

Roll No: 220950320059

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Assignment 5: Arrays

1. Write a C program to generate first 15 Fibonacci Numbers (Use arrays).

Expected Output

The First 15 Fibonacci Numbers are:

0
1
1
2
3
5
8
13
21
34
55
89
144
233
377

Code:

```
#include<stdio.h>

int main () {
    int a[100],n;
```

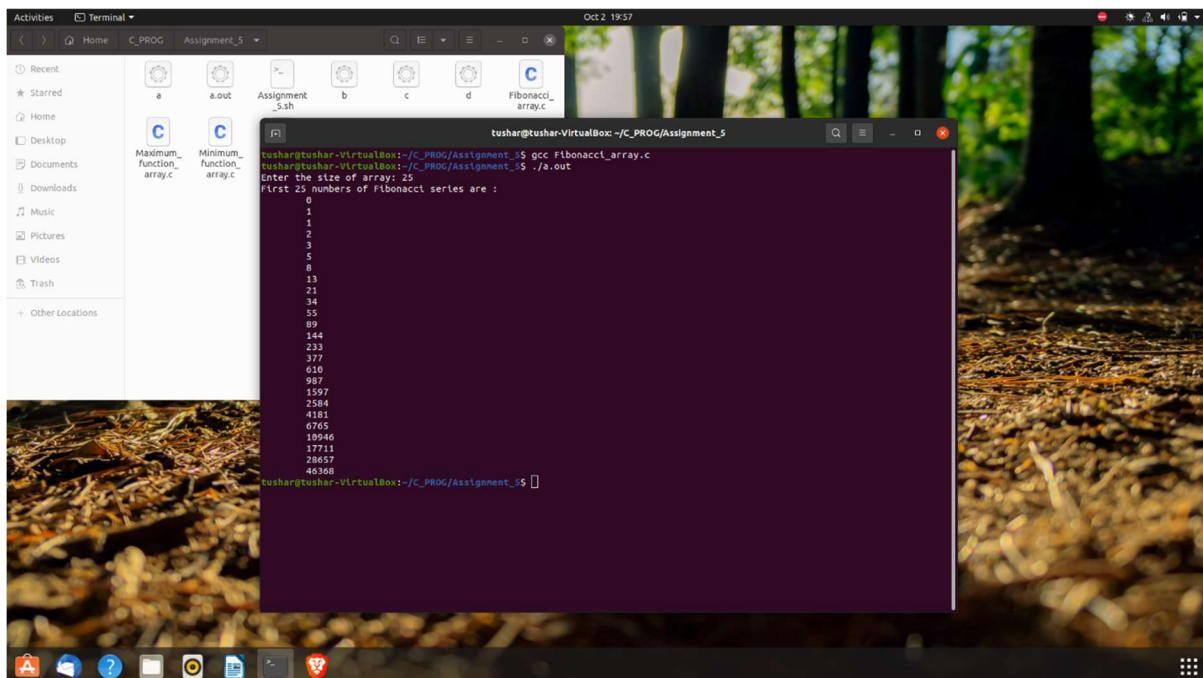
```
printf("Enter the size of array: ");
scanf("%d",&n);

a[0] = 0;
a[1] = 1;
for (int i = 2; i < n; i++)
{
    a[i] = a[i-1] + a[i-2];
}

printf("First %d numbers of Fibonacci series are :\n",n);
for (int i = 0; i < n; i++)
{
    printf("\t%d\n",a[i]);
}

return 0;
}
```

Output:



The screenshot shows a terminal window titled "tushar@tushar-VirtualBox: ~/C_PROG/Assignment_5". The user has compiled the program using `gcc Fibonacci_array.c` and executed it using `./a.out`. The program prompts for the size of the array, and the user enters 25. The program then outputs the first 25 numbers of the Fibonacci series, which are: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657, and 46368.

```
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ gcc Fibonacci_array.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ ./a.out
Enter the size of array: 25
First 25 numbers of Fibonacci series are :
0
1
1
2
3
5
8
13
21
34
55
89
144
233
377
610
987
1597
2584
4181
6765
10946
17711
28657
46368
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$
```

2. Write a C program to generate first 50 Prime Numbers (Use arrays)

Expected Output:

The first 15 Prime Numbers are : 2 3 5 7 11 13 17 19 23 29 31 37 41 43 47

Code:

```
#include<stdio.h>

int prime(int);

int prime(int a)
{
    int i, c = 0;
    if(a==0 || a==1)
    {
        c = 1;
    }
    for(i=2;i<a;i++)
    {
        if(a%i==0)
        {
            c = 1;
        }
    }
    if(c==0)
    {
        return c;
    }
}

int main()
{
    int size;
    printf("Enter From First how many prime numbers you want to print :");
    scanf("%d",&size);
    int a[size], num=0,i=0;
```

```
while(i < size)
{
    int temp = prime(num);
    if (temp==0)
    {
        a[i]=num;
        i++;
    }
    num++;
}

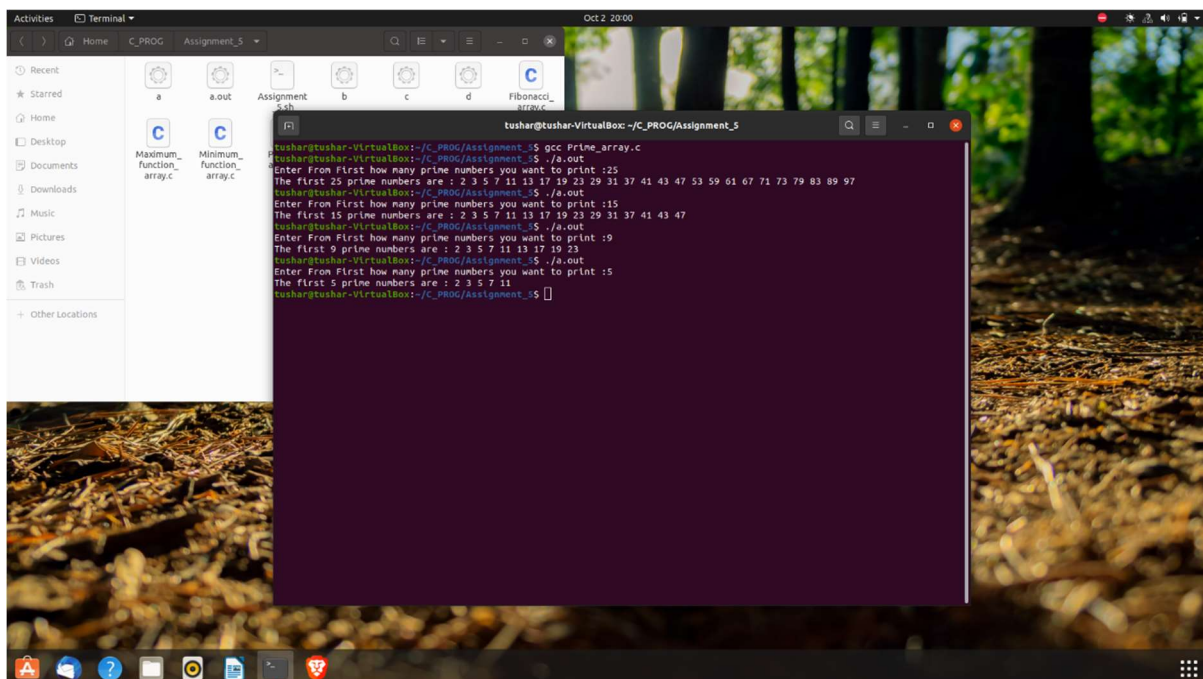
printf("The first %d prime numbers are : ",i);

for (int i = 0; i < size; i++)
{
    printf("%d ",a[i]);
}

printf("\n");

return 0;
}
```

Output:



```
tushar@tushar-VirtualBox: ~/C_PROG/Assignment_5
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ gcc Prime_array.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ ./a.out
Enter From First how many prime numbers you want to print :25
The first 25 prime numbers are : 2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71 73 79 83 89 97
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ ./a.out
Enter From First how many prime numbers you want to print :15
The first 15 prime numbers are : 2 3 5 7 11 13 17 19 23 29 31 37 41 43 47
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ ./a.out
Enter From First how many prime numbers you want to print :9
The first 9 prime numbers are : 2 3 5 7 11 13 17 19 23
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ ./a.out
Enter From First how many prime numbers you want to print :5
The first 5 prime numbers are : 2 3 5 7 11
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$
```

3. Write a C Program to find the Maximum Value in an Array. Take inputs from the user.

Code:

```
#include<stdio.h>

int main()
{
    int size;

    printf("Enter the size of array: ");

    scanf("%d",&size);

    int a[size];

    printf("Enter the array elements: ");

    for (int i = 0; i < size; i++)
    {

        scanf("%d",&a[i]);

    }

    int largest = a[0];

    for (int i = 0; i < size; i++)
    {

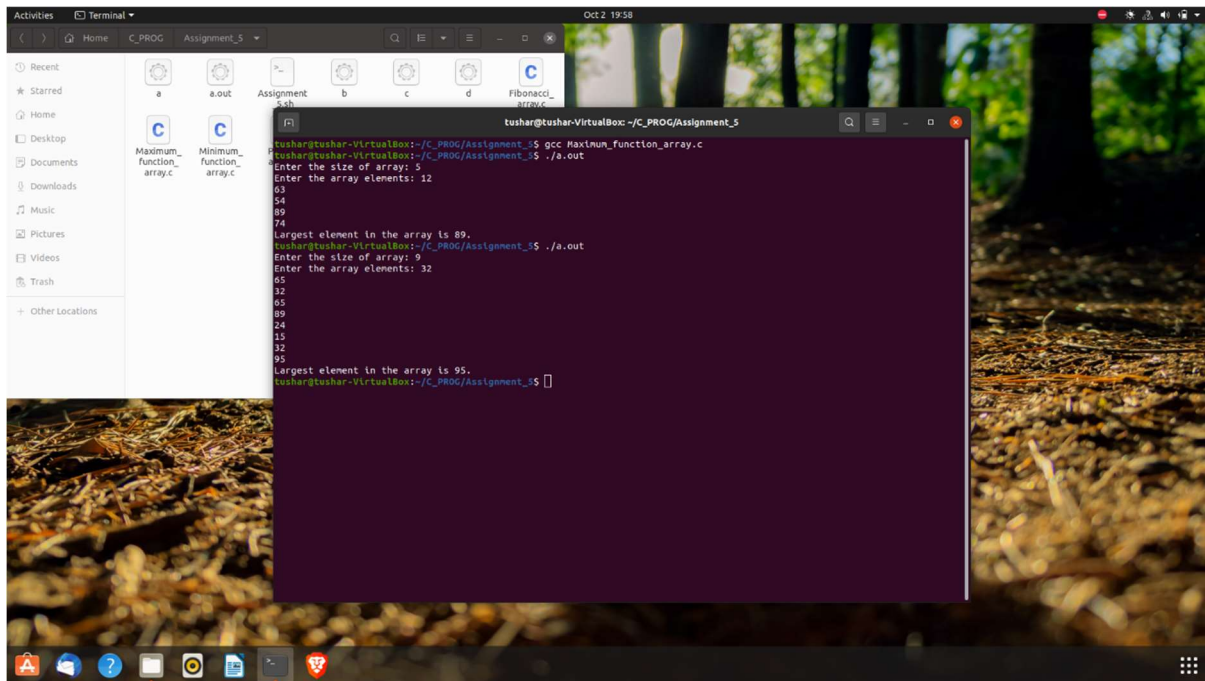
        if (largest<a[i])
        {
            largest = a[i];
        }

    }

    printf("Largest element in the array is %d.\n",largest);

    return 0;
}
```

Output:



```
tushar@tushar-VirtualBox: ~/C_PROG/Assignment_5
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ gcc Maximun_function_array.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ ./a.out
Enter the size of array: 5
Enter the array elements: 12
63
54
89
74
Largest element in the array is 89.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ ./a.out
Enter the size of array: 9
Enter the array elements: 32
65
32
65
89
24
15
32
95
Largest element in the array is 95.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$
```

4. Write a C Program to find the Minimum Value in an Array by using functions. Take inputs from the user.

Code:

```
#include<stdio.h>

int min(int arr[], int);

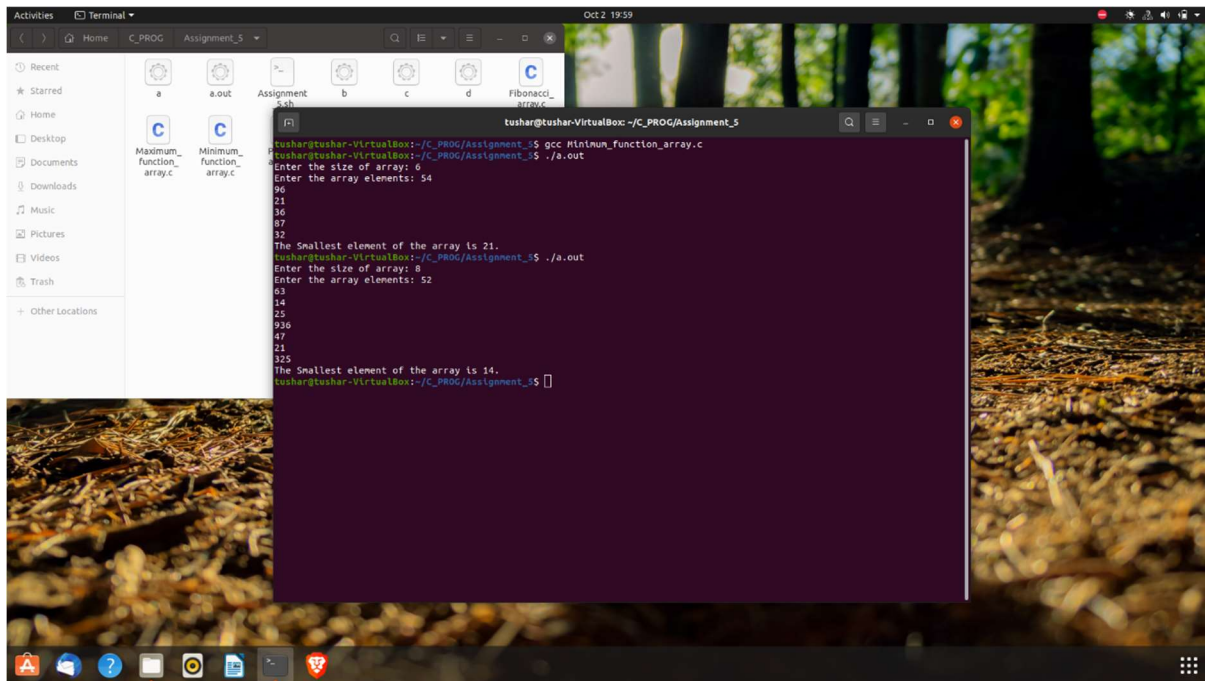
int main()
{
    int size;
    int a[50];
    printf("Enter the size of array: ");
    scanf("%d",&size);
    printf("Enter the array elements: ");
    for (int i = 0; i < size; i++)
    {
        scanf("%d",&a[i]);
    }
    int mininum = min(a,size);
    printf("The Smallest element of the array is %d. \n",mininum);
    return 0;
}

int min(int arr[], int size){

    int minimum = arr[0];
    for (int i = 0; i < size; i++)
    {
        if (minimum > arr[i])
        {
            minimum = arr[i];
        }
    }
    return minimum;
}
```

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Output:



The screenshot shows a Linux desktop with a file manager on the left and a terminal window in the center. The terminal window title is "tushar@tushar-VirtualBox: ~/C_PROG/Assignment_5". The terminal output shows the compilation and execution of a C program named "Minimum_function_array.c". The program prompts the user to enter the size of the array and the array elements. For the first run, the size is 6 and the elements are 96, 21, 36, 87, 32, and 21. The program outputs "The Smallest element of the array is 21.". For the second run, the size is 8 and the elements are 63, 14, 25, 936, 47, 21, 325, and 14. The program outputs "The Smallest element of the array is 14.".

```
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ gcc Minimum_function_array.c
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ ./a.out
Enter the size of array: 6
Enter the array elements: 96
21
36
87
32
21
The Smallest element of the array is 21.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$ ./a.out
Enter the size of array: 8
Enter the array elements: 63
14
25
936
47
21
325
14
The Smallest element of the array is 14.
tushar@tushar-VirtualBox:~/C_PROG/Assignment_5$
```