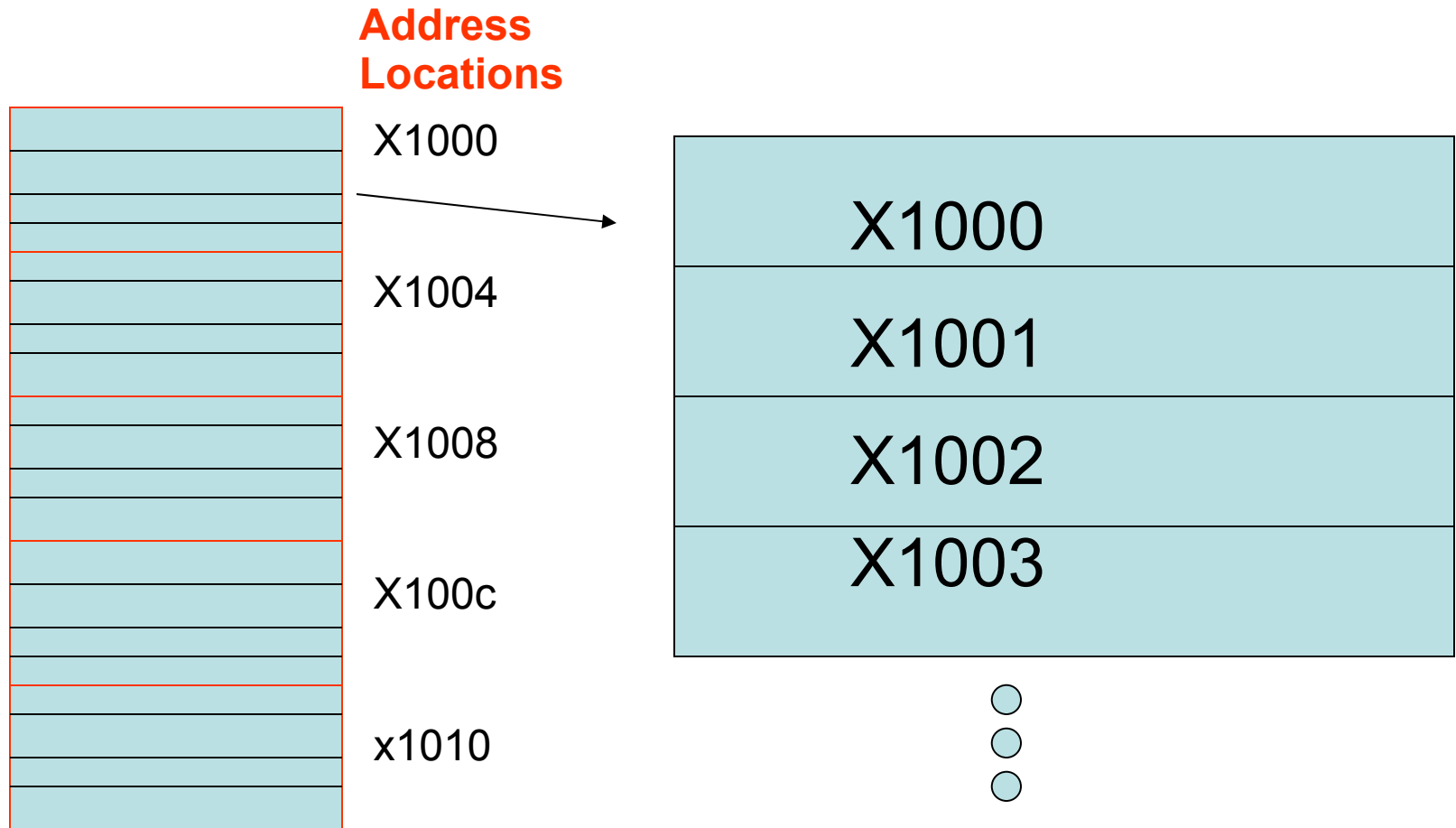


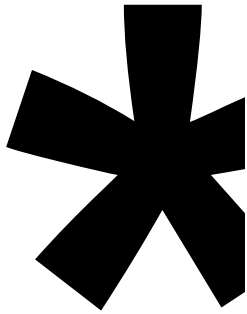
What is a Pointer ?

Who does a memory look like ?



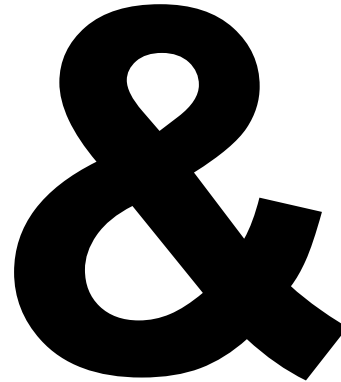
Operators used in Pointers

Dereferencing



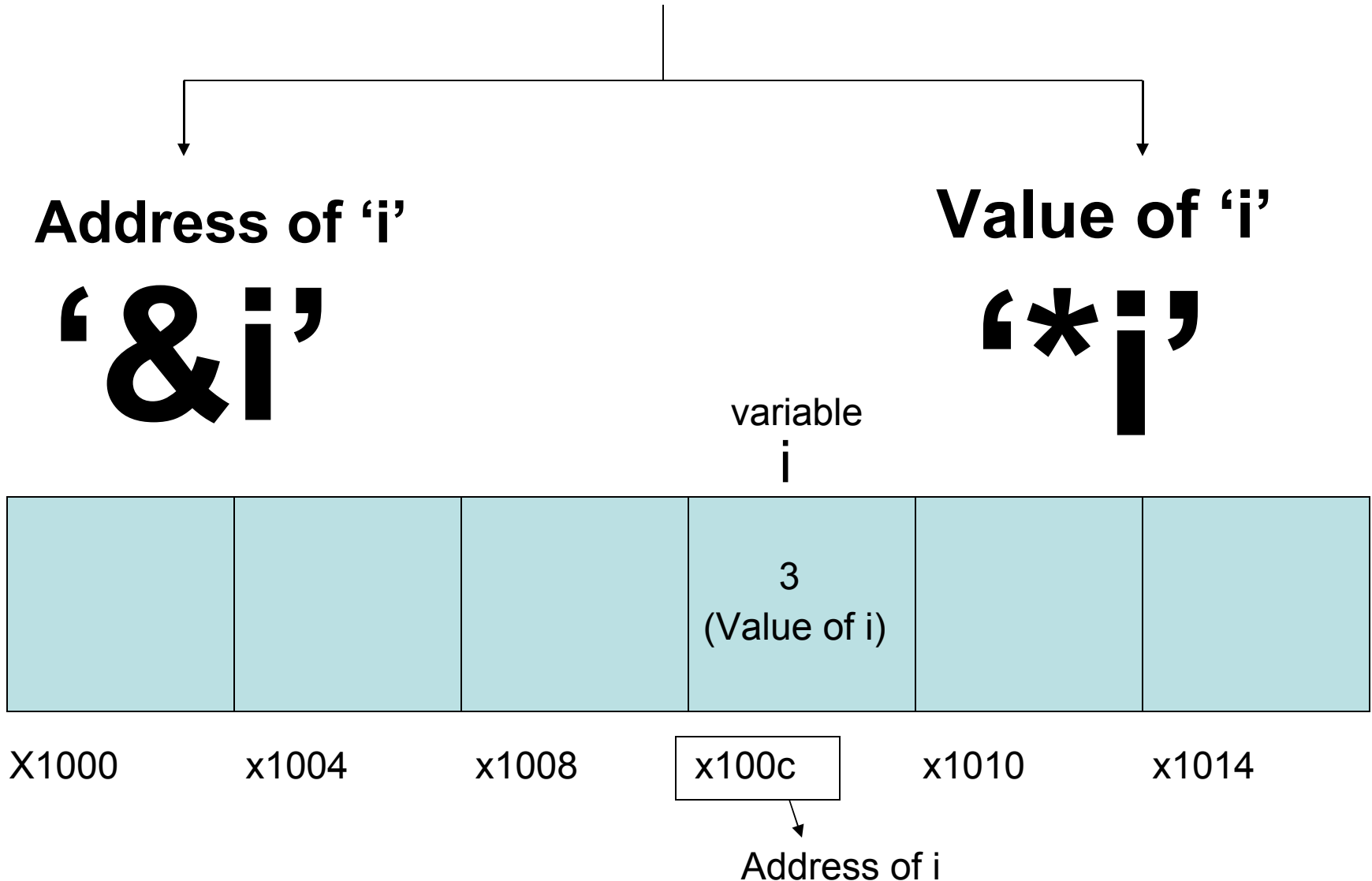
(Value of)

Address



(Address of)

Int i=3;



The value '3' is saved in the memory location 'x100c'

Syntax for pointers

(pointer type declaration)

*type *identifier ;*

Example

Char *cp ;

Int *ip ;

Double *dp ;

Pointer Assignment

Int i = 1 , *ip ; //pointer declaration

ip = &i ; //pointer assignment

***ip = 3 ;** //pointer assignment

Pointer Arithmetic

Lets take this example program

```
#include<stdio.h>
```

```
Void main()
```

```
{
```

```
Int a [5]={1,2,3,4,5} , b , *pt ;
```

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

```
pt = pt + 4 ;
```

```
b=a[0] ;
```

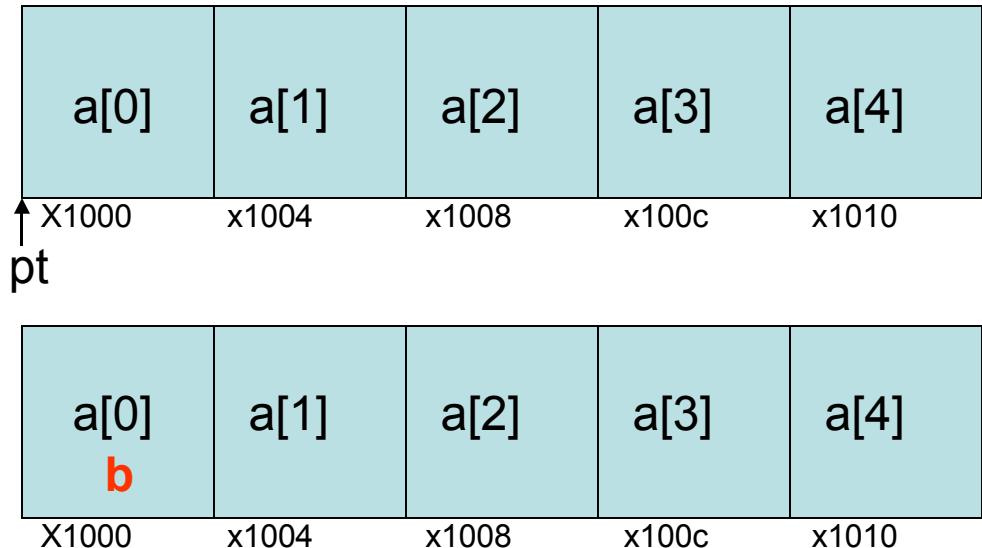
```
b+=4 ;
```

```
}
```

b = 1

b=1+4

b= 5



Lets Take an Example and See how pointers work

```
#include<stdio.h>
```

```
Void main()
```

```
{
```

```
Int i=3;
```

```
Int *j;
```

```
j=&i;
```

```
Printf("i=%d",i);
```

```
Printf("*j=%d",*j);
```

```
}
```


Int i=3;

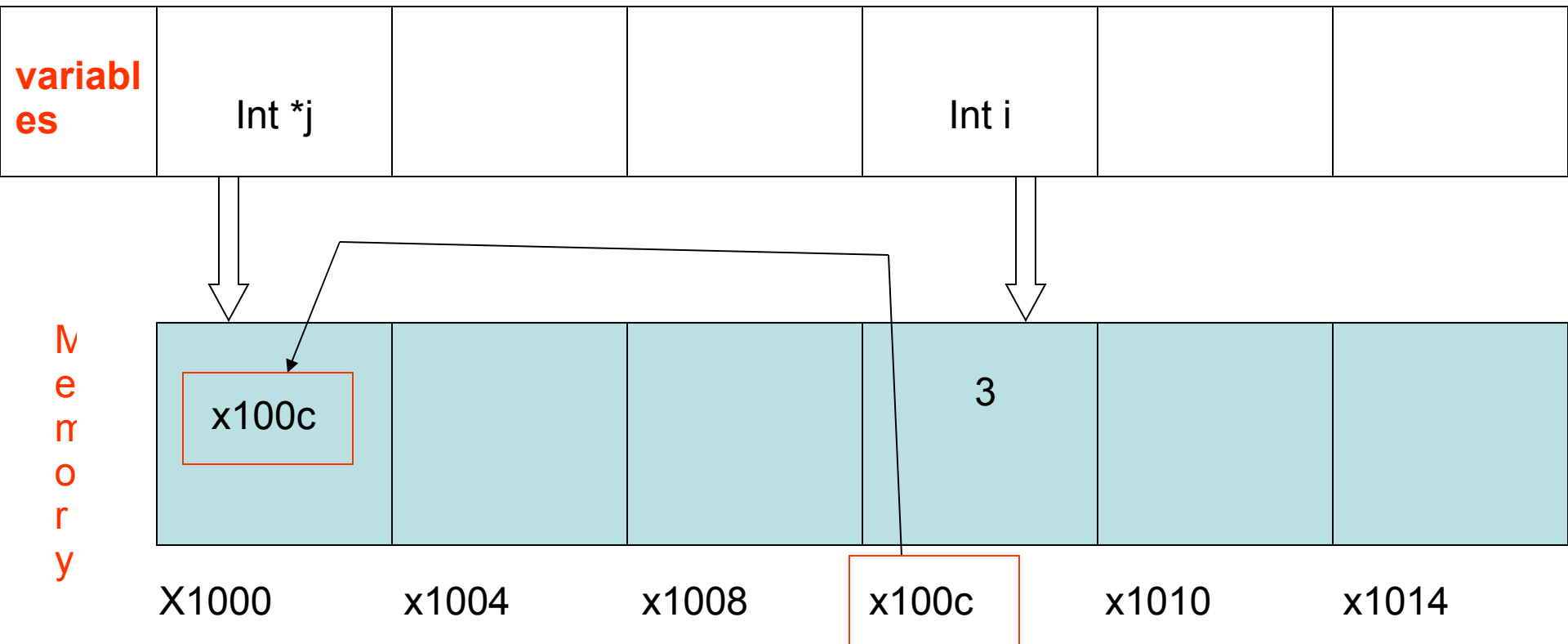
Create an integer variable 'i' and initialize it to 3

Int *j;

Create a pointer variable 'j'- create value of 'j'

j = &i;

Initialize the pointer value of 'j' to the address of 'i'



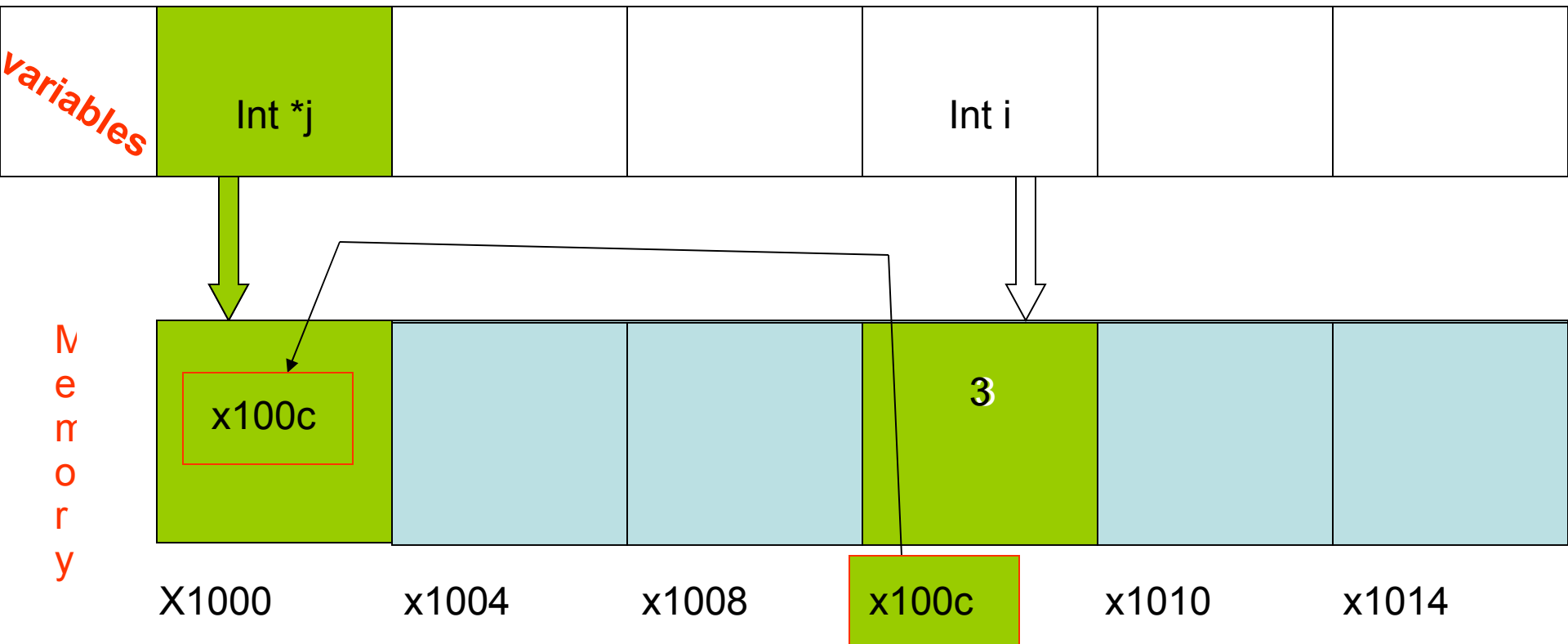
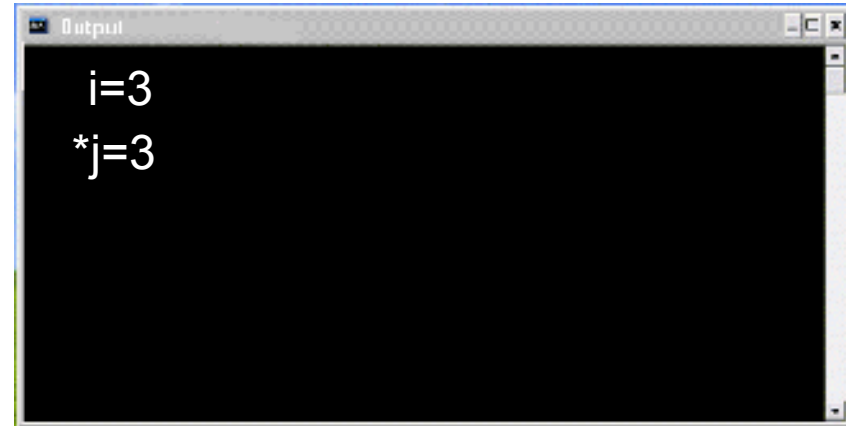
```
Printf("i=%d" i);  
Printf("*j=%d" *j);
```

We know $j = \&i$

So $\rightarrow *j = *(\&i)$ value of (address of i)

(i.e.) value in address (x100c)

Output screen



Predict the output of this code

```
Void main()
{
int num=10;
int* pnum=NULL;
pnum = &num;
*pnum += 20;
printf("\nNumber = %d", num);
printf("\nPointer Number = %d", *pnum);
}
```



Output



Number = 10

Pointer Number = 30

Work to your Brain

```
int a[10] = {1,2,3,4,5,6,7,8,9,12} , *p, *q , i;  
p = &a[2];  
q = &a[5];  
i = *q - *p;  
Printf("The value of i is %d" i );  
i = *p - *q;  
Printf("The value of i is %d" i );  
a[2] = a[5] = 0;  
Printf("The value of i is %d" i );
```



Output



The value of i is 3

The value of i is -3

The value of i is 0

Work to your Brain

```
int a[10] = { 2,3,4,5,6,7,8,9,1,0 }, *p, *q;  
p = &a[2];  
q = p + 3;  
p = q - 1;  
p++ ;  
Printf("The value of p and q are : %d , %d" *p,*q);
```



Output

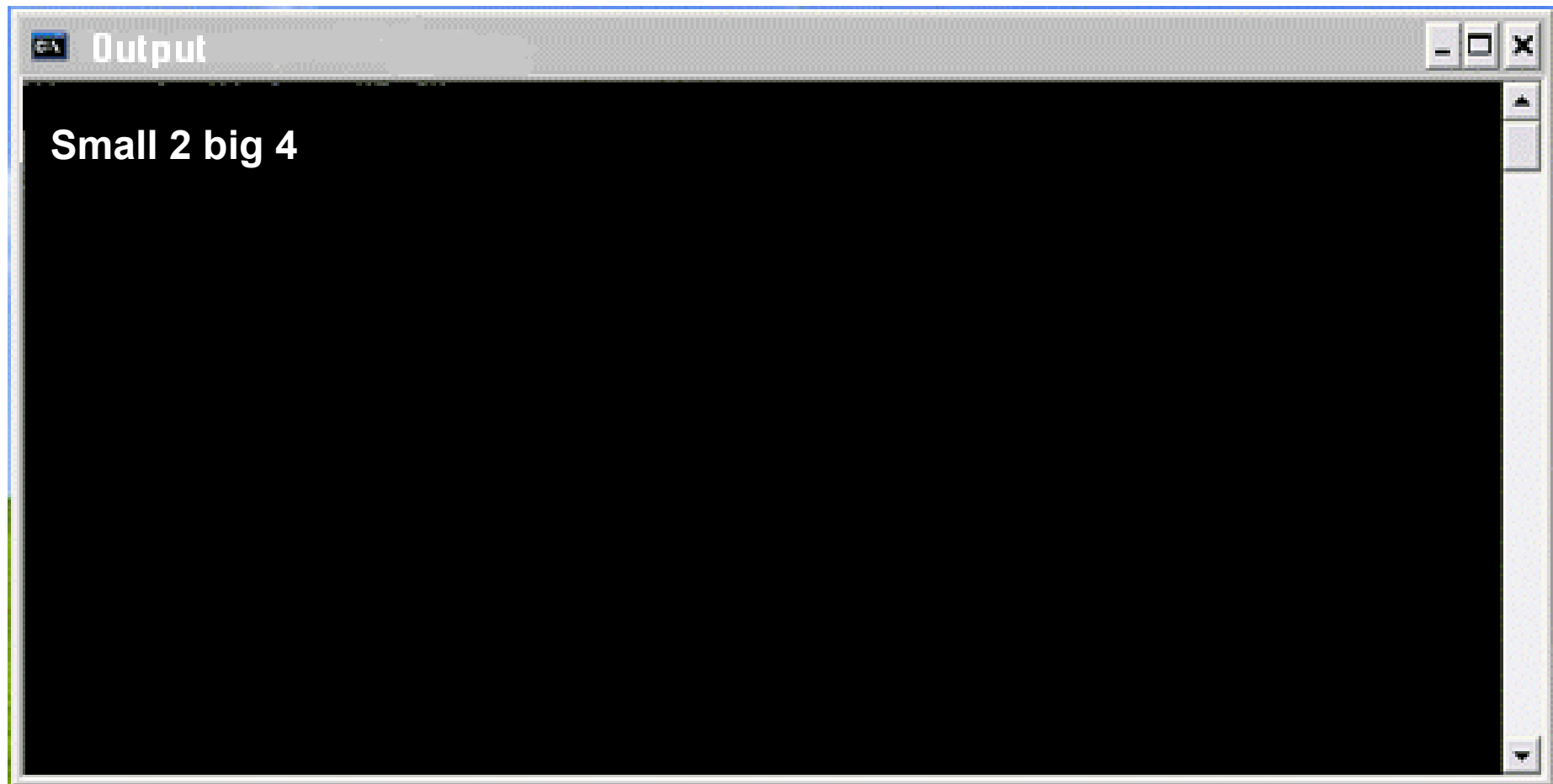


The value of p and q are : 7 , 7

Work to your Brain

```
int main()
{
int x[2]={1,2},y[2]={3,4};
int small,big;
small=&x[0];
big=&y[0];
min_max(&small,&big);
printf("small%d big%d",*small,*big);
return 0;
}
```

```
min_max(int *a,int *b)
{
a++;
b++;
return (*a,*b);
}
```







*Thank
You*