

Lecture (8)
**" Programming Essentials
in C++ "**
Pointers

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Demand 2D Array from the user

```
1  using namespace std;
2
3  int main()
4  {
5      int a[3][3];
6      for(int i=0;i<3;i++)
7      {
8          for(int j=0;j<3;j++)
9          {
10             cin>>a[i][j];
11         }
12     }
13     for(int i=0;i<3;i++)
14     {
15         for(int j=0;j<3;j++)
16         {
17             cout<<"index "<<i<<","<<j<<"="<<a[i][j]<<endl;
18         }
19     }
20
21     return 0;
22 }
```

Demand 2D Array from the user

```
1  
2  
3  
4  
5  
6  
7  
8  
9  
index 0, 0=1  
index 0, 1=2  
index 0, 2=3  
index 1, 0=4  
index 1, 1=5  
index 1, 2=6  
index 2, 0=7  
index 2, 1=8  
index 2, 2=9
```

The o/p Array



Pointers

```
int X = 20;
```

```
cout << &X;
```

output: 0017

Address

Memory



Display the address of the variable in the memory

```
7
8 *****
9 #include <iostream>
10
11 using namespace std;
12
13 int main()
14 {
15     int x=20;
16     cout<<&x;
17
18     return 0;
19 }
```

Address in Memory



0x7ffda7044564

How to describe Pointers?

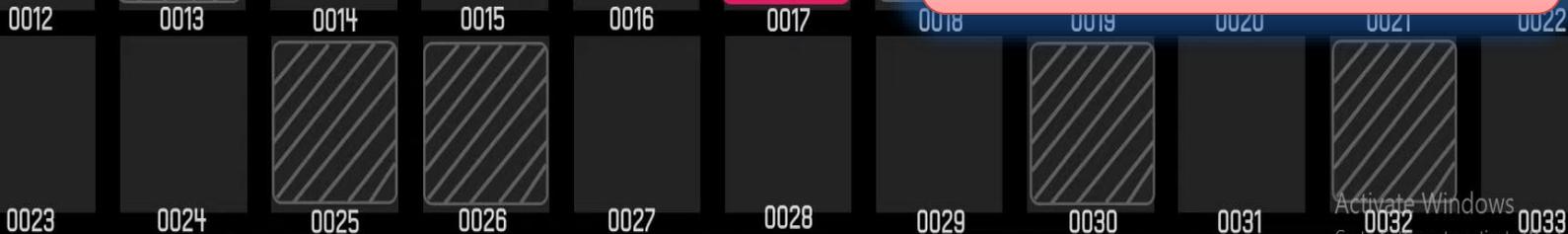
```
int x = 20;
```

```
int* ptr = &x;
```

The asterisk to distinguish the pointer

The pointer is a variable that stores the value of the address in the memory

ptr has the address of the variable x



Display the value in the referred pointer

```
8 *****
9 #include <iostream>
10
11 using namespace std;
12
13 int main()
14 {
15     int x=20;
16
17     int*ptr= &x;
18     cout<<*ptr;
19
20     return 0;
21 }
```

We must add *

Display the address of the variable x in the memory

```
7
8  ****
9  #include <iostream>
10
11 using namespace std;
12
13 int main()
14 {
15     int x=20;
16
17     int*ptr= &x;
18     cout<<ptr;
19
20     return 0;
21 }
```



0x7fffe36be56c

Modify the value of variable x in the memory

```
7
8  ****
9  #include <iostream>
10
11 using namespace std;
12
13 int main()
14 {
15     int x=20;
16
17     int*ptr= &x;
18
19     *ptr=25;
20
21     cout<<*ptr;
22
23     return 0;
24 }
```



```
7
8  ****
9  #include <iostream>
10
11 using namespace std;
12
13 int main()
14 {
15     int x=20;
16
17     int*ptr= &x;
18
19     *ptr=25;
20
21     cout<<x;
22
23     return 0;
24 }
```



How store a value without variable name?

```
8  ****  
9  #include <iostream>  
10  
11  using namespace std;  
12  
13  int main()  
14  {  
15  
16      int*ptr= new int (20);  
17  
18  
19      cout<<*ptr;  
20  
21      return 0;  
22  }
```

Value of the no
name variable

command

*Thank
you*

