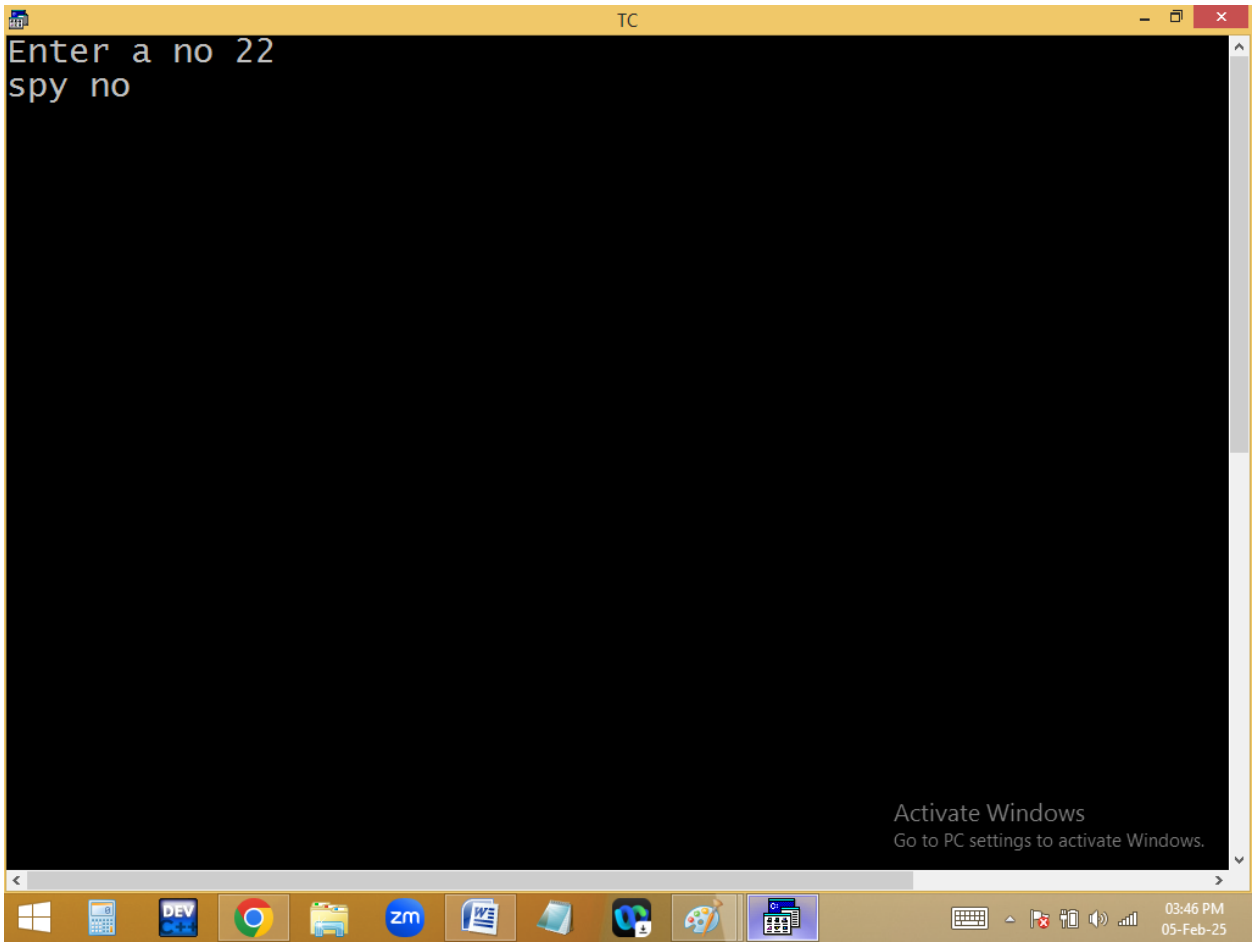
2+2=4

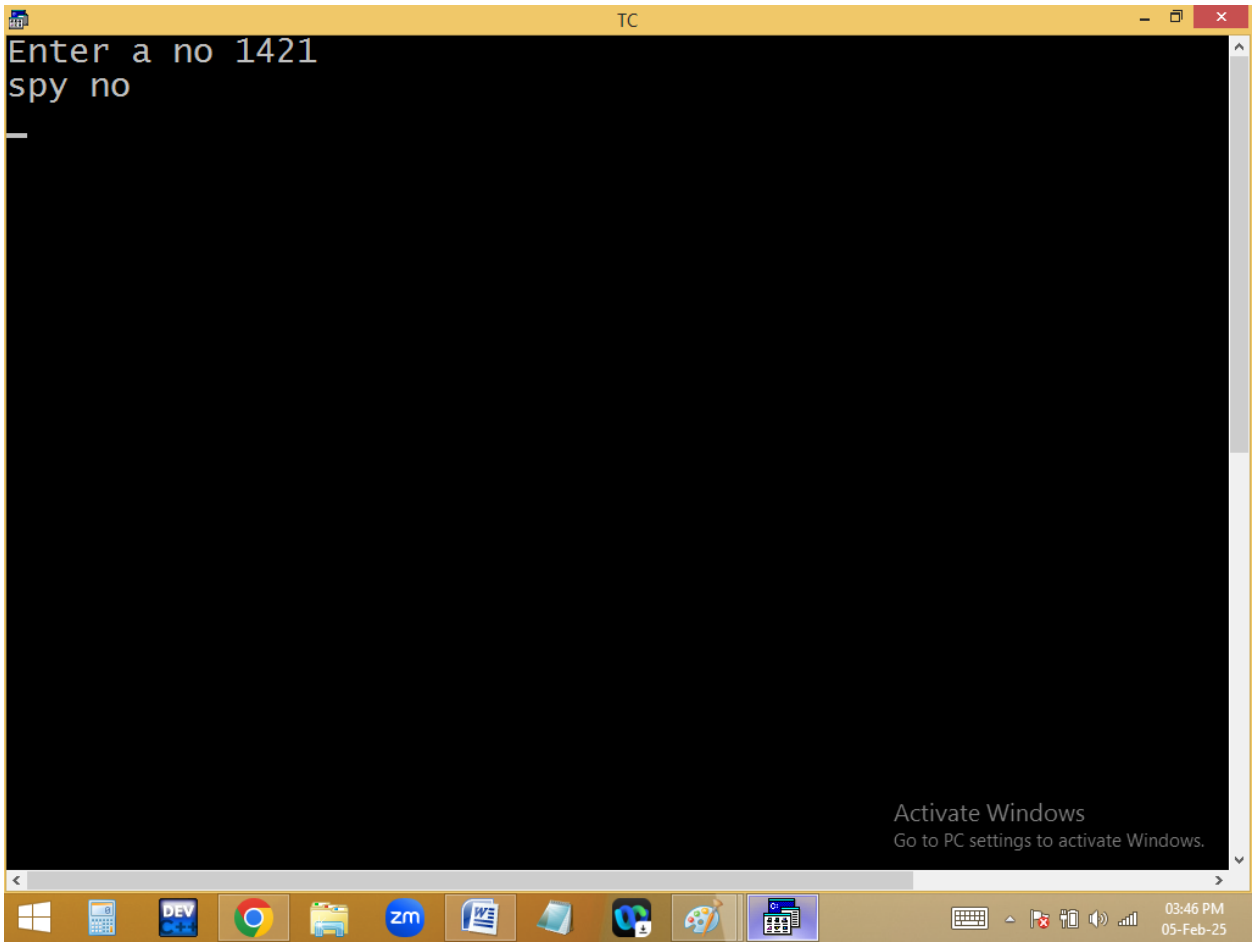
2*2=4

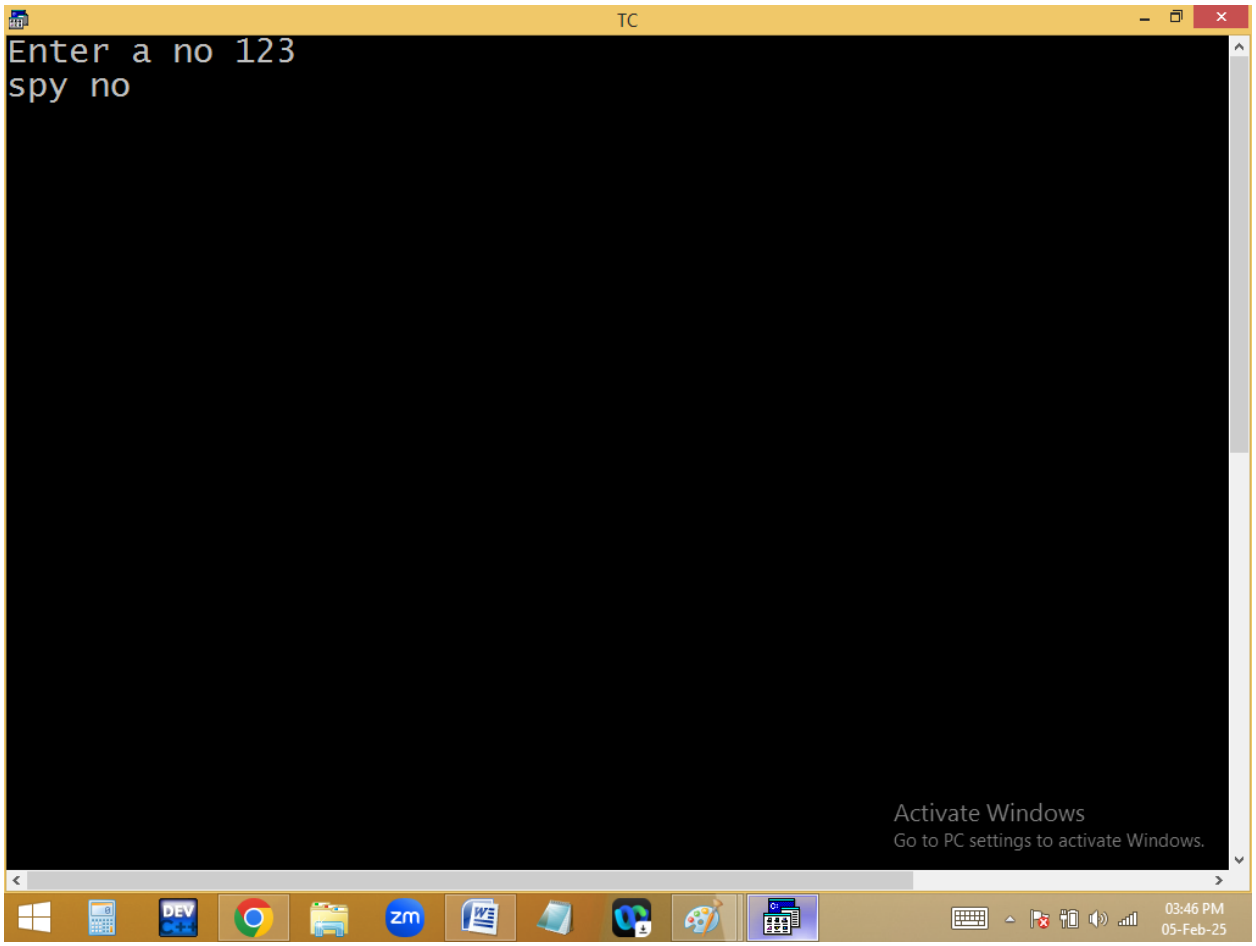
1+2+4+1=8

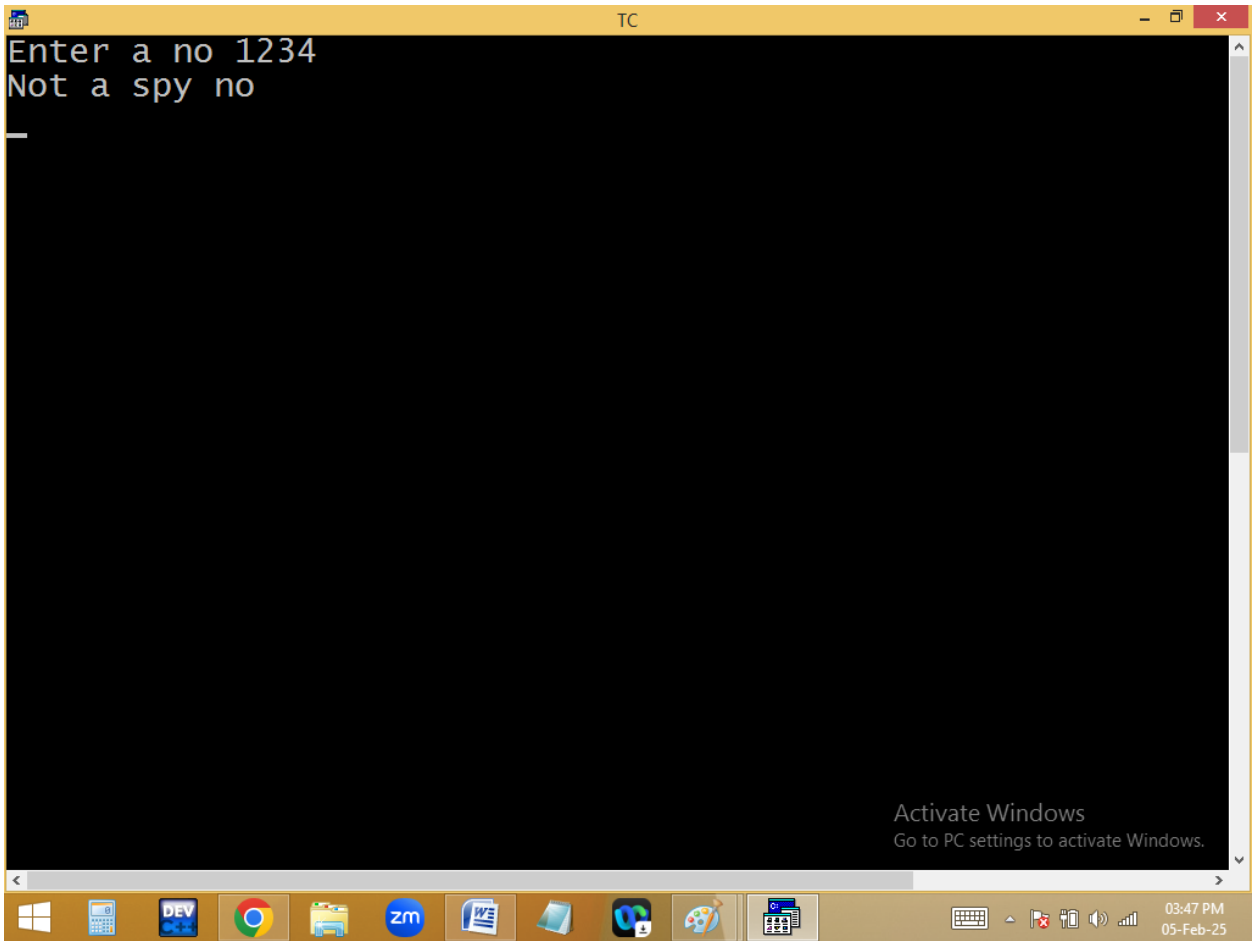
1x2x4x1 = 8


TC
File Edit Run Compile Project Options Debug
Line 8 Col 14 Insert Indent Tab Fill Unindent * E
#include<stdio.h>
#include<conio.h>
void main()
{
long int m,n,s1,s2,r;
clrscr();
printf("Enter a no "); scanf("%ld",&n);
for(s1=0,s2=1 ; n!=0; n=n/10)
{
r=n%10;
s1+=r;
s2*=r;
}
if(s1==s2)puts("spy no");
else puts("Not a spy no");
getch();
}
Activate Windows
Go to PC settings to activate Windows.
03:46 PM
05-Feb-25


TC
Enter a no 22
spy no
Activate Windows
Go to PC settings to activate Windows.
03:46 PM
05-Feb-25


TC
Enter a no 1421
spy no
Activate Windows
Go to PC settings to activate Windows.
03:46 PM
05-Feb-25


TC
Enter a no 123
spy no
Activate Windows
Go to PC settings to activate Windows.
03:46 PM
05-Feb-25




```
for( s1=0, s2=1; n!=0 ; n=n/10 )
{
r = n%10;

s1= s1 + r;
s2 = s2 * r;
}

puts(s1==s2?"spy":"Not");
```

n: 123

m: 123 % 10 = 3

s1	s2
0	1
+3	x3
12 % 10 = 2	+2 x2
1 % 10 = 1	+1 x1
6	6

6 == 6

Home work:

1. n=10 ➔ 1 2 3 9 4 5 6 18 7 8 9 27 10
2. n=5 ➔ 1 - 2 + 3 - 4 + 5 = 3
3. n=5 ➔ $1^2 + 2^2 + 3^2 + 4^2 + 5^2 = 55$
4. n=5 ➔ 1+1/1+1/2+1/3+1/4+1/5=3.28