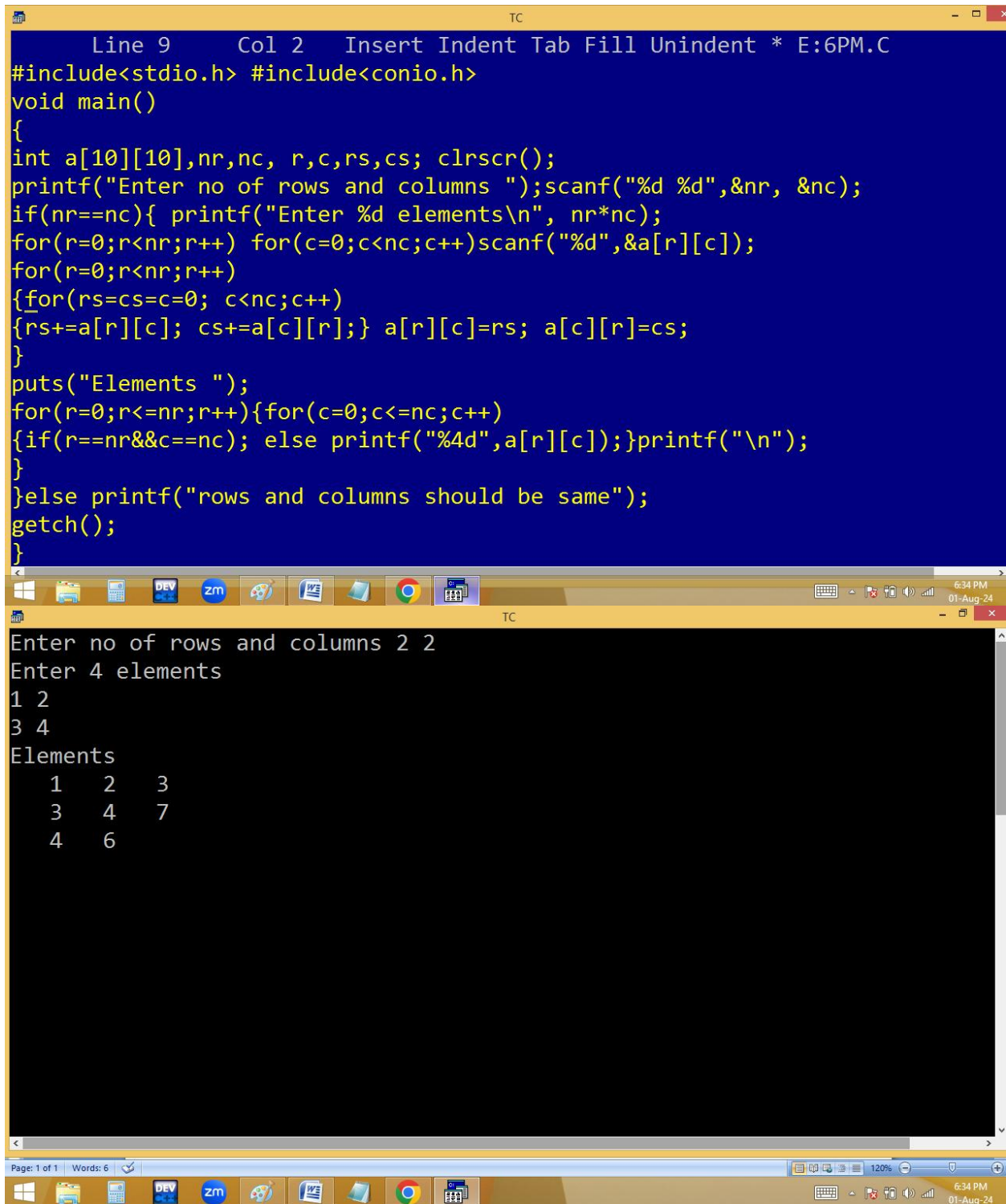


Finding row sum and column sum:



The image shows a Turbo C++ IDE window with a C program that calculates the row and column sums of a matrix. The program prompts the user to enter the number of rows and columns, then the elements of the matrix. It then displays the matrix and calculates the row and column sums.

```
Line 9      Col 2      Insert Indent Tab Fill Unindent * E:6PM.C
#include<stdio.h> #include<conio.h>
void main()
{
int a[10][10],nr,nc, r,c,rs,cs; clrscr();
printf("Enter no of rows and columns ");scanf("%d %d",&nr, &nc);
if(nr==nc){ printf("Enter %d elements\n", nr*nc);
for(r=0;r<nr;r++) for(c=0;c<nc;c++)scanf("%d",&a[r][c]);
for(r=0;r<nr;r++)
{for(rs=cs=c=0; c<nc;c++)
{rs+=a[r][c]; cs+=a[c][r];} a[r][c]=rs; a[c][r]=cs;
}
puts("Elements ");
for(r=0;r<=nr;r++){for(c=0;c<=nc;c++)
{if(r==nr&&c==nc); else printf("%4d",a[r][c]);}printf("\n");
}
}else printf("rows and columns should be same");
getch();
}
```

Enter no of rows and columns 2 2
Enter 4 elements
1 2
3 4
Elements
1 2 3
3 4 7
4 6

```

for(r=0;r<2;r++)
{
for(rs=cs=c=0;c<2;c++)
{
rs+=a[r][c]; cs+=a[c][r];
}
a[r][c]=rs; a[c][r]=cs;
}

```

r	c	rs	cs
0	0 1 2	0+9+4=13	0+9+5=14
1	0 1 2	0+5+7=12	0+4+7=11
2			

9 0,0	4 0,1	13 0,2
5 1,0	7 1,1	12 1,2
14 2,0	11 2,1	

Finding n student tot, avg and result

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

```
void dummy(float a){float *p = &a; }
```

```
void main()
```

```
{
```

```
float a[10][10]={0}; int n, r,c,i; char name[10][20]; clrscr();
```

```
printf("Enter no of students "); scanf("%d",&n);
```

```
for(r=0;r<n;r++)
```

```
{
```

```
printf("Enter %d stu id, name, marks in 6 submarks ",r+1);
```

```
scanf("%f %s",&a[r][0],name[r]);
```

```
for(c=1;c<=6;c++){scanf("%f",&a[r][c]);a[r][7]+=a[r][c];if(a[r][c]
<35)
```

```
a[r][9]=-1;}
```

```
a[r][8]=a[r][7]/6;

}

puts("Id\tName\tTel Eng Hin Mat Sci Soc Tot
Avg\tPass/Fail");

puts("*****
*****");

for(r=0;r<n;r++)

{

printf("%.0f\t%s\t",a[r][0],name[r]);

for(i=1;i<=7;i++)printf("%.0f ",a[r][i]);

printf("%.2f\t",a[r][i]);

if(a[r][9]==0)puts("Pass");else puts("Fail");

}

getch();

}
```

```
TC
Enter no of students 3
Enter 1 stu id, name, marks in 6 submarks 1 abhi 77 67 56 65 99 87
Enter 2 stu id, name, marks in 6 submarks 2 bablu 34 56 54 45 44 35
Enter 3 stu id, name, marks in 6 submarks 3 pandu 44 55 66 56 45 46
Id      Name    Tel  Eng  Hin  Mat  Sci  Soc  Tot  Avg  Pass/Fail
*****
1       abhi    77   67   56   65   99   87   451  75.17  Pass
2       bablu   34   56   54   45   44   35   268  44.67  Fail
3       pandu   44   55   66   56   45   46   312  52.00  Pass
```

Printing below output using a $n*n$ matrix:

9 0 0

-1 9 0

-1 -1 9

```
TC
#include<stdio.h>
#include<conio.h>
void main()
{
int a[10][10],n,r,c;
clrscr();
printf("Enter no of rows "); scanf("%d",&n);
puts("Elements are ");
for(r=0;r<n;r++)
{
for(c=0;c<n;c++)
{
if(r==c)a[r][c]=9; else if(r>c)a[r][c]=-1; else a[r][c]=0;
printf("%4d",a[r][c]);
}
printf("\n");
}
getch();
}
```

Enter no of rows 3
Elements are

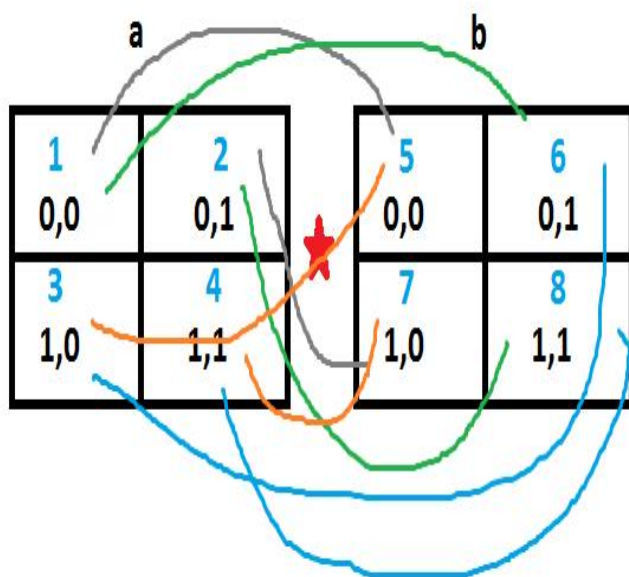
9	0	0
-1	9	0
-1	-1	9

TC

```
TC
Enter no of rows 5
Elements are
  9  0  0  0  0
 -1  9  0  0  0
 -1 -1  9  0  0
 -1 -1 -1  9  0
 -1 -1 -1 -1  9
```

	9 0,0	4 0,1	13 0,2
14	5 1,0	7 1,1	12 1,2
11	14 2,0	11 2,1	2,2

Matrix multiplication:



$$1*5+2*7=19$$

$$1*6+2*8=22$$

$$3*5+4*7=43$$

$$3*6+4*8=50$$

```
TC
#include<stdio.h> #include<conio.h>
void main()
{
int a[10][10],b[10][10],nr,nc,r,c,s,k; clrscr();
printf("Enter no of rows and columns "); scanf("%d%d",&nr,&nc);
printf("Enter %d elements for 1st matrix",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++)scanf("%d",&a[r][c]);
printf("Enter %d elements for 2nd matrix",nr*nc);
for(r=0;r<nr;r++)for(c=0;c<nc;c++)scanf("%d",&b[r][c]);
puts("Result Elements are ");
for(r=0;r<nr;r++)
{for(c=0;c<nc;c++)
{for(k=s=0;k<nc;k++){ s+=a[r][k]*b[k][c];}
printf("%4d",s);
}
printf("\n");
}
getch();
}
```

Enter no of rows and columns 2 2
Enter 4 elements for 1st matrix 1 2 3 4
Enter 4 elements for 2nd matrix 5 6 7 8
Result Elements are
19 22
43 50


```

for( r=0; r<2; r++)
{
for( c=0; c<2; c++ )
{
for(s=k=0; k<2; k++)
{
s+=a[r][k] * b[k][c];
}
p(s);
}
p("\n"); ✓
}

```

<u>r</u>	<u>c</u>	<u>k</u>	<u>s</u>
0	0	012	0+1*5=5+2*7=19 ✓
0	1	012	0+1*6=6+2*8=22 ✓
	<u>2</u>		
1	0	012	0+3*5=15+4*7=43 ✓
1	1	012	0+3*6+4*8=50 ✓
	<u>2</u>		

a			b			
1	2		5	6	✓	✓
0,0	0,1	★	0,0	0,1	19	22
3	4		7	8	✓	✓
1,0	1,1		1,0	1,1	43	50