

**DEPARTMENT OF COMPUTER
SCIENCE CUI, VEHARI CAMPUS**

Data Structure LAB



Title:



Create a GitHub Account



Problems of Pointers

Subject:

Data Structure

Submitted to:

Mam Yasmeen Jana

Submitted by:

Zohaib Sarwar (SP22-BCS-B24-097-C)

Activity 01:

How do I create my Git Hub Account?

For this process, we have to follow some steps. So let's begin:

Creating a GitHub account is a straightforward process. Follow these steps to create your GitHub account:

1. Visit GitHub: Open your web browser and go to the GitHub website by typing the following URL into your browser's address bar:
[\[https://github.com/\]\(https://github.com/\)](https://github.com/).

2. Sign Up: On the GitHub homepage, you'll see a "Sign up" button in the upper-right corner. Click on it.

3. Enter Your Information:

- ✓ **Username:** Choose a unique username for your GitHub account. This will be your GitHub handle, and it should not contain spaces.
- ✓ **Email Address:** Enter a valid email address that you have access to. GitHub will use this email for account-related notifications.
- ✓ **Password:** Create a strong and secure password. GitHub will provide feedback on the strength of your password as you type it.

4. Verify Your Email Address:

- ✓ After entering your information, click the "Verify email address" button.
- ✓ GitHub will send a verification email to the address you provided.
- ✓ Open your email inbox and look for an email from GitHub. If you don't see it in your inbox, check your spam or junk folder.
- ✓ Open the email from GitHub and click the verification link to verify your email address.

5. Complete Setup

- ✓ Once you've verified your email, you'll be directed back to GitHub's website.

- ✓ You may need to complete a short setup process where you can provide some additional information and preferences. This step is optional.

6. Choose a Plan:

- ✓ GitHub offers both free and paid plans. You can start with the free plan by clicking "Continue" on the free plan card. If you need more advanced features, you can explore the paid plans.

7. Optional Personalization:

- ✓ You can personalize your GitHub experience by selecting your areas of interest and skill level. This step is also optional.

8. Welcome to GitHub:

- ✓ After completing the setup, you'll be taken to your GitHub dashboard, and you're ready to start using GitHub!

Here is my Git Hub Account link:

<https://github.com/ZohaibComsian>

Activity 02:

Problems of Pointers in C++ language:

1:

```
#include <iostream>

using namespace std;

int main() {

    int x = 27;
    int *ip;
    ip = &x;
    cout << "Value of x is : ";
    cout << x << endl;
    cout << "Value of ip is : ";
    cout << ip << endl;
    cout << "Value of *ip is : ";
    cout << *ip << endl;
    return 0;
}
```

Output:

C:\Users\DELL 7470\Desktop\1.exe

Value of x is : 27

Value of ip is : 0x78fe14

Value of *ip is : 27

Process exited after 0.193 seconds with return value 0

Press any key to continue . . .



2:

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    int *ip;
```

```
    int arr[] = { 10, 34, 13, 76, 5, 46 };
```

```
    ip = arr;
```

```
    for (int x = 0; x < 6; x++) {
```

```
        cout << *ip << endl;
```

```
        ip++;
```

```
    }
```

```
    return 0;
```

```
}
```

Output:

```
10
34
13
76
5
46
```

```
-----
Process exited after 0.2343 seconds with return value 0
Press any key to continue . . .
```


3:

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

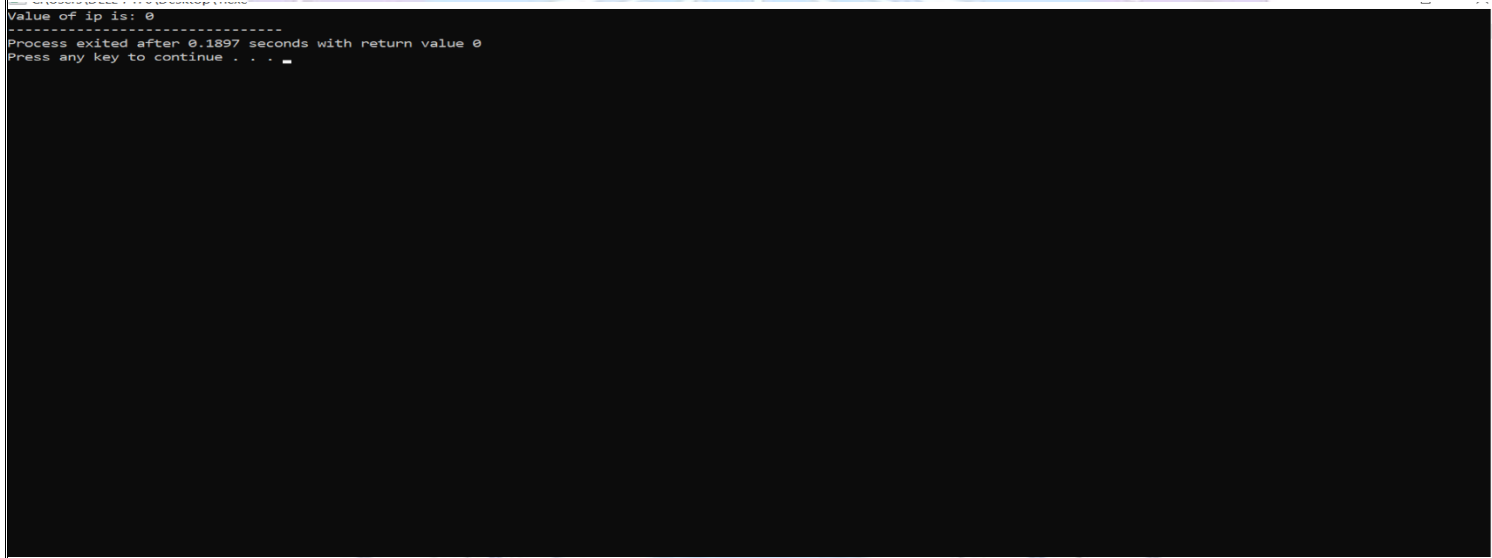
```
    int *ip = NULL;
```

```
    cout << "Value of ip is: " << ip;
```

```
    return 0;
```

```
}
```

Output:



```
Value of ip is: 0
-----
Process exited after 0.1897 seconds with return value 0
Press any key to continue . . .
```

4:

```
#include <iostream>

using namespace std;

int main() {

    int *p, x = 30;

    p = &x;

    cout << "Value of x is: " << *p;

    return 0;

}
```

Output:

```
Value of x is: 30
-----
Process exited after 0.257 seconds with return value 0
Press any key to continue . . .
```


5:

```
#include <iostream>

using namespace std;

void test(int*, int*);

int main() {

    int a = 5, b = 5;

    cout << "Before changing:" << endl;

    cout << "a = " << a << endl;

    cout << "b = " << b << endl;

    test(&a, &b);

    cout << "\nAfter changing" << endl;

    cout << "a = " << a << endl;

    cout << "b = " << b << endl;

    return 0;

}

void test(int* n1, int* n2) {

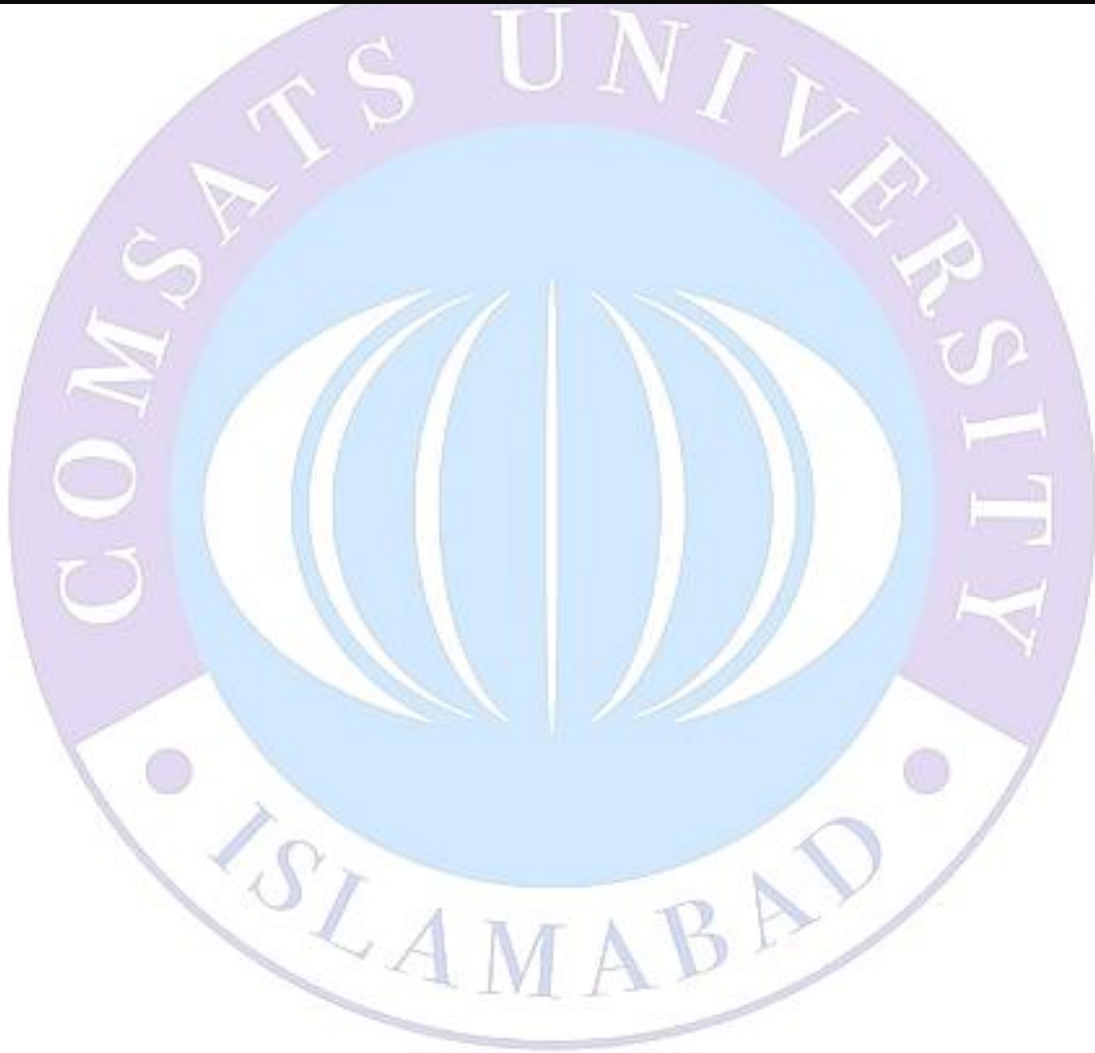
    *n1 = 10;

    *n2 = 11;

}
```

Output:

```
Before changing:  
a = 5  
b = 5  
  
After changing  
a = 10  
b = 11  
  
-----  
Process exited after 0.2344 seconds with return value 0  
Press any key to continue . . .
```



6:

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
int number=30;
```

```
int * p;
```

```
p=&number;//stores the address of number variable
```

```
cout<<"Address of number variable is:"<<&number<<endl;
```

```
cout<<"Address of p variable is:"<<p<<endl;
```

```
cout<<"Value of p variable is:"<<*p<<endl;
```

```
return 0;
```

```
}
```

Output:

```
Address of number variable is:0x78fe14
```

```
Address of p variable is:0x78fe14
```

```
Value of p variable is:30
```

```
-----
```

```
Process exited after 0.1886 seconds with return value 0
```

```
Press any key to continue . . .
```

7:

```
#include <iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
int a=20,b=10,*p1=&a,*p2=&b;
```

```
cout<<"Before swap: *p1="<<*p1<<" *p2="<<*p2<<endl;
```

```
*p1=*p1+*p2;
```

```
*p2=*p1-*p2;
```

```
*p1=*p1-*p2;
```

```
cout<<"After swap: *p1="<<*p1<<" *p2="<<*p2<<endl;
```

```
return 0;
```

```
}
```

Output:

```
Before swap: *p1=20 *p2=10
After swap: *p1=10 *p2=20

-----
Process exited after 0.2307 seconds with return value 0
Press any key to continue . . .
```

8:

```
#include<iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int num = 10;
```

```
    int val;
```

```
    int *iptr;
```

```
    iptr = &num;
```

```
    val = *iptr;
```

```
    cout<<"num = "<<num<<endl;
```

```
    cout<<"val = "<<val<<endl;
```

```
    cout<<"iptr = "<<iptr<<endl;
```

```
    cout<<"*iptr = "<<*iptr<<endl;
```

```
    cout<<endl;
```

```
    return 0;
```

```
}
```

Output:

```
num = 10  
val = 10  
iptr = 0x78fe10  
*iptr = 10
```

```
-----  
Process exited after 0.1875 seconds with return value 0  
Press any key to continue . . . _
```



9:

```
#include<iostream>

using namespace std;

int main()
{
    int tot, i;
    long int *id;
    float *marks;

    cout<<"Enter the array size: ";
    cin>>tot;

    id = new long int[tot];
    marks = new float[tot];

    for(i=0; i<tot; i++)
    {
        cout<<"Enter ID and Marks of Student No."<<(i+1)<<": ";
        cin>>id[i]>>marks[i];
    }
}
```



```
cout<<"\n\nStudent ID\t\tStudent Mark\n";

for(i=0; i<tot; i++)

    cout<<id[i]<<"\t\t"<<marks[i]<<"\n";

delete[] id;

delete[] marks;

return 0;
}
```

Output:

```
Enter the array size: 5
Enter ID and Marks of Student No.1: 11111
88
Enter ID and Marks of Student No.2: 22222
55
Enter ID and Marks of Student No.3: 33333
67
Enter ID and Marks of Student No.4: 55555
88
Enter ID and Marks of Student No.5: 23456
11

Student ID      Student Mark
11111           88
22222           55
33333           67
55555           88
23456           11

-----
Process exited after 32.46 seconds with return value 0
Press any key to continue . . .
```

10:

```
#include<iostream>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int *ptr, arr[5], i;
```

```
    cout<<"Enter any five numbers: ";
```

```
    for(i=0; i<5; i++)
```

```
        cin>>arr[i];
```

```
    ptr = arr;
```

```
    for(i=0; i<5; i++)
```

```
    {
```

```
        cout<<"\n\nptr = "<<*ptr;
```

```
        cout<<"\narr["<<i<<"] = "<<arr[i];
```

```
        ptr++;
```

```
    }
```

```
cout<<endl;  
  
return 0;  
  
}
```

Output:

```
Enter any five numbers: 11  
22  
33  
44  
55  
  
ptr = 11  
arr[0] = 11  
  
ptr = 22  
arr[1] = 22  
  
ptr = 33  
arr[2] = 33  
  
ptr = 44  
arr[3] = 44  
  
ptr = 55  
arr[4] = 55  
  
-----  
Process exited after 5.604 seconds with return value 0  
Press any key to continue . . .
```

11:

```
#include<iostream>
```

```
using namespace std;
```

```
void swap(int &, int &);
```

```
int main()
```

```
{
```

```
    int a=50, b=60;
```

```
    cout<<"----Before swap----\n";
```

```
    cout<<"a = "<<a<<"\t b = "<<b;
```

```
    swap(a, b);
```

```
    cout<<"\n\n----After swap----\n";
```

```
    cout<<"a = "<<a<<"\t b = "<<b;
```

```
    cout<<endl;
```

```
    return 0;
```

```
}
```

```
void swap(int &x, int &y)
```

```
{
```

```
    int temp;
```

```
    temp = x;
```

```
    x = y;
```

```
    y = temp;
```

```
}
```

Output:

```
----Before swap----  
a = 50  b = 60  
  
----After swap----  
a = 60  b = 50  
  
-----  
Process exited after 0.1935 seconds with return value 0  
Press any key to continue . . .
```

12:

```
#include <iostream>
```

```
#include <conio.h>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int i,*x;
```

```
    x=&i;
```

```
    for(*x=2; *x<=10; *x=*x+2)
```

```
    {
```

```
        cout<<*x<<" ";
```

```
    }
```

```
    return 0;
```

```
}
```

Output:

```
2 4 6 8 10
Process exited after 0.2191 seconds with return value 0
Press any key to continue . . .
```

13:

```
#include <iostream>
```

```
#include <conio.h>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int i,n,c,*x,*nm,*fc;
```

```
    x=&i;
```

```
    nm=&n;
```

```
    fc=&c;
```

```
    *fc=0;
```

```
    cout<<"Enter a number ";
```

```
    cin>>*nm;
```

```
    for(*x=1; *x<=*nm; *x=*x+1)
```

```
    {
```

```
        if(*nm % *x==0)
```

```
        {
```

```
            *fc=*fc+1;           // counting the factors
```

```
        }
```

```
    }
```

```
    if(*fc==2)
```



```
{  
    cout<<"Prime Number";  
}  
else  
{  
    cout<<"Not Prime Number";  
}  
return 0;  
}
```

Output:

```
Enter a number 12  
Not Prime Number  
-----  
Process exited after 3.367 seconds with return value 0  
Press any key to continue . . .
```

14:

```
#include <iostream>
```

```
#include <conio.h>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int i,n,s,d,*x,*nm,*sum,*dg;
```

```
    x=&i;
```

```
    nm=&n;
```

```
    sum=&s;
```

```
    dg=&d;
```

```
    *sum=0;
```

```
    cout<<"Enter a number ";
```

```
    cin>>*nm;
```

```
    while(*nm>0)
```

```
    {
```

```
        *dg=*nm%10;
```

```
        if(*dg % 2==0)
```

```
        {
```

```
        *sum=*sum+*dg;
    }

    *nm=*nm/10;
}

cout<<"Sum of even digits = "<<*sum;
return 0;
}
```

Output:

```
Enter a number 34
Sum of even digits = 4
-----
Process exited after 7.222 seconds with return value 0
Press any key to continue . . .
```

15:

```
#include <iostream>
```

```
#include <conio.h>
```

```
using namespace std;
```

```
int main()
```

```
{
```

```
    int *x[4];
```

```
    int a=10,b=20,c=30,d=40,i;
```

```
    x[0]=&a;
```

```
    x[1]=&b;
```

```
    x[2]=&c;
```

```
    x[3]=&d;
```

```
    for(i=0; i<4; i++)
```

```
    {
```

```
        cout<<"Value of x["<<i<<"] = "<<x[i]<<" and Points to = "<<*x[i]<<endl;
```

```
    }
```

```
    return 0;
```

```
}
```

Output:

```
Value of x[0] = 0x78fdec and Points to = 10  
Value of x[1] = 0x78fde8 and Points to = 20  
Value of x[2] = 0x78fde4 and Points to = 30  
Value of x[3] = 0x78fde0 and Points to = 40
```

```
-----  
Process exited after 0.2384 seconds with return value 0  
Press any key to continue . . .
```

