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

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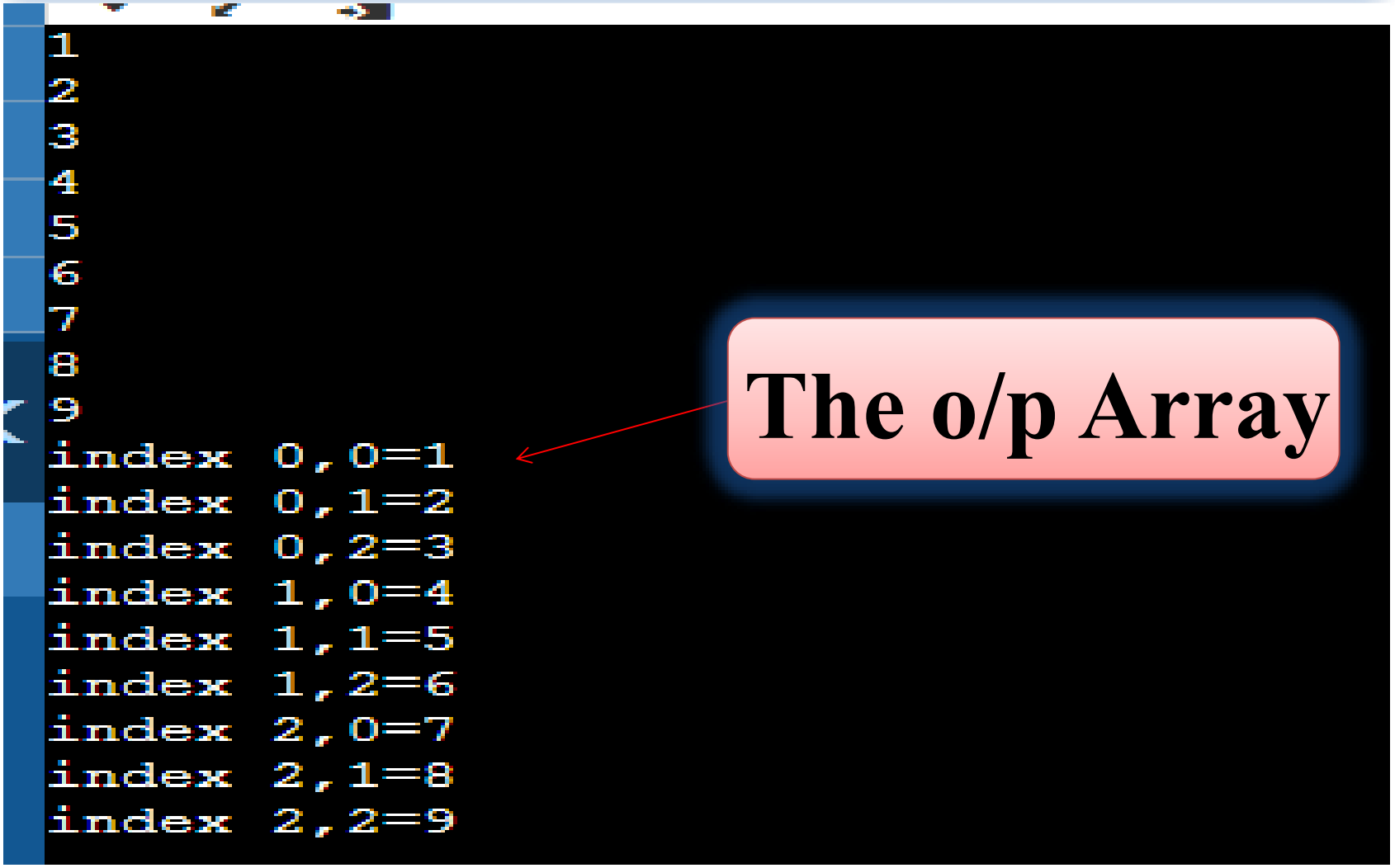
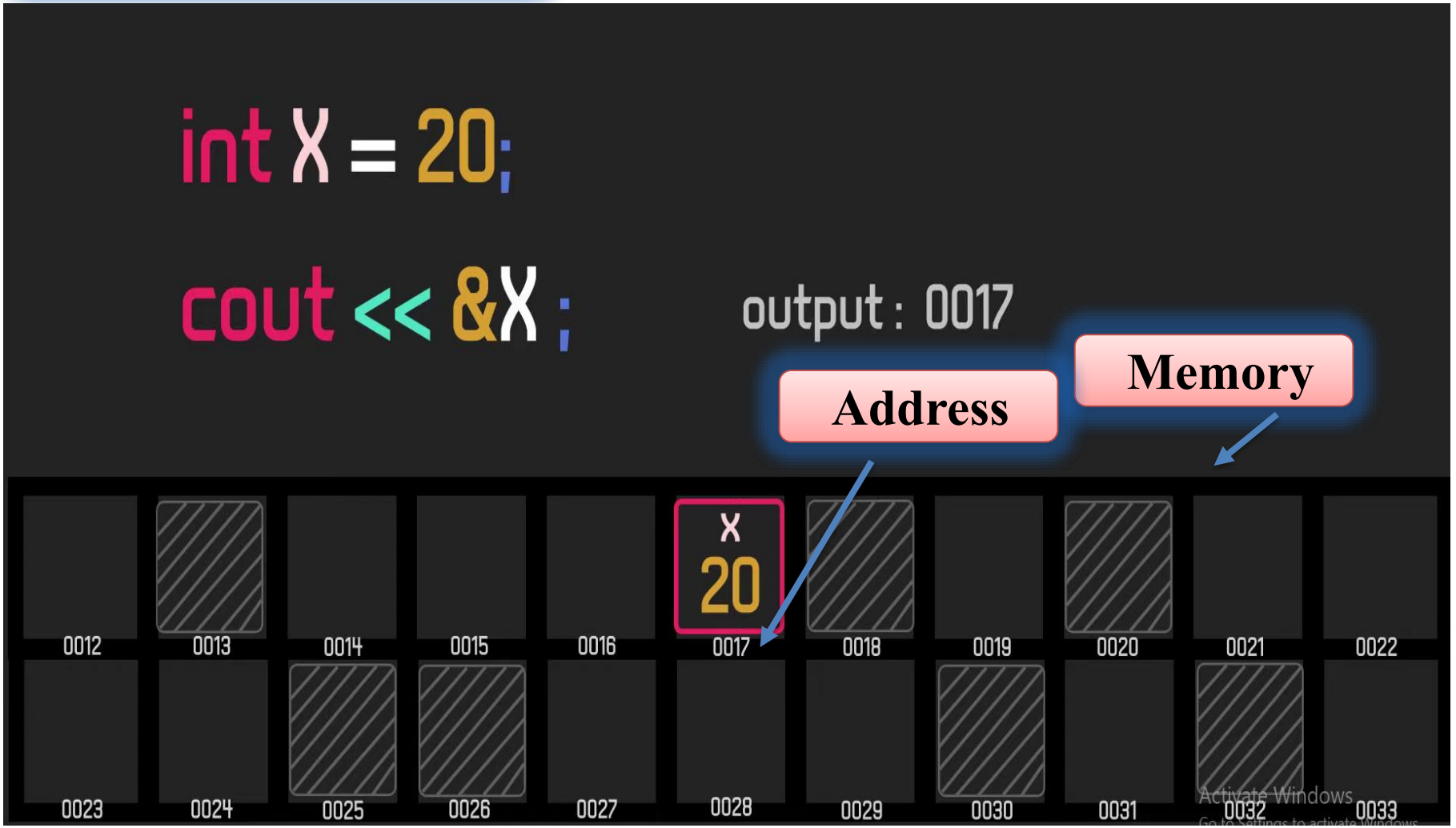
Demand 2D Array from the user

```
using namespace std;

int main()
{
    int a[3][3];
    for(int i=0;i<3;i++)
    {
        for(int j=0;j<3;j++)
        {
            cin>>a[i][j];
        }
    }
     for(int i=0;i<3;i++)
    {
        for(int j=0;j<3;j++)
        {
            cout<<"index "<<i<<","<<j<<"="<<a[i][j]<<endl;
        }
    }

    return 0;
}
```

Demand 2D Array from the user



Pointers


int X = 20;
cout << &X ;
output : 0017
Address
Memory
X
20
0012
0013
0014
0015
0016
0017
0018
0019
0020
0021
0022
0023
0024
0025
0026
0027
0028
0029
0030
0031
0032
0033

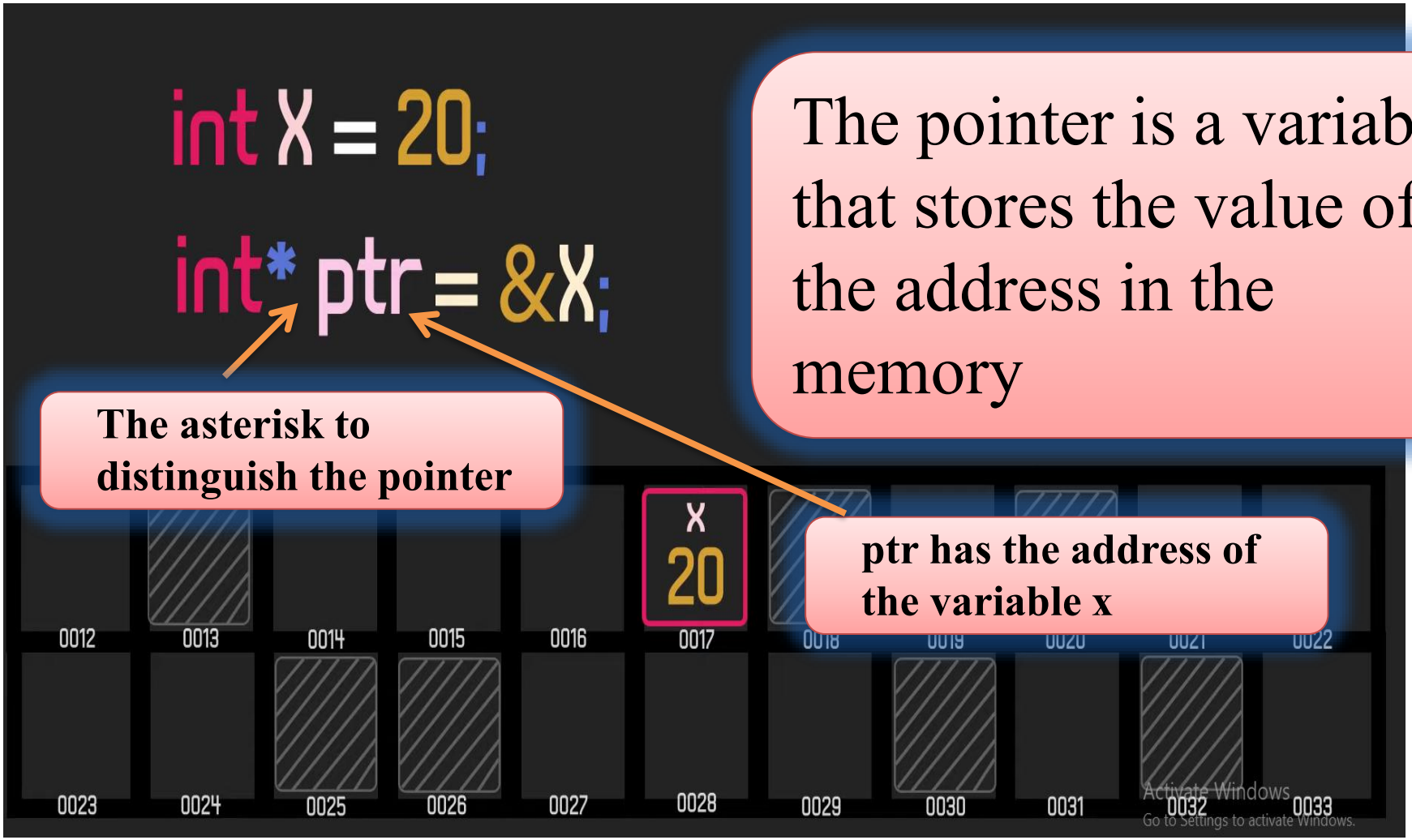
Display the address of the variable in the memory

```
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?



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 *

```
20
```

Display the address of the variable x in the memory

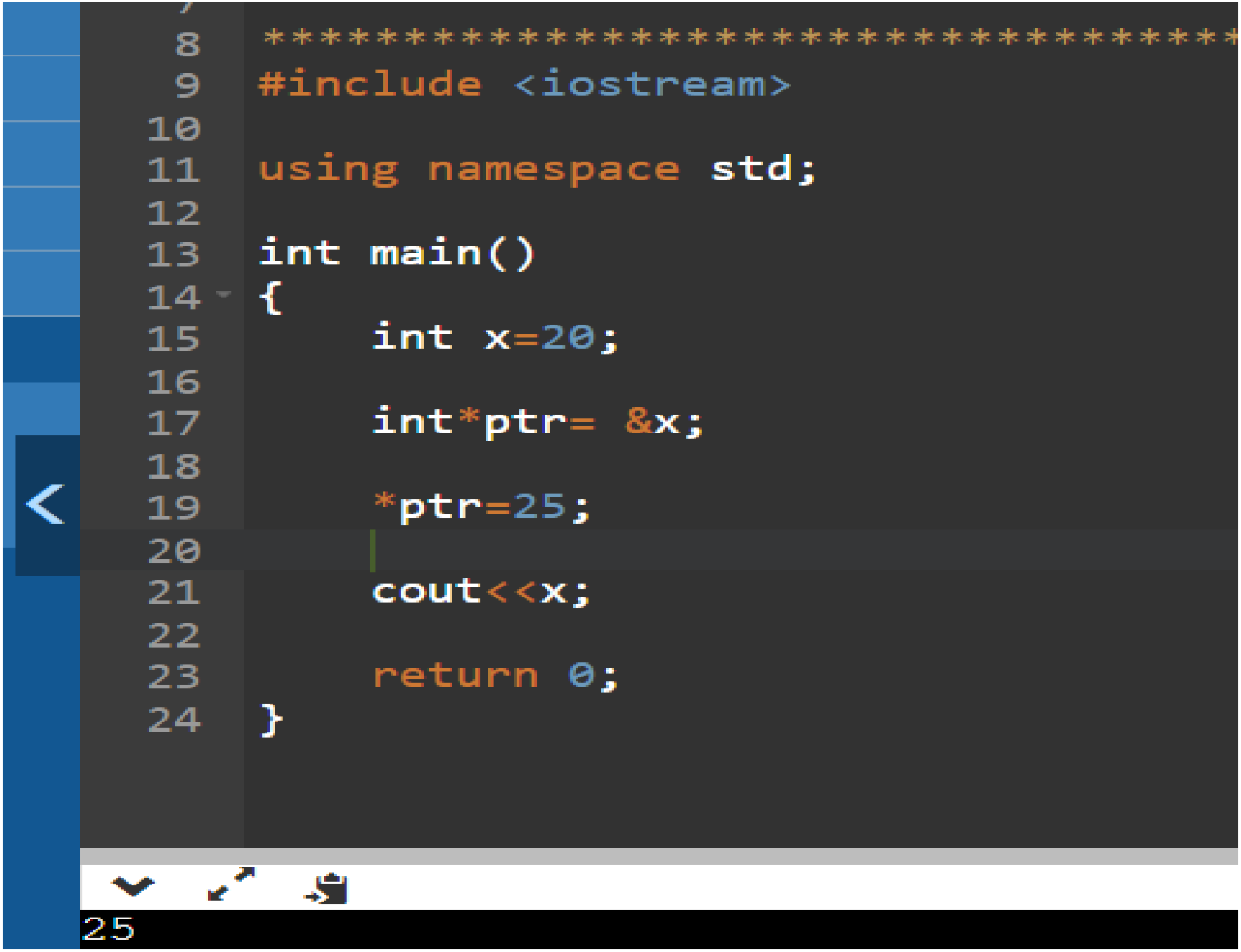
```
7
8  ********************************************************************
9  #include <iostream>
10
11 using namespace std;
12
13 int main()
14 {
15     int x=20;
16
17     int*ptr= &x;
18     cout<<ptr;
19
20     return 0;
21 }
```

```
0x7fffe36be56c
```

Modify the value of variable x in the memory

```
 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  }
```

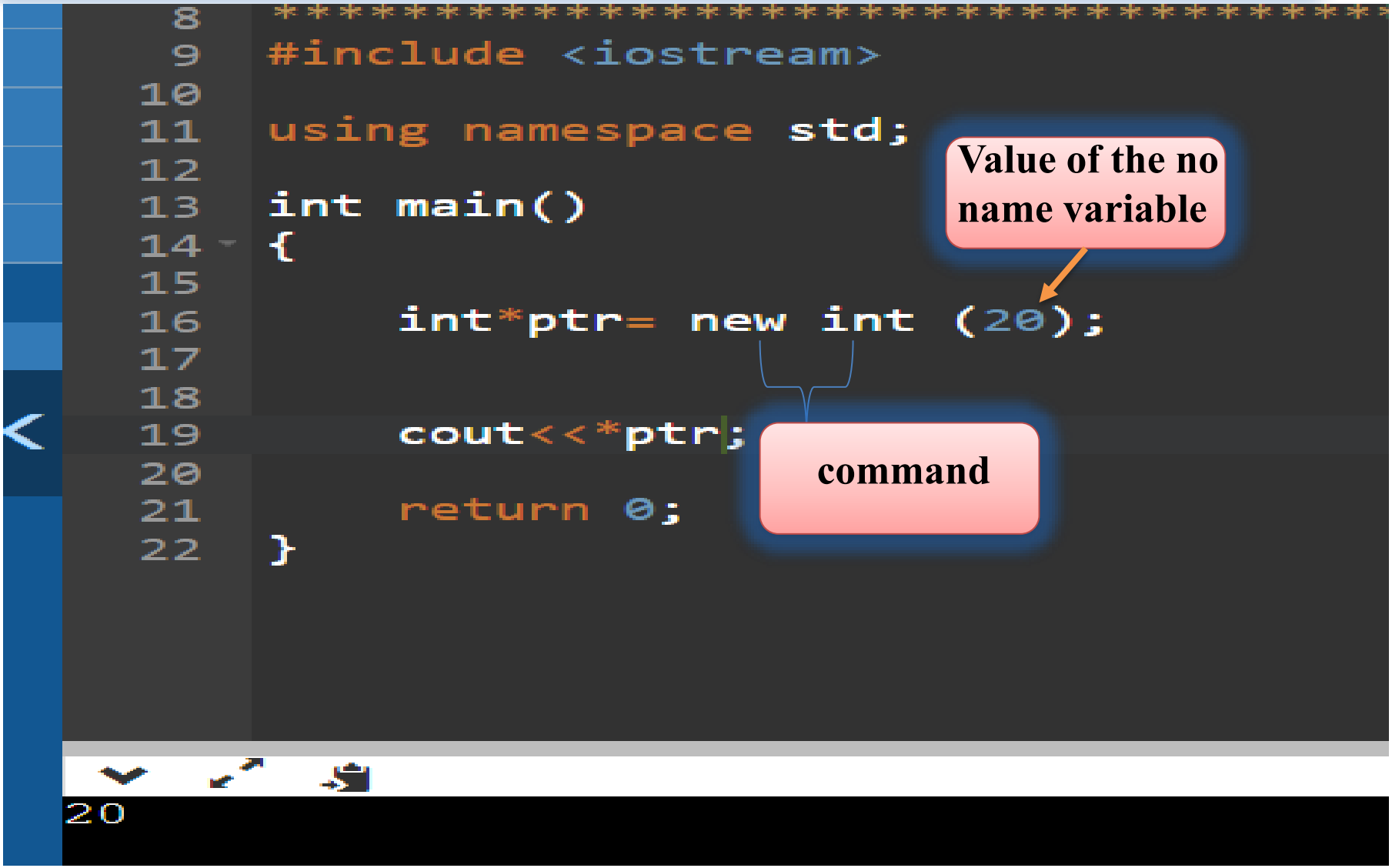
```
25
```



```
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 }
```

```
25
```

How store a value without variable name?




Thank
you