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Term work

on

OOPs with C++

(PCS 307)

2021-22

Submitted to:

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DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

GRAPHIC ERA HILL UNIVERSITY, DEHRADUN

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At last but not the least I greatly indebted to all other persons who directly or indirectly helped me during this course.

Vaibhav Kumar Kapriyal

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University. Roll No.- 2018837

B. Tech CSE-A-III Sem

Session: 2021-22

GEHU, Dehradun

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7	Write C++ code for below mentioned tasks? **Array and 2D Array related Questions in C++:** **Task1:** Create a switch statement [Manual], In Which: a. When you pass 1 your program would print current year b. When you pass 2 your program would print current month c. When you pass 3 your program would print current day d. When you pass 4 your program would print Not applicable **Task2:** Create a switch statement [Using ctime], In Which: a. When you pass 1 your program would print current year b. When you pass 2 your program would print current month c. When you pass 3 your program would print current day d. When you pass 4 your program would print Not applicable **Task3:** v1. Print using reverse method: 1 2 3 9 8 7 4 5 6 ==> 6 5 4 7 8 9 3 2 1 v2. Print using (10- arr[i][j]) method: 1 2 3 9 8 7 4 5 6 ==> 6 5 4 7 8 9 3 2 1 v3. Restore using reverse method [without creating new array]: 1 2 3 9 8 7 4 5 6 ==> 6 5 4	42

7 8 9 3 2 1

v4. Restore using (10- arr[i][j]) method [without creating new array]:

1 2 3 9 8 7
4 5 6 ==> 6 5 4
7 8 9 3 2 1

Task4: Restore the same values in the same array, arr[3][3]:

1 2 3 1 1 1
4 5 6 ==> 2 2 2
7 8 9 3 3 3

v1. Use row loop [int i, for all j]

v2. Use arr[i][N-1]/3, at each place

v3. Use, arr[i][j]-(2*i+j)

Task5: Store these in an array[4][4] in given fassion and then print:

```
*
* *
* * *
* * * *
```

Task6: Store these in an array[4][4] in given fashion and then print:

```
* * * *
* * *
* *
*
```

Task7: Store these in an array[4][4] in given fashion and then print:

```
   *
  * *
 * * *
* * * *
```

Task8: Store these in an array[4][4] in given fashion and then print:

	* * * * * * * * * *	

8	Write C++ code for below mentioned tasks?
	Pointer, Function, Inline Function, Recursion in C++:
	Task1: Will the program through an error and if yes then why?
	int *p = {10,20,20};
	cout << *p;
	p++;
	cout << *p;
	Task2: Output of this program?
	V1. Issue?
	int arr[] = {10,20,30};
	cout << *arr;
	cout << arr;
	arr++;
	cout << *arr;
	V2. How to resolve above issue?
	int arr[] = {10,20,30};
	cout << *arr;
	cout << arr;
	cout << *(?);
	
	Task3: Output of this program?
	V1. Output?
	int a = 10;
	int *p;
	int **q;
	p = &a;
	q = &p;
	cou << *p;
	cou << **q;
		67

	V2. Change the value of a using q pointer to pointer.
	
	Task4: Find factorial of a number using function but not recurssion
	Task5: Find factorial of a number using recurssion
	Task6: Series Problem using recurssion for n series
	2, (2^2 + 2), (3^3 + 3), (4^4 + 4), (5^5 + 5), ...
	Hint:
	n * ((n-1)^(n-1) + (n-1))
	
	Task7: Perform Call by value, call by Address for swapping value of a and b:
	int a = 10;
	int b = 20;
	V1. Swap(a,b); //call by Value [void swap(int a, int b){}]
	V2. Swap(a,b); //call by Value [void swap(int &a, int &b){}]
	V3. Swap(&a,&b); //call by Address	

9	Write C++ code for below mentioned tasks? **Class, Object, Constructor, Static Data Members, friend function in C++:** **Task1: Class and Object in C++** a. WAP to assign and print the roll number, phone number and address of two students having names "Sam" and "John" respectively by creating two objects of the class 'Student'. b. WAP which would contain array of objects [many objects], of a class Student. Student [Name, Age, Year, section, marks], the section would be A,B,C and D. Your program would be able to return the total marks of students in the college. Hint [Make a Matrix or Tabular diagram to understand the problem], all the rows will differ each other by different objects of Student class [Student s1,s2,s3,s4]. **Task2: Constructor in C++** WAP to create a class to print the area of a square and a rectangle. The class has two functions with the same name but different number of parameters. The function for printing the area of rectangle has two parameters which are its length and breadth respectively while the other function for printing the area of square has one parameter which is the side of the square. Use multiple constructors to for the initialization.	84

	Task3: Static Data Members in C++ WAP to count the total number of calls for a member function from more than one objects. [Lets say, from 3 such Objects] **Task4: Friend Function in C++** WAP in which you create a Student class having basic information for each student, like name, age and marks. By using friend function add marks of all the students [lets say 3 objects] and print it. **Task5: Structure in C++** WAP to create a College class and Student Structure in C++ in one program. By providing such suitable examples write at least 5 differences between class and struct code your have written above. Hint [Access Specifiers, Heap and Stack, large and small memory, etc.] **Task6: Extra Questions:** WAP which would perform these tasks of your data: a. Come to next line b. set minimum field width c. fill string with (*) after setw(15) function **********1234 by using endl, setw, and setfill [Manipulators in C++]	
10	Write C++ code for below mentioned tasks? **Array of Objects, Pointer to Object, This pointer, Operator Overloading in C++** **Task1: Array of Objects in C++** WAP to create a directory that contains the following information. (a) Name of a person (b) Address (c) Telephone Number (if available with STD code) (d) Mobile Number (if available) (e) Head of the family **Task2: Pointer to Object in C++** WAP to create print or display Student information containing in Student class by using pointers to object. **Task3: This pointer in C++** WAP to pass two variables in a parameterized constructor during object creation and have same names variables as class member data and constructor parameters. Your job is to calculate the remainder of those two numbers. **Task4: Operator Overloading in C++** a). WAP, in which you write a friend function to overload a less than '<' operator in C++. b). WAP in which you can add two objects [every object would have 1 integer value] by overloading + operator, which eventually would add the data values of those two object by adding the objects.	97

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DEPARTMENT OF CSE

B.Tech. CSE

STUDENT LAB REPORT SHEET

Photograph
Passport Size

Name of Student ……Mob.No…….

Address Permanent ……..

Father's Name ……Occupation ……MoNo……..……

Mother's Name …… …..Occupation……MoNo……..

Section ……Branch……Semester……..Class Roll No…….. Grade A B C

Local Address……Email…… Marks 5 3 1

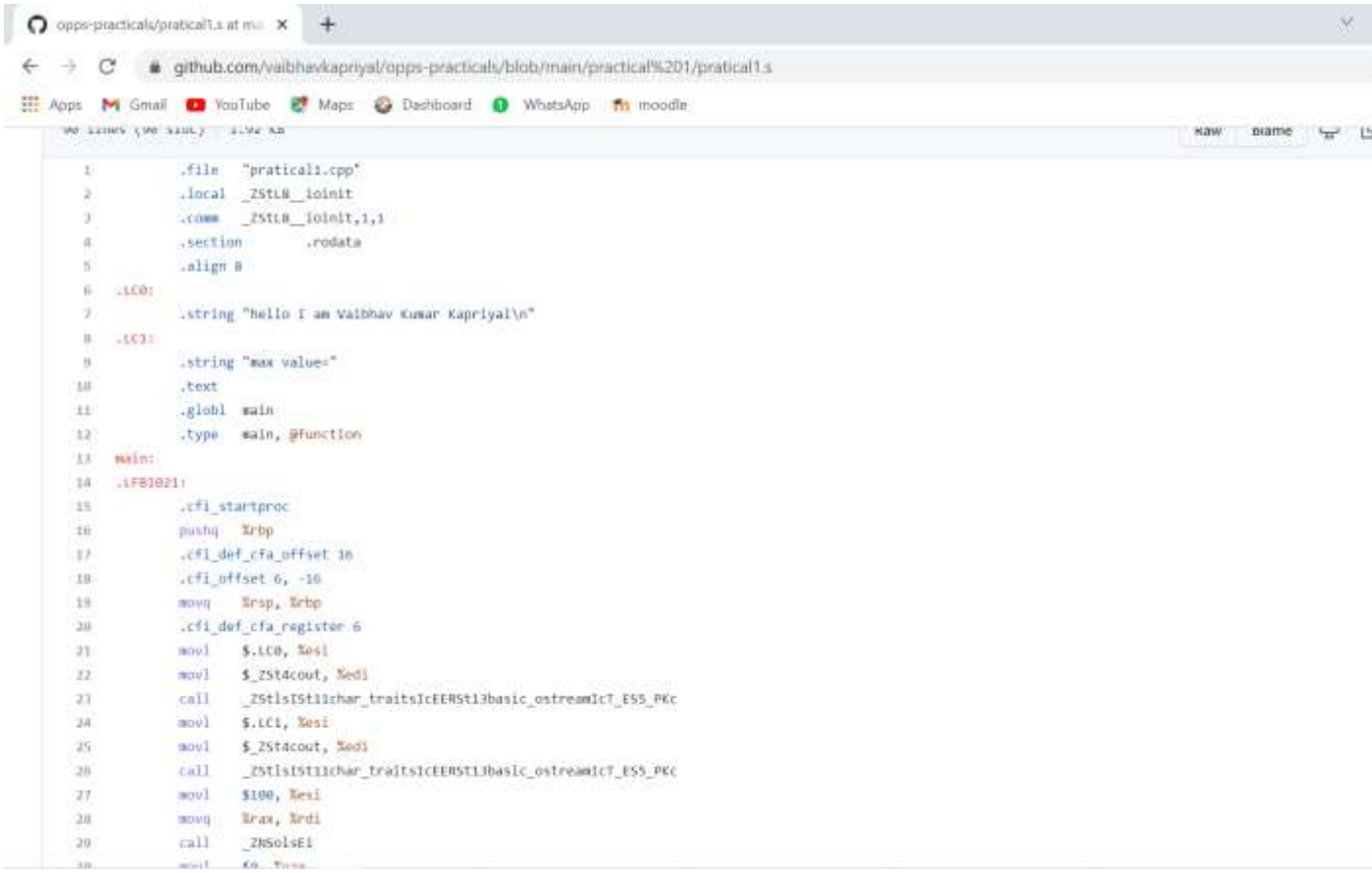
S.No.	Practical	D.O.P.	Date of Submission	Grade (Viva)	Grade (Report File)	Total Marks (out of 10)	Student's Signature	Teacher's Signature
1	Practical-01							
2	Practical-02							
3	Practical-03							
4	Practical-04							
5	Practical-05							
6	Practical-06							
7	Practical-07							
8	Practical-08							
9	Practical-09							
10	Practical-10							
11								
12								

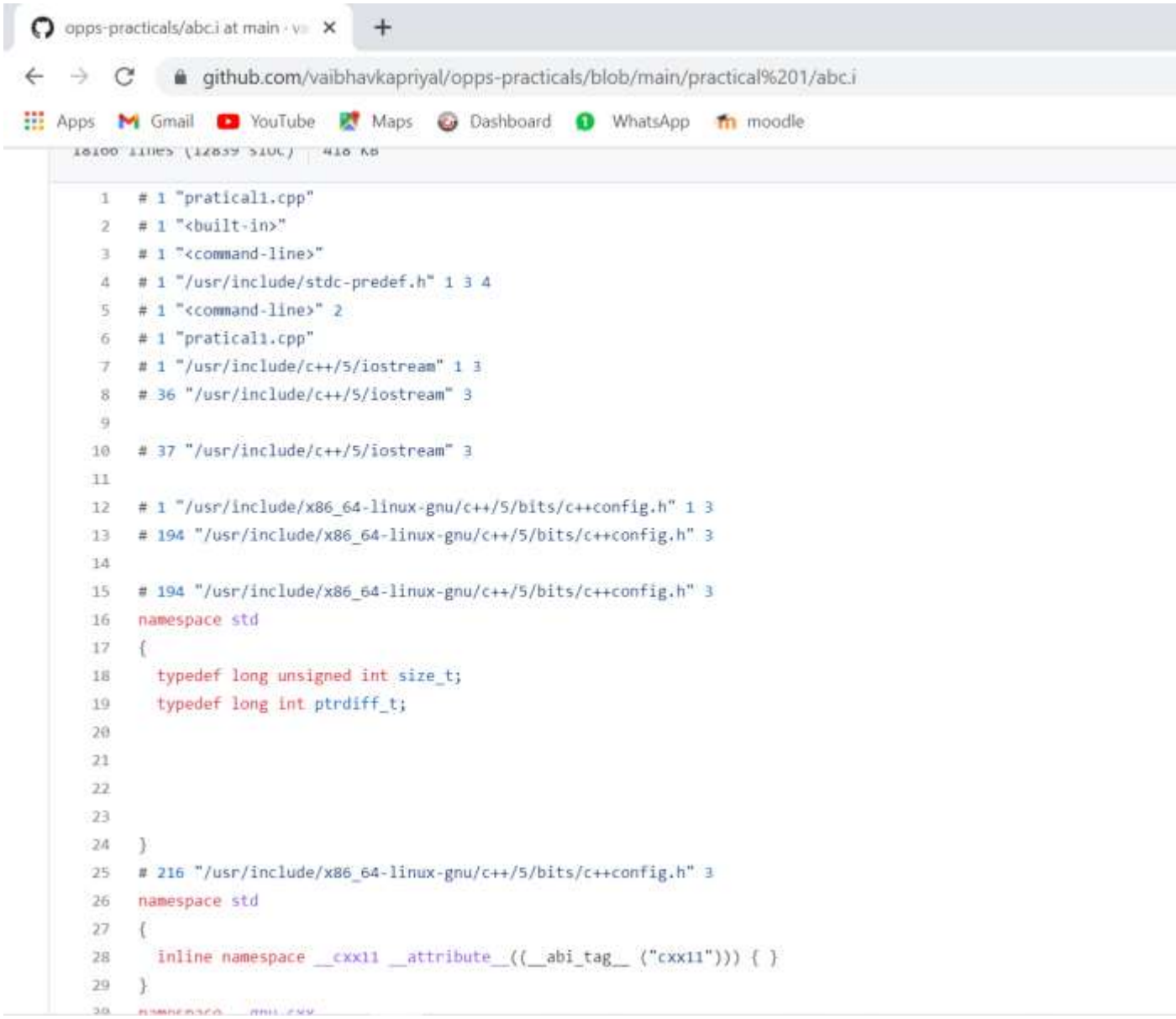
Practical 1

Source Code:

```
#include
<iostream>
            using namespace std;
            #define MAX 100;
            int main()
            {
                    cout<<"hello I am Vaibhav Kumar Kapriyal\n";
                    cout<<"max value="<<MAX;
                    return 0;
            }
```

Output




opps-practicals/abc.i at main
github.com/vaibhavkapriyal/opps-practicals/blob/main/practical%201/abc.i
Apps
Gmail
YouTube
Maps
Dashboard
WhatsApp
moodle
18100 lines (12839 sloc) 418 KB
1 # 1 "pratical1.cpp"
2 # 1 "<built-in>"
3 # 1 "<command-line>"
4 # 1 "/usr/include/stdc-predef.h" 1 3 4
5 # 1 "<command-line>" 2
6 # 1 "pratical1.cpp"
7 # 1 "/usr/include/c++/5/iostream" 1 3
8 # 36 "/usr/include/c++/5/iostream" 3
9
10 # 37 "/usr/include/c++/5/iostream" 3
11
12 # 1 "/usr/include/x86_64-linux-gnu/c++/5/bits/c++config.h" 1 3
13 # 194 "/usr/include/x86_64-linux-gnu/c++/5/bits/c++config.h" 3
14
15 # 194 "/usr/include/x86_64-linux-gnu/c++/5/bits/c++config.h" 3
16 namespace std
17 {
18 typedef long unsigned int size_t;
19 typedef long int ptrdiff_t;
20
21
22
23
24 }
25 # 216 "/usr/include/x86_64-linux-gnu/c++/5/bits/c++config.h" 3
26 namespace std
27 {
28 inline namespace __cxx11 __attribute__((__abi_tag__ ("cxx11"))) { }
29 }

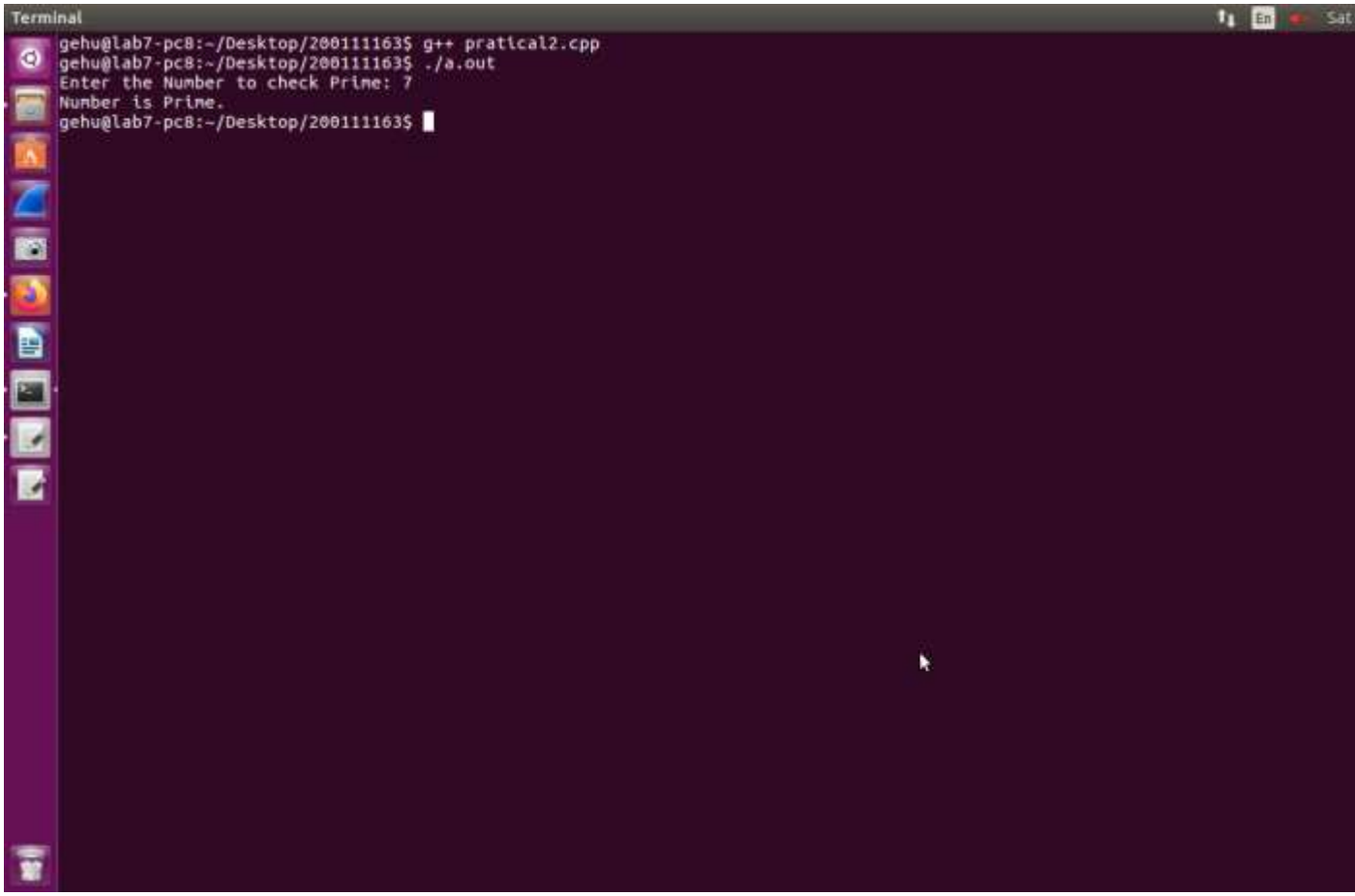

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop]
$ g++ t4_1.cpp
(sammei㉿kali)-[~/Desktop]
$ ./a.out
hello I am Vaibhav Kumar Kapriyal
max value=100
(sammei㉿kali)-[~/Desktop]
$

Practical 2

Source Code:

```
#include
<iostream>
                using namespace std;
                int main()
                {
                  int n, i, m=0, flag=0;
                  cout << "Enter the Number to check Prime: ";
                  cin >> n;
                  m=n/2;
                  for(i = 2; i <= m; i++)
                  {
                      if(n % i == 0)
                      {
                          cout<<"Number is not Prime."<<endl;
                          flag=1;
                          break;
                      }
                  }
                  if (flag==0)
                      cout << "Number is Prime."<<endl;
                  return 0;
                }
```

Output


Terminal
gehu@lab7-pc8:~/Desktop/200111163$ g++ pratical2.cpp
gehu@lab7-pc8:~/Desktop/200111163$ ./a.out
Enter the Number to check Prime: 7
Number is Prime.
gehu@lab7-pc8:~/Desktop/200111163$

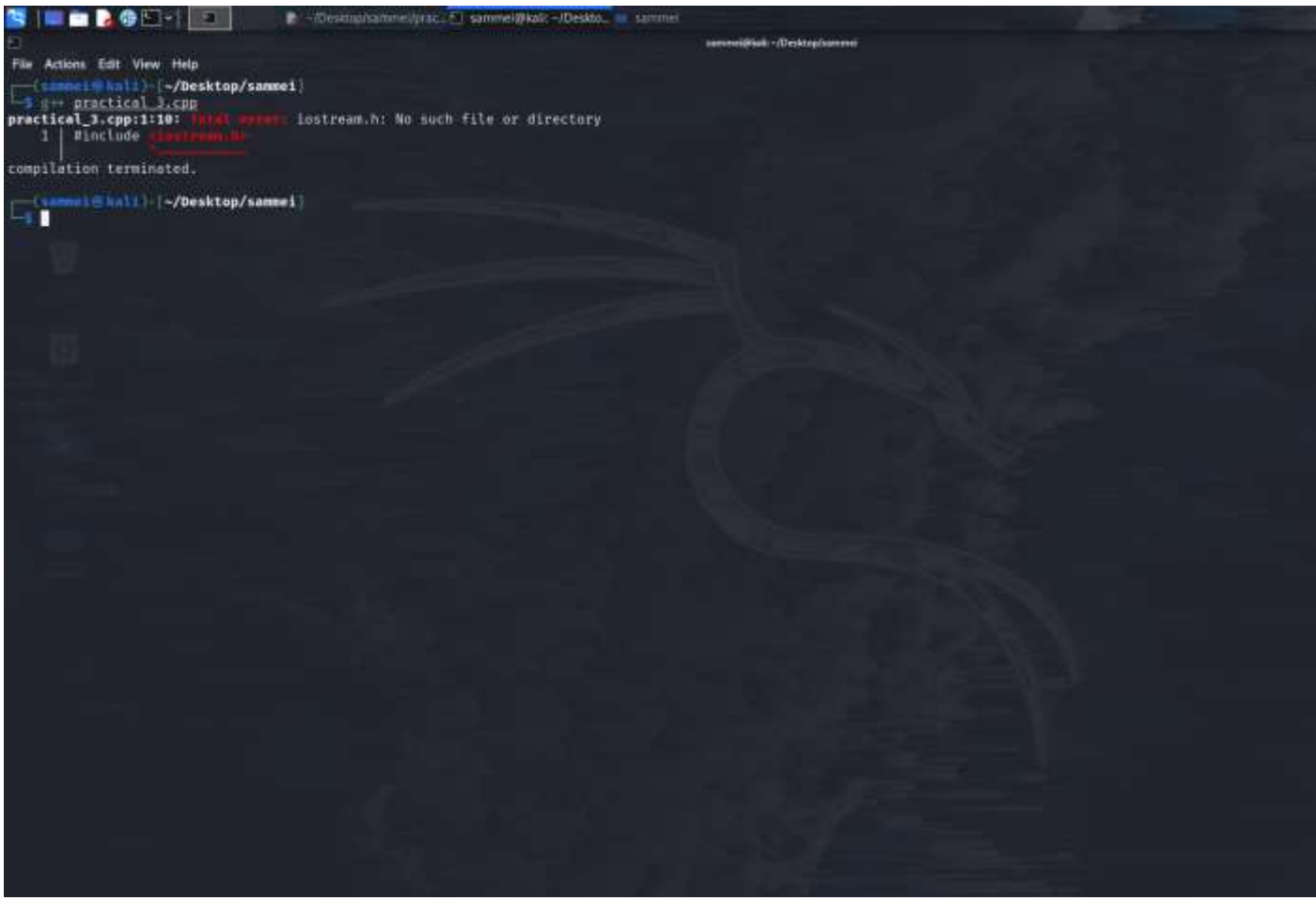
Practical 3

Task 1

Source Code:

```
#include
<iostream.h>

                using namespace std;
                int main
                {
                        int a=60;
                        cout<<"Vaibhav Kumar Kapriyal Roll no.-"<<a<<"\n";
                        return 0;
                }
```

Output



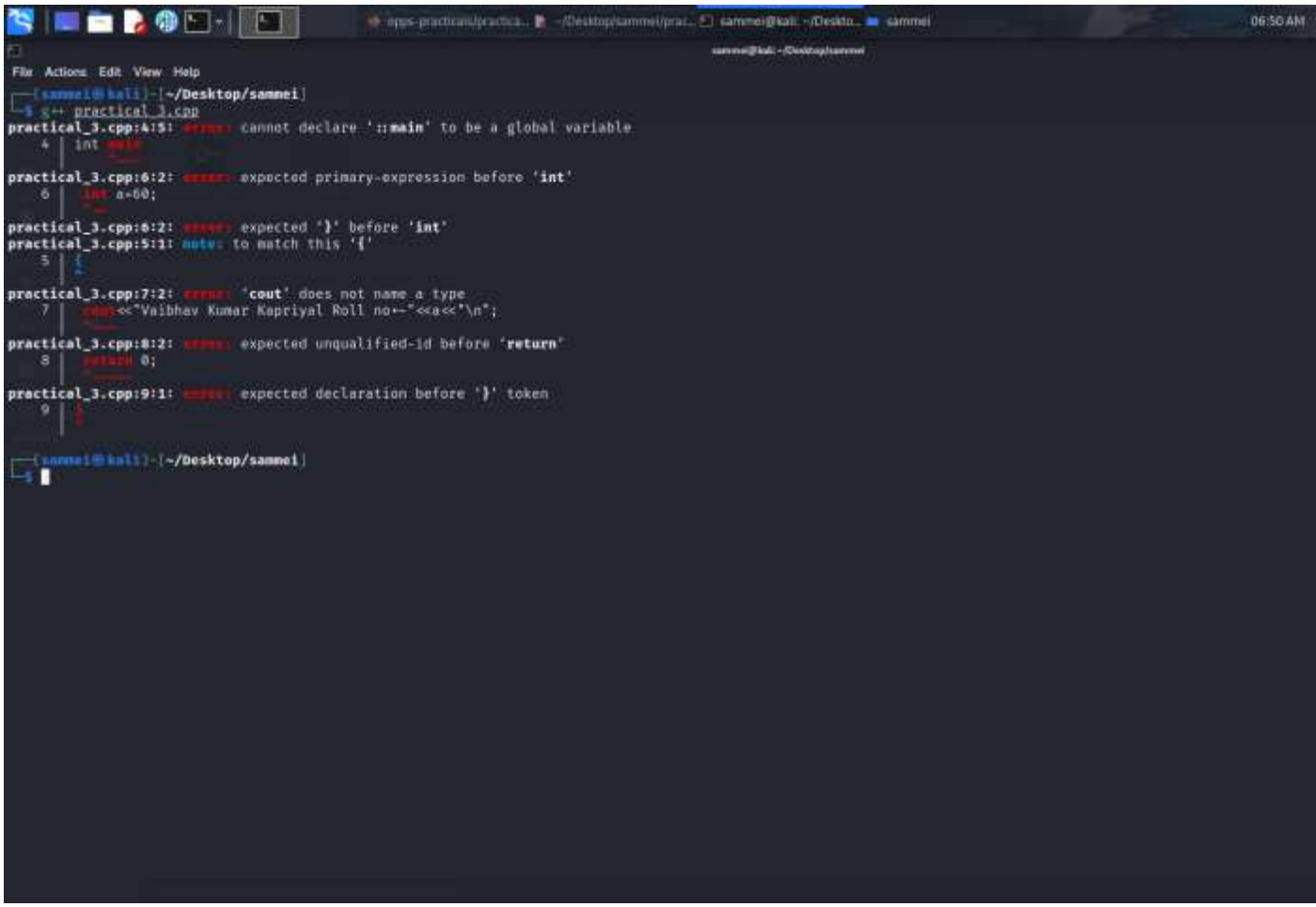
Practical 3

Task 2

Source Code:

```
//#include
<iostream.h>

                using namespace std;
                int main
                {
                        int a=60;
                        cout<<"Vaibhav Kumar Kapriyal Roll no.-"<<a<<"\n";
                        return 0;
                }
```

Output



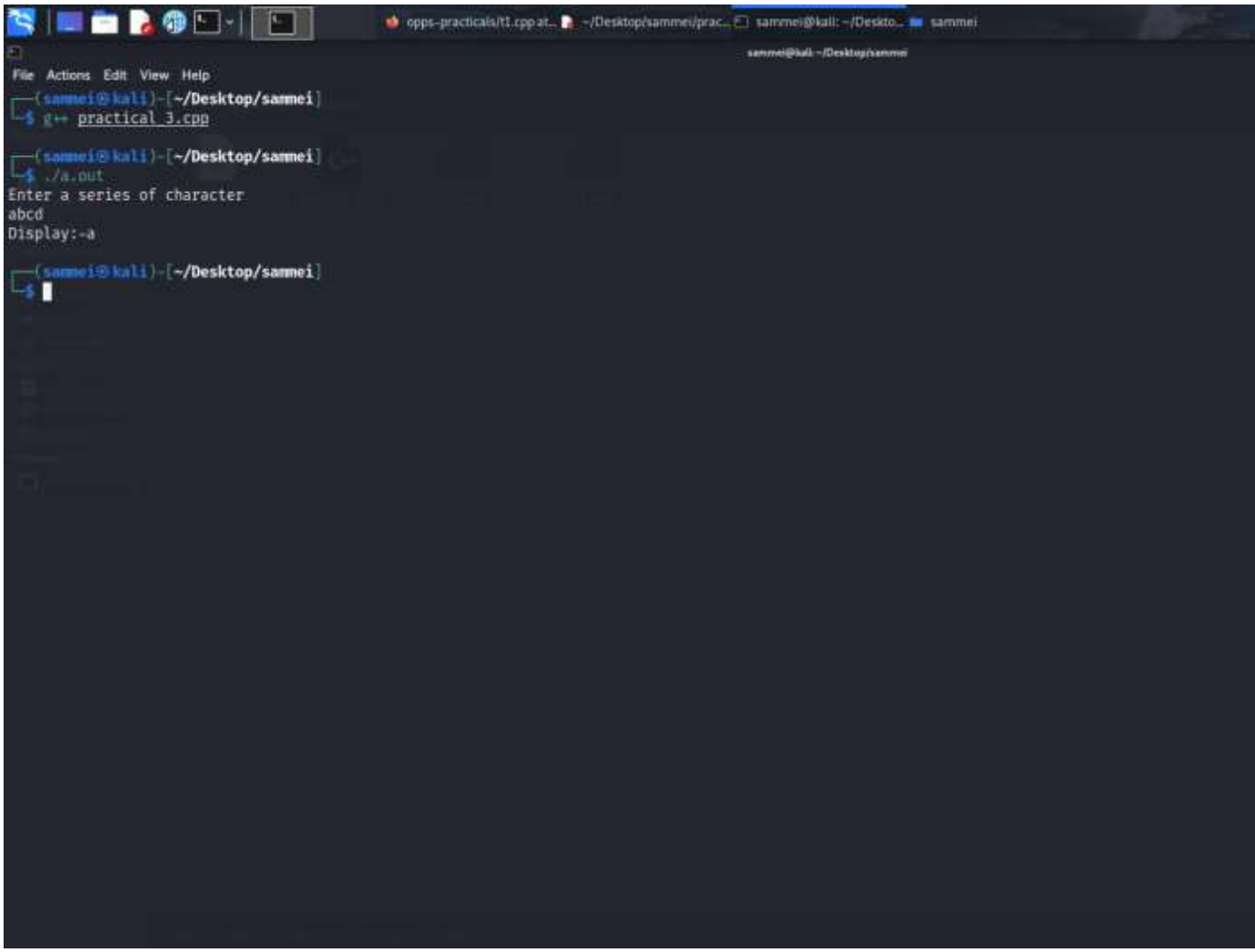
Practical 3

Task 3

Source Code:

```
#include
<iostream>

            using namespace std;

            int main()
            {
                    char c;
                    cout<<"Enter a series of character\n";
                    cin>>c;
                    cout<<"Display:-"<<c<<"\n";
                    return 0;
            }
```

Output



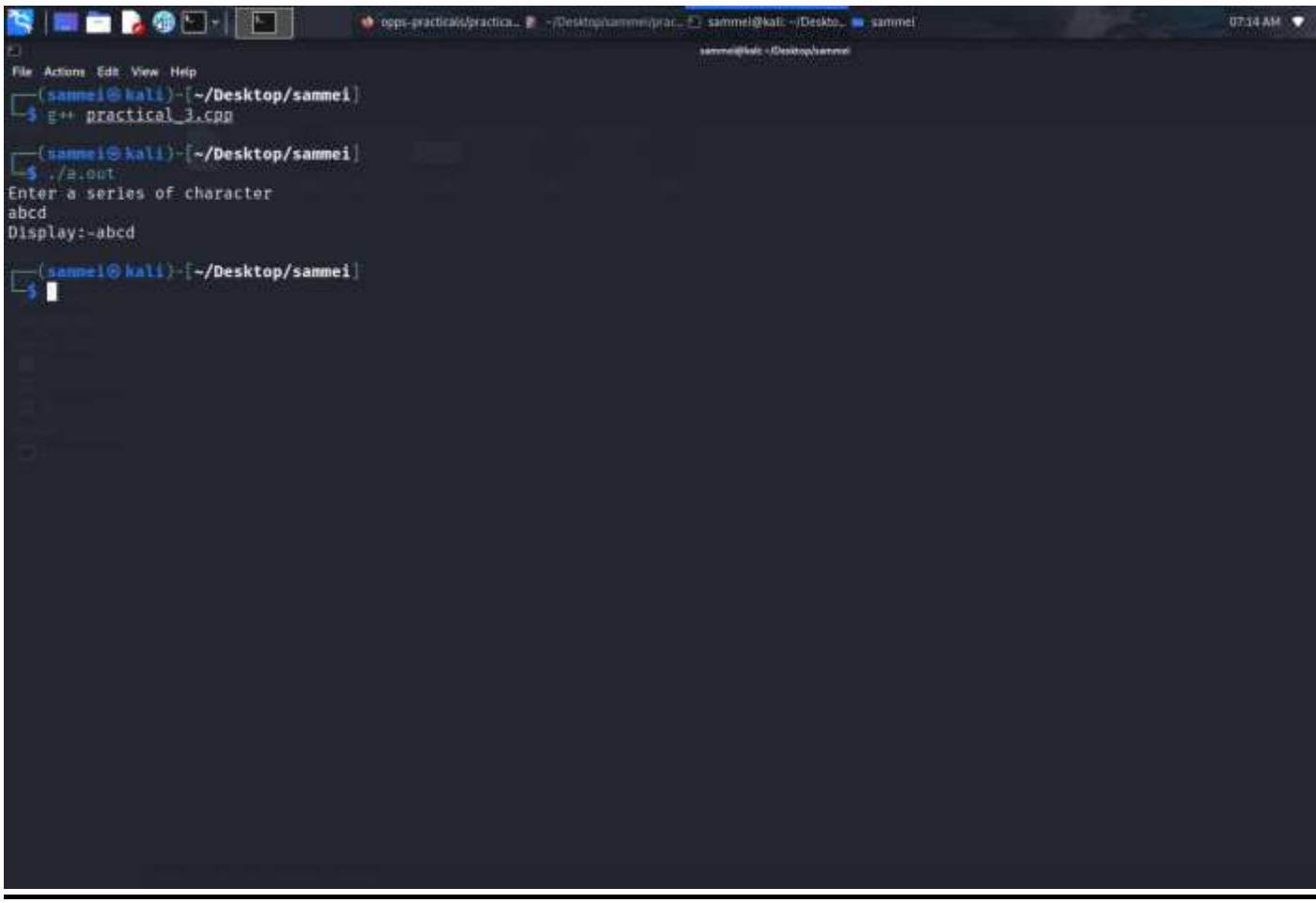
Practical 3

Task 4

Source Code:

```
#include
<iostream>
            #include <string>

            using namespace std;

            int main()
            {
                    string str;
                    cout<<"Enter a series of character\n";
                    getline(cin,str);
                    cout<<"Display:-"<<str<<"\n";
                    return 0;
            }
```

Output



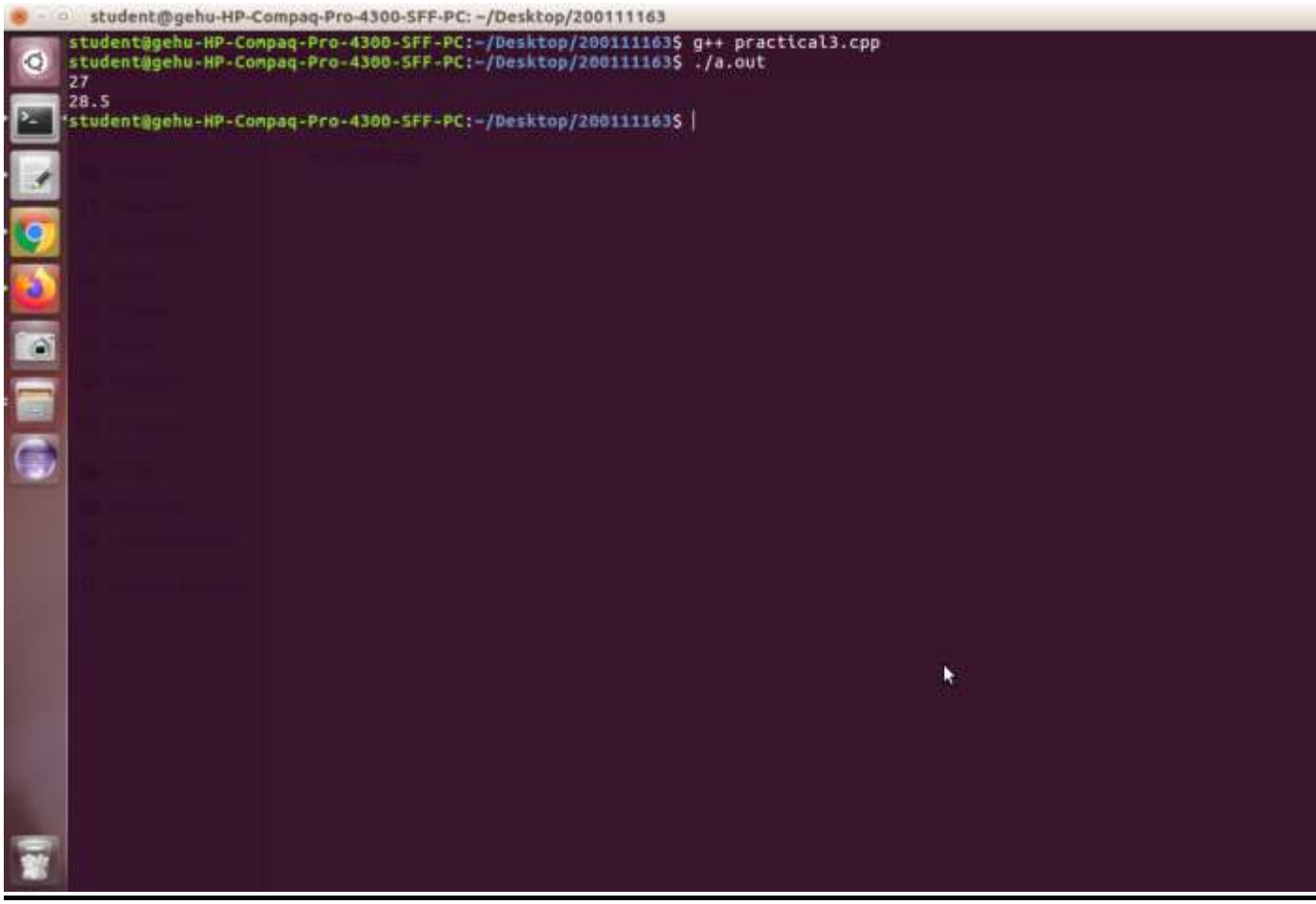
Practical 4

Task 1

Source Code:

```
#include
<iostream>
            using namespace std;

            namespace first
            {
                    int add(int a,int b)
                    {
                            return a+b;
                    }
            }
            namespace second
            {
                    float add(float a,float b)
                    {
                            return a+b;
                    }
            }
            int main()
            {
                    cout<<first::add(12,15)<<"\n";
                    cout<<second::add(12.6,15.9)<<"\n";
                    return 0;
            }
```

Output


student@gehu-HP-Compaq-Pro-4300-SFF-PC: ~/Desktop/200111163
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ g++ practical3.cpp
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
27
28.5
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$

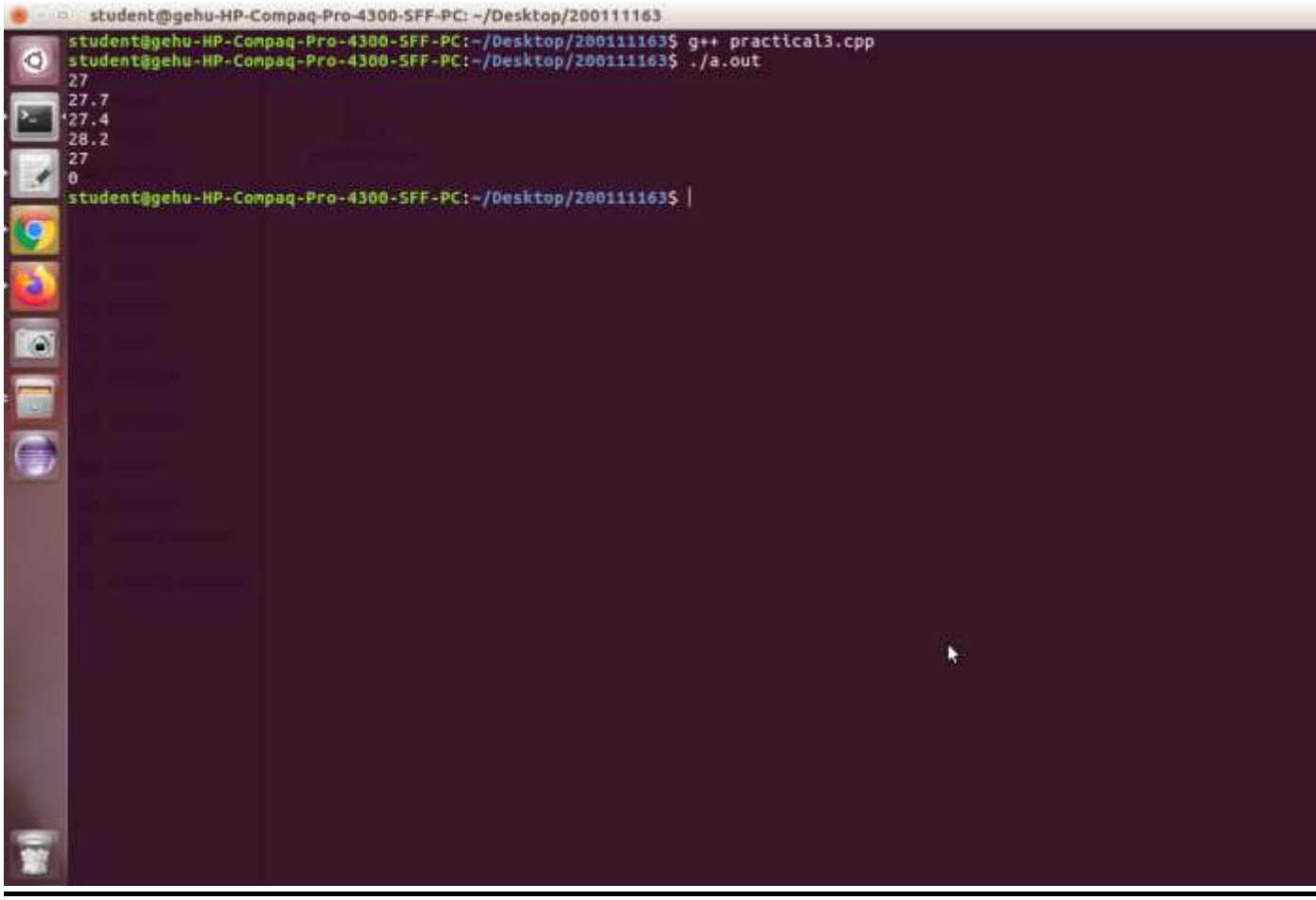
Practical 4

Task 2

Source Code:

```
#include
<iostream>
            using namespace std;

            namespace first
            {
                    int add(int a,int b)
                    {
                            return a+b;
                    }
            }
            namespace second
            {
                    float add(float a,float b)
                    {
                            return a+b;
                    }
            }
            using namespace second;

            int main()
            {
                    cout<<add(12,15)<<"\n";
                    cout<<add(12.5,15)<<"\n";
                    cout<<add(12,15.7)<<"\n";
                    cout<<add(12.9,15.3)<<"\n";
                    cout<<add(12.0,15.0)<<"\n";
                    return 0;
```

Output

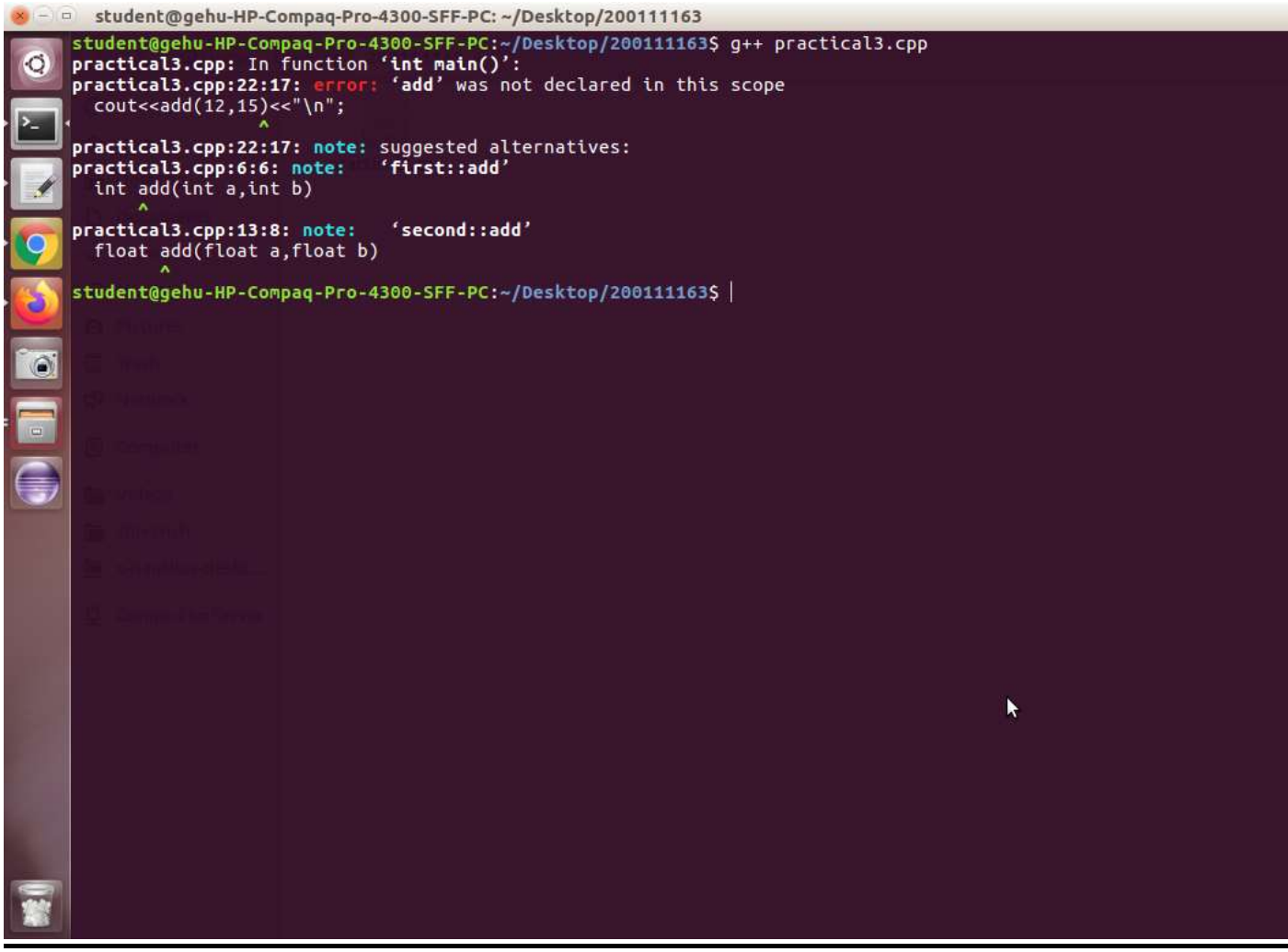

student@gehu-HP-Compaq-Pro-4300-SFF-PC: ~/Desktop/200111163
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ g++ practical3.cpp
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
27
27.7
27.4
28.2
27
0
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$

Practical 4
Task 3

Source Code:

```
#include
<iostream>
            using namespace std;

            namespace first
            {
                    int add(int a,int b)
                    {
                            return a+b;
                    }
            }
            namespace second
            {
                    float add(float a,float b)
                    {
                            return a+b;
                    }
            }

            int main()
            {
                    cout<<add(12,15)<<"\n";
                    cout<<add(12.5,15)<<"\n";
                    cout<<add(12,15.7)<<"\n";
                    cout<<add(12.9,15.3)<<"\n";
                    cout<<add(12.0,15.0)<<"\n";
                    return 0;
            }
```

Output


student@gehu-HP-Compaq-Pro-4300-SFF-PC: ~/Desktop/200111163
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ g++ practical3.cpp
practical3.cpp: In function 'int main()':
practical3.cpp:22:17: error: 'add' was not declared in this scope
cout<<add(12,15)<<"\n";
^
practical3.cpp:22:17: note: suggested alternatives:
practical3.cpp:6:6: note: 'first::add'
int add(int a,int b)
^
practical3.cpp:13:8: note: 'second::add'
float add(float a,float b)
^
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$

Practical 5

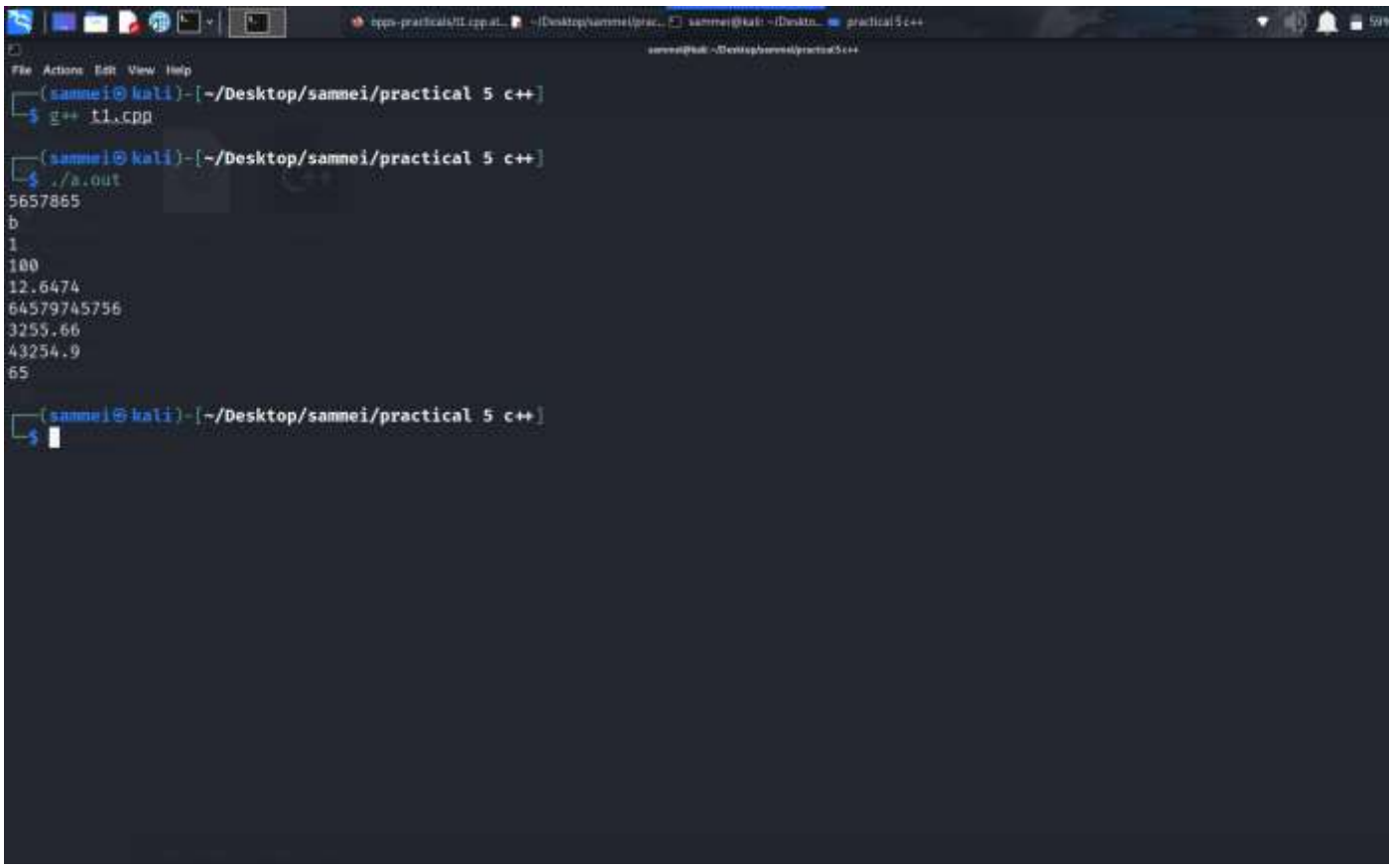
Task 1

Source Code:

```
#include
<iostream>
            using namespace std;
            void intfun()
            {
                  int a=5657865;
                  cout<<a<<'\n';
            }
            void charfun ()
            {
                  char i='b';
                  cout<<i<<'\n';
            }
            void boolfun ()
            {
                  bool b=1;
                  cout<<b<<'n';
            }
            void shortfun()
            {
                  short s=100;
                  cout<<s<<'n';
            }
            void floatfun()
            {
                  float f=12.6474f;
                  cout<<f<<'\n';
            }
            void longfun()
            {
                  long l=64579745756;
                  cout<<l<<'\n';
            }
            void doublefun()
            {
                  double d=3255.65658;
                  cout<<d<<'\n';
            }
            void longdoublefun()
            {
                  long double lb=43254.8788;
```

```
        cout<<lb<<'n';
}
void widecharfun()
{
        wchar_t ch=L'\0';
        cout<<ch<<'\n';
}

int main()
{
        intfun();
        charfun ();
        boolfun ();
        shortfun();
        floatfun();
        longfun();
        doublefun();
        longdoublefun();
        widecharfun();
        return 0;
}
```

Output



Practical 5

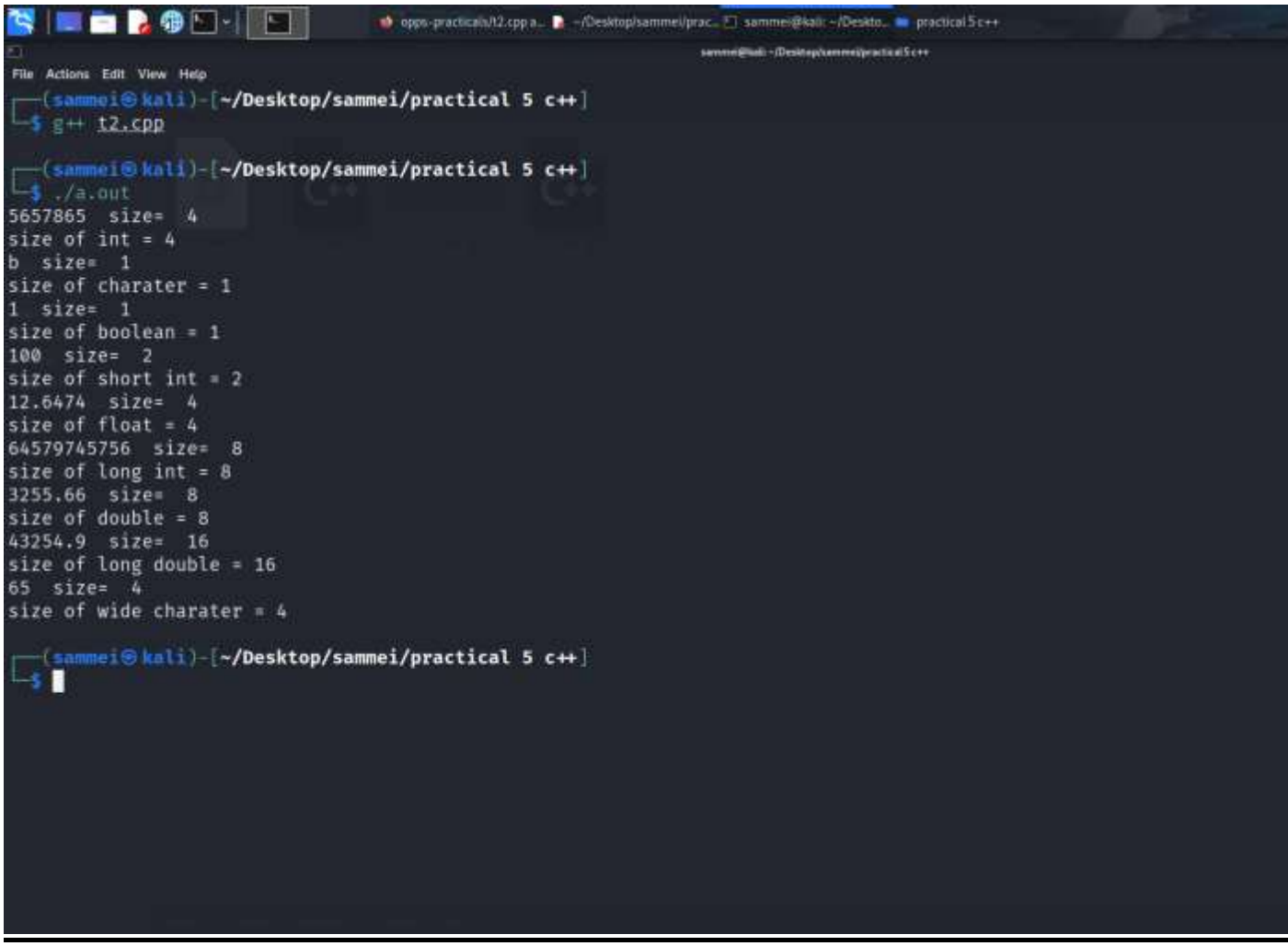
Task 2

Source Code:

```
#include
<iostream>
            using namespace std;
            void intfun()
            {
                   int a=5657865;
                   cout<<a<<"  size=  ";
                   cout<<sizeof(a)<<'\n';
                   cout<<"size of int = "<<sizeof(int)<<'\n';
            }
            void charfun ()
            {
                   char i='b';
                   cout<<i<<"  size=  ";
                   cout<<sizeof(i)<<'\n';
                   cout<<"size of charater = "<<sizeof(char)<<'\n';
            }
            void boolfun ()
            {
                   bool b=1;
                   cout<<b<<"  size=  ";
                   cout<<sizeof(b)<<'\n';
                   cout<<"size of boolean = "<<sizeof(bool)<<'\n';
            }
            void shortfun()
            {
                   short s=100;
                   cout<<s<<"  size=  ";
                   cout<<sizeof(s)<<'\n';
                   cout<<"size of short int = "<<sizeof(short)<<'\n';
            }
            void floatfun()
            {
                   float f=12.6474f;
                   cout<<f<<"  size=  ";
                   cout<<sizeof(f)<<'\n';
                   cout<<"size of float = "<<sizeof(float)<<'\n';
            }
            void longfun()
            {
                   long l=64579745756;
```

```
        cout<<l<<"  size=  ";
        cout<<sizeof(l)<<'\n';
        cout<<"size of long int = "<<sizeof(long)<<'\n';
}
void doublefun()
{
        double d=3255.65658;
        cout<<d<<"  size=  ";
        cout<<sizeof(d)<<'\n';
        cout<<"size of double = "<<sizeof(double)<<'\n';
}
void longdoublefun()
{
        long double lb=43254.8788;
        cout<<lb<<"  size=  ";
        cout<<sizeof(lb)<<'\n';
        cout<<"size of long double = "<<sizeof(long double)<<'\n';
}
void widecharfun()
{
        wchar_t ch=L'\0';
        cout<<ch<<"  size=  ";
        cout<<sizeof(ch)<<'\n';
        cout<<"size of wide charater = "<<sizeof(wchar_t)<<'\n';
}

int main()
{
        intfun();
        charfun ();
        boolfun ();
        shortfun();
        floatfun();
        longfun();
        doublefun();
        longdoublefun();
        widecharfun();
        return 0;
}
```

Output


File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/practical 5 c++]
$ g++ t2.cpp
(sammei㉿kali)-[~/Desktop/sammei/practical 5 c++]
$ ./a.out
5657865 size= 4
size of int = 4
b size= 1
size of charater = 1
1 size= 1
size of boolean = 1
100 size= 2
size of short int = 2
12.6474 size= 4
size of float = 4
64579745756 size= 8
size of long int = 8
3255.66 size= 8
size of double = 8
43254.9 size= 16
size of long double = 16
65 size= 4
size of wide charater = 4
(sammei㉿kali)-[~/Desktop/sammei/practical 5 c++]
$

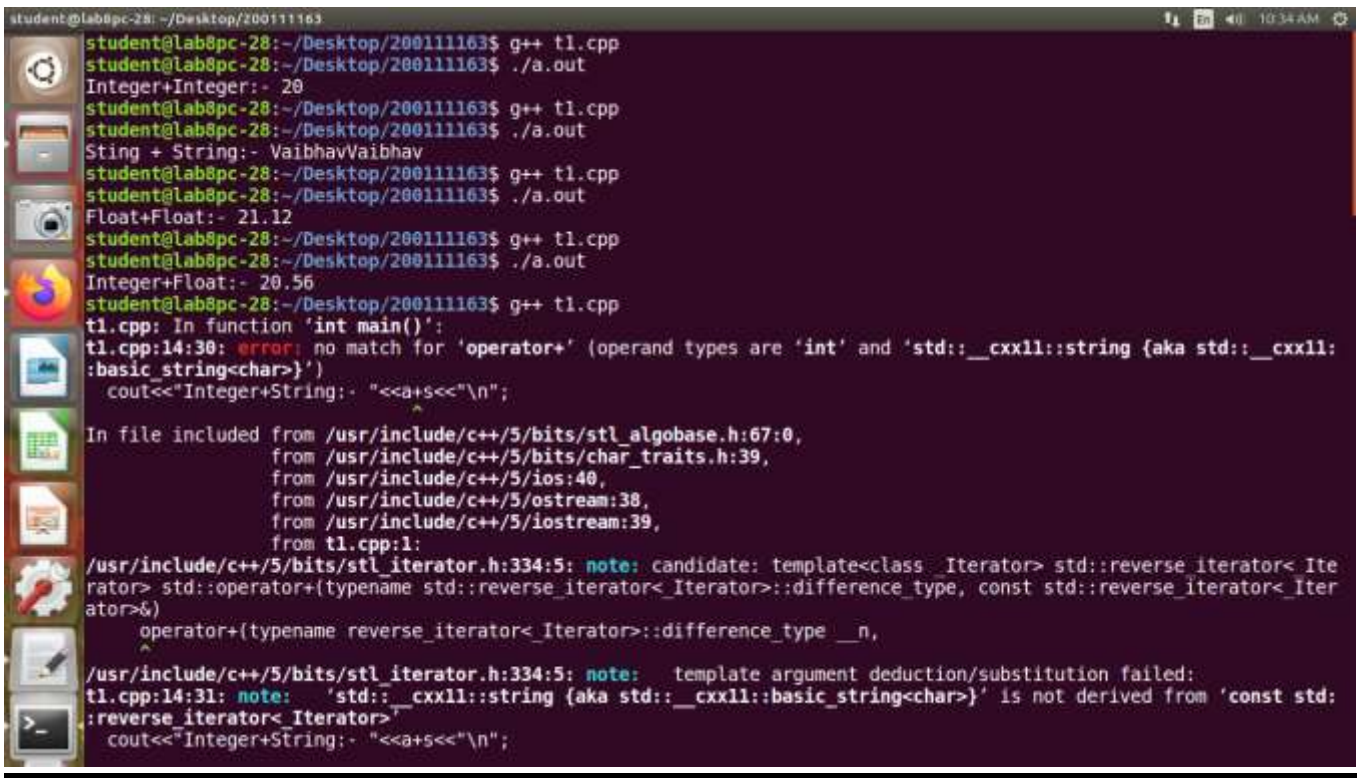
Practical 6

Task 1

Source Code:

```
#include
<iostream>

            using namespace std;

            int main()
            {
                    int a=10;
                    string s="Vaibhav";
                    float f=10.56;
                    //cout<<"Integer+Integer:- "<<a+a<<"\n";
                    //cout<<"Sting + String:- "<<s+s<<"\n";
                    //cout<<"Float+Float:- "<<f+f<<"\n";
                    //cout<<"Integer+Float:- "<<a+f<<"\n";
                    cout<<"Integer+String:- "<<a+s<<"\n";
                    return 0;
            }
```

Output

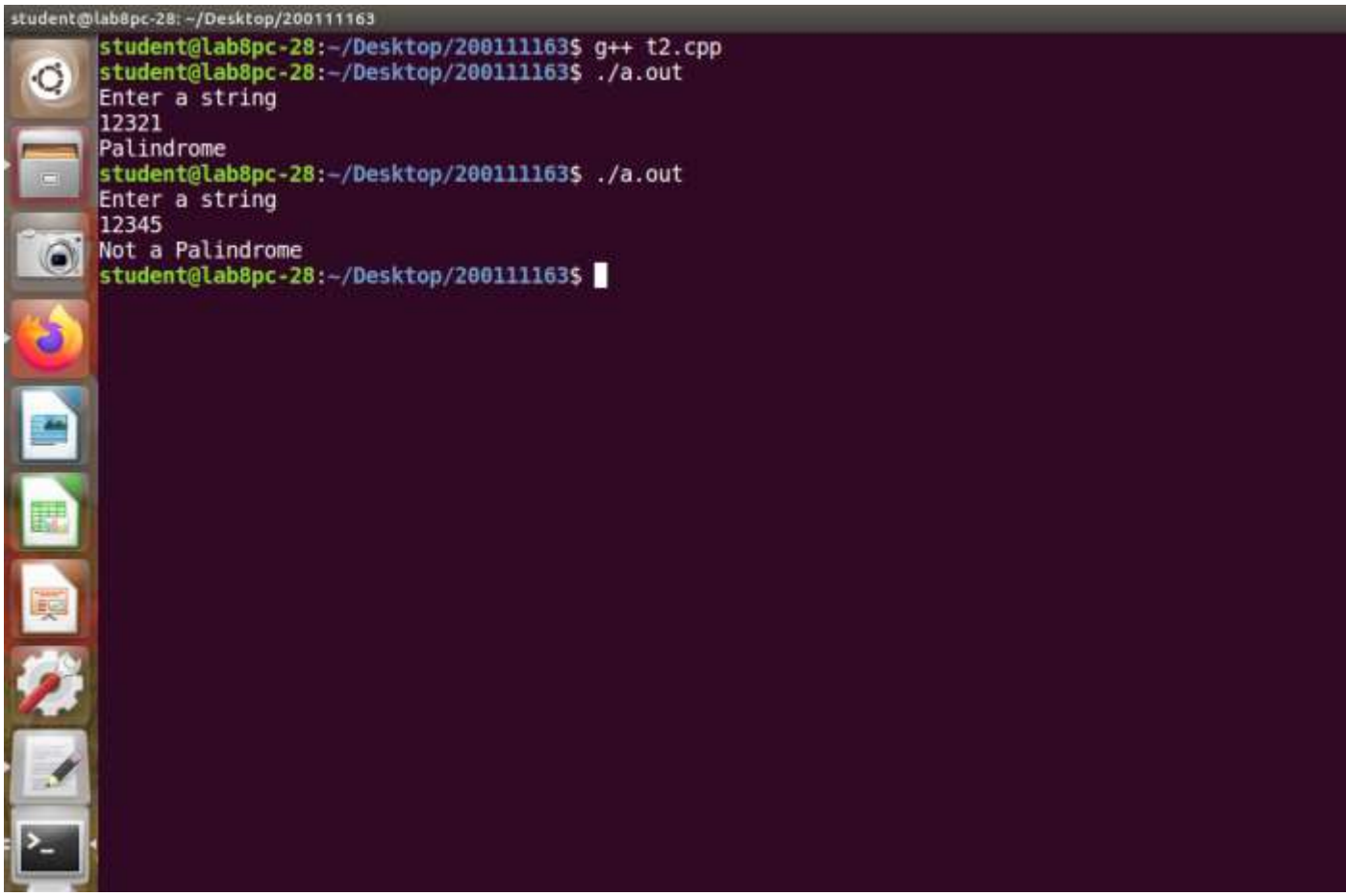


Practical 6
Task 2

Source Code:

```
#include
<iostream>
             #include <string>

             using namespace std;

             int main()
             {
                    string s,temp;
                    cout<<"Enter a string\n";
                    getline(cin,s);
                    int l=0,i;
                    l=s.length();
                    for(i=l-1;i>=0;i--)
                    {
                           temp=temp+s[i];
                    }
                    if(temp==s)
                           cout<<"Palindrome\n";
                    else
                           cout<<"Not a Palindrome\n";
                    return 0;

             }
```

Output

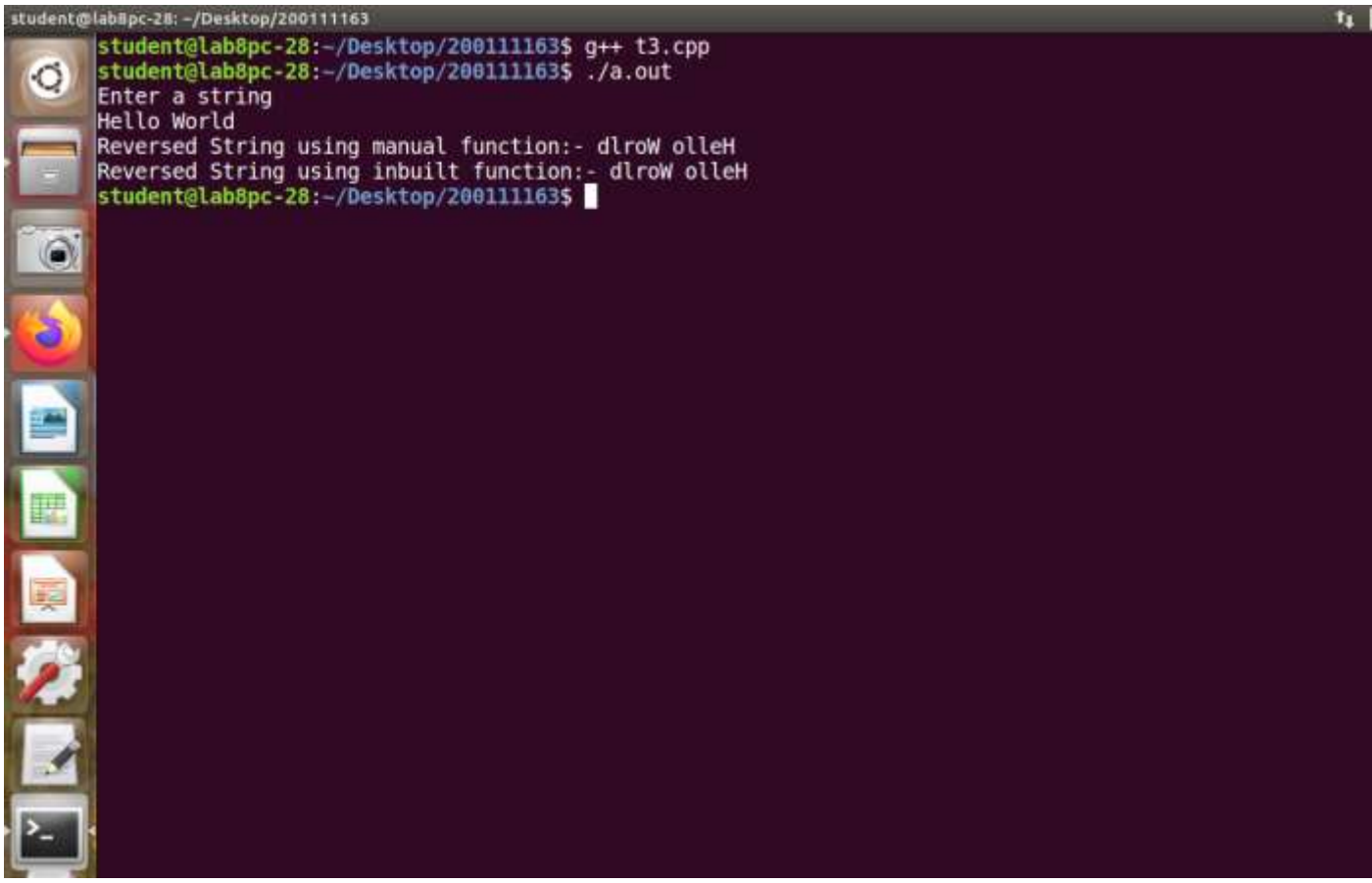

student@lab8pc-28: ~/Desktop/200111163
student@lab8pc-28:~/Desktop/200111163$ g++ t2.cpp
student@lab8pc-28:~/Desktop/200111163$ ./a.out
Enter a string
12321
Palindrome
student@lab8pc-28:~/Desktop/200111163$ ./a.out
Enter a string
12345
Not a Palindrome
student@lab8pc-28:~/Desktop/200111163$

Practical 6
Task 3

Source Code:

```
#include
<iostream>
              #include <string>
              #include <bits/stdc++.h>

              using namespace std;

              void reverse(string s)
              {
                     string temp1;
                     int l=0,i;
                     l=s.length();
                     for(i=l-1;i>=0;i--)
                     {
                            temp1=temp1+s[i];
                     }
                     cout<<"Reversed String using manual function:- "<<temp1<<"\n";
              }

              int main()
              {
                     string s;
                     cout<<"Enter a string\n";
                     getline(cin,s);
                     reverse(s);
                     reverse(s.begin(),s.end());
                     cout<<"Reversed String using inbuilt function:- "<<s<<"\n";
                     return 0;

              }
```

Output

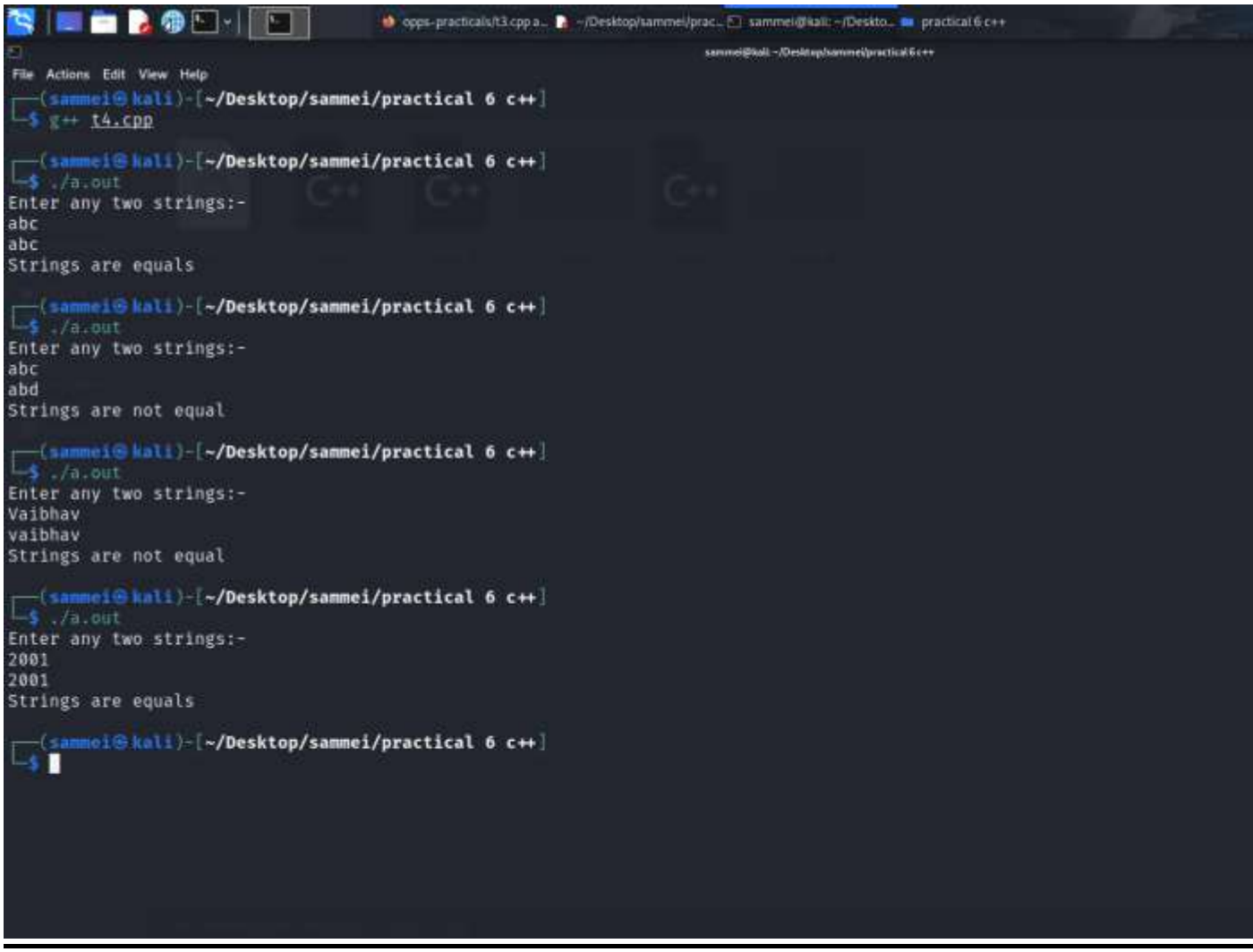

student@lab8pc-28: ~/Desktop/200111163
student@lab8pc-28:~/Desktop/200111163$ g++ t3.cpp
student@lab8pc-28:~/Desktop/200111163$ ./a.out
Enter a string
Hello World
Reversed String using manual function:- dlroW olleH
Reversed String using inbuilt function:- dlroW olleH
student@lab8pc-28:~/Desktop/200111163$

Practical 6
Task 4

Source Code:

```
#include
<iostream>
            #include <bits/stdc++.h>

            using namespace std;
            int compare(string s1, string s2)
            {
                    int l1=s1.length();
                    int l2=s2.length();
                    if(l1==l2)
                    {
                            for(int i=0;i<l1;i++)
                            {
                                    if(s1[i]!=s2[i])
                                            return 0;
                            }
                            return 1;
                    }
                    else
                            return 0;
            }
            int main()
            {
                    string s1,s2;
                    cout<<"Enter any two strings:- \n";
                    getline(cin,s1);
                    getline(cin,s2);
                    int c=compare(s1,s2);
                    if(c==0)
                            cout<<"Strings are not equal\n";
                    else
                            cout<<"Strings are equals\n";
                    return 0;
            }
```

Output

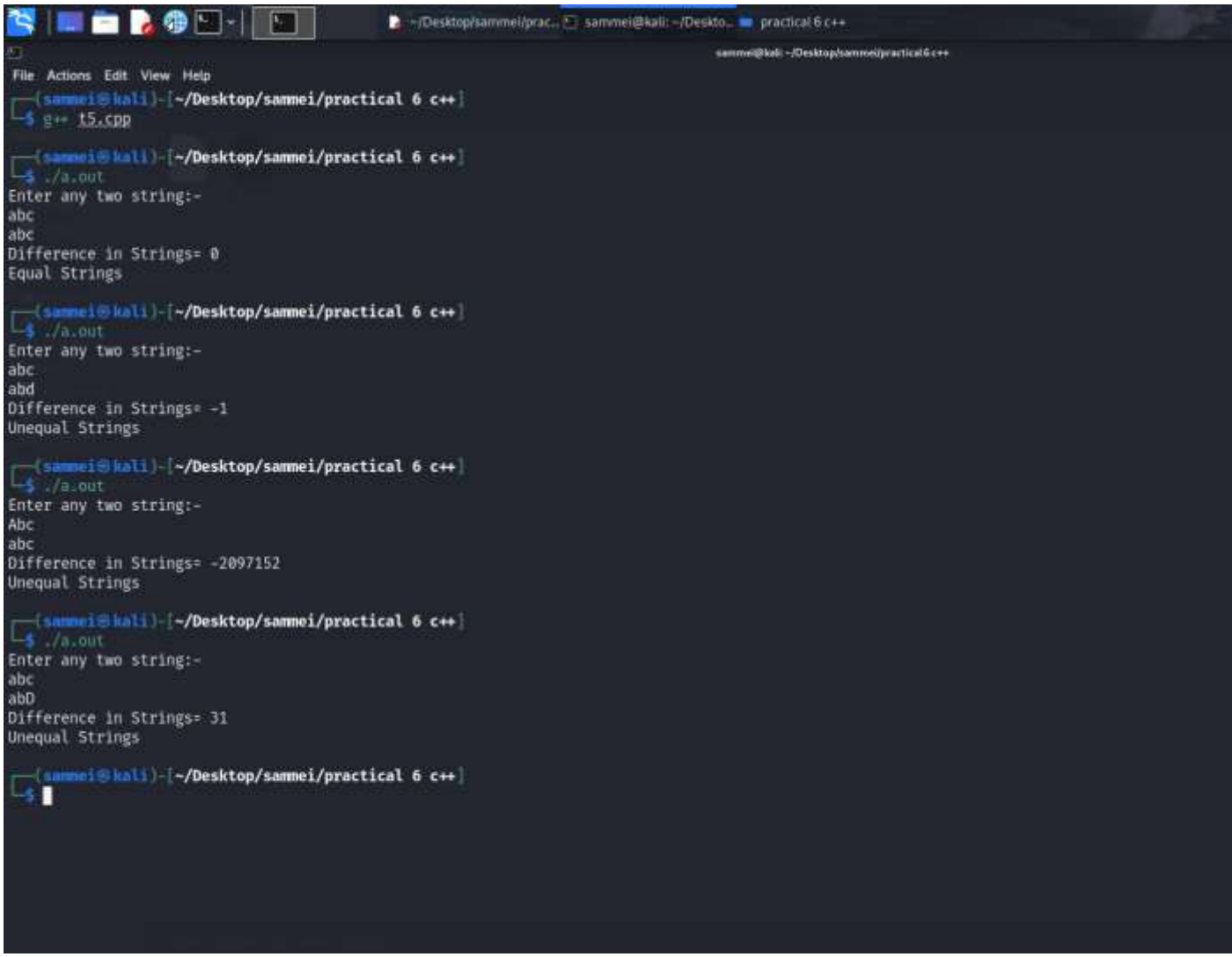

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ g++ t4.cpp
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter any two strings:-
abc
abc
Strings are equals
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter any two strings:-
abc
abd
Strings are not equal
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter any two strings:-
Vaibhav
vaibhav
Strings are not equal
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter any two strings:-
2001
2001
Strings are equals
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$

Practical 6
Task 5

Source Code:

```
# include
<iostream>
            # include <string>

            using namespace std;

            int main()
            {
                    string s1,s2;
                    cout<<"Enter any two string:-\n";
                    getline(cin,s1);
                    getline(cin,s2);
                    int x= s1.compare(s2);
                    cout<<"Difference in Strings= "<<x<<"\n";
                    if(x==0)
                            cout<<"Equal Strings\n";
                    else
                            cout<<"Unequal Strings\n";
                    return 0;
            }
```

Output

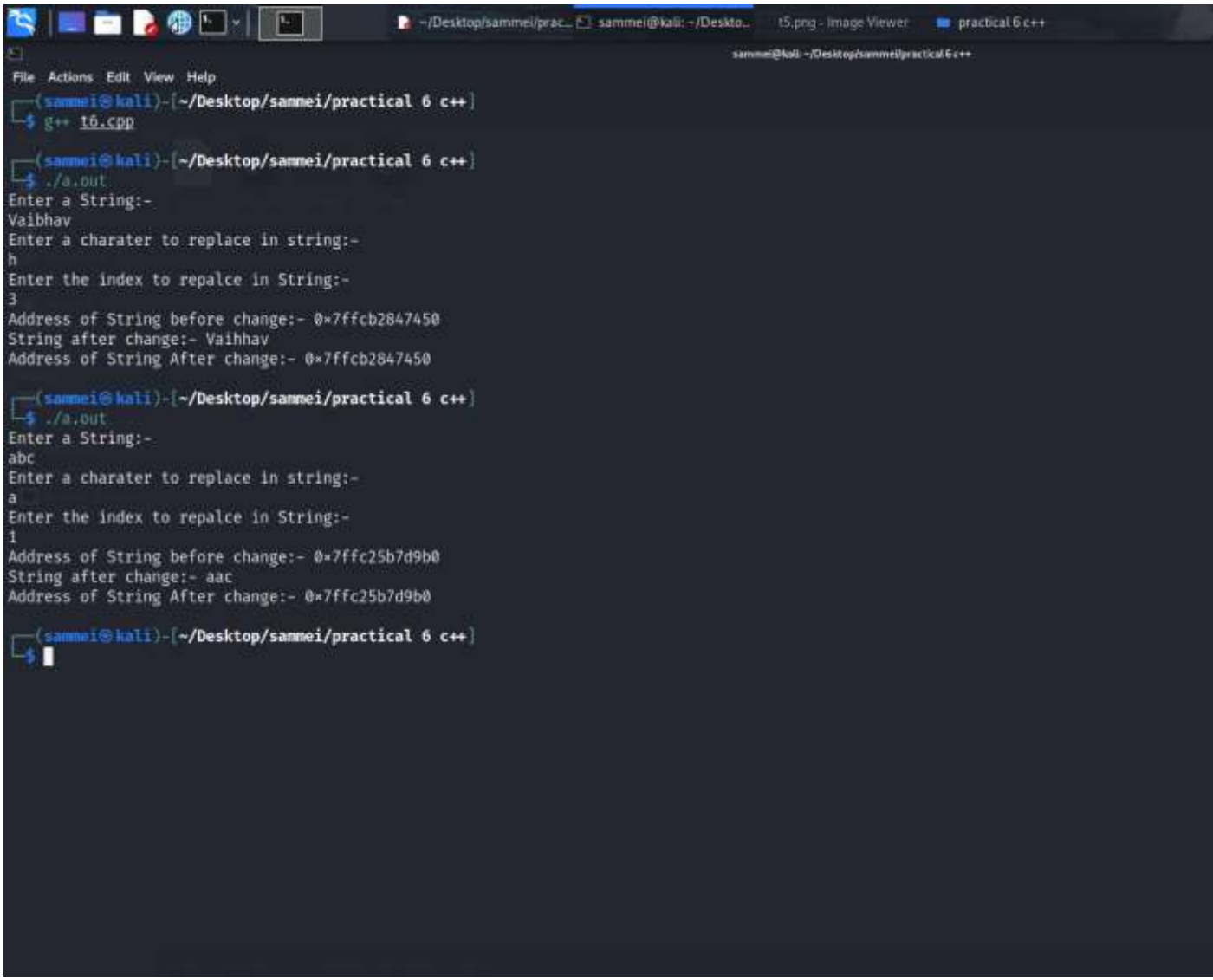

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ g++ t5.cpp
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter any two string:-
abc
abc
Difference in Strings= 0
Equal Strings
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter any two string:-
abc
abd
Difference in Strings= -1
Unequal Strings
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter any two string:-
Abc
abc
Difference in Strings= -2097152
Unequal Strings
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter any two string:-
abc
abD
Difference in Strings= 31
Unequal Strings
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$

Practical 6
Task 6

Source Code:

```
#include
<iostream>
            #include <string>

            using namespace std;

            int main()
            {
                    string s;
                    char c;
                    int i;
                    cout<<"Enter a String:-\n";
                    getline(cin,s);
                    cout<<"Enter a charater to replace in string:- \n";
                    cin>>c;
                    cout<<"Enter the index to repalce in String:-\n";
                    cin>>i;
                    cout<<"Address of String before change:- "<<&s<<"\n";
                    s[i]=c;
                    cout<<"String after change:- "<<s<<"\n";
                    cout<<"Address of String After change:- "<<&s<<"\n";
                    return 0;
            }
```

Output


~/Desktop/sammei/prac...
sammei@kali: ~/Deskto...
t5.png - Image Viewer
practical 6 c++
File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ g++ 16.cpp
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter a String:-
Vaibhav
Enter a charater to replace in string:-
h
Enter the index to repalce in String:-
3
Address of String before change:- 0×7ffcb2847450
String after change:- Vaihhav
Address of String After change:- 0×7ffcb2847450
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$ ./a.out
Enter a String:-
abc
Enter a charater to replace in string:-
a
Enter the index to repalce in String:-
1
Address of String before change:- 0×7ffc25b7d9b0
String after change:- aac
Address of String After change:- 0×7ffc25b7d9b0
(sammei㉿kali)-[~/Desktop/sammei/practical 6 c++]
$

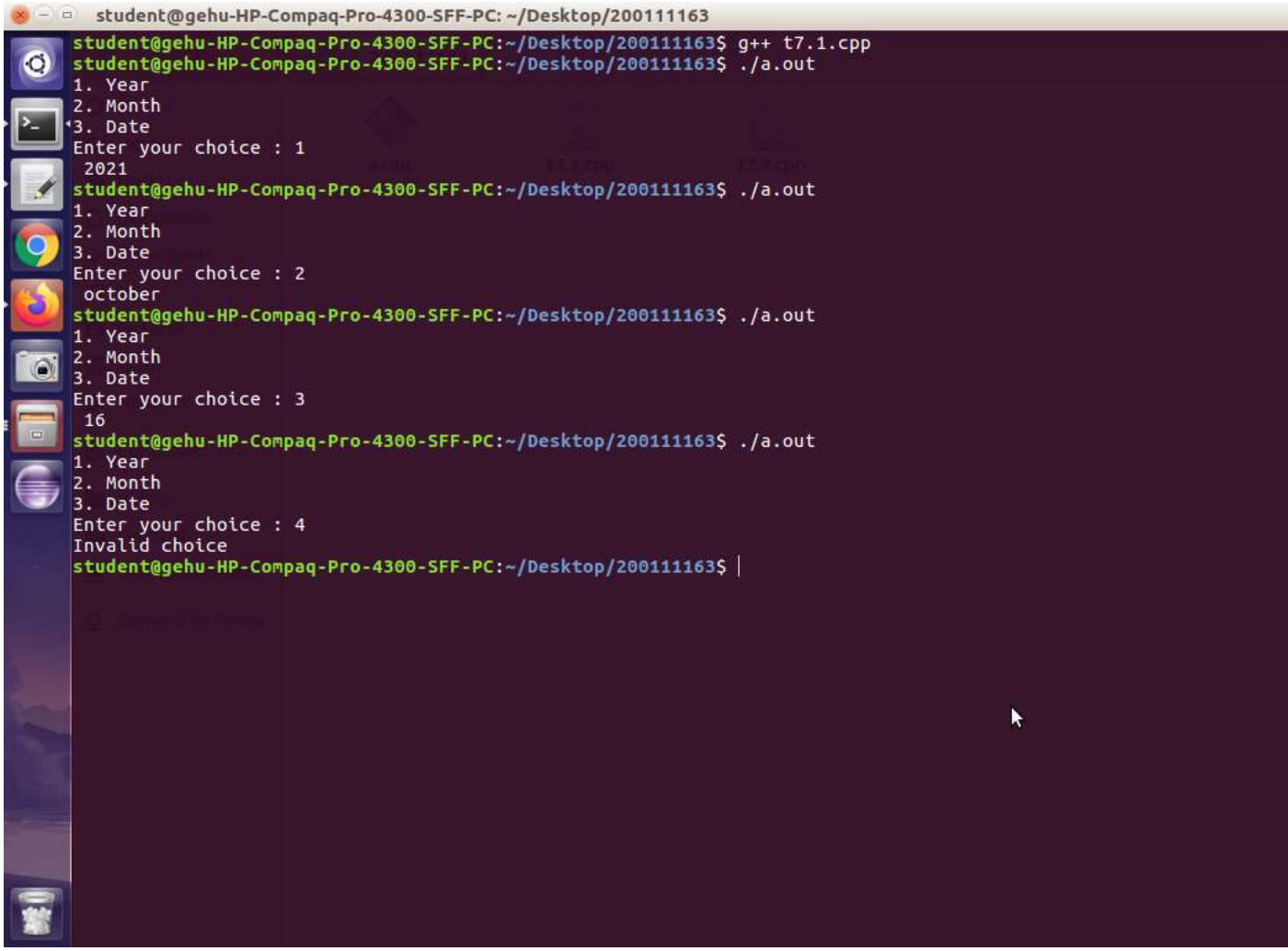
Practical 7

Task 1

Source Code:

```
#include
<iostream>
            #include <string>
            using namespace std;
            int main()
            {
                   int yr,ch;
                   string month="october";
                   int date=16;
                   yr=2021;
                   cout<<"1. Year\n";
                   cout<<"2. Month\n";
                   cout<<"3. Date\n";
                   cout<<"Enter your choice : ";
                   cin>>ch;

            switch(ch)
            {

            case 1:
                   cout<<" "<<yr<<"\n";
                   break;
            case 2:
                   cout<<" "<<month<<"\n";
                   break;
            case 3:
                   cout<<" "<<date<<"\n";
                   break;
            default:
                   cout<<"Invalid choice\n";
                   break;
            }
            return 0;
            }
```

Output


student@gehu-HP-Compaq-Pro-4300-SFF-PC: ~/Desktop/200111163
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ g++ t7.1.cpp
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
1. Year
2. Month
3. Date
Enter your choice : 1
2021
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
1. Year
2. Month
3. Date
Enter your choice : 2
october
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
1. Year
2. Month
3. Date
Enter your choice : 3
16
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
1. Year
2. Month
3. Date
Enter your choice : 4
Invalid choice
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$

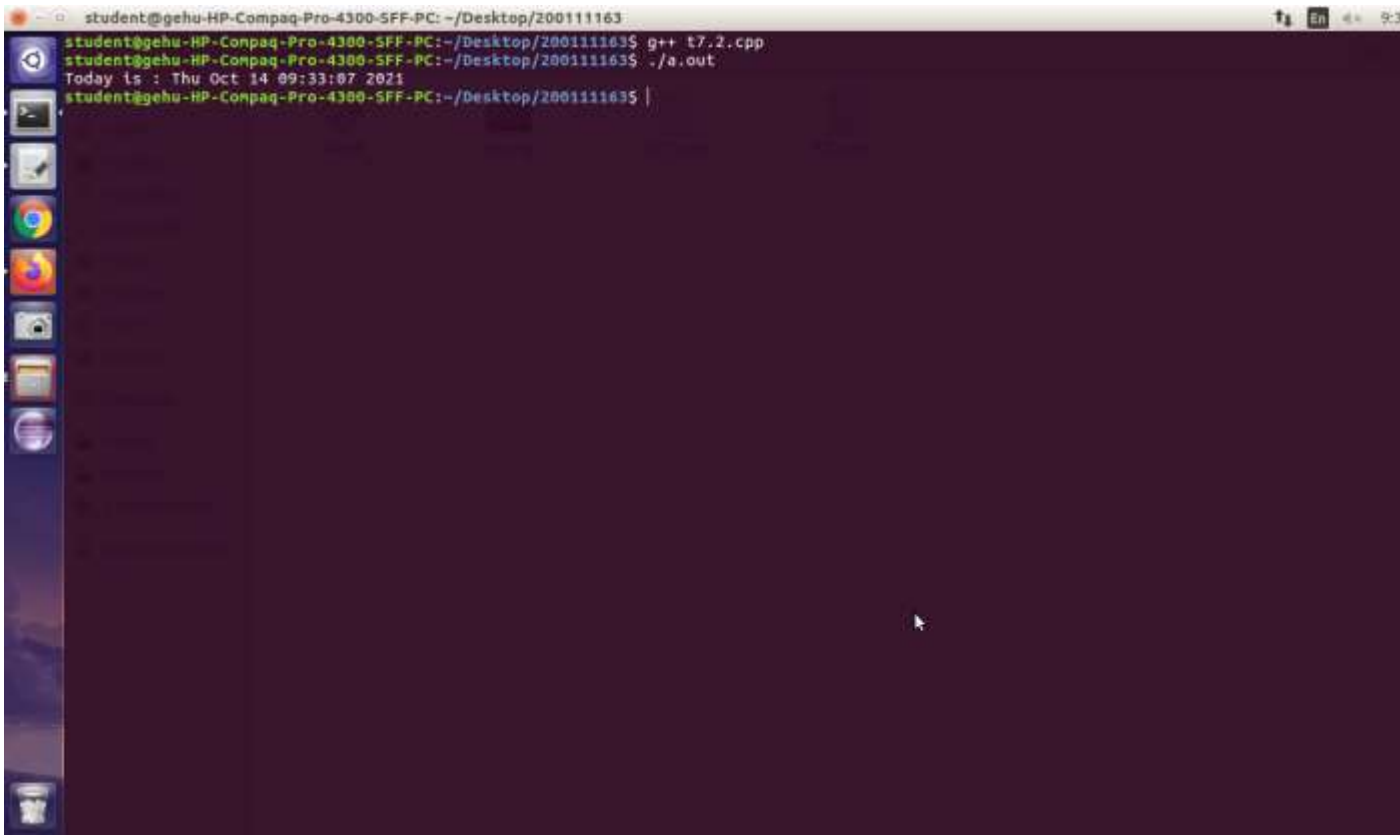
Practical 7

Task 2

Source Code:

```
#include
<iostream>
              #include <ctime>
              using namespace std;
              int main()
              {
                     time_t current_time;
                     current_time = time(NULL);

                     char *tm = ctime(&current_time);
                     cout << "Today is : " << tm;

                     return 0;
              }
```

Output

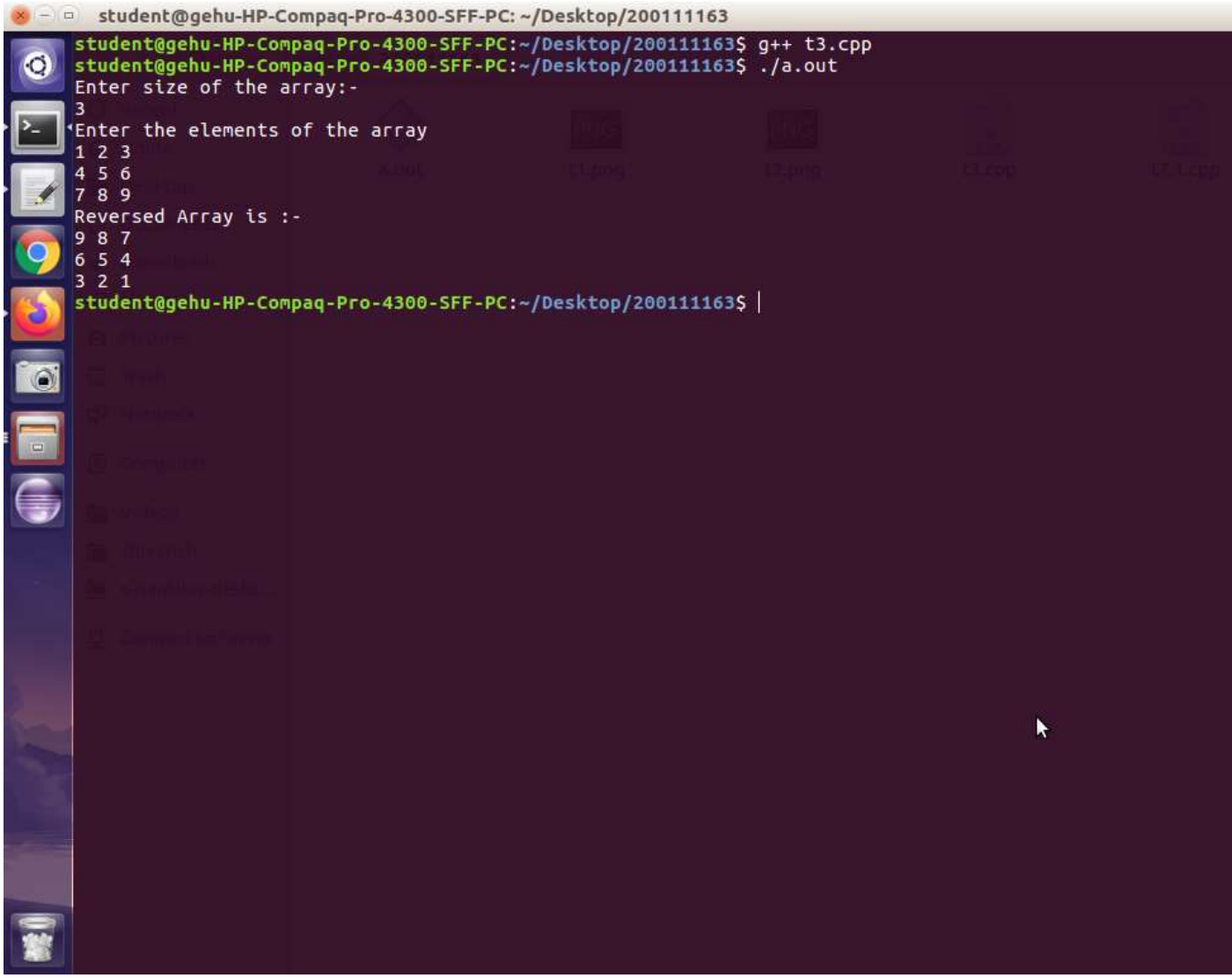


Practical 7
Task 3 V1

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	int a[n][n];
	cout<<"Enter the elements of the array\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cin>>a[i][j];
		}
	}
	cout<<"Reversed Array is :-\n";
	for(i=n-1;i>=0;i--)
	{
		for(j=n-1;j>=0;j--)
		{
			cout<<a[i][j]<<" ";
		}
		cout<<"\n";
	}
	return 0;
}
```

Output

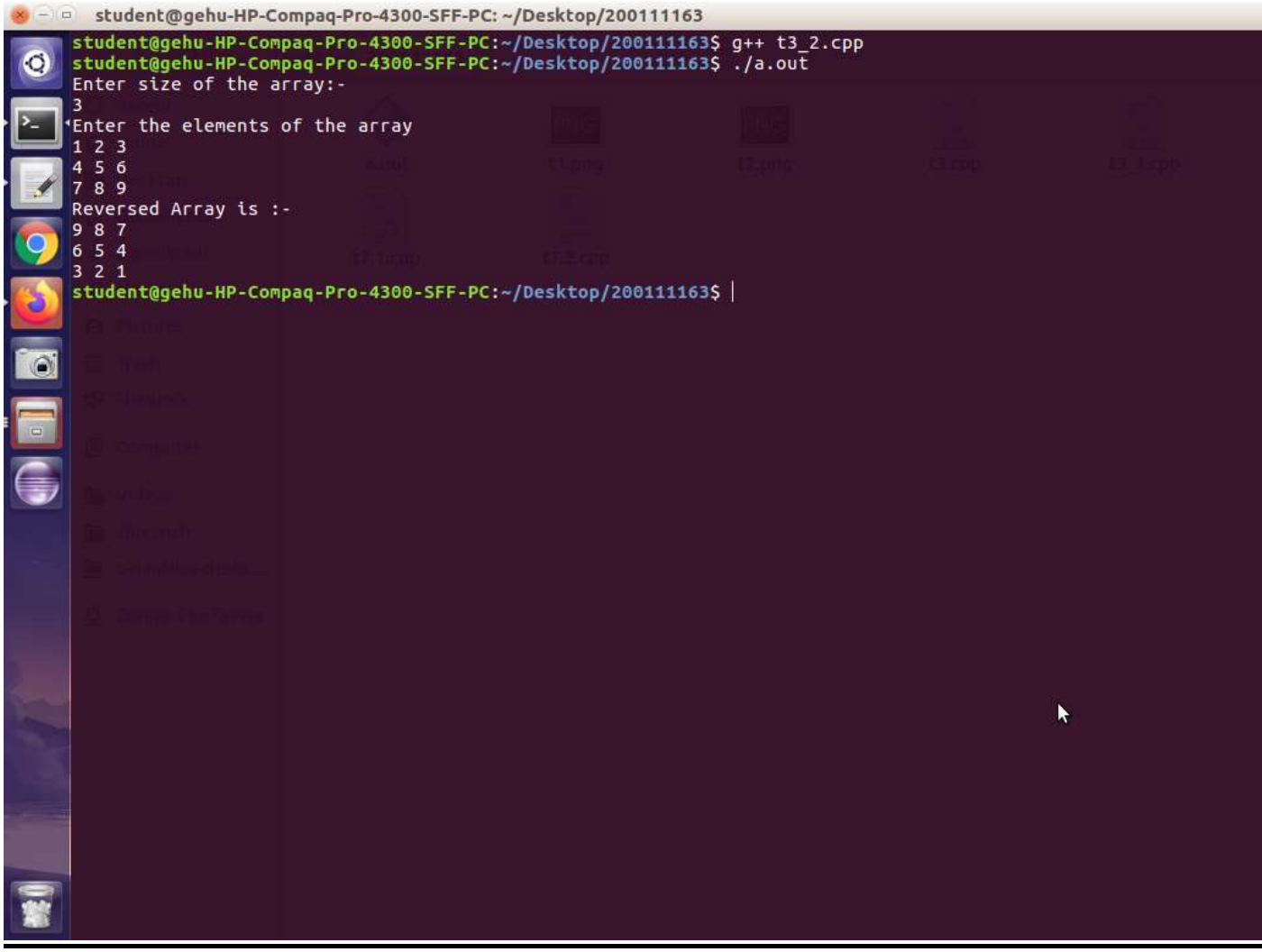

student@gehu-HP-Compaq-Pro-4300-SFF-PC: ~/Desktop/200111163
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ g++ t3.cpp
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
Enter size of the array:-
3
Enter the elements of the array
1 2 3
4 5 6
7 8 9
Reversed Array is :-
9 8 7
6 5 4
3 2 1
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$

Practical 7
Task 3 V2

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	int a[n][n];
	cout<<"Enter the elements of the array\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cin>>a[i][j];
		}
	}
	cout<<"Reversed Array is :-\n";
	for(i=0;i<3;i++)
	{
		for(j=0;j<3;j++)
		{
			cout<<10-a[i][j]<<" ";
		}
		cout<<"\n";
	}
	return 0;
}
```

Output

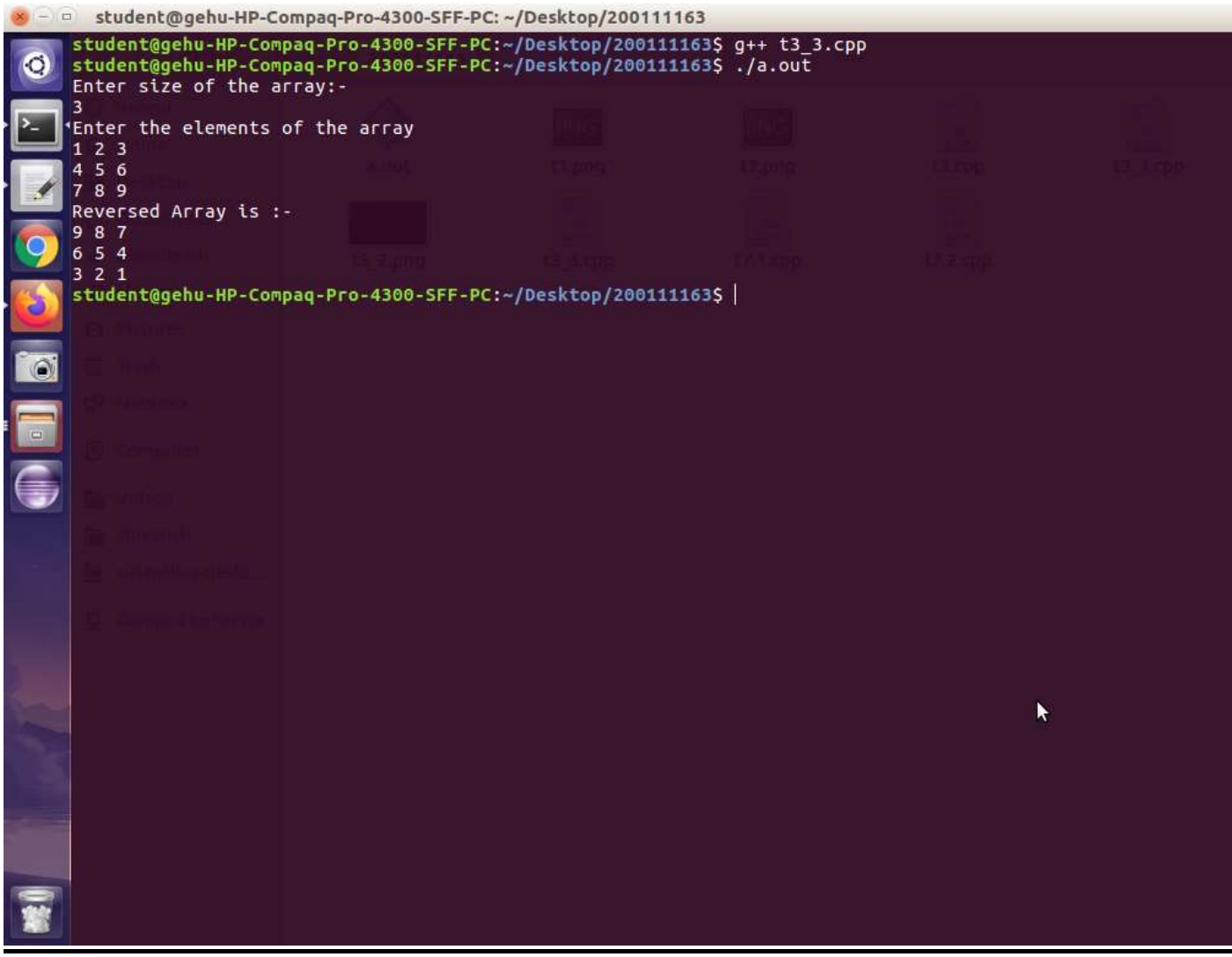

student@gehu-HP-Compaq-Pro-4300-SFF-PC: ~/Desktop/200111163
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ g++ t3_2.cpp
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
Enter size of the array:-
3
Enter the elements of the array
1 2 3
4 5 6
7 8 9
Reversed Array is :-
9 8 7
6 5 4
3 2 1
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$

Practical 7
Task 3 V3

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	int a[n][n],b[n][n];
	cout<<"Enter the elements of the array\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cin>>a[i][j];
		}
	}
	cout<<"Reversed Array is :-\n";
	for(i=n-1;i>=0;i--)
	{
		for(j=n-1;j>=0;j--)
		{
			b[n-i-1][n-j-1]=a[i][j];
		}
	}
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cout<<b[i][j]<<" ";
		}
		cout<<"\n";
	}
	return 0;
}
```

Output

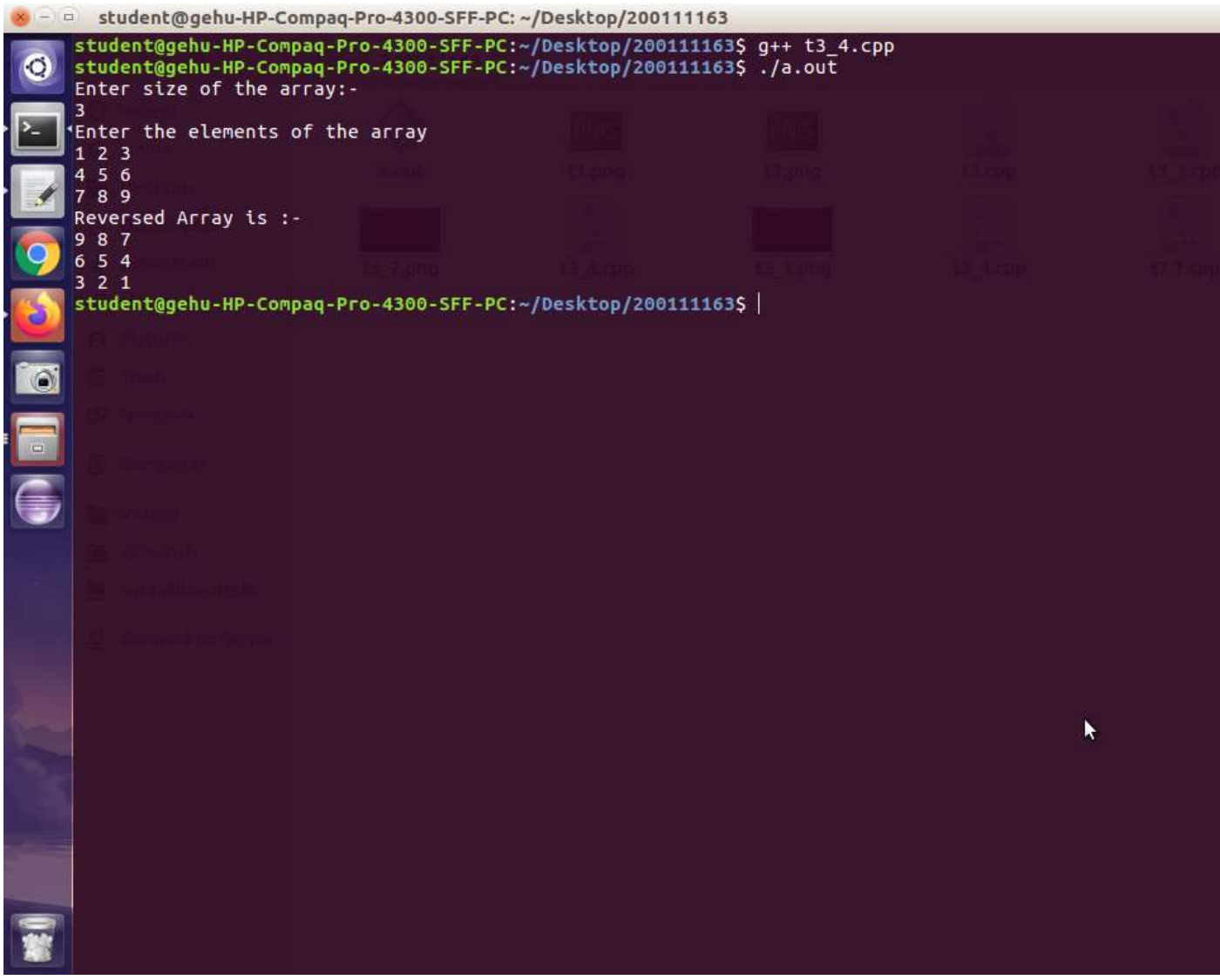

student@gehu-HP-Compaq-Pro-4300-SFF-PC: ~/Desktop/200111163
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ g++ t3_3.cpp
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
Enter size of the array:-
3
Enter the elements of the array
1 2 3
4 5 6
7 8 9
Reversed Array is :-
9 8 7
6 5 4
3 2 1
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$

Practical 7
Task 3 V4

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	int a[n][n],b[n][n];
	cout<<"Enter the elements of the array\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cin>>a[i][j];
		}
	}
	cout<<"Reversed Array is :-\n";
	for(i=0;i<3;i++)
	{
		for(j=0;j<3;j++)
		{
			b[i][j]=10-a[i][j];
		}
	}
	for(i=0;i<3;i++)
	{
		for(j=0;j<3;j++)
		{
			cout<<b[i][j]<<" ";
		}
		cout<<"\n";
	}
	return 0;
}
```

Output

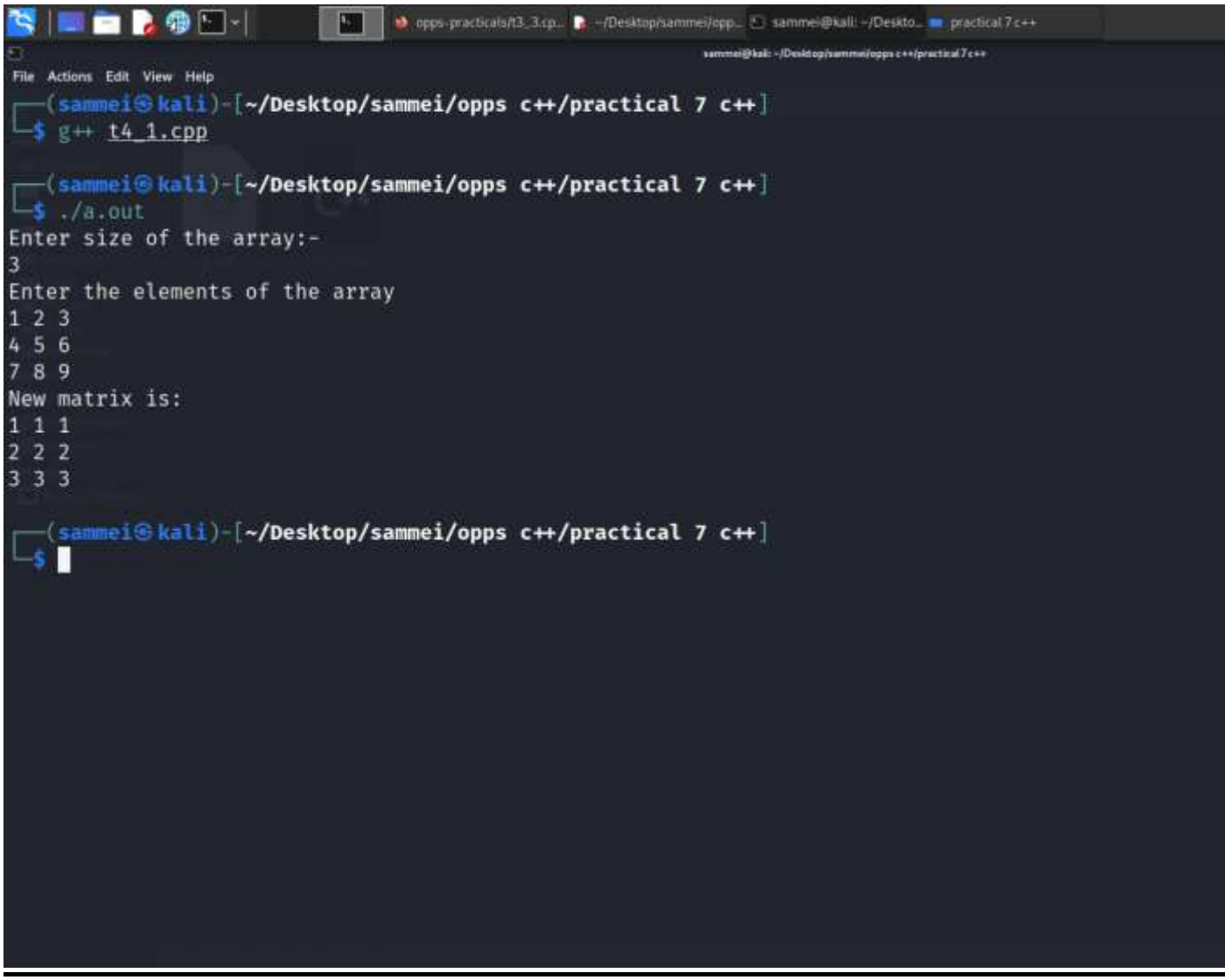

student@gehu-HP-Compaq-Pro-4300-SFF-PC: ~/Desktop/200111163
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ g++ t3_4.cpp
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$ ./a.out
Enter size of the array:-
3
Enter the elements of the array
1 2 3
4 5 6
7 8 9
Reversed Array is :-
9 8 7
6 5 4
3 2 1
student@gehu-HP-Compaq-Pro-4300-SFF-PC:~/Desktop/200111163$

Practical 7
Task 4 V1

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	int a[n][n],b[n][n];
	cout<<"Enter the elements of the array\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cin>>a[i][j];
		}
	}
	cout<<"New matrix is:\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cout<<a[0][i]<<" ";
		}
		cout<<"\n";
	}
	return 0;
}
```

Output

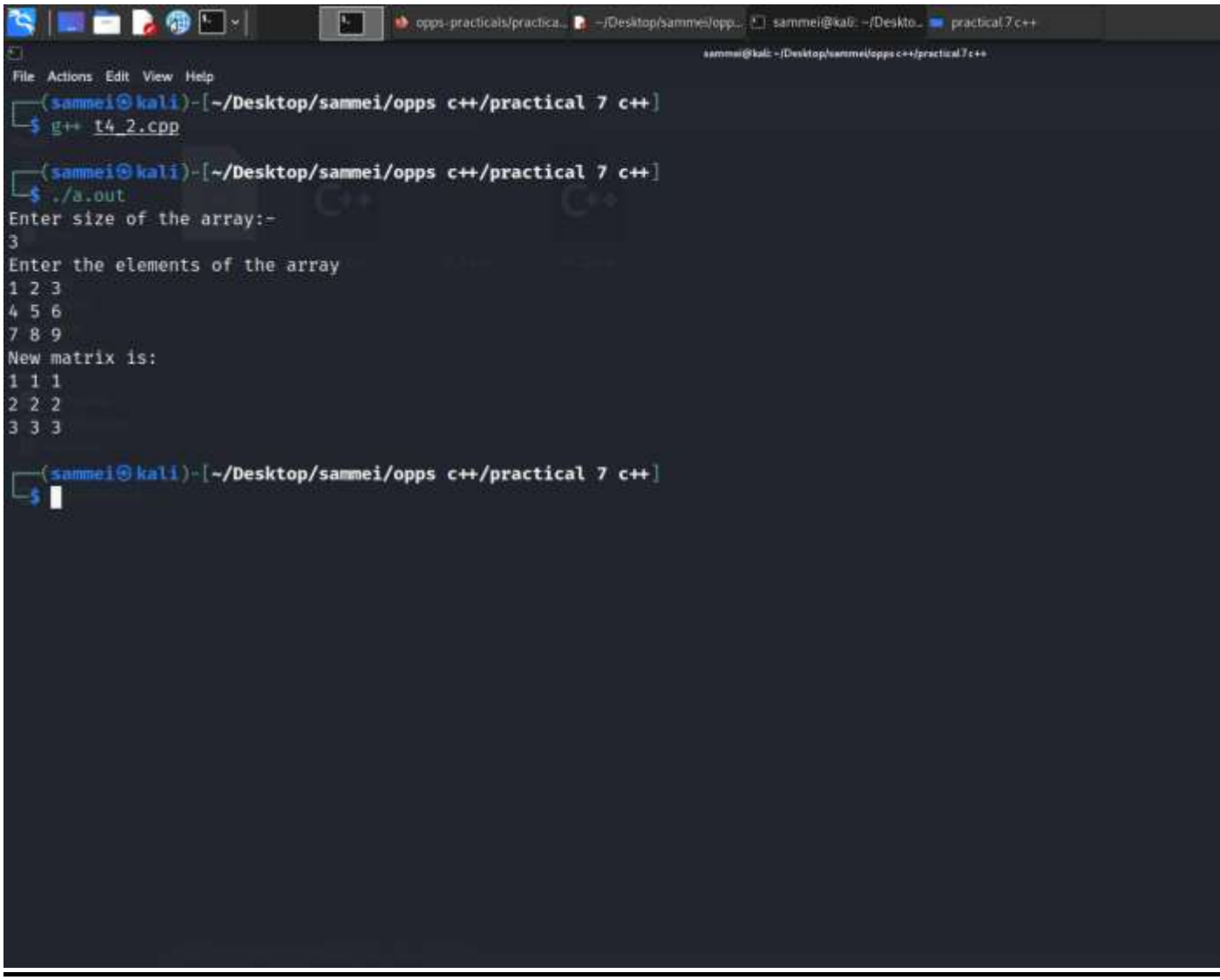

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ g++ t4_1.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ ./a.out
Enter size of the array:-
3
Enter the elements of the array
1 2 3
4 5 6
7 8 9
New matrix is:
1 1 1
2 2 2
3 3 3
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$

Practical 7
Task 4 V2

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	int a[n][n],b[n][n];
	cout<<"Enter the elements of the array\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cin>>a[i][j];
		}
	}
	cout<<"New matrix is:\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cout<<a[i][n-1]/3<<" ";
		}
		cout<<"\n";
	}
	return 0;
}
```

Output

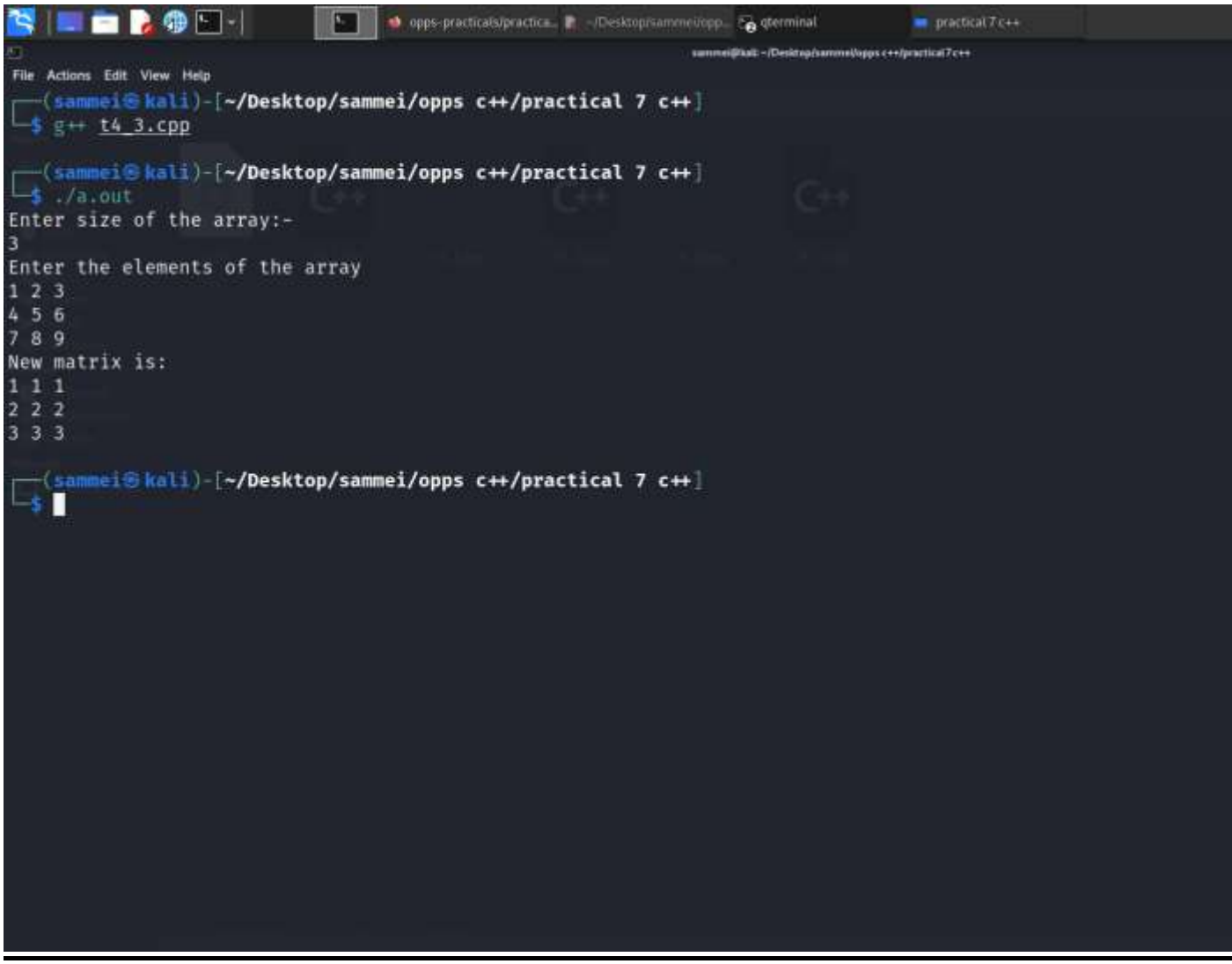

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ g++ t4_2.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ ./a.out
Enter size of the array:-
3
Enter the elements of the array
1 2 3
4 5 6
7 8 9
New matrix is:
1 1 1
2 2 2
3 3 3
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$

Practical 7
Task 4 V3

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	int a[n][n],b[n][n];
	cout<<"Enter the elements of the array\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cin>>a[i][j];
		}
	}
	cout<<"New matrix is:\n";
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cout<<a[i][j]-(2*i+j)<<" ";
		}
		cout<<"\n";
	}
	return 0;
}
```

Output

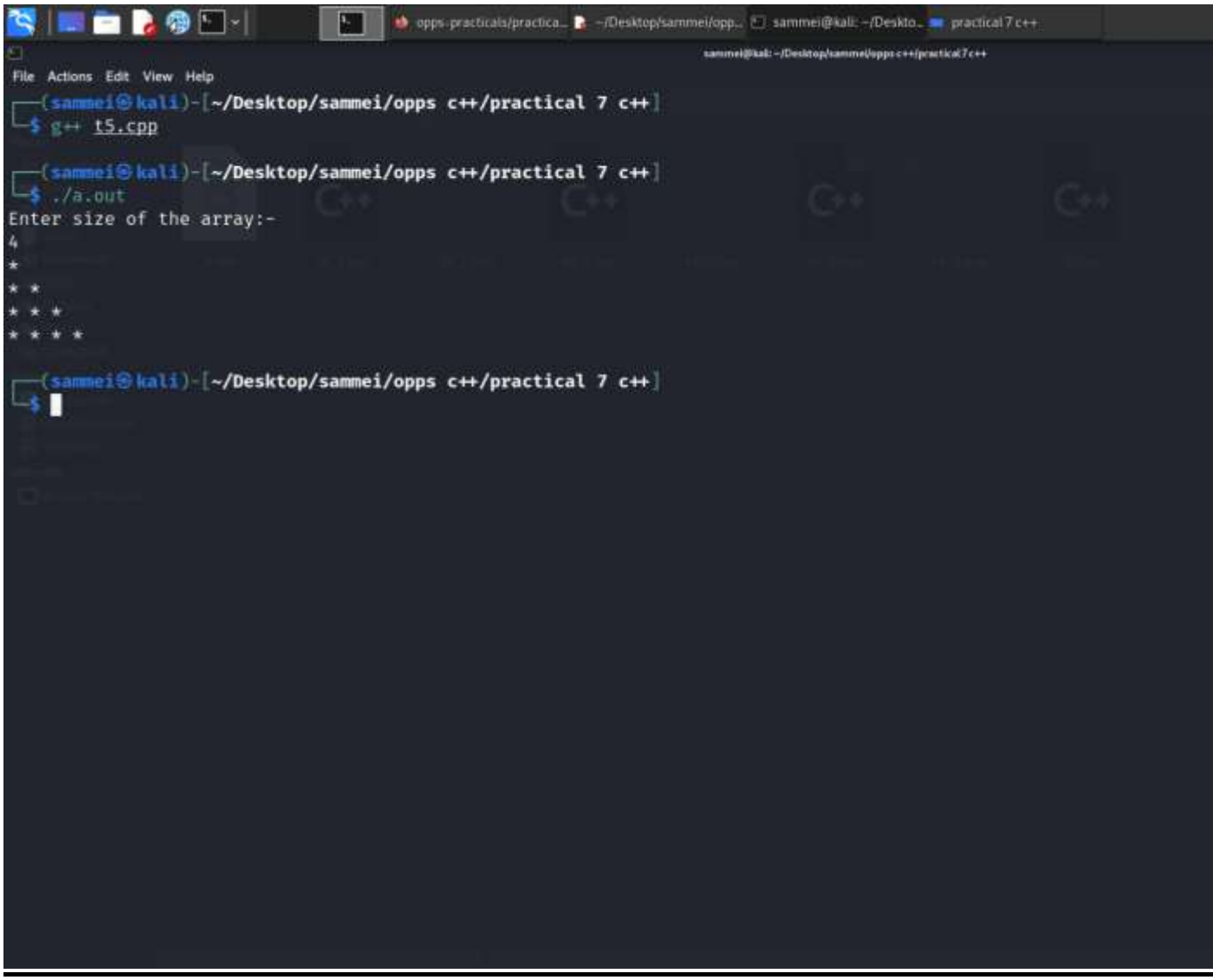

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ g++ t4_3.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ ./a.out
Enter size of the array:-
3
Enter the elements of the array
1 2 3
4 5 6
7 8 9
New matrix is:
1 1 1
2 2 2
3 3 3
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$

Practical 7
Task 5

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	char a[n][n];
	for(i=0;i<n;i++)
	{
		for(j=0;j<=i;j++)
		{
			a[i][j]='*';
		}
	}
	for(i=0;i<n;i++)
	{
		for(j=0;j<=i;j++)
		{
			cout<<a[i][j]<<" ";
		}
		cout<<'\n';
	}
	return 0;
}
```

Output

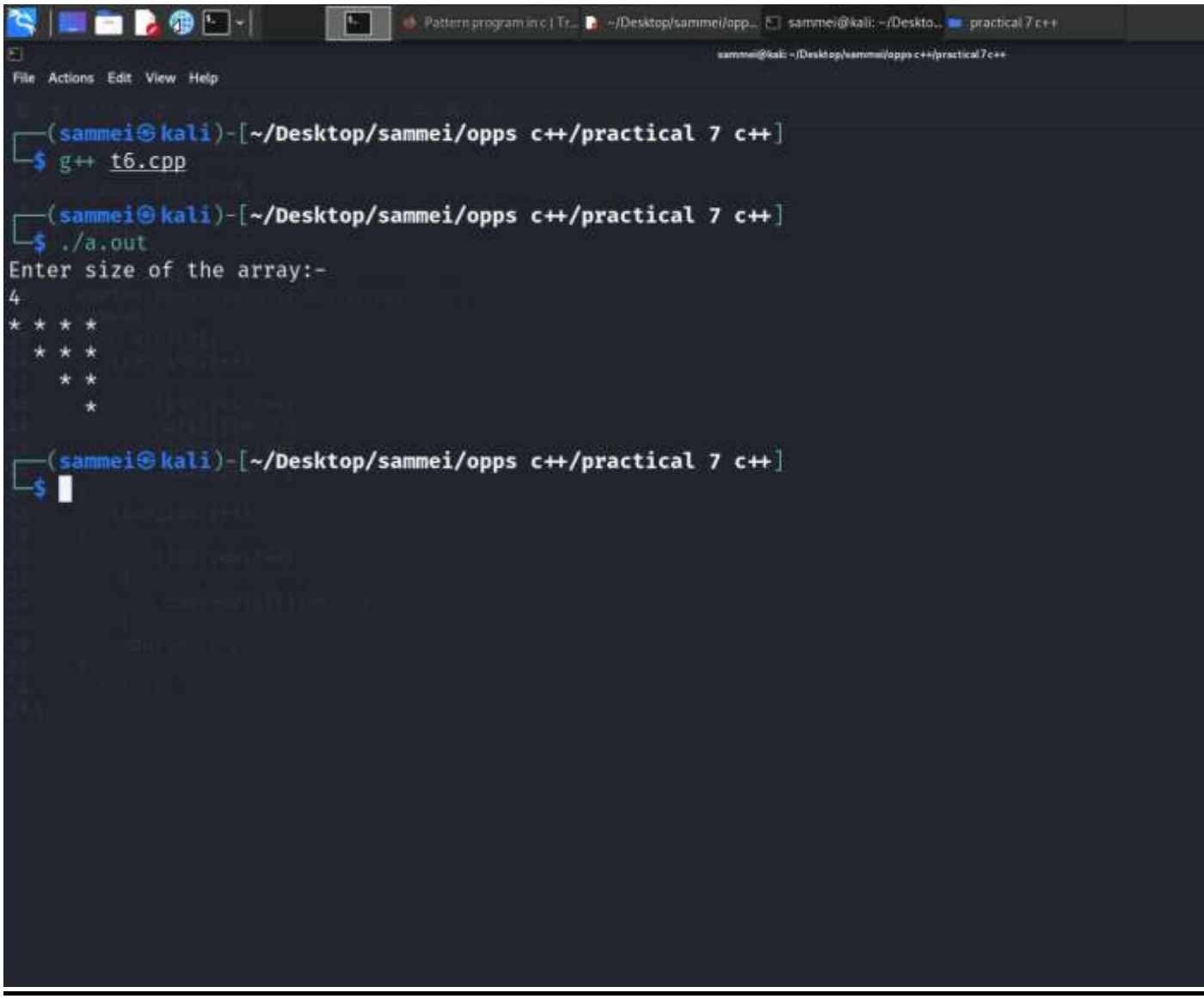

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ g++ t5.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ ./a.out
Enter size of the array:-
4
*
* *
* * *
* * * *
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$

Practical 7
Task 6

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	char a[n][n];
	for(i=0;i<n;i++)
	{
		for(j=0;j<i;j++)
			a[i][j]=' ';
		for(j=i;j<n;j++)
			a[i][j]='*';
	}
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cout<<a[i][j]<<" ";
		}
		cout<<'\n';
	}
	return 0;
}
```

Output

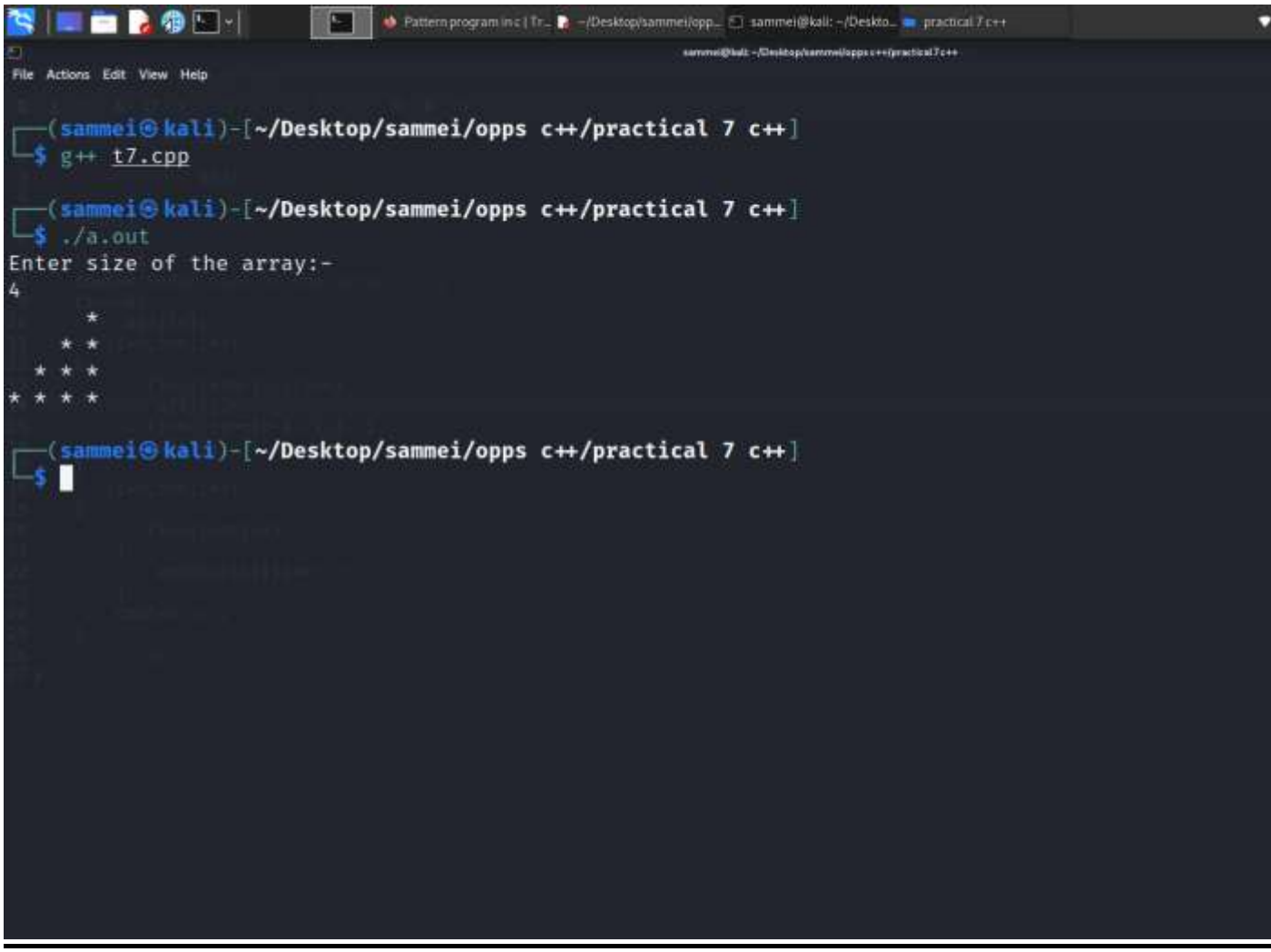

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ g++ t6.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ ./a.out
Enter size of the array:-
4
* * * *
* * *
* *
*
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$

Practical 7
Task 7

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	char a[n][n];
	for(i=0;i<n;i++)
	{
		for(j=0;j<(n-i-1);j++)
			a[i][j]=' ';
		for(j=n-1;j>=(n-i-1);j--)
			a[i][j]='*';
	}
	for(i=0;i<n;i++)
	{
		for(j=0;j<n;j++)
		{
			cout<<a[i][j]<<" ";
		}
		cout<<'\n';
	}
	return 0;
}
```

Output

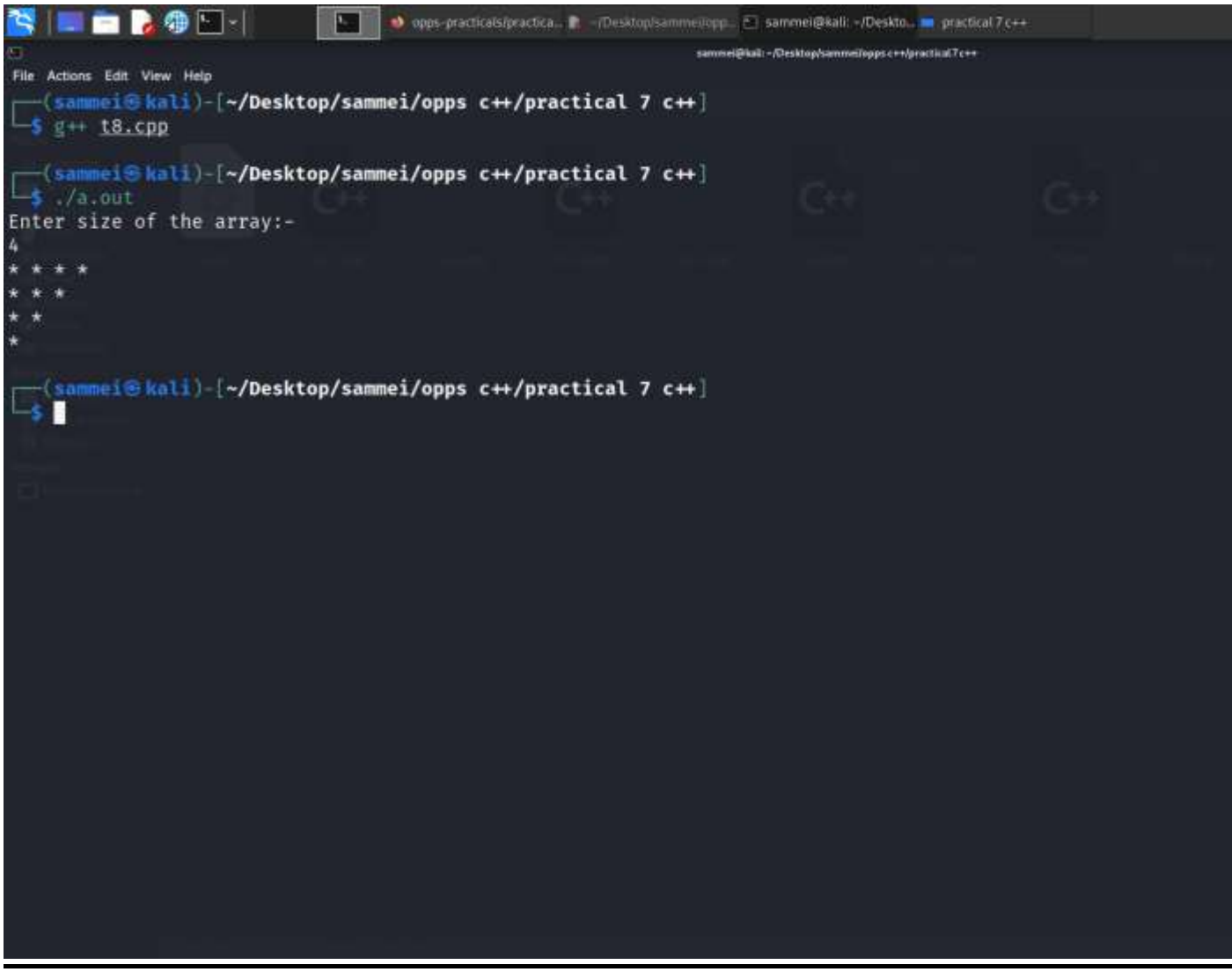

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ g++ t7.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ ./a.out
Enter size of the array:-
4
*
* *
* * *
* * * *
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$

Practical 7
Task 8

Source Code:

```
# include
<iostream>

using namespace std;

int main()
{
	int n,i,j;
	cout<<"Enter size of the array:-\n";
	cin>>n;
	char a[n][n];
	for(i=n-1;i>=0;i--)
	{
		for(j=i;j>=0;j--)
		{
			a[i][j]='*';
		}
	}
	for(i=n-1;i>=0;i--)
	{
		for(j=i;j>=0;j--)
		{
			cout<<a[i][j]<<" ";
		}
		cout<<'\n';
	}
	return 0;
}
```

Output


File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ g++ t8.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$ ./a.out
Enter size of the array:-
4
* * * *
* * *
* *
*
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 7 c++]
$

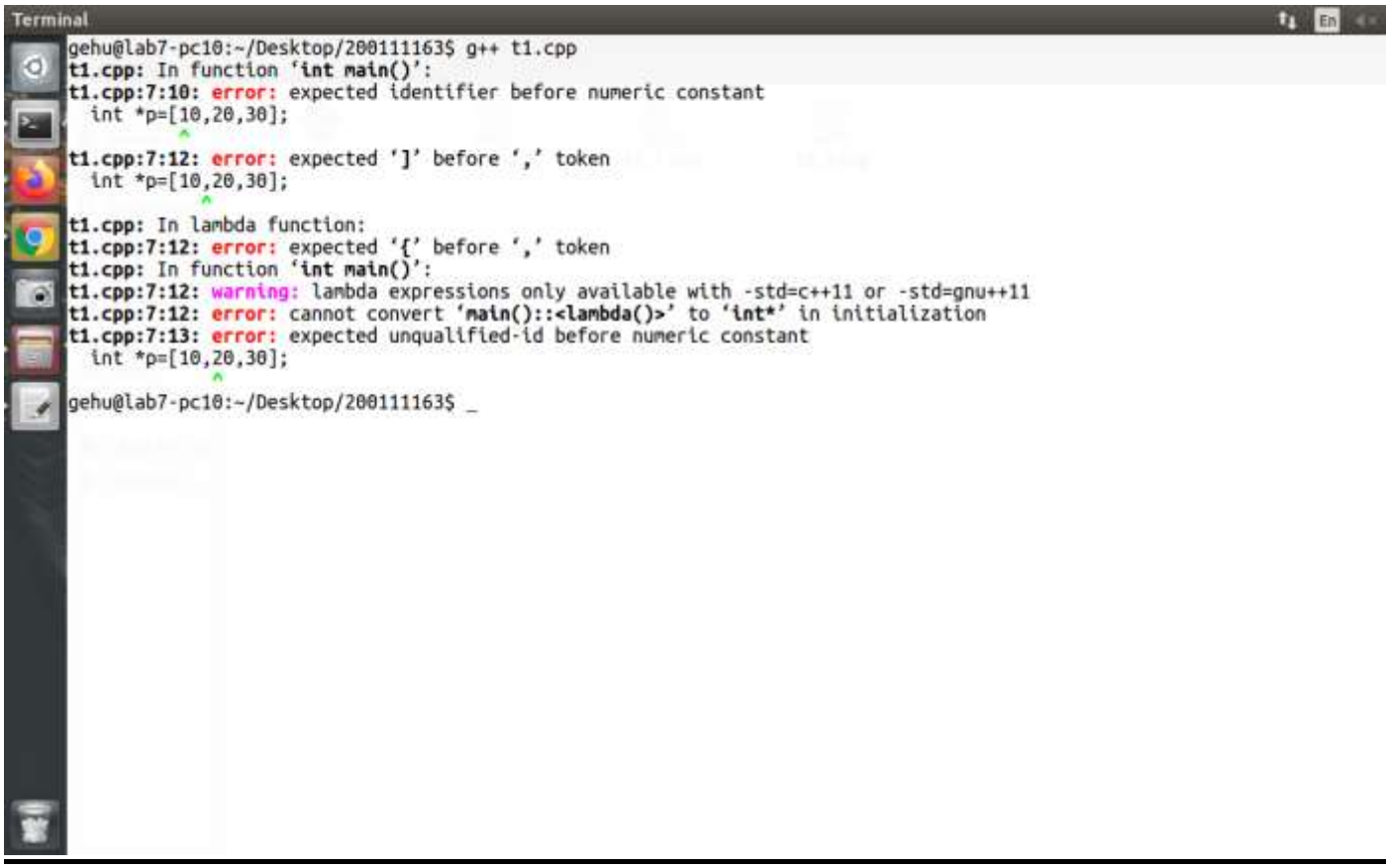
Practical 8

Task 1

Source Code:

```
#include
<iostream>

              using namespace std;

              int main()
              {
                     int *p=[10,20,30];
                     cout<<*p;
                     p++;
                     cout<<(*p);
                     return 0;
              }
```

Output



Practical 8

Task 2 V1

Source Code:

```
#include
<iostream>

            using namespace std;

            int main()
            {
                    int arr[]={10,20,30};
                    int *p;
                    p=&arr;
                    cout<<*p<<"\n";
                    p++;
                    cout<<*p<<"\n";
                    return 0;
            }
```

Output

Practical 8
Task 2 V2

Source Code:

```
#include
<iostream>

            using namespace std;

            int main()
            {
                    int arr[]={10,20,30};
                    int *p;
                    p=arr;
                    cout<<*p<<"\n";
                    p++;
                    cout<<*p<<"\n";
                    return 0;
            }
```

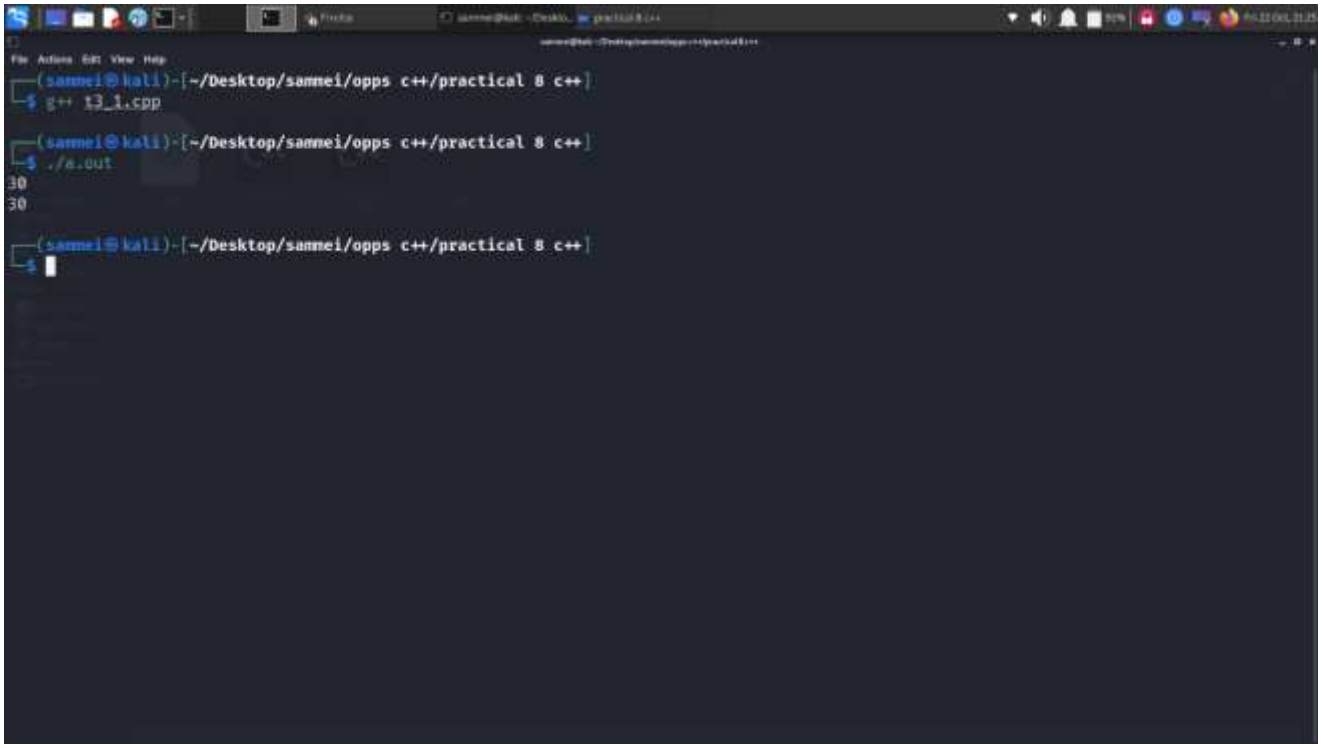
Output

Practical 8
Task 3 V1

Source Code:

```
#include
<iostream>

            using namespace std;

            int main()
            {
                    int a=30;
                    int *p;
                    p=&a;
                    int **q;
                    q=&p;
                    cout<<*p<<"\n";
                    cout<<**q<<"\n";
                    return 0;
            }
```

Output

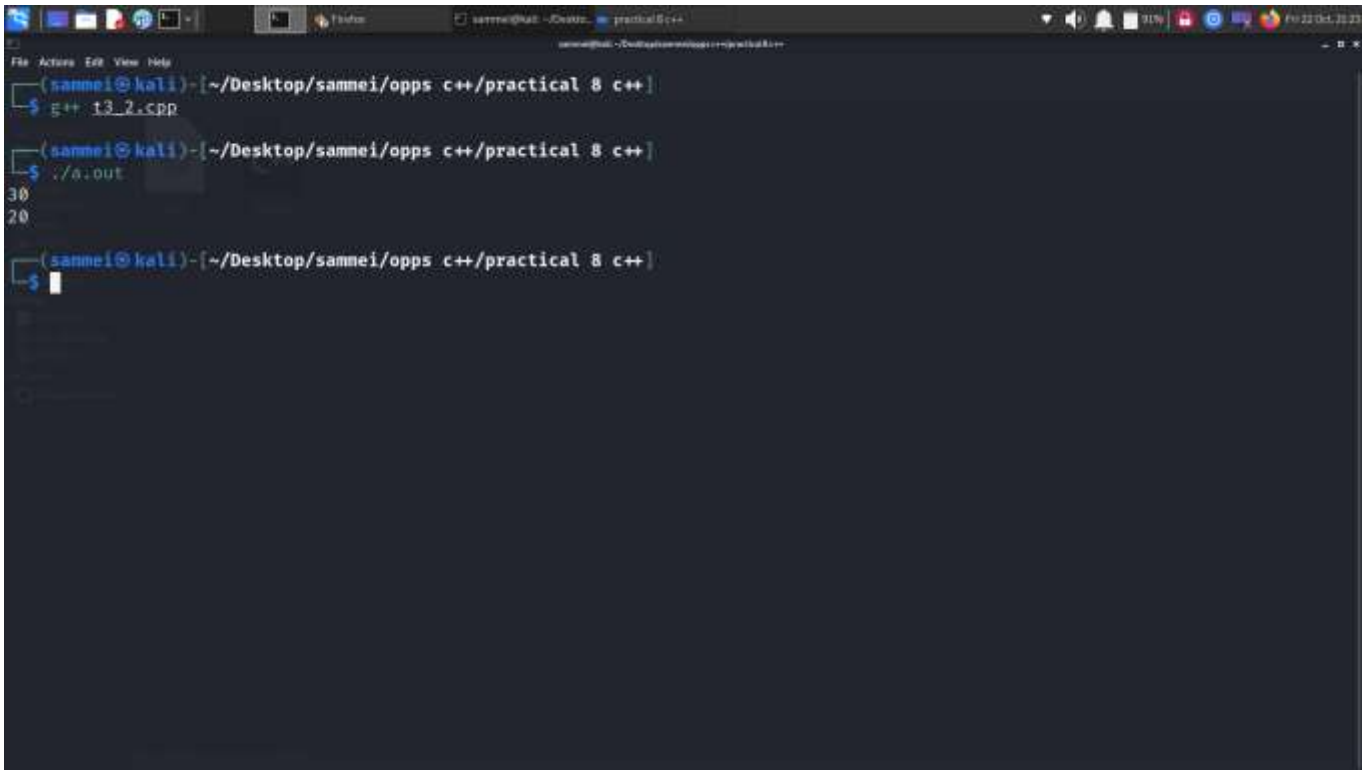


Practical 8
Task 3 V2

Source Code:

```
#include
<iostream>

            using namespace std;

            int main()
            {
                    int a=30;
                    int *p;
                    p=&a;
                    int **q;
                    q=&p;
                    cout<<**q<<"\n";
                    **q=20;
                    cout<<**q<<"\n";
                    return 0;
            }
```

Output

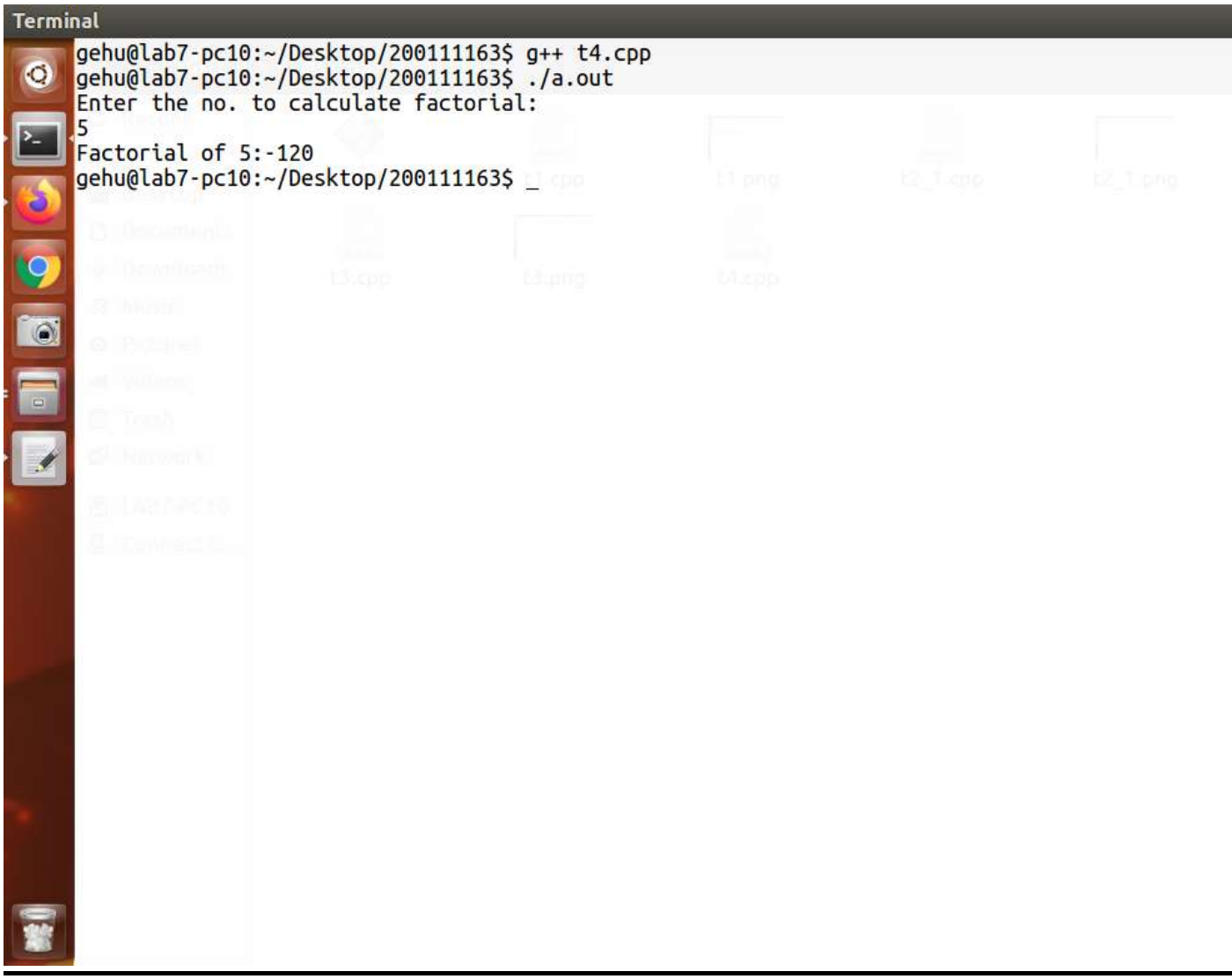


Practical 8
Task 4

Source Code:

```
#include
<iostream>

              using namespace std;

              void fac(int n)
              {
                     int f=1,i;
                     for(i=n;i>0;i--)
                            f=f*i;
                     cout<<"Factorial of "<<n<<":-"<<f<<"\n";
              }
               int main()
               {
                     cout<<"Enter the no. to calculate factorial:\n";
                     int n;
                     cin>>n;
                     fac(n);
                     return 0;
               }
```

Output

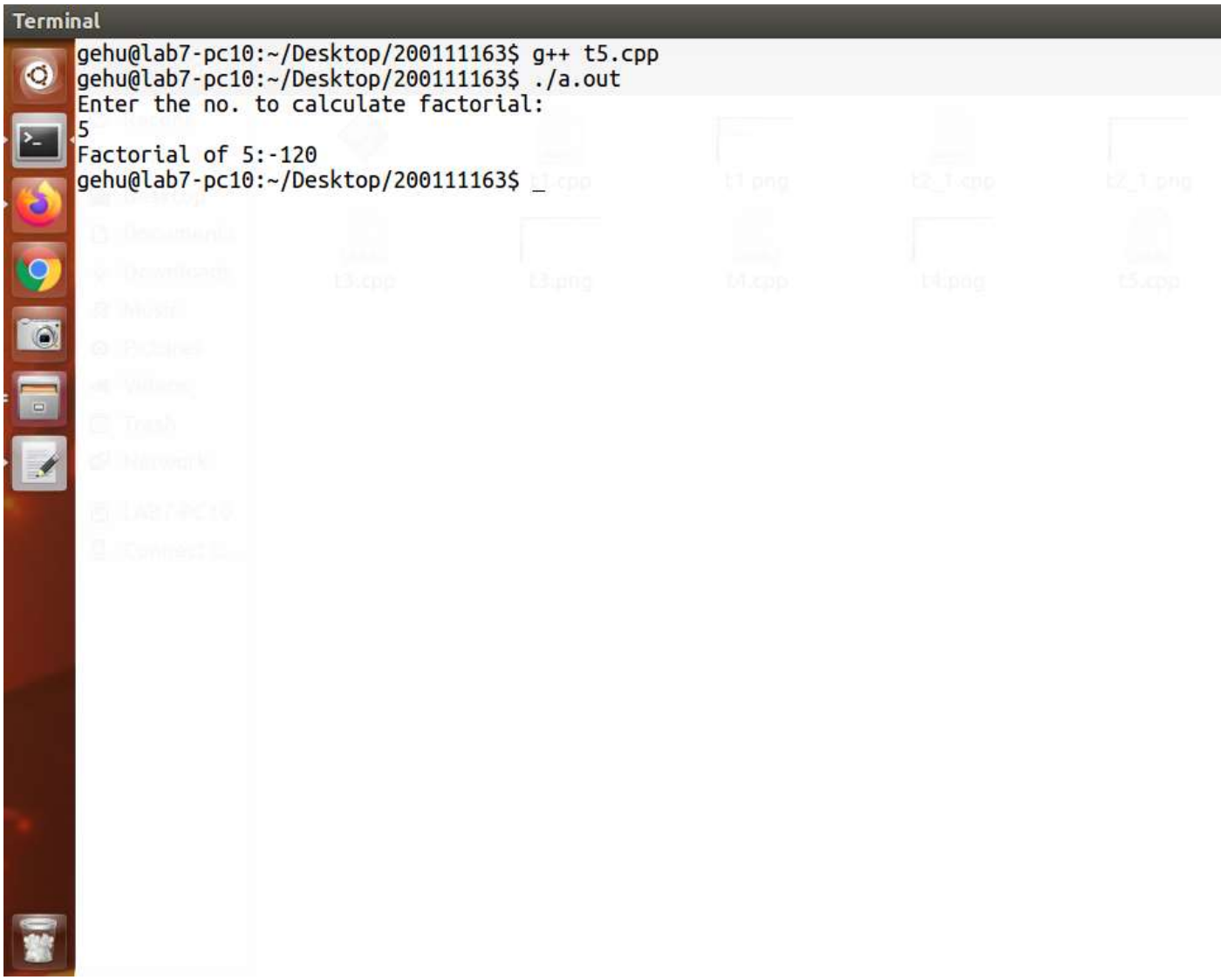

Terminal
gehu@lab7-pc10:~/Desktop/200111163$ g++ t4.cpp
gehu@lab7-pc10:~/Desktop/200111163$ ./a.out
Enter the no. to calculate factorial:
5
Factorial of 5:-120
gehu@lab7-pc10:~/Desktop/200111163$ _

Practical 8
Task 5

Source Code:

```
#include
<iostream>

              using namespace std;

              int fac(int n)
              {
                     if(n==0)
                            return 1;
                     else
                            return (n*fac(n-1));
              }
               int main()
               {
                     cout<<"Enter the no. to calculate factorial:\n";
                     int n,f=0;
                     cin>>n;
                     f=fac(n);
                     cout<<"Factorial of "<<n<<":-"<<f<<"\n";
                     return 0;
               }
```

Output

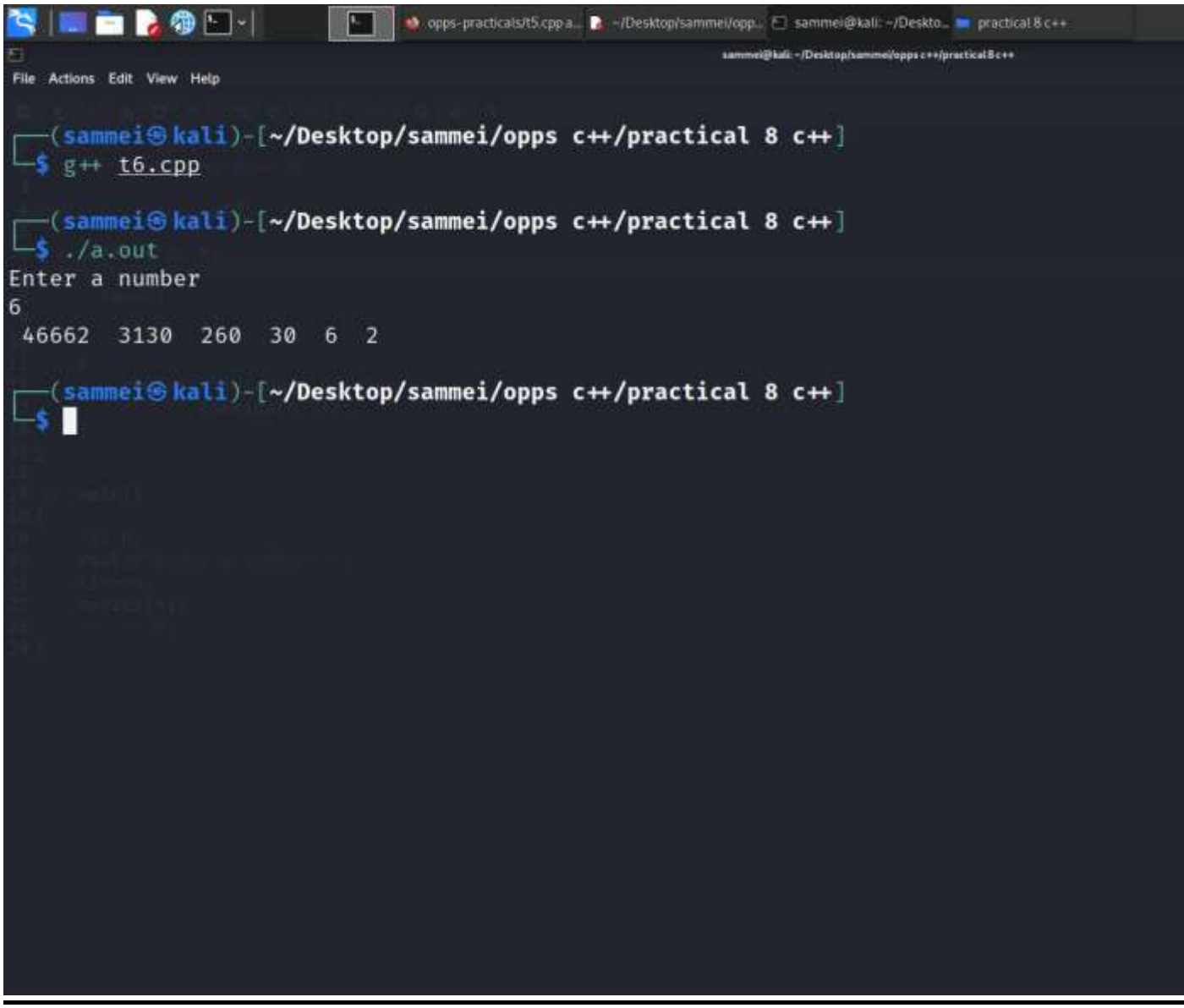

Terminal
gehu@lab7-pc10:~/Desktop/200111163$ g++ t5.cpp
gehu@lab7-pc10:~/Desktop/200111163$ ./a.out
Enter the no. to calculate factorial:
5
Factorial of 5:-120
gehu@lab7-pc10:~/Desktop/200111163$ _

Practical 8
Task 6

Source Code:

```
# include
<iostream>
             # include <bits/stdc++.h>

             using namespace std;

             int series(int n)
             {
                    if(n==0)
                           return 1;
                    else
                    {
                           cout<<" "<<(pow(n,n)+n)<<" ";
                           return (series(n-1));
                    }
             }

             int main()
             {
                    int n;
                    cout<<"Enter a number\n";
                    cin>>n;
                    series(n);
                    return 0;
             }
```

Output

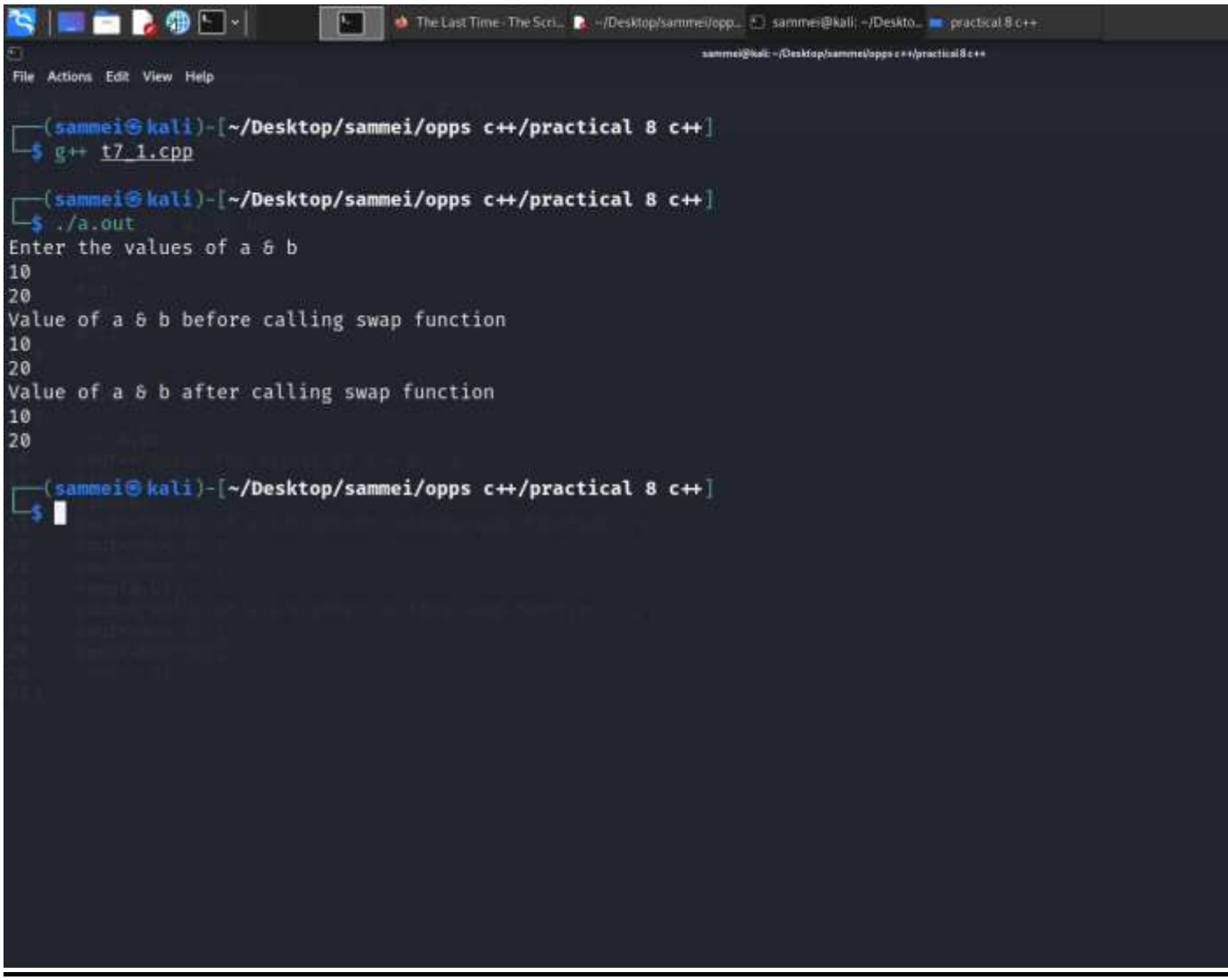

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$ g++ t6.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$ ./a.out
Enter a number
6
46662 3130 260 30 6 2
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$

Practical 8
Task 7 V1

Source Code:

```
#include
<iostream>

            using namespace std;

            void swap(int a,int b)
            {
                    int t;
                    t=a;
                    a=b;
                    b=t;
            }

            int main()
            {
                    int a,b;
                    cout<<"Enter the values of a & b\n";
                    cin>>a;
                    cin>>b;
                    cout<<"Value of a & b before calling swap function\n";
                    cout<<a<<'\n';
                    cout<<b<<'\n';
                    swap(a,b);
                    cout<<"Value of a & b after calling swap function\n";
                    cout<<a<<'\n';
                    cout<<b<<'\n';
                    return 0;
            }
```

Output

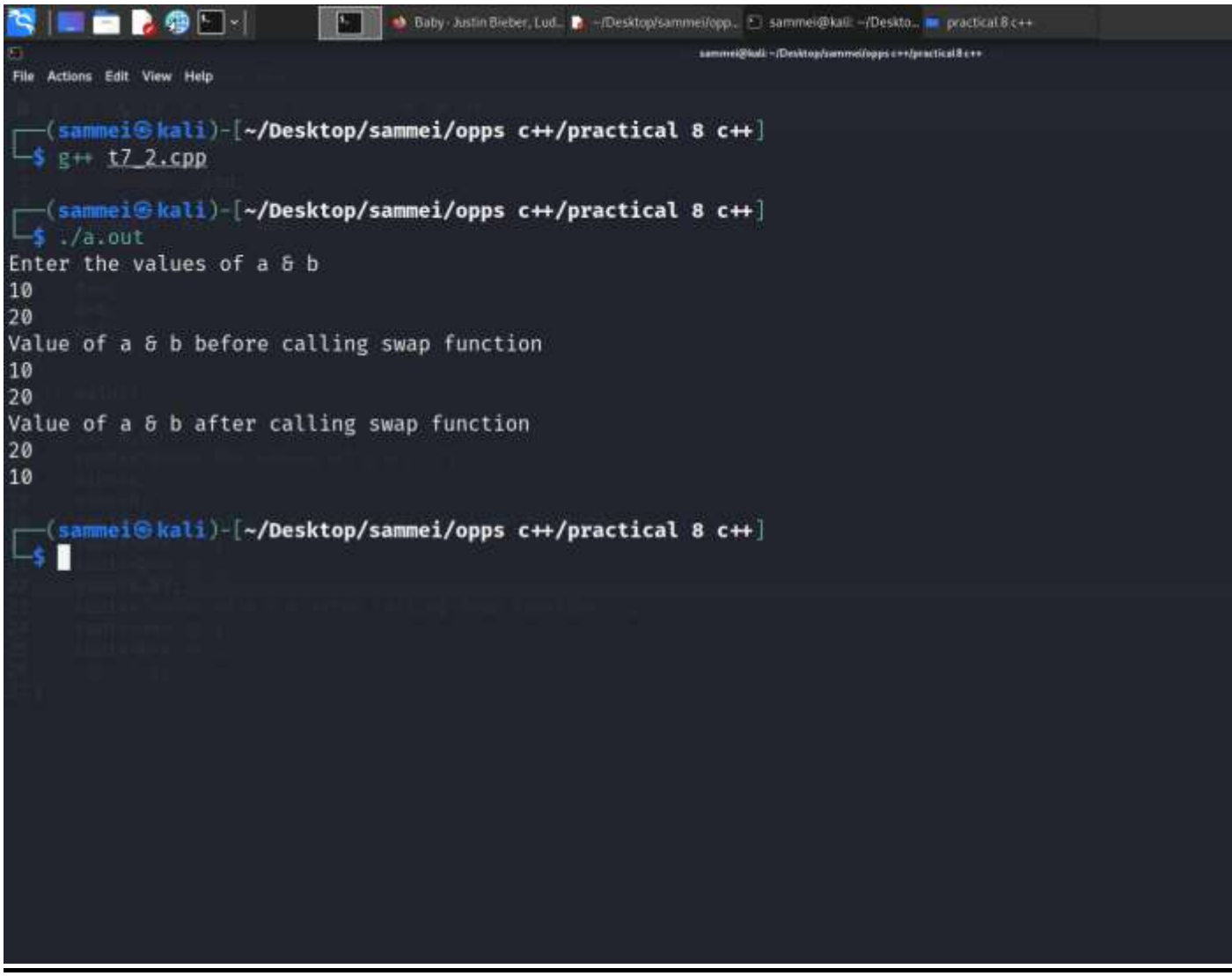

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$ g++ t7_1.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$ ./a.out
Enter the values of a & b
10
20
Value of a & b before calling swap function
10
20
Value of a & b after calling swap function
10
20
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$

Practical 8
Task 7 V2

Source Code:

```
#include
<iostream>

            using namespace std;

            void swap(int &a,int &b)
            {
                    int t;
                    t=a;
                    a=b;
                    b=t;
            }

            int main()
            {
                    int a,b;
                    cout<<"Enter the values of a & b\n";
                    cin>>a;
                    cin>>b;
                    cout<<"Value of a & b before calling swap function\n";
                    cout<<a<<'\n';
                    cout<<b<<'\n';
                    swap(a,b);
                    cout<<"Value of a & b after calling swap function\n";
                    cout<<a<<'\n';
                    cout<<b<<'\n';
                    return 0;
            }
```

Output

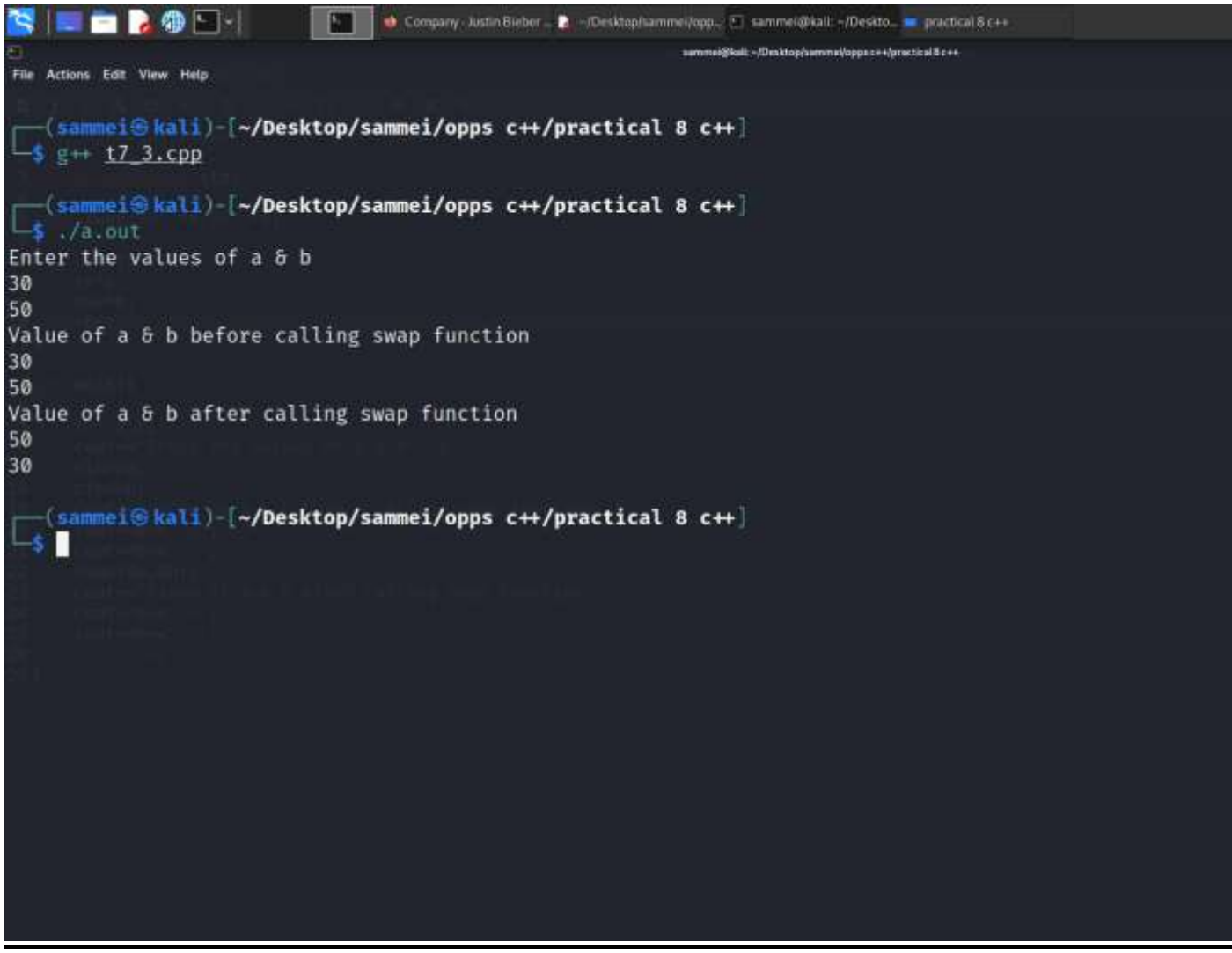

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$ g++ t7_2.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$ ./a.out
Enter the values of a & b
10
20
Value of a & b before calling swap function
10
20
Value of a & b after calling swap function
20
10
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$

Practical 8
Task 7 V2

Source Code:

```
#include
<iostream>

              using namespace std;

              void swap(int *a,int *b)
              {
                     int t;
                     t=*a;
                     *a=*b;
                     *b=t;
              }

              int main()
              {
                     int a,b;
                     cout<<"Enter the values of a & b\n";
                     cin>>a;
                     cin>>b;
                     cout<<"Value of a & b before calling swap function\n";
                     cout<<a<<'\n';
                     cout<<b<<'\n';
                     swap(&a,&b);
                     cout<<"Value of a & b after calling swap function\n";
                     cout<<a<<'\n';
                     cout<<b<<'\n';
                     return 0;
              }
```

Output

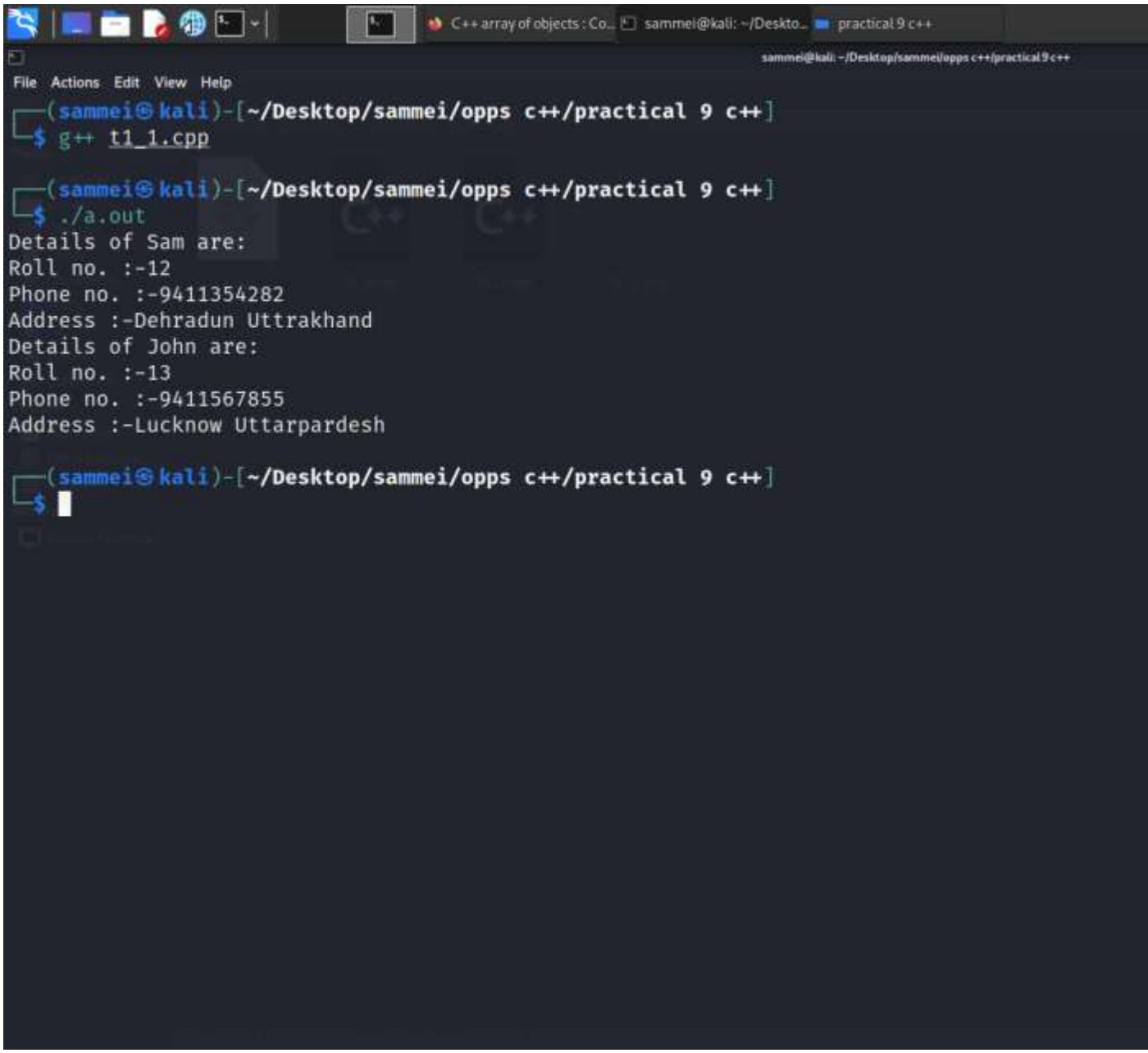

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$ g++ t7_3.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$ ./a.out
Enter the values of a & b
30
50
Value of a & b before calling swap function
30
50
Value of a & b after calling swap function
50
30
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 8 c++]
$

Practical 9
Task 1 V1

Source Code:

```
#include
<iostream>
            #include <string>

            using namespace std;

            class Student
            {
                    public:
                            int rno;
                            long int phn;
                            string adrs;
                            string name;
            };

            int main()
            {
                    Student obj1;
                    Student obj2;
                    obj1.rno=12;
                    obj1.phn=9411354282;
                    obj1.adrs="Dehradun Uttrakhand";
                    obj1.name="Sam";
                    obj2.rno=13;
                    obj2.phn=9411567855;
                    obj2.adrs="Lucknow Uttarpardesh";
                    obj2.name="John";
                    cout<<"Details of "<<obj1.name<<" are:\n";
                    cout<<"Roll no. :-"<<obj1.rno<<"\n";
                    cout<<"Phone no. :-"<<obj1.phn<<"\n";
                    cout<<"Address :-"<<obj1.adrs<<"\n";
                    cout<<"Details of "<<obj2.name<<" are:\n";
                    cout<<"Roll no. :-"<<obj2.rno<<"\n";
                    cout<<"Phone no. :-"<<obj2.phn<<"\n";
                    cout<<"Address :-"<<obj2.adrs<<"\n";
                    return 0;
            }
```

Output


C++ array of objects : Co...
sammei@kali: ~/Deskto...
practical 9 c++
sammei@kali: ~/Desktop/sammei/opps c++/practical 9 c++
File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$ g++ t1_1.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$ ./a.out
Details of Sam are:
Roll no. :-12
Phone no. :-9411354282
Address :-Dehradun Uttrakhand
Details of John are:
Roll no. :-13
Phone no. :-9411567855
Address :-Lucknow Uttarpardesh
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$

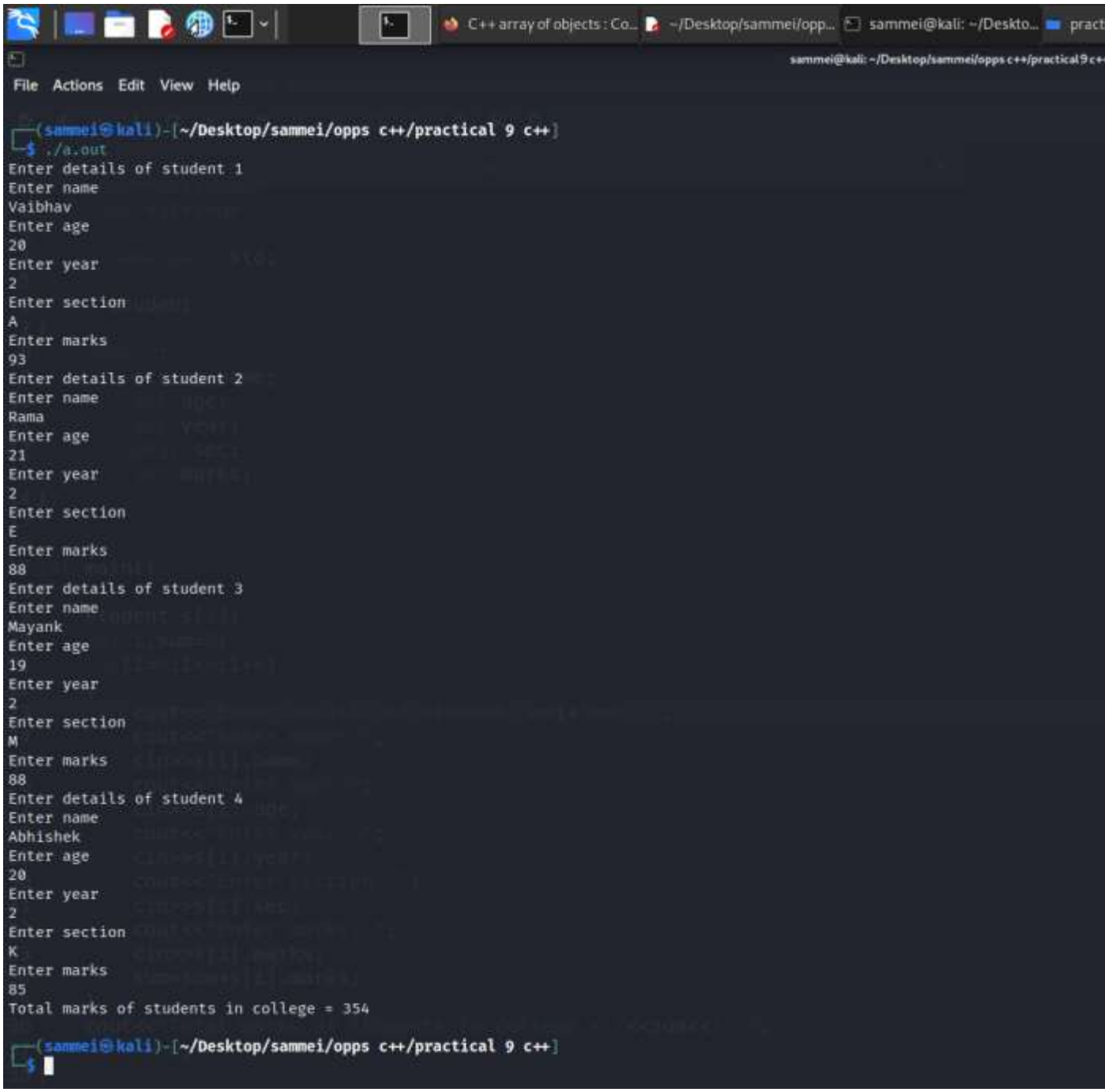
Practical 9

Task 1 V2

Source Code:

```
#include
<iostream>
            #include <string>

            using namespace std;

            class student
            {
                   public:
                          string name;
                          int age;
                          int year;
                          char sec;
                          int marks;
            };


            int main()
            {
                   student s[4];
                   int i,sum=0;
                   for(i=0;i<4;i++)
                   {
                          cout<<"Enter details of student "<<i+1<<"\n";
                          cout<<"Enter name\n";
                       cin>>s[i].name;
                       cout<<"Enter age\n";
                       cin>>s[i].age;
                       cout<<"Enter year\n";
                       cin>>s[i].year;
                       cout<<"Enter section\n";
                       cin>>s[i].sec;
                       cout<<"Enter marks\n";
                       cin>>s[i].marks;
                          sum=sum+s[i].marks;
                   }
                   cout<<"Total marks of students in college = "<<sum<<"\n";
                   return 0;
            }
```

Output

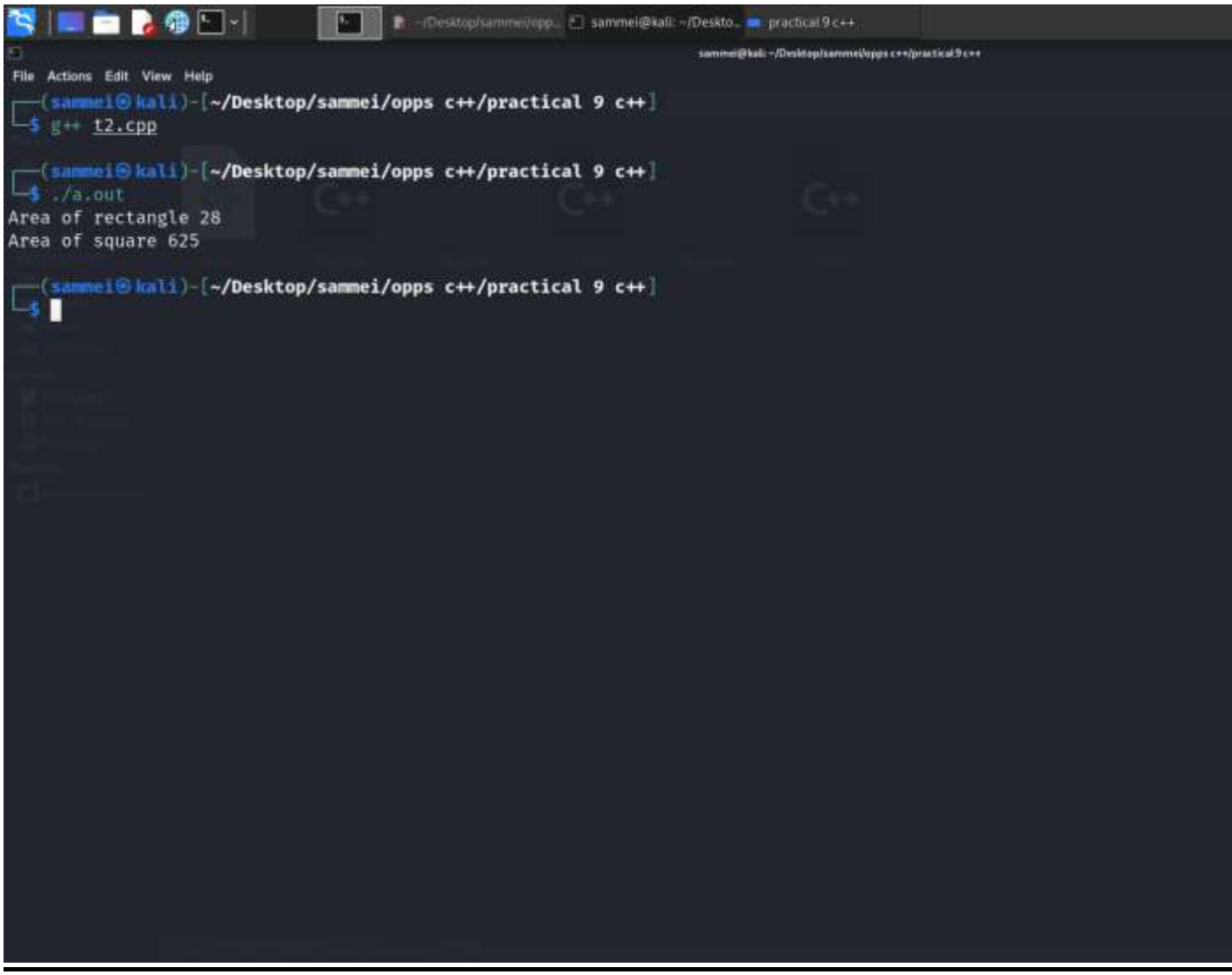

C++ array of objects : Co...
~/Desktop/sammei/opp...
sammei@kali: ~/Deskto...
File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$ ./a.out
Enter details of student 1
Enter name
Vaibhav
Enter age
20
Enter year
2
Enter section
A
Enter marks
93
Enter details of student 2
Enter name
Rama
Enter age
21
Enter year
2
Enter section
E
Enter marks
88
Enter details of student 3
Enter name
Mayank
Enter age
19
Enter year
2
Enter section
M
Enter marks
88
Enter details of student 4
Enter name
Abhishek
Enter age
20
Enter year
2
Enter section
K
Enter marks
85
Total marks of students in college = 354
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$

Practical 9
Task 2

Source Code:

```
#include
<iostream>

              using namespace std;

              class Area
              {
                     public:
                            int length;
                            int breadth;
                            Area( int l, int b )
                            {
                                   length = l;
                                   breadth = b;
                            }
                            Area( int l )
                            {
                                   length = l;
                            }
                            int printAreaR()
                            {
                                   return length * breadth;
                            }
                            int printAreaS()
                            {
                                   return length * length;
                            }
              };

              int main()
              {
                     Area rt1( 7, 4 );
                     Area sq2(25);
                     cout << "Area of rectangle " << rt1.printAreaR() << endl;
                     cout << "Area of square " << sq2.printAreaS() << endl;
                     return 0;
              }
```

Output


File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$ g++ t2.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$ ./a.out
Area of rectangle 28
Area of square 625
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$

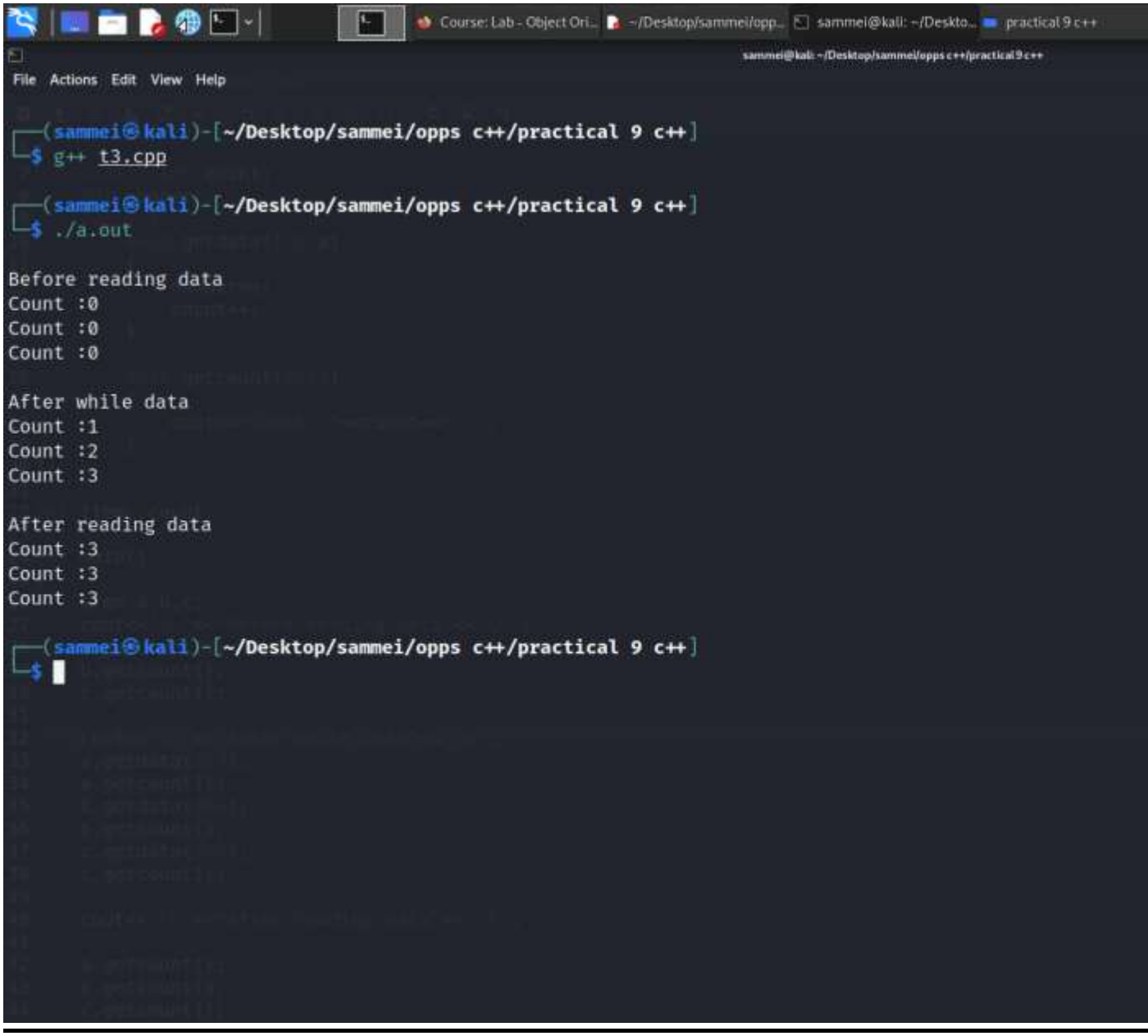
Practical 9
Task 3

Source Code:

```
#include
<iostream>

              using namespace std;

              class item
              {
                     static int count;
                     int number;
                     public:
                            void getdata(int a)
                            {
                                   number=a;
                                   count++;
                            }

                            void getcount(void)
                            {
                                   cout<<"Count :"<<count<<"\n";
                            }
              };

              int item::count;

              int main()
              {
                     item a,b,c;
                     cout<<'\n'<<"Before reading data"<<'\n';
                     a.getcount();
                     b.getcount();
                     c.getcount();

                     cout<<'\n'<<"After while data"<<'\n';
                     a.getdata(123);
                     a.getcount();
                     b.getdata(456);
                     b.getcount();
                     c.getdata(789);
                     c.getcount();
```

```
        cout<<'\n'<<"After reading data"<<'\n';

        a.getcount();
        b.getcount();
        c.getcount();
        return 0;
}
```

Output



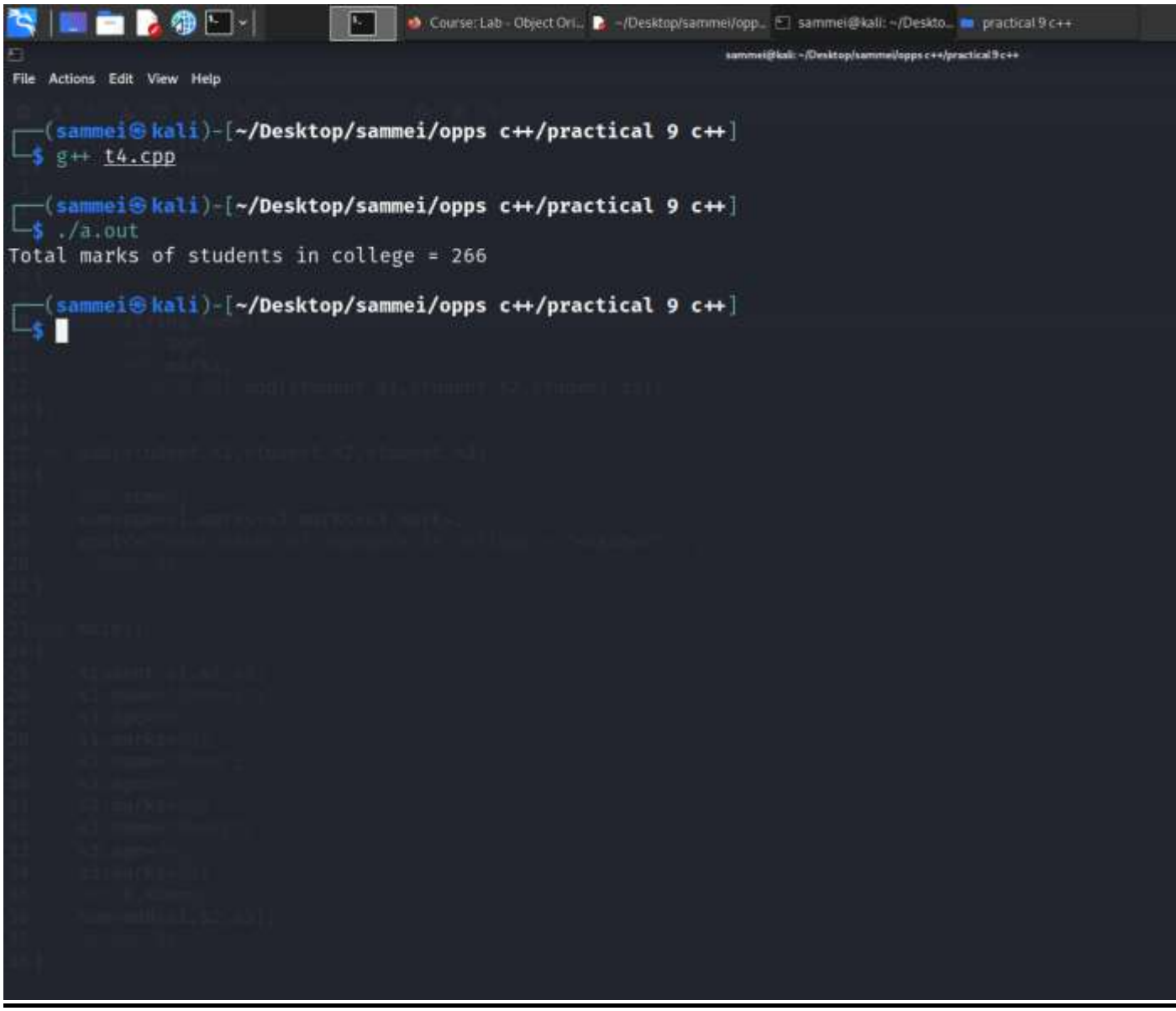
Practical 9

Task 4

Source Code:

```
#include
<iostream>
            #include <string>

            using namespace std;

            class student
            {
                    public:
                            string name;
                            int age;
                            int marks;
                            friend int add(student s1,student s2,student s3);
            };

            int add(student s1,student s2,student s3)
            {
                    int sum=0;
                    sum=sum+s1.marks+s2.marks+s3.marks;
                    cout<<"Total marks of students in college = "<<sum<<"\n";
                    return 0;
            }

            int main()
            {
                    student s1,s2,s3;
                    s1.name="Sammei";
                    s1.age=20;
                    s1.marks=93;
                    s2.name="Rama";
                    s2.age=20;
                    s2.marks=88;
                    s3.name="Masky";
                    s3.age=20;
                    s3.marks=85;
                    int i,sum=0;
                    sum=add(s1,s2,s3);
                    return 0;
            }
```

Output


Course: Lab - Object Ori...
~/Desktop/sammei/opp...
sammei@kali: ~/Deskto...
practical 9 c++
File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$ g++ t4.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$ ./a.out
Total marks of students in college = 266
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 9 c++]
$

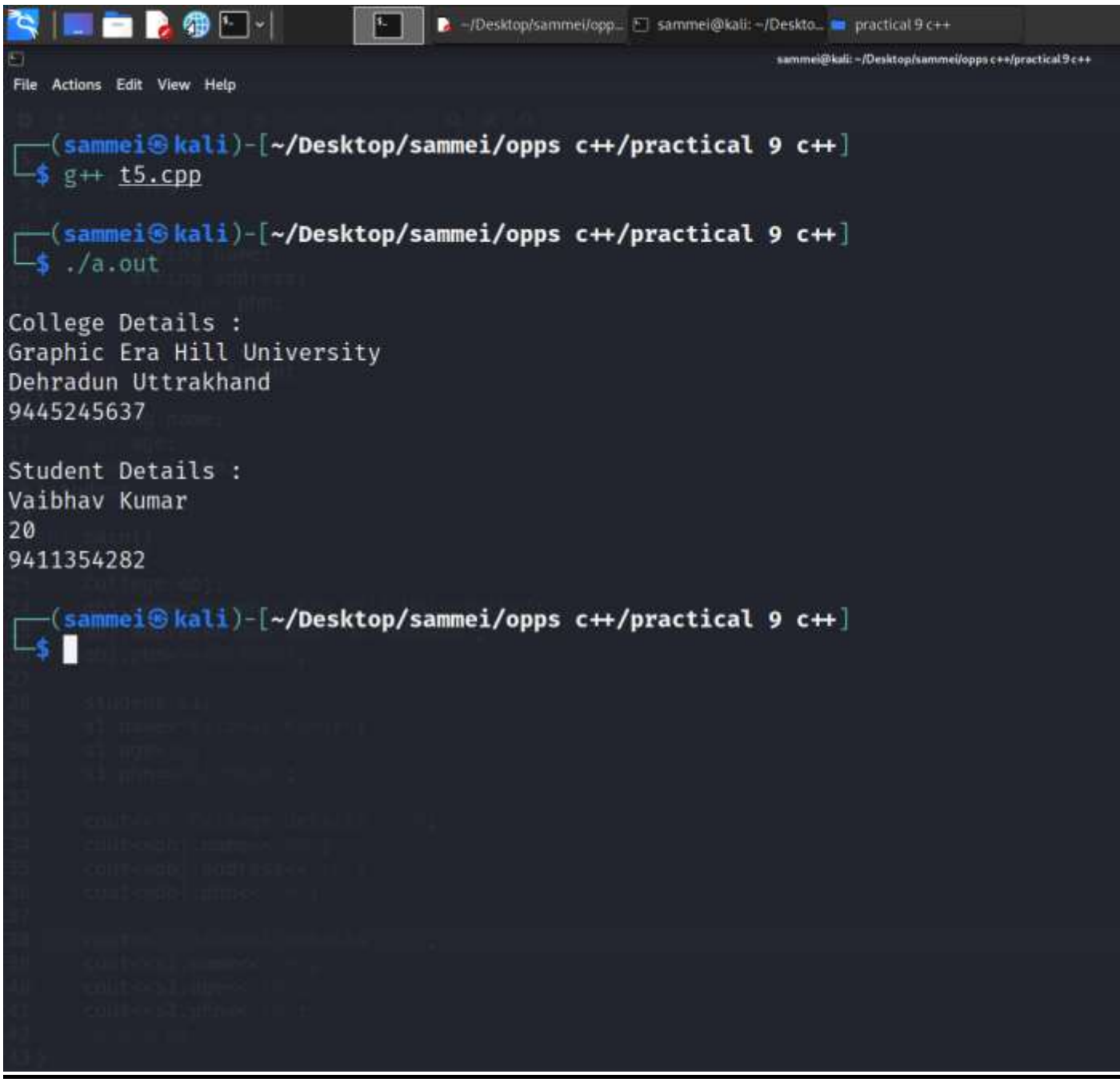
Practical 9
Task 5

Source Code:

```
#include
<iostream>
            #include <string>

            using namespace std;

            class College
            {
                    public:
                            string name;
                            string address;
                            long int phn;
            };

            typedef struct student
            {
                    string name;
                    int age;
                    long int phn;
            }student;

            int main()
            {
                    College obj;
                    obj.name="Graphic Era Hill University";
                    obj.address="Dehradun Uttrakhand";
                    obj.phn=9445245637;

                    student s1;
                    s1.name="Vaibhav Kumar";
                    s1.age=20;
                    s1.phn=9411354282;

                    cout<<"\nCollege Details :\n";
                    cout<<obj.name<<'\n';
                    cout<<obj.address<<'\n';
                    cout<<obj.phn<<'\n';

                    cout<<"\nStudent Details :\n";
```

```
        cout<<s1.name<<'\n';
        cout<<s1.age<<'\n';
        cout<<s1.phn<<'\n';
        return 0;
}
```

Output



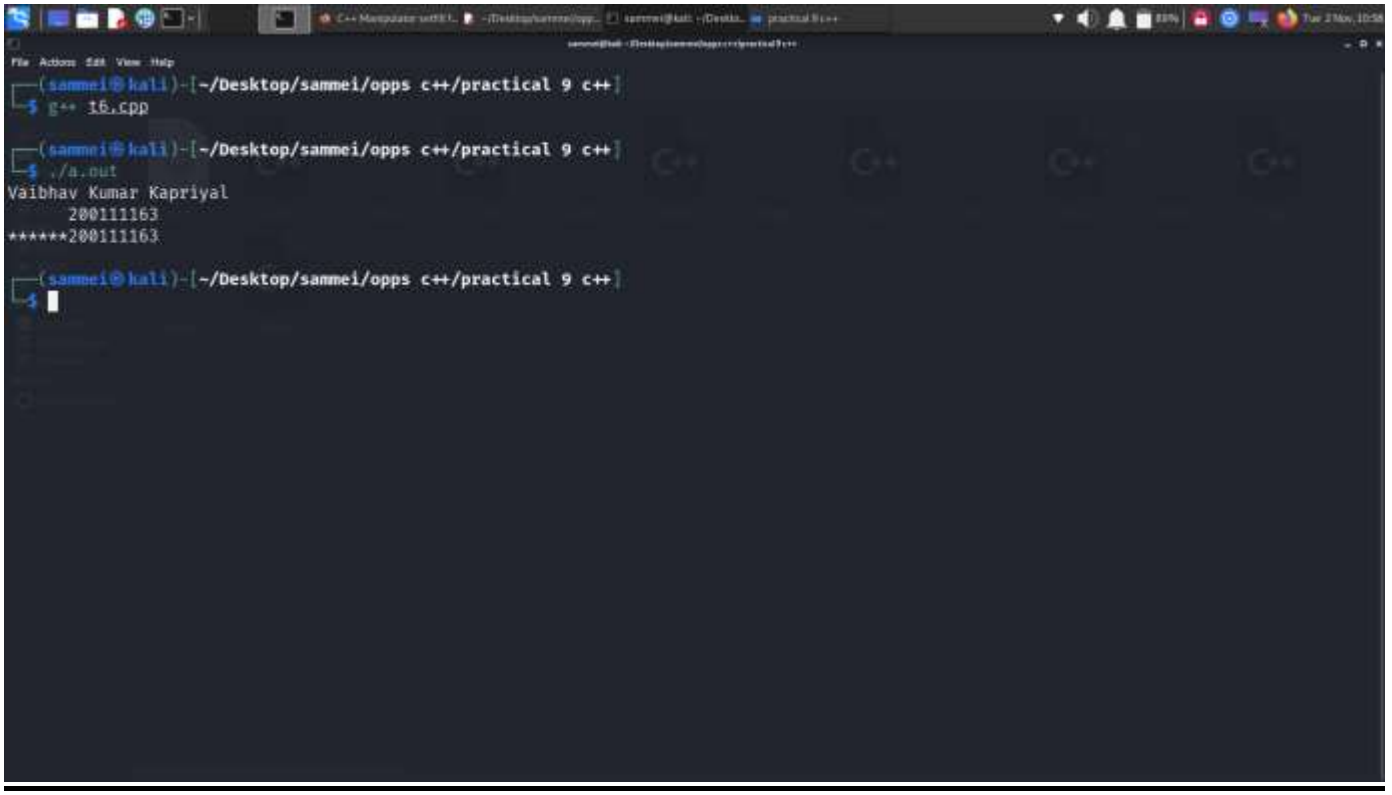
Practical 9

Task 6

Source Code:

```
#include
<iostream>
            #include <iomanip>

            using namespace std;

            int main ()
            {
            cout<<"Vaibhav Kumar Kapriyal"<<endl;

            cout<<setw(15)<<200111163<<endl;

            cout<<setfill('*')<<setw(15)<<200111163<<endl;
            return 0;
            }
```

Output



Practical 10

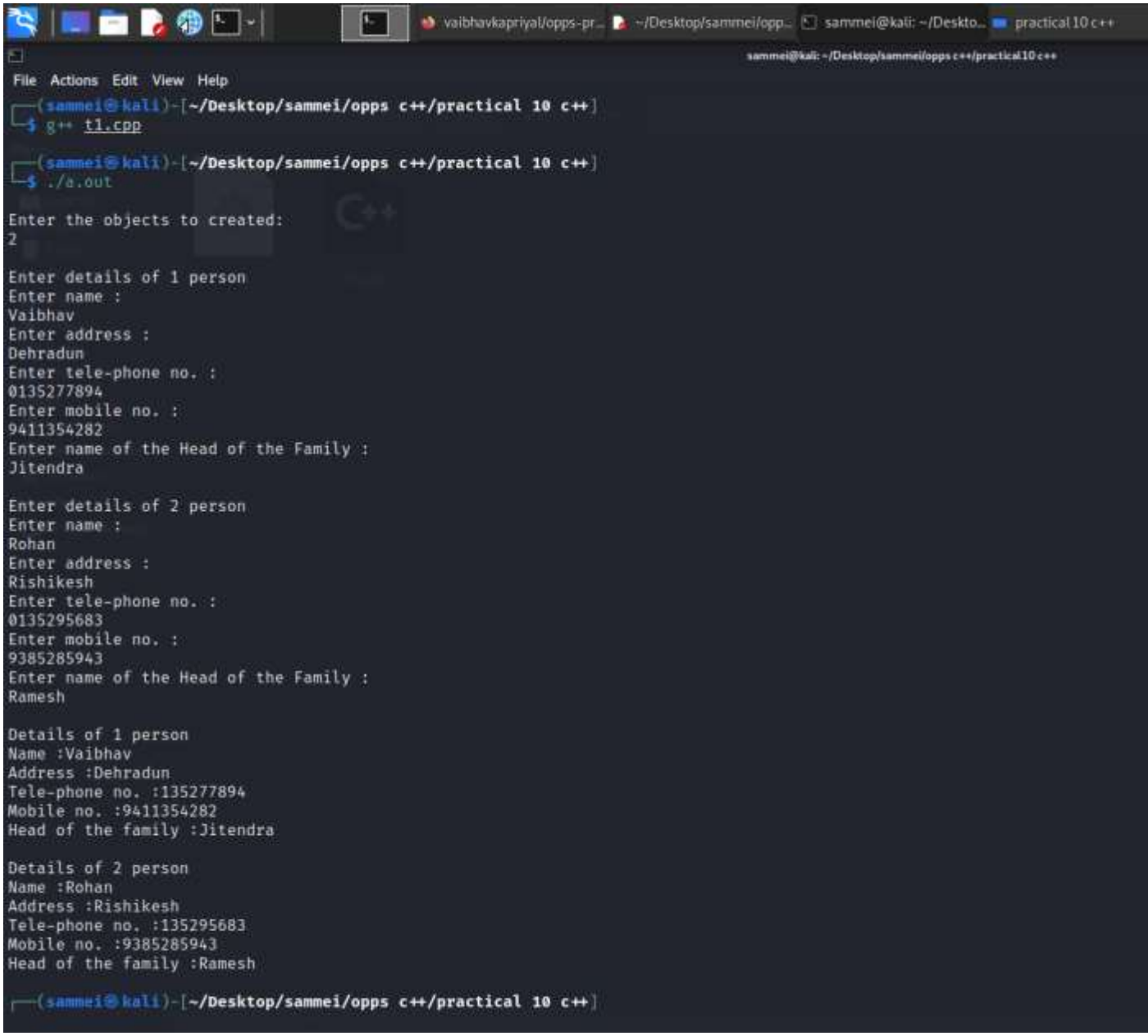
Task 1

Source Code:

```
#include
<iostream>
            #include <string>

            using namespace std;

            class Directory
            {
                   public:
                          string name;
                          string address;
                          long int telephn;
                          long int mobilephn;
                          string head;
            };


            int main()
            {
                   cout<<"\nEnter the objects to created: \n";
                   int n,i,sum=0;
                   cin>>n;
                   Directory d[n];
                   for(i=0;i<n;i++)
                   {
                          cout<<"\nEnter details of "<<i+1<<" person\n";
                          cout<<"Enter name :\n";
                       cin>>d[i].name;
                       cout<<"Enter address :\n";
                       cin>>d[i].address;
                       cout<<"Enter tele-phone no. :\n";
                       cin>>d[i].telephn;
                       cout<<"Enter mobile no. :\n";
                       cin>>d[i].mobilephn;
                       cout<<"Enter name of the Head of the Family :\n";
                       cin>>d[i].head;
                   }
                   for(i=0;i<n;i++)
                   {
```

```
                cout<<"\nDetails of "<<i+1<<" person\n";
                cout<<"Name :"<<d[i].name<<'\n';
                cout<<"Address :"<<d[i].address<<'\n';
                cout<<"Tele-phone no. :"<<d[i].telephn<<'\n';
                cout<<"Mobile no. :"<<d[i].mobilephn<<'\n';
                cout<<"Head of the family :"<<d[i].head<<'\n';
        }
        return 0;
}
```

Output

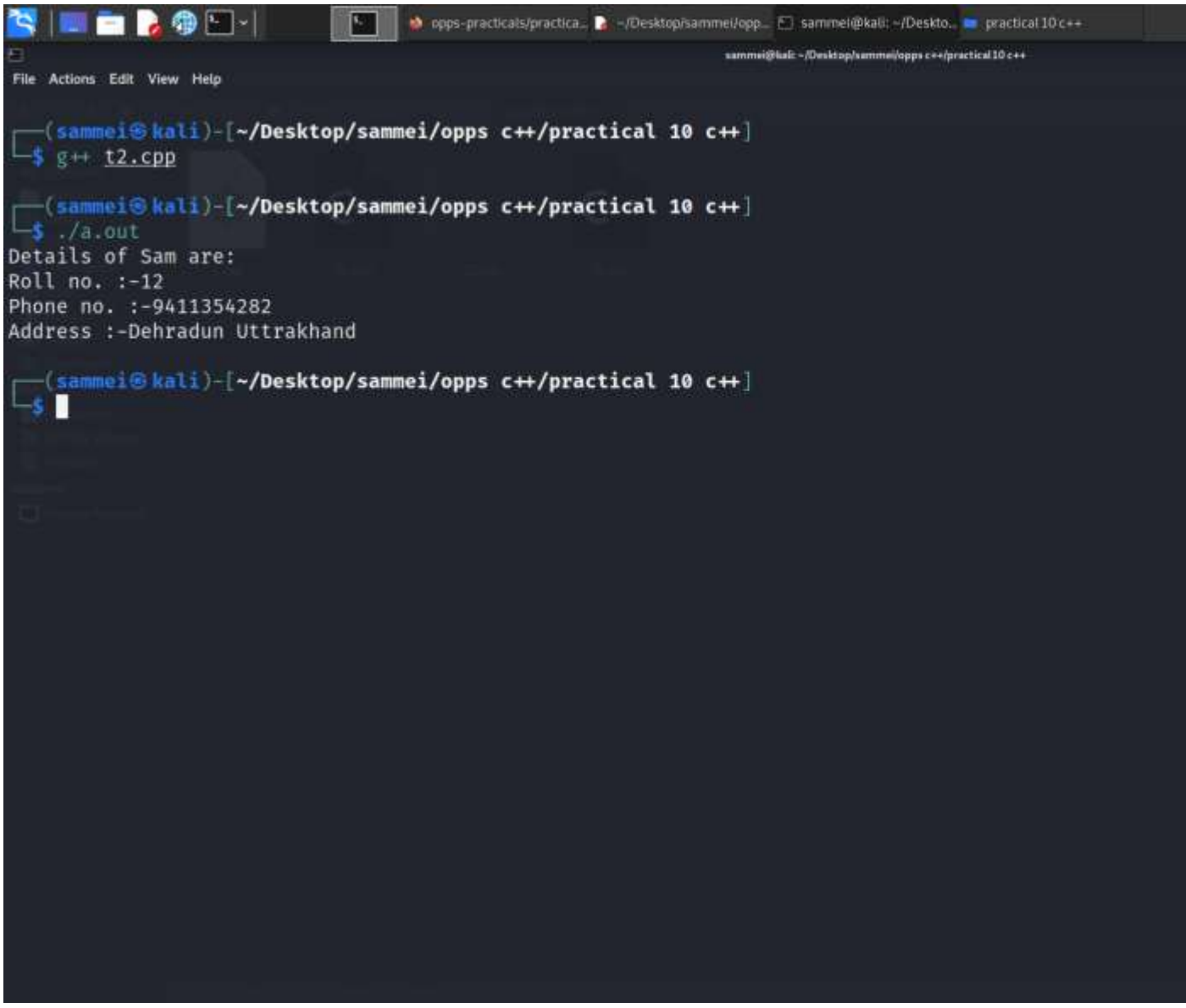


Practical 10
Task 2

Source Code:

```
#include
<iostream>
            #include <string>

            using namespace std;

            class Student
            {
                    public:
                            int rno;
                            long int phn;
                            string adrs;
                            string name;
                            void display()
                            {
                                    cout<<"Details of "<<name<<" are:\n";
                             cout<<"Roll no. :-"<<rno<<"\n";
                             cout<<"Phone no. :-"<<phn<<"\n";
                                    cout<<"Address :-"<<adrs<<"\n";
                            }
            };

            int main()
            {
                    Student *s=new Student;
                    s->rno=12;
                    s->phn=9411354282;
                    s->adrs="Dehradun Uttrakhand";
                    s->name="Sam";
                    s->display();
                    return 0;
            }
```

Output

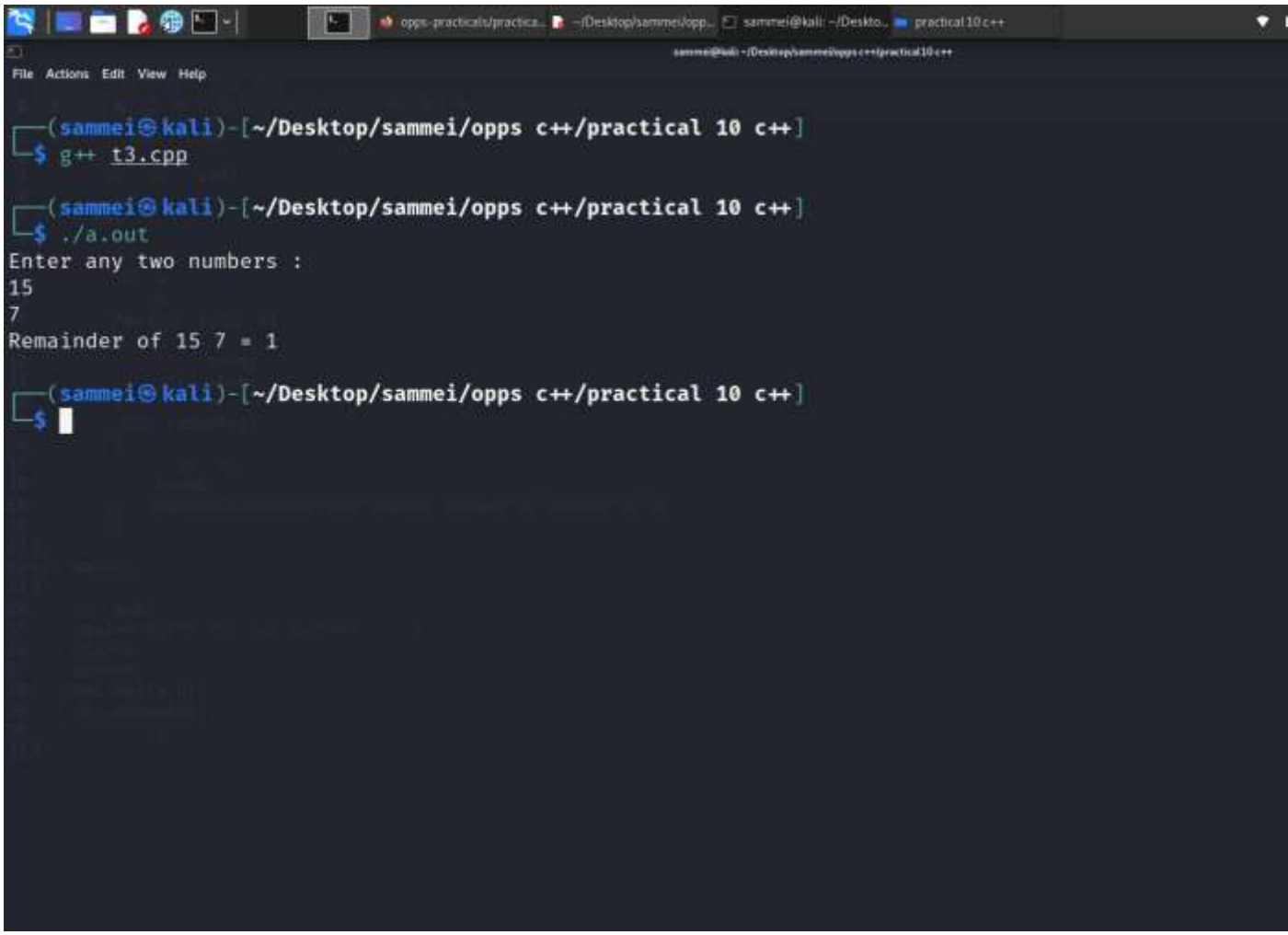

File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 10 c++]
$ g++ t2.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 10 c++]
$ ./a.out
Details of Sam are:
Roll no. :-12
Phone no. :-9411354282
Address :-Dehradun Uttrakhand
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 10 c++]
$

Practical 10
Task 3

Source Code:

```
#include
<iostream>

              using namespace std;

              class Abc
              {
                     public:
                            int a;
                            int b;
                            Abc(int a,int b)
                            {
                                   this->a=a;
                                   this->b=b;
                            }
                            void compute()
                            {
                                   float r;
                                   r=a%b;
                                   cout<<"Remainder of "<<a<<' '<<b<<" = "<<r<<'\n';
                            }
              };
              int main()
              {
                     int a,b;
                     cout<<"Enter any two numbers :\n";
                     cin>>a;
                     cin>>b;
                     Abc obj(a,b);
                     obj.compute();
                     return 0;
              }
```

Output


File Actions Edit View Help
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 10 c++]
$ g++ t3.cpp
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 10 c++]
$ ./a.out
Enter any two numbers :
15
7
Remainder of 15 7 = 1
(sammei㉿kali)-[~/Desktop/sammei/opps c++/practical 10 c++]
$

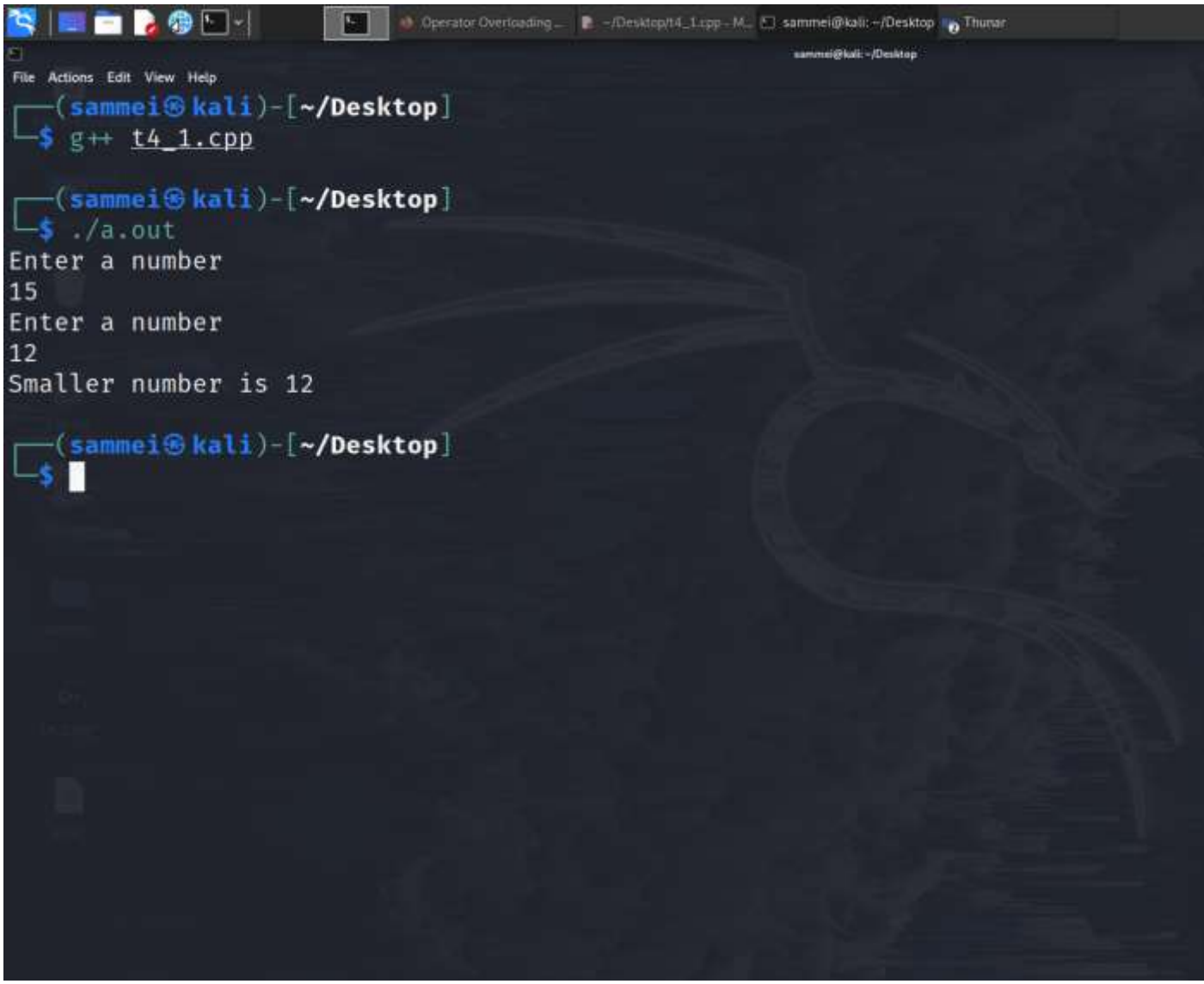
Practical 10
Task 4 V1

Source Code:

```
#include
<iostream>
              using namespace std;

              class Complex {

                 public:
                     int a;

                  void input() {
                      cout << "Enter a number:\n ";
                      cin >> a;
                  }

                  friend Complex operator < (const Complex& obj);

                  void output() {
                     cout<<"Smaller number is "<<a<<"\n";
                  }

              };

              Complex operator < (Complex& obj1,Complex& obj2) {
                      if(obj1.a<obj2.a)
                             return (obj1.a);
                      else
                             return (obj2.a);
                  }

              int main() {
                  Complex complex1, complex2, result;

                  complex1.input();

                  complex2.input();

                  result = complex1 < complex2;
                  result.output();
```

```
    return 0;
}
```

Output



Practical 10
Task 4 V2

Source Code:

```
#include
<iostream>
             using namespace std;

             class Complex {
                private:
                 int real;
                 int imag;

                public:
                 Complex() : real(0), imag(0) {}

                 void input() {
                     cout << "Enter real and imaginary parts respectively: ";
                     cin >> real;
                     cin >> imag;
                 }

                 Complex operator + (const Complex& obj) {
                     Complex temp;
                     temp.real = real + obj.real;
                     temp.imag = imag + obj.imag;
                     return temp;
                 }

                 void output() {
                     if (imag < 0)
                         cout << "Output Complex number: " << real << imag << "i";
                     else
                         cout << "Output Complex number: " << real << "+" << imag <<
             "i";
                 }
             };

             int main() {
                 Complex complex1, complex2, result;
```

```
    cout << "Enter first complex number:\n";
    complex1.input();

    cout << "Enter second complex number:\n";
    complex2.input();

    result = complex1 + complex2;
    result.output();

    return 0;
}
```

Output