

HAMZA YOĞURTCUOĞLU

```
1 //HW0 PART1 171044086
2 //KULLANICIDAN ALINAN AÇI DEĞERİ VE TERM SAYISINI SAYESİNDE SIN(X) DEĞERİNİ BULDURAN PROGRAM
3 #include<stdio.h>
4
5 int factorial(int);
6 int power(int,int);
7 double sin(double);
8
9 int main(){
10     double value;
11     printf("Enter a angle values in degree : "); //KULLANICIDAN AÇI DEĞERİ ALINIR.
12     scanf("%lf",&value);
13     printf("sin(%lf)= %lf\n",value,sin(value));
14 }
15
16 //TAYLOR SERİSİNİN PAYDA KISMI OLAN FAKTÖRİYELİ DÖNDÜREN FONKSİYON
17 int factorial(int n){
18     int temp=1; //EĞER GELEN PARAMETRE 1 VEYA 0 İSE 1,FARKLI İSE GEREKLİ FAKTÖRİYEL
19     if(n==0||n==1) //SONUCU DÖNDÜRÜR.
20         return 1;
21     else{
22         for(int i=n;i>1;i--){
23             temp*=i;
24         }
25         return temp;
26     }
27 }
28
29 //TAYLOR SERİSİNİN PAY KISMI OLAN ÜSTEL İFADEYİ DÖNDÜREN FONKSİYON
30 int power(int x,int n){
31     double temp;
32     temp=(double)(x/100000.0);
33     double c=1.0;
34     for(int i=0;i<n;i++){
35         c*=temp;
36     }
37     return (int)(c*100000);
38 }
39
40 //sinx değerini döndüren fonksiyon
41 double sin(double x){
42     int term,f;
43     double a,b,c=0.0,d=1.0;
44     double values=0;
45     printf("Enter a number of term : "); //KULLANICIDAN ALINAN DEĞERE GÖRE GERÇEK SINX DEĞERİNİ
46     scanf("%d",&term); //YAŞLATIRIR
47     for(int i=1;i<term;i=i+2){
48         a=factorial(i);
49         f=(int)(100000*3.14*x/180); //İSTENİLEN INT PARAMETRESİ İÇİN
50         b=power(f,i); //100000 İLE CARPILIR VE TYPE CAST EDİLİR.
51         c=(double)(b/100000.0);
52         c*=b/a*d;
53         d*=-1.0;
54     }
55     return c;
56 }
57 }
```

```
hamza@hamza-CASPER-NIRVANA-NOTEBOOK: ~/Masaüstü
hamza@hamza-CASPER-NIRVANA-NOTEBOOK:~/Masaüstü$ ./exe
Enter a angle values in degree : 30
Enter a number of term : 5
sin(30.000000)= 0.499758
hamza@hamza-CASPER-NIRVANA-NOTEBOOK:~/Masaüstü$ ./exe
Enter a angle values in degree : 31
Enter a number of term : 4
sin(31.000000)= 0.514798
hamza@hamza-CASPER-NIRVANA-NOTEBOOK:~/Masaüstü$ ./exe
Enter a angle values in degree : 32
Enter a number of term : 3
sin(32.000000)= 0.529682
hamza@hamza-CASPER-NIRVANA-NOTEBOOK:~/Masaüstü$ ./exe
Enter a angle values in degree : 33
Enter a number of term : 6
sin(33.000000)= 0.544379
hamza@hamza-CASPER-NIRVANA-NOTEBOOK:~/Masaüstü$ ./exe
Enter a angle values in degree : 34
Enter a number of term : 2
sin(34.000000)= 0.558337
hamza@hamza-CASPER-NIRVANA-NOTEBOOK:~/Masaüstü$ ./exe
Enter a angle values in degree : 35
Enter a number of term : 5
sin(35.000000)= 0.573319
hamza@hamza-CASPER-NIRVANA-NOTEBOOK:~/Masaüstü$
```