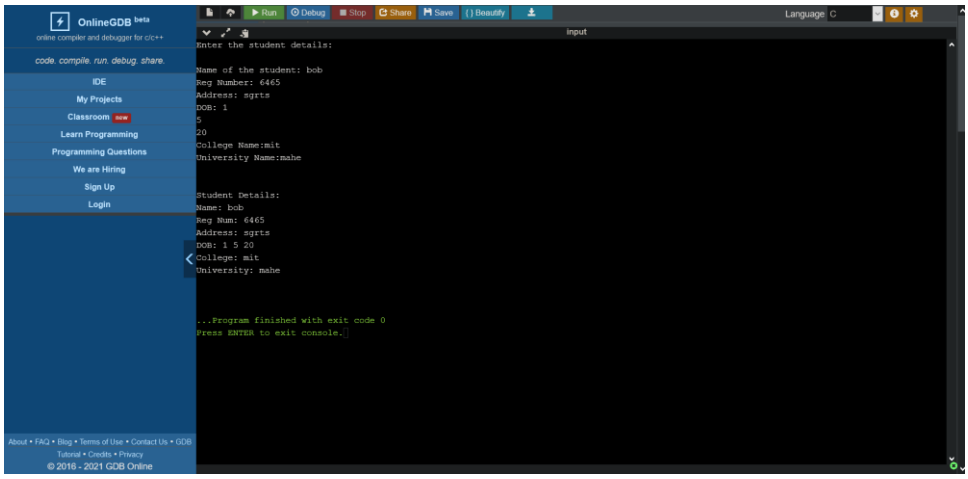
LAB 2

Q1

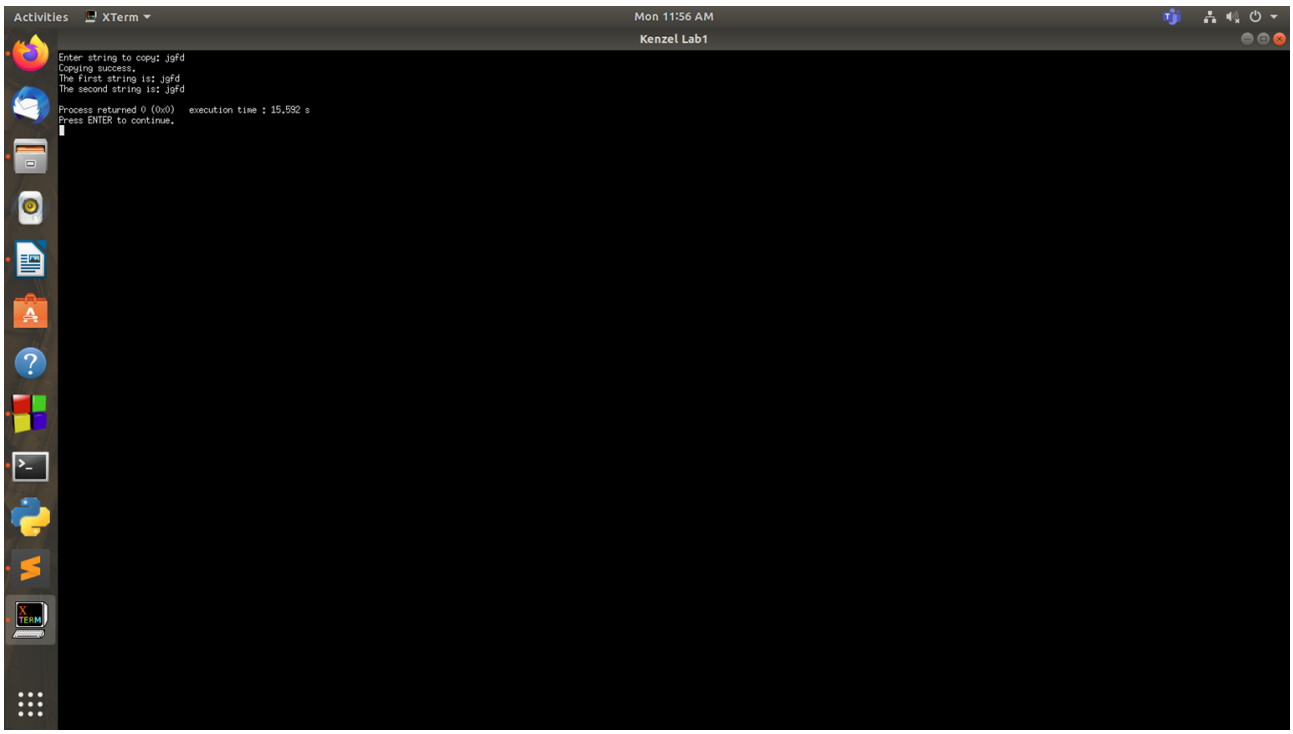
```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
struct DOB
{
   int day;
   char* mth;
   int year;
};
struct STU_INFO
{
   int reg_no;
   char* name;
   char adrs[20];
};
struct COLLEGE
{
   char* clg_name;
   char univ_name[20];
};
struct STUDENT
{
   struct DOB* dob;
   struct STU_INFO stu_info;
   struct COLLEGE clg;
};
void main()
{
   char month[10];
   struct STUDENT *stu = (struct STUDENT*)malloc(sizeof(struct STUDENT));
   stu->dob = (struct DOB*)malloc(sizeof(struct DOB));
   stu->dob->mth = (char*)malloc(sizeof(month));
   stu->stu_info.name = (char*)malloc(sizeof(char) * 20);
   stu->clg.clg_name = (char*)malloc(sizeof(char) * 50);     printf("Enter the student details: \n");
   printf("\nName of the student: ");
   scanf("%s", stu->stu_info.name);
   printf("Reg Number: ");
   scanf("%d", &stu->stu_info.reg_no);
   printf("Address: ");
   scanf("%s", stu->stu_info.adrs);
   printf("DOB: ");
   scanf("%d", &(stu->dob->day));
   scanf("%s", stu->dob->mth);
   scanf("%d", &(stu->dob->year));
   printf("College Name:");
   scanf("%s", stu->clg.clg_name);
   printf("University Name:");
   scanf("%s", stu->clg.univ_name);     printf("\n\nStudent Details: ");
   printf("\nName: %s\nReg
Num: %d\nAddress: %s\nDOB: %d %s %d\nCollege: %s\nUniversity: %s\n\n",
```

stu->stu_info.name, stu->stu_info.reg_no,
stu->stu_info.adrs,stu->dob->day,stu->dob->mth,stu->dob->year,stu->clg.clg_name,stu->clg.univ_
name);
}



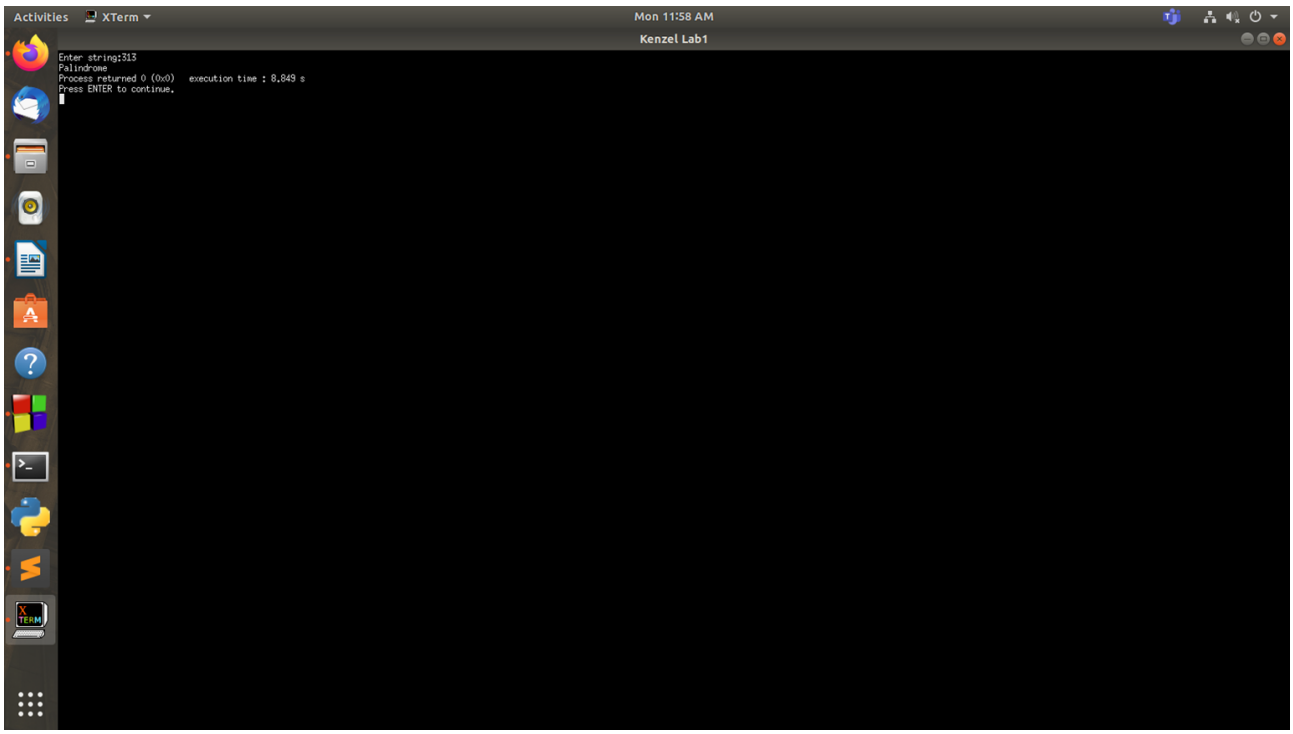
Q2

```
#include <stdio.h>

void copy(char [], char [], int);

int main()
{
   char str1[20], str2[20];

   printf("Enter string to copy: ");
   scanf("%[^\n]s", str1);
   copy(str1, str2, 0);
   printf("Copying success.\n");
   printf("The first string is: %s\n", str1);
   printf("The second string is: %s\n", str2);
   return 0;
}

void copy(char str1[], char str2[], int index)
{
   str2[index] = str1[index];
   // printf ("INDEX IS %d\n", index);
   if (str1[index] == '\0')
      return;
   copy(str1, str2, index + 1);
}
```



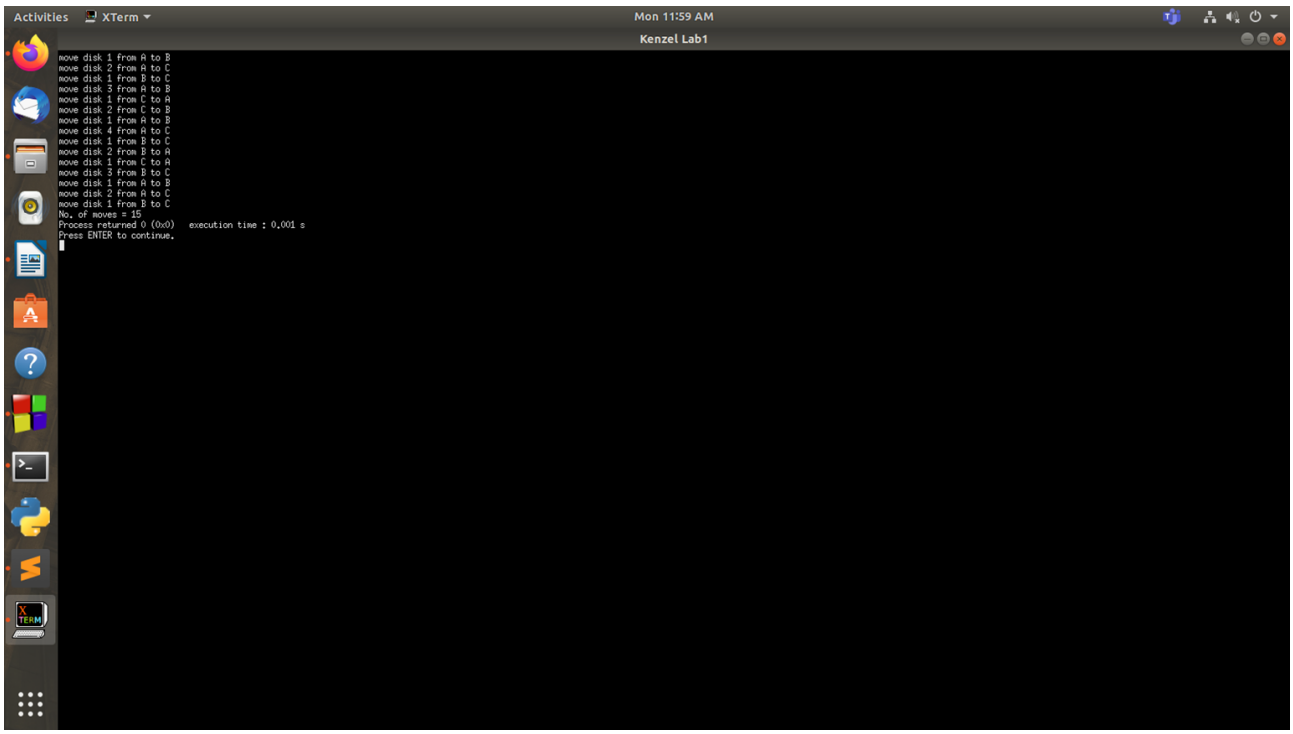
Q3

```
#include<stdio.h>
#include<string.h>
void main()
{
	char a[80];
	int i, l;
	printf("Enter string:");
	scanf("%s", a);
	if(ispalin(a,0))
	{
		printf("Palindrome");
	}
	else
		printf("Not a palindrome");
}

int ispalin(char a[], int i)
{
	int l=strlen(a);
	if (a[i]!=a[l-i-1])
		return 0;
	else if(i==l/2)
		return 1;
	else
		return ispalin(a,i+1);
}
```



Q4

```
#include <stdio.h>

int tower (int n, char  source, char temp, char destination)
{   static int Count=0;
    if(n==1)
    {
        Count++;
        printf("move disk 1 from %c to %c\n",source,destination);
        return Count;
    }

    /*moving n-1 disks from A to B using C as auxiliary*/
    tower(n-1, source, destination, temp);
    Count++;
    printf("move disk %d from %c to %c\n",n,source,destination);

    /*moving n-1 disks from B to C using A as auxiliary*/
    tower(n-1, temp, source, destination);
}

int main(){

   int x = tower(4,'A', 'B','C');
   printf("No. of moves = %d",x);
}
```


Activities
XTerm
Mon 11:59 AM
Kenzel Lab1
move disk 1 from A to B
move disk 2 from A to C
move disk 1 from B to C
move disk 3 from A to B
move disk 1 from C to A
move disk 2 from C to B
move disk 1 from A to B
move disk 4 from A to C
move disk 1 from B to C
move disk 2 from B to A
move disk 1 from C to A
move disk 3 from B to C
move disk 1 from A to B
move disk 2 from A to C
move disk 1 from B to C
No. of moves = 15
Process returned 0 (0x0) execution time : 0.001 s
Press ENTER to continue.