CSE4001 Parallel and Distributed Computing

Digital Assignment-6 (ELA)

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School of Computer Science and Engineering

Course Code: CSE4001

Slot: L11+L12

Winter Semester 2021-22

Professor: Narayanamoorthi M

1. Write a c program using OpenMP or MPI

(1)Sum= 1 + 1/x + 1/ x2 + 1/x3 + 1/x4 + -----------------------
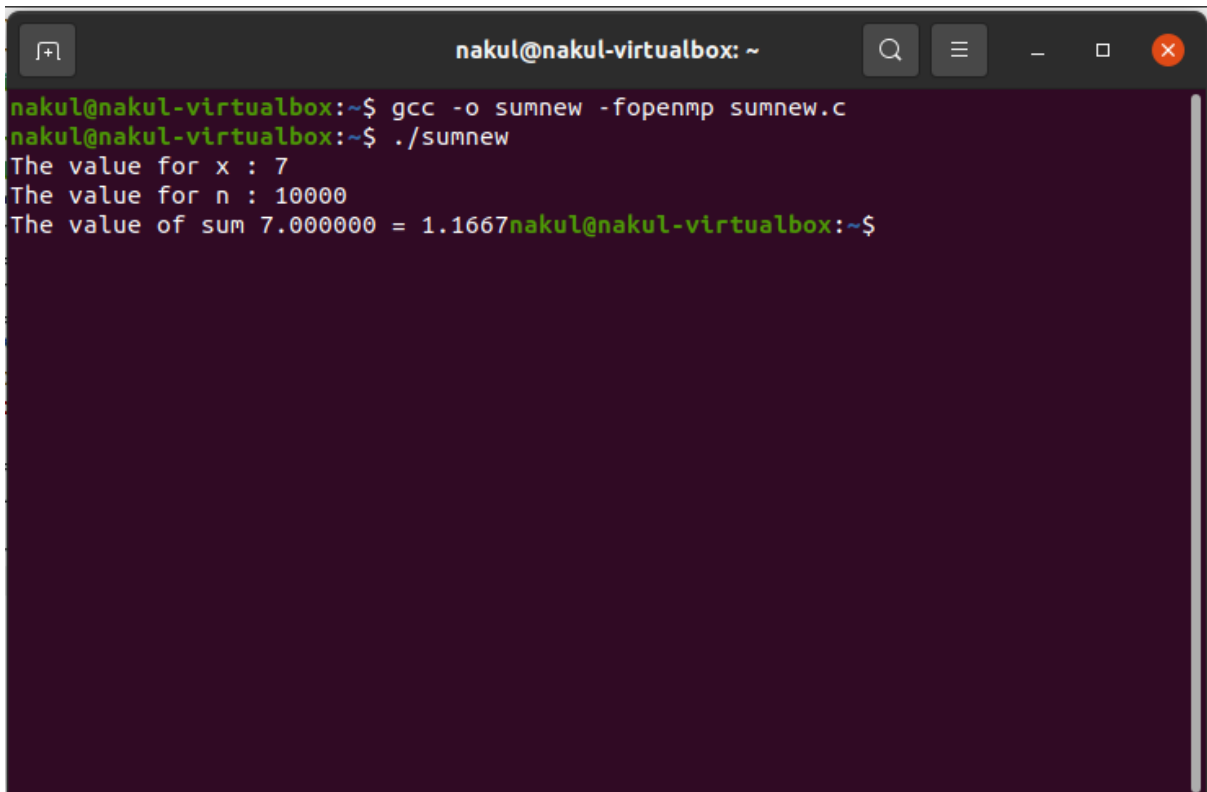**-**

CODE:

```c
#include<stdio.h>
#include<conio.h>
#include<omp.h>
void main()
{
 int i, n;
 float x, sum=1, t=1;
 omp_set_num_threads(5);
 printf("The value for x : 7");
 x=7;
 printf("\nThe value for n : 10000");
 n=10000;
 /* Loop to calculate the value of Exponential */
 #pragma omp parallel for
 for(i=1;i<=n;i++)
 {
```
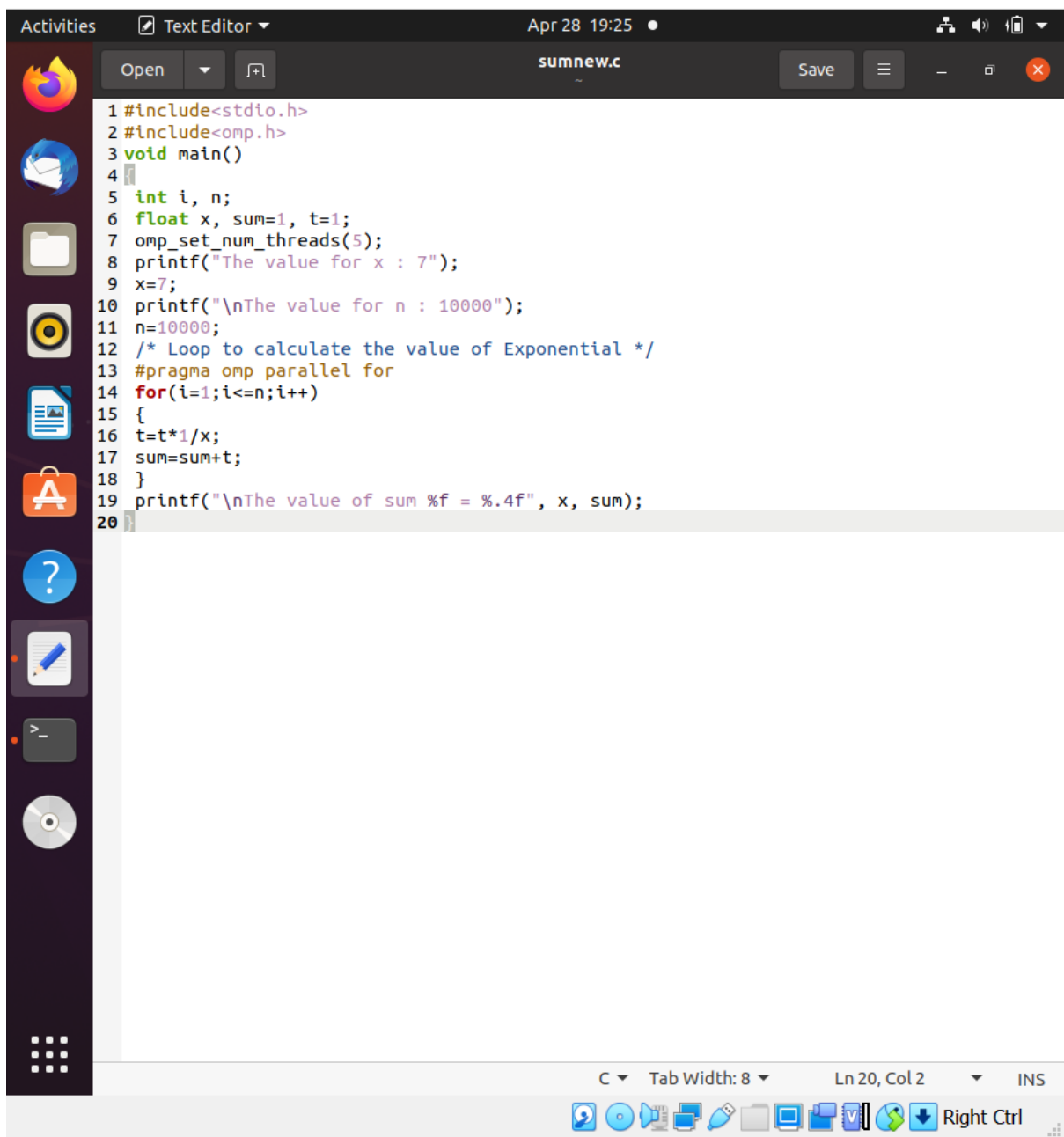
t=t*1/x;

sum=sum+t;

}

printf("\nThe value of sum %f = %.4f", x, sum);

SCREENSHOT OF THE OUTPUT:

sumnew.c

```c
1 #include<stdio.h>
2 #include<omp.h>
3 void main()
4 {
5  int i, n;
6  float x, sum=1, t=1;
7  omp_set_num_threads(5);
8  printf("The value for x : 7");
9  x=7;
10  printf("\nThe value for n : 10000");
11  n=10000;
12  /* Loop to calculate the value of Exponential */
13  #pragma omp parallel for
14  for(i=1;i<=n;i++)
15  {
16  t=t*1/x;
17  sum=sum+t;
18  }
19  printf("\nThe value of sum %f = %.4f", x, sum);
20 }
```

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sumnew.c

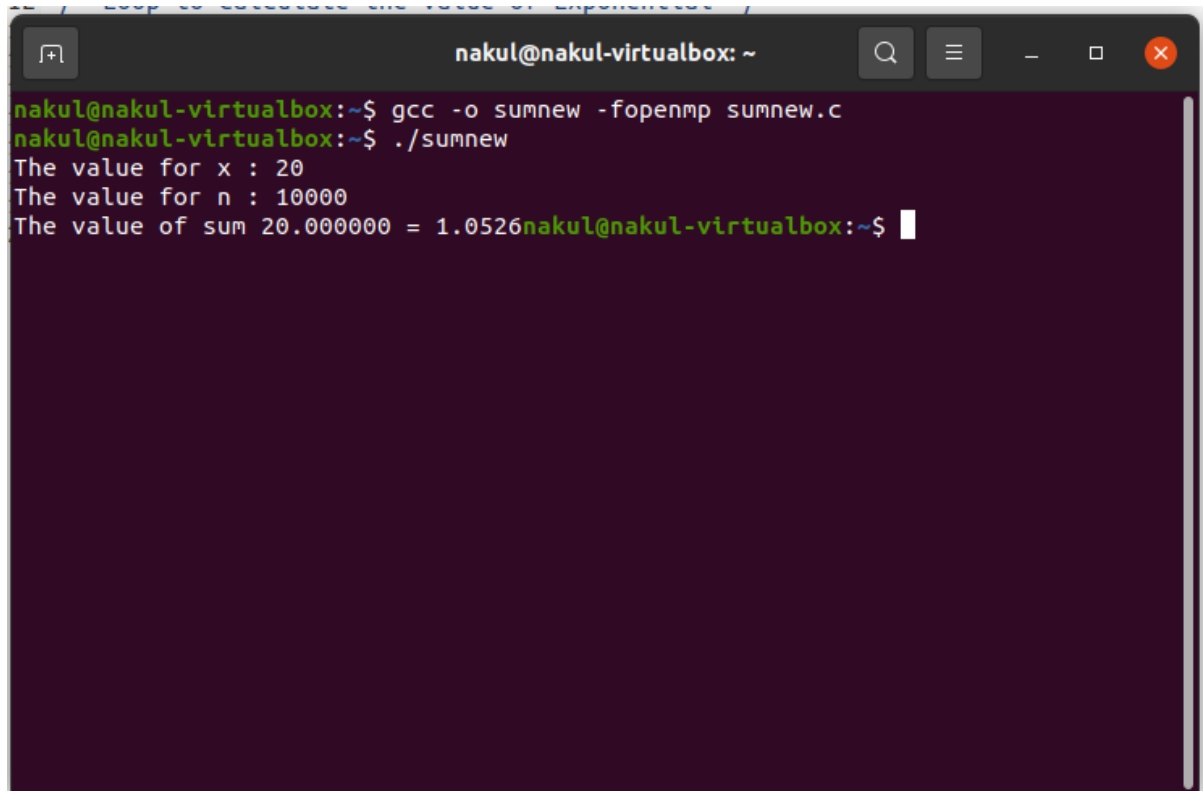Open   sumnew.c   Save

```c
1  #include<stdio.h>
2  #include<omp.h>
3  void main()
4  {
5  int i, n;
6  float x, sum=1, t=1;
7  omp_set_num_threads(5);
8  printf("The value for x : 7");
9  x=7;
10 printf("\nThe value for n : 10000");
11 n=10000;
12 /* Loop to calculate the value of Exponential */
13 #pragma omp parallel for
14 for(i=1;i<=n;i++)
15 {
16 t=t*1/x;
17 sum=sum+t;
18 }
19 printf("\nThe value of sum %f = %.4f", x, sum);
20
```
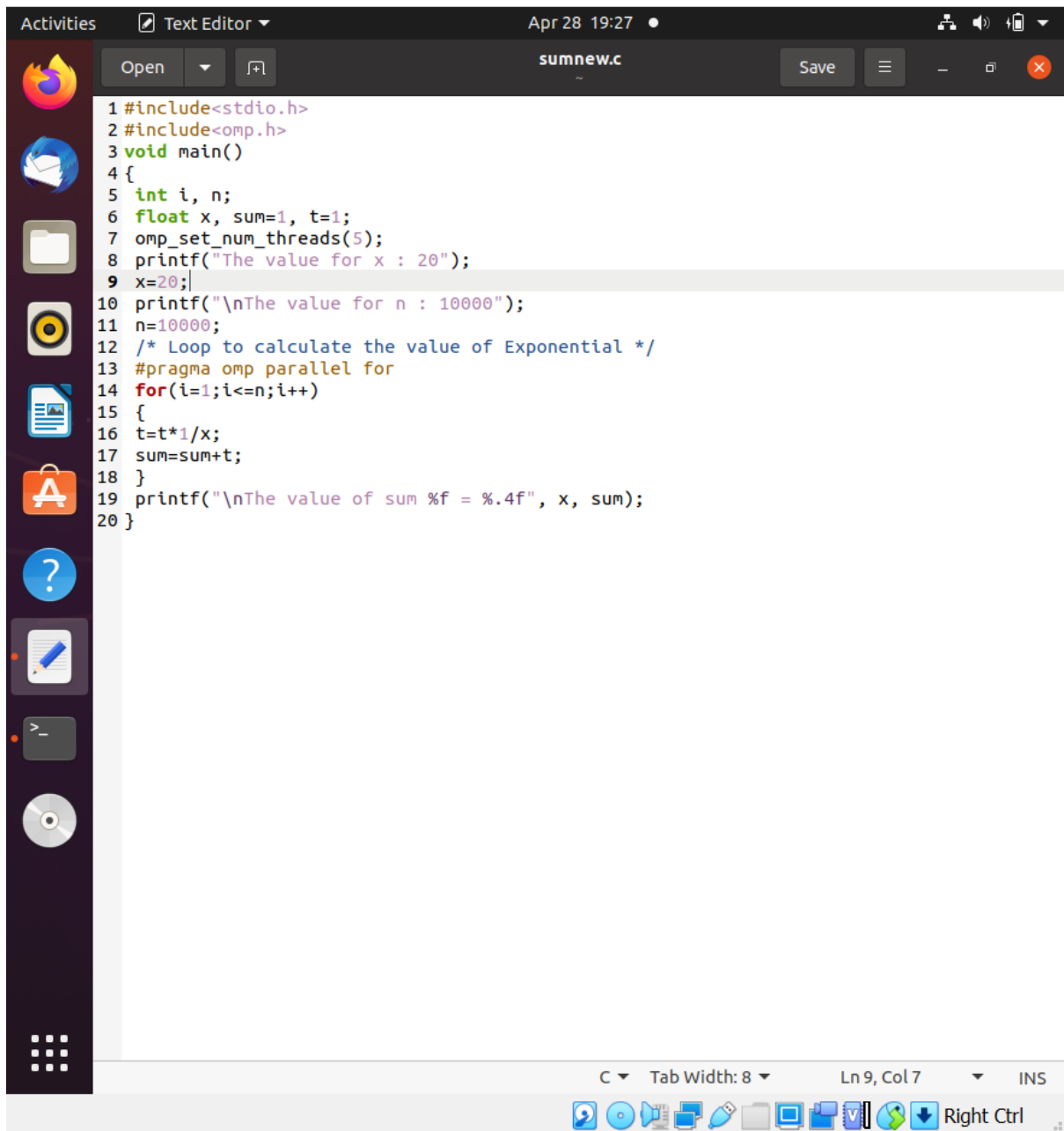
nakul@nakul-virtualbox: ~

```
nakul@nakul-virtualbox:~$ gcc -o sumnew -fopenmp sumnew.c
nakul@nakul-virtualbox:~$ ./sumnew
The value for x : 7
The value for n : 10000
The value of sum 7.000000 = 1.1667nakul@nakul-virtualbox:~$ S
```

INS

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OUTPUT 2: (x=20, n=10,000)

SCREENSHOT OF THE OUTPUT:

```c
#include<stdio.h>
#include<omp.h>
void main()
{
 int i, n;
 float x, sum=1, t=1;
 omp_set_num_threads(5);
 printf("The value for x : 20");
 x=20;
 printf("\nThe value for n : 10000");
 n=10000;
 /* Loop to calculate the value of Exponential */
 #pragma omp parallel for
 for(i=1;i<=n;i++)
 {
 t=t*1/x;
 sum=sum+t;
 }
 printf("\nThe value of sum %f = %.4f", x, sum);
}
```

sumnew.c

```c
#include<stdio.h>
#include<omp.h>
void main()
{
int i, n;
float x, sum=1, t=1;
omp_set_num_threads(5);
printf("The value for x : 20");
x=20;
printf("\nThe value for n : 10000");
n=10000;
/* Loop to calculate the value of Exponential */
#pragma omp parallel for
for(i=1;i<=n;i++)
{
t=t*1/x;
sum=sum+t;
}
printf("\nThe value of sum %f = %.4f", x, sum);
}
```

```
nakul@nakul-virtualbox:~$ gcc -o sumnew -fopenmp sumnew.c
nakul@nakul-virtualbox:~$ ./sumnew
The value for x : 20
The value for n : 10000
The value of sum 20.000000 = 1.0526nakul@nakul-virtualbox:~$
```
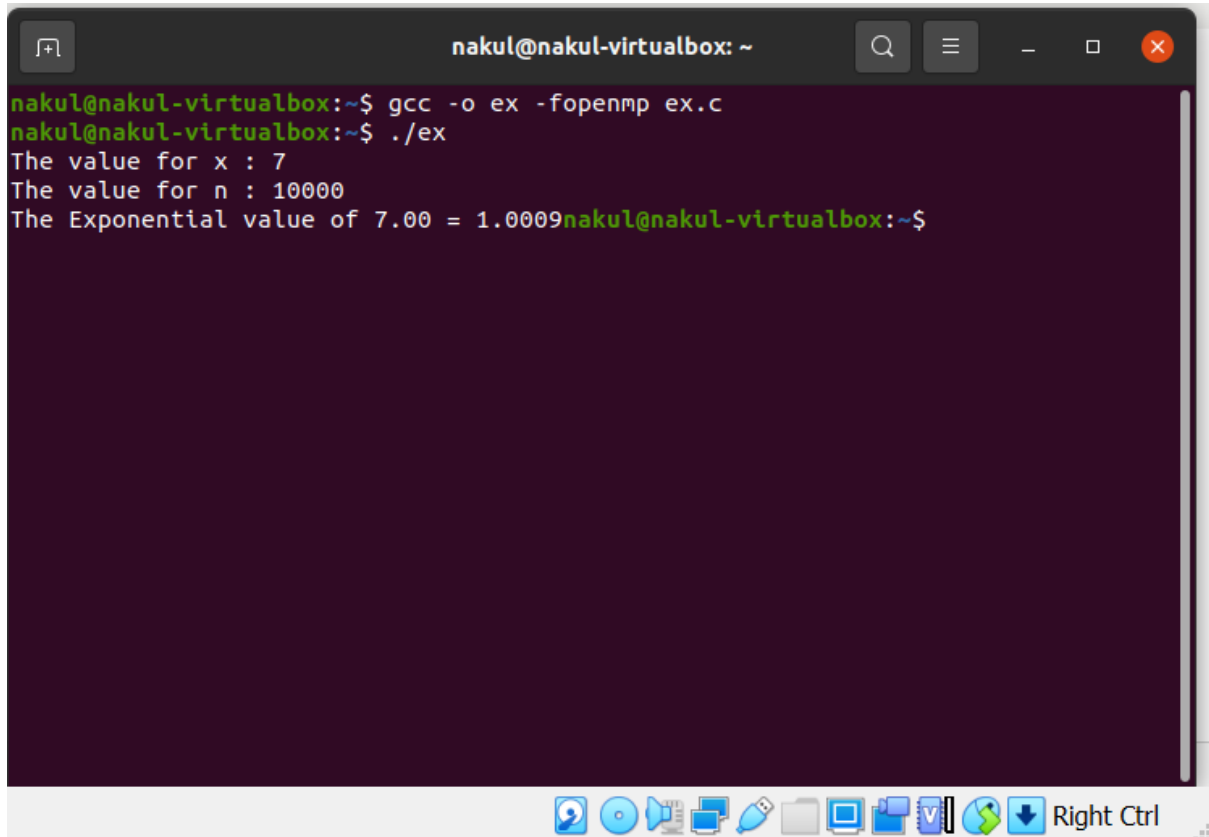
(2) E (x) = 1 + x1 / 1! + x 2 /2! + ------------------------------

Code:

```c
#include<stdio.h>
#include<omp.h>
int main()
{
 int i, n;
 float x, sum=1, t=1;
 omp_set_num_threads(5);
 printf("The value for x : 7");
 x=7;
 printf("\nThe value for n : 10000");
 n=10000;
 #pragma omp parallel for
 for(i=1;i<=n;i++)
 {
t=t*x/i;
sum=sum+t;
 }
 printf("\nThe Exponential value of %0.2f = %.4f", x, sum);
}
```

SCREENSHOT OF THE OUTPUT:


```
nakul@nakul-virtualbox:~$ gcc -o ex -fopenmp ex.c
nakul@nakul-virtualbox:~$ ./ex
The value for x : 7
The value for n : 10000
The Exponential value of 7.00 = 1.0009nakul@nakul-virtualbox:~$
```

File   Machine   View   Input   Devices   Help

Activities   Terminal ▼   Apr 28 19:29 ●

Open   ▼   ⊞   **ex.c**   Save   ≡   _   ⊡   ✕
                                 ~

```
1 #include<stdio.h>
2 #include<omp.h>
3 int main()
4 {
5 int i, n;
6 float x, sum=1, t=1;
7 omp_set_num_threads(5);
8 printf("The value for x : 7");
9 x=7;
10 printf("\nThe value for n : 10000");
11 n=10000;
12 #pragma omp parallel for
13 for(i=1;i<=n;i++)
14 {
15 t=t*x/i;
16 sum=sum+t;
17 }
18 printf("\nThe Exponential value of %0.2f = %.4f", x, sum);
19 }
20
```

⊞   **nakul@nakul-virtualbox: ~**   🔍 ≡   _   ◻   ✕
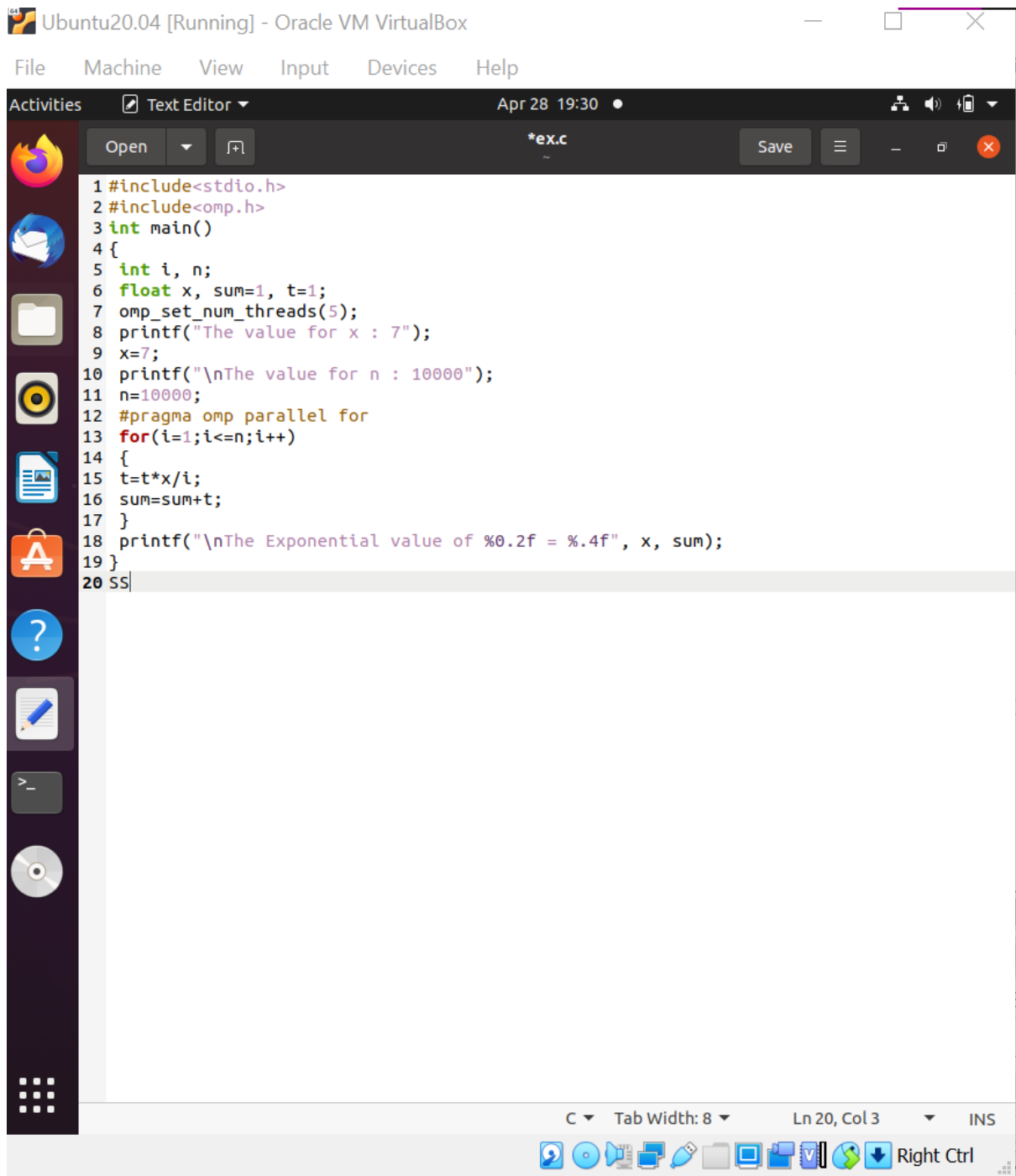
```
nakul@nakul-virtualbox:~$ gcc -o ex -fopenmp ex.c
nakul@nakul-virtualbox:~$ ./ex
The value for x : 7
The value for n : 10000
The Exponential value of 7.00 = 1.0009nakul@nakul-virtualbox:~$
```

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*ex.c

Open ▾ ⊞   Save   ≡
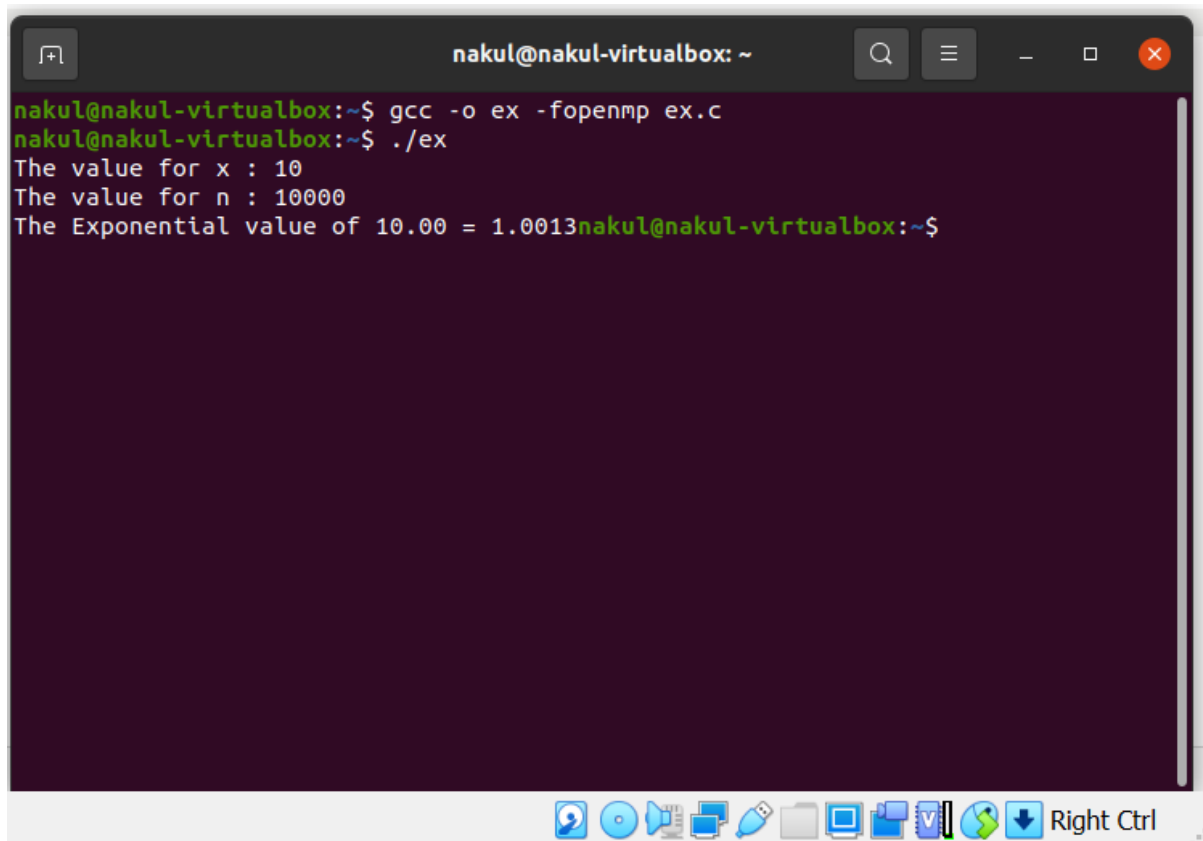
```c
1  #include<stdio.h>
2  #include<omp.h>
3  int main()
4  {
5   int i, n;
6   float x, sum=1, t=1;
7   omp_set_num_threads(5);
8   printf("The value for x : 7");
9   x=7;
10  printf("\nThe value for n : 10000");
11  n=10000;
12  #pragma omp parallel for
13  for(i=1;i<=n;i++)
14  {
15  t=t*x/i;
16  sum=sum+t;
17  }
18  printf("\nThe Exponential value of %0.2f = %.4f", x, sum);
19  }
20  SS
```

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OUTPUT 2: (x=10,n=10,000)

SCREENSHOT OF THE OUTPUT:

File   Machine   View   Input   Devices   Help

Activities   Terminal ▾   Apr 28 19:33 ●

Open   **ex.c**   Save

```c
1 #include<stdio.h>
2 #include<omp.h>
3 int main()
4 {
5 int i, n;
6 float x, sum=1, t=1;
7 omp_set_num_threads(5);
8 printf("The value for x : 10");
9 x=10;
10 printf("\nThe value for n : 10000");
11 n=10000;
12 #pragma omp parallel for
13 for(i=1;i<=n;i++)
14 {
15 t=t*x/i;
16 sum=sum+t;
17 }
18 printf("\nThe Exponential value of %0.2f = %.4f", x, sum);
19 }
20
```

nakul@nakul-virtualbox: ~

```
nakul@nakul-virtualbox:~$ gcc -o ex -fopenmp ex.c
nakul@nakul-virtualbox:~$ ./ex
The value for x : 10
The value for n : 10000
The Exponential value of 10.00 = 1.0013nakul@nakul-virtualbox:~$
```

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Open ▾ ⊞   **ex.c**   Save ≡ — ▢ ✕
                              ~

```c
#include<stdio.h>
#include<omp.h>
int main()
{
 int i, n;
 float x, sum=1, t=1;
 omp_set_num_threads(5);
 printf("The value for x : 10");
 x=10;
 printf("\nThe value for n : 10000");
 n=10000;
 #pragma omp parallel for
 for(i=1;i<=n;i++)
 {
 t=t*x/i;
 sum=sum+t;
 }
 printf("\nThe Exponential value of %0.2f = %.4f", x, sum);
}
```

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THE END