

Home Work 6

1.

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

```
#include<math.h>
```

```
int fact(int n)
```

```
{
```

```
    int factn=1, i;
```

```
    for(i = 1; i<=n; i++)
```

```
    {
```

```
        factn *= i;
```

```
    }
```

```
    return factn;
```

```
}
```

```
int main()
```

```
{
```

```
    int n, i;
```

```
    double x, sum = 1.0;
```

```
    printf("Please provide the value of x: ");
```

```
    scanf("%lf", &x);
```

```
    printf("Please provide the value of n : ");
```

```
    scanf("%d", &n);
```

```
    printf("The values of n = %d and x = %lf\n", n, x);
```

```

for(i=1; i<=n; i++)
{
    sum += (pow(x, n)*1.0)/(fact(n)*1.0);
}
printf("The value of the sum upto %dth term is %lf\n\n", n, sum);
}

```

Output:

```

"E:\Education\CSE\CSE115\Home work 6\problem1.exe"
Please provide the value of x: 10
Please provide the value of n : 5
The values of n = 5 and x = 10.000000
The value of the sum upto 5th term is 4167.666667

Process returned 0 (0x0)   execution time : 5.268 s
Press any key to continue.

```

2.

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

```
int main()
```

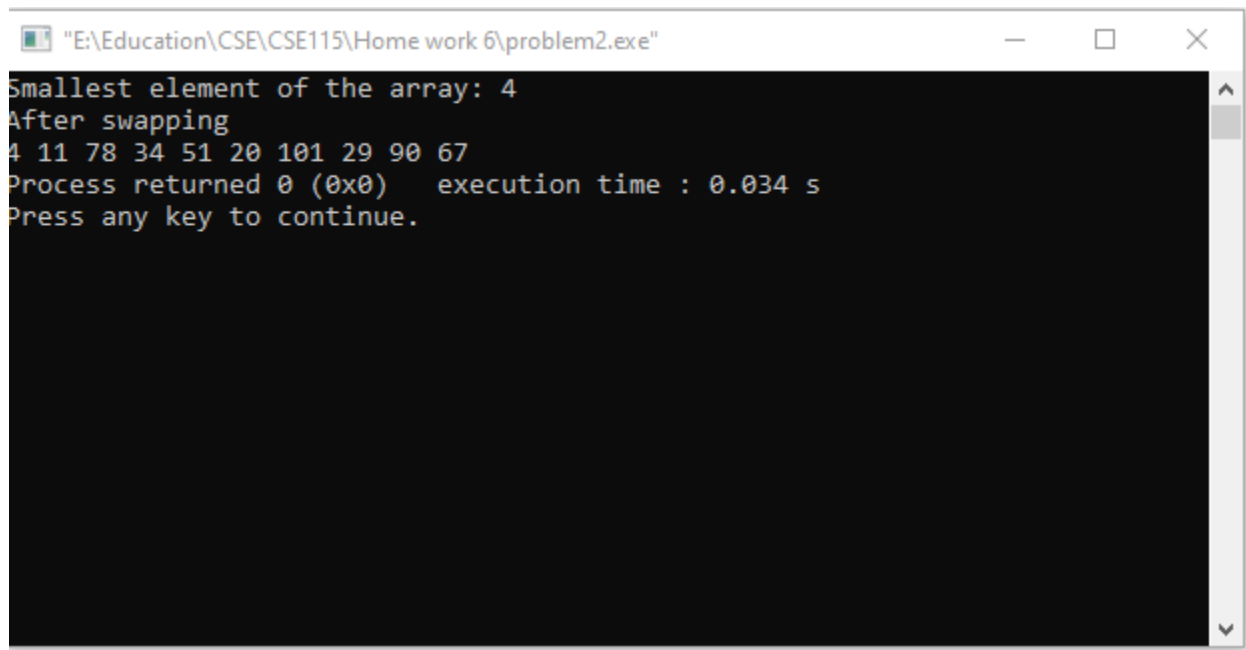
```
{
```

```
int arr1[]={20,11,78,34,51,4,101,29,90,67};
```

```
int length=sizeof(arr1)/sizeof(arr1[0]);
int min=arr1[0];
int index=0;
for(int i=0;i<length;i++)
{
    if(min>arr1[i])
    {
        min=arr1[i];
        index=i;
    }
}
printf("Smallest element of the array: %d\n",min);
int temp=arr1[0];
arr1[0]=arr1[index];
arr1[index]=temp;
printf("After swapping\n");
for(int i=0;i<length;i++)
{
    printf("%d ",arr1[i]);
}

return 0;
}
```

Output:



```
"E:\Education\CSE\CSE115\Home work 6\problem2.exe"
Smallest element of the array: 4
After swapping
4 11 78 34 51 20 101 29 90 67
Process returned 0 (0x0) execution time : 0.034 s
Press any key to continue.
```

3.

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

```
int main()
```

```
{
```

```
float arr1[]={20.2,11.05,78.1,34.9,51.11,4.0,101.8,29.03,90.42,67.6};
```

```
int length=sizeof(arr1)/sizeof(arr1[0]);
```

```
float sum=0;
```

```
for(int i=0;i<length;i++)
```

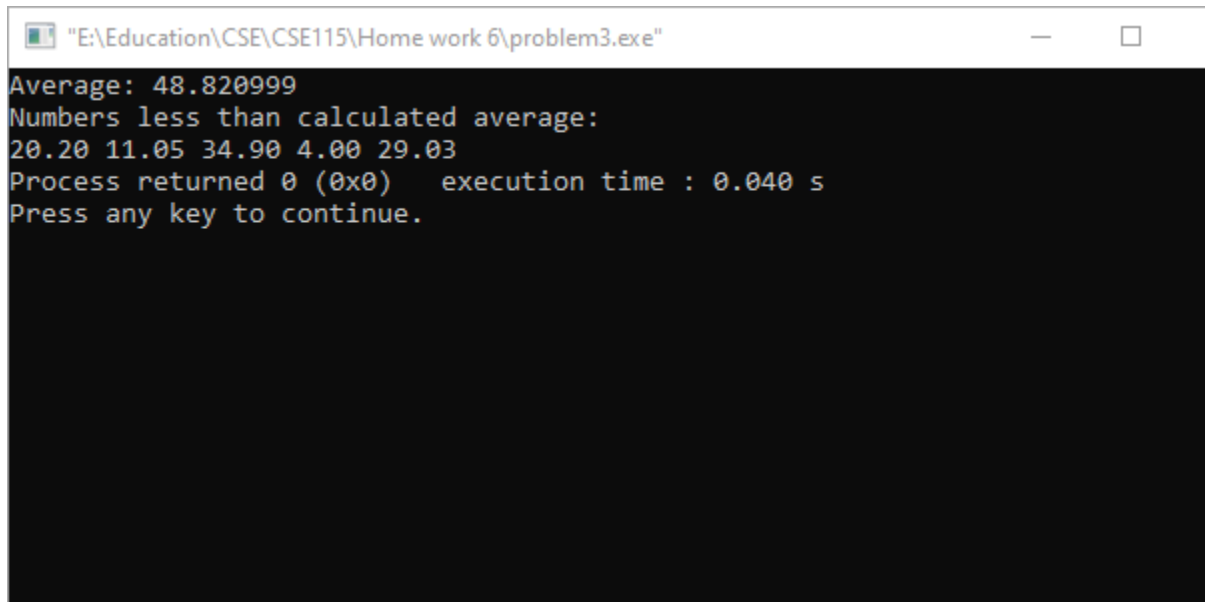
```
{
```

```
sum+=arr1[i];
```

```
}
```

```
float average=sum/length;
printf("Average: %f",average);
printf("\nNumbers less than calculated average:\n");
for(int i=0;i<length;i++)
{
if(average>arr1[i])
{
printf("%.2f ",arr1[i]);
}
}
return 0;
}
```

Output:



```
"E:\Education\CSE\CSE115\Home work 6\problem3.exe"
Average: 48.820999
Numbers less than calculated average:
20.20 11.05 34.90 4.00 29.03
Process returned 0 (0x0) execution time : 0.040 s
Press any key to continue.
```

4.

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

```
int main()
```

```
{
```

```
int arr1[5][5],i,j,temp;
```

```
printf("Enter any 5x5 matrix:");
```

```
for(i=0;i<=4;i++)
```

```
{
```

```
for(j=0;j<=4;j++)
```

```
{
```

```
scanf("%d",&arr1[i][j]);
```

```
}
```

```
printf("\n");
```

```
}
```

```
printf("original matrix:\n");
```

```
for(i=0;i<=4;i++)
```

```
{
```

```
for(j=0;j<=4;j++)
```

```
{
```

```
printf("%d ",arr1[i][j]);
```

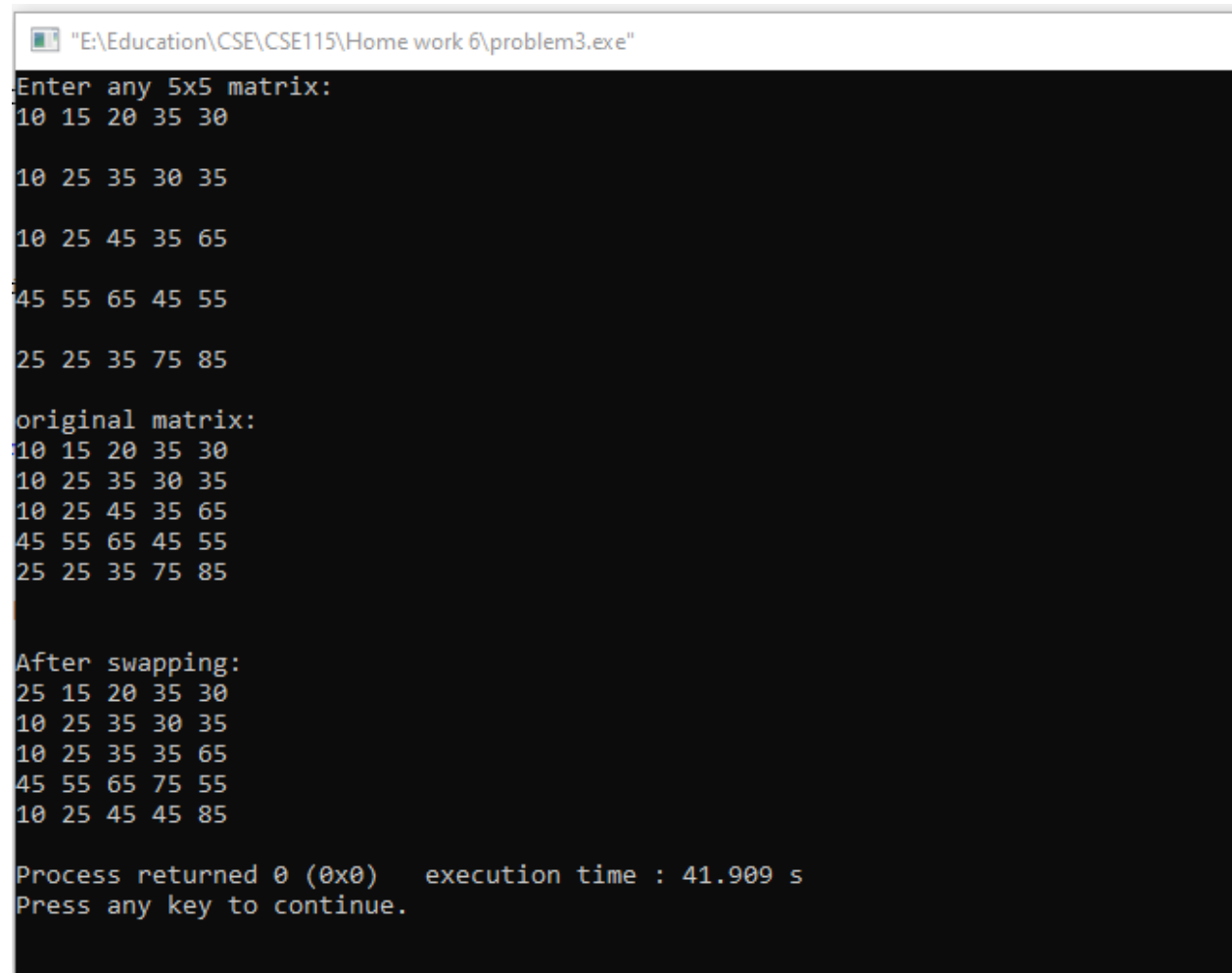
```
}
```

```
printf("\n");
```

```
}  
int k=4,m=0;  
for(i=0;i<=4;i++)  
{  
    for(j=0;j<=4;j++)  
    {  
        if (i==j)  
        {  
            temp=arr1[i][j];  
            arr1[i][j]=arr1[k][m];  
            arr1[k][m]=temp;  
            m++;  
        }  
    }  
}  
  
printf("\n\nAfter swapping:\n");  
for(i=0;i<=4;i++)  
{  
    for(j=0;j<=4;j++)  
    {  
        printf("%d ",arr1[i][j]);  
    }  
    printf("\n");
```

```
}  
return 0;  
}
```

Output:



```
"E:\Education\CSE\CSE115\Home work 6\problem3.exe"  
Enter any 5x5 matrix:  
10 15 20 35 30  
  
10 25 35 30 35  
  
10 25 45 35 65  
  
45 55 65 45 55  
  
25 25 35 75 85  
  
original matrix:  
10 15 20 35 30  
10 25 35 30 35  
10 25 45 35 65  
45 55 65 45 55  
25 25 35 75 85  
  
After swapping:  
25 15 20 35 30  
10 25 35 30 35  
10 25 35 35 65  
45 55 65 75 55  
10 25 45 45 85  
  
Process returned 0 (0x0)   execution time : 41.909 s  
Press any key to continue.
```


5.

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

```
int main()
```

```
{
```

```
    int array[5][5];
```

```
    for(int i=0;i<4;i++){
```

```
        for(int j=0;j<5;j++){
```

```
            scanf("%d",&array[i][j]);
```

```
        }
```

```
    }
```

```
int calculate=0;
```

```
for(int i=0;i<4;i++){
```

```
    for(int j=0;j<5;j++){
```

```
        if(array[i][j]==0){
```

```
            calculate++;
```

```
        }
```

```
    }
```

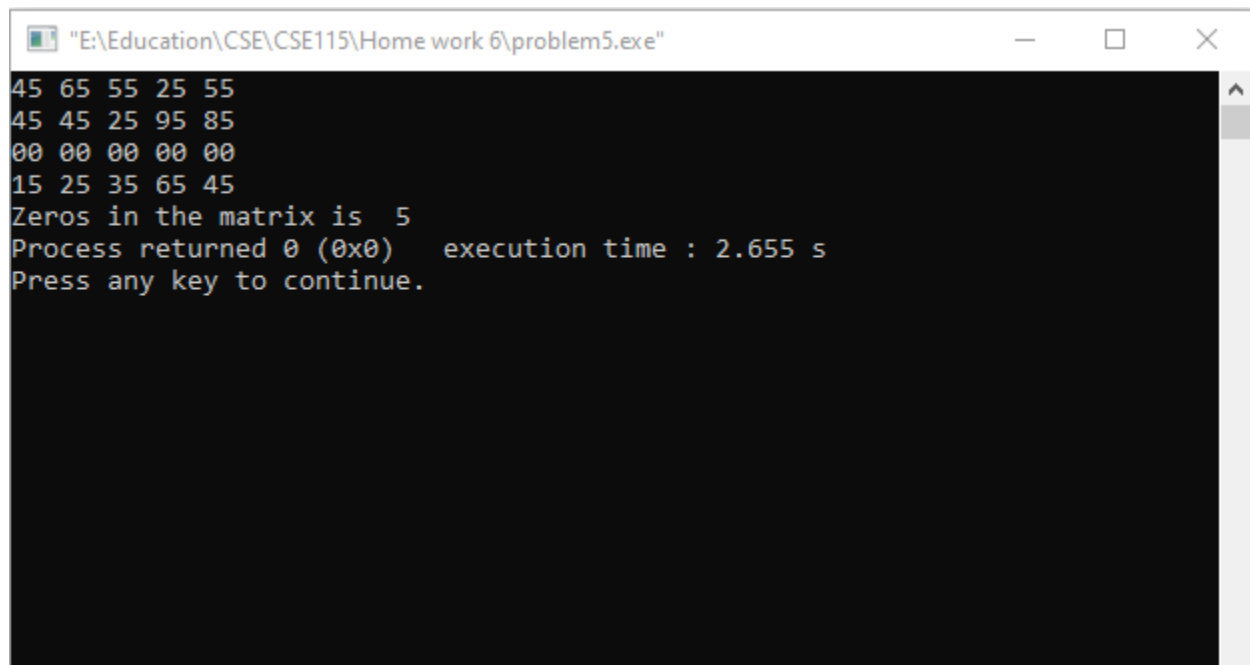
```
}
```

```
printf("Zeros in the matrix is %d", calculate);
```

```
return 0;
```

}

Output:



```
"E:\Education\CSE\CSE115\Home work 6\problem5.exe"
45 65 55 25 55
45 45 25 95 85
00 00 00 00 00
15 25 35 65 45
Zeros in the matrix is 5
Process returned 0 (0x0)   execution time : 2.655 s
Press any key to continue.
```

6.

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

```
int main()
```

```
{
```

```
int calculate[5][5];
```

```
for(int i=0;i<5;i++){
```

```
    for(int j=0;j<5;j++){
```

```
        scanf("%d",&calculate[i][j]);
```

```
    }
```

```
}
```

```
int add=0;
```

```
for(int i=0;i<5;i++){
```

```
for(int j=i;j<5;j++){

    if(i==j){

        add+=calculate[i][j];

        break;

    }

}

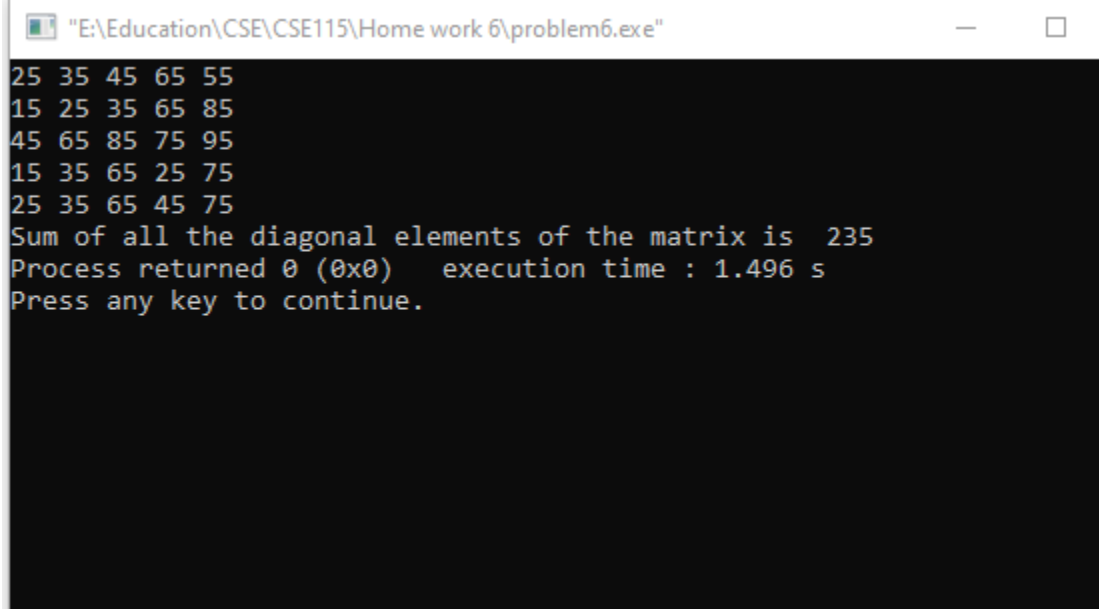
}

printf("Sum of the diagonal elements matrix is %d", add);

return 0;

}
```

Output:



```
"E:\Education\CSE\CSE115\Home work 6\problem6.exe"
25 35 45 65 55
15 25 35 65 85
45 65 85 75 95
15 35 65 25 75
25 35 65 45 75
Sum of all the diagonal elements of the matrix is 235
Process returned 0 (0x0)   execution time : 1.496 s
Press any key to continue.
```