Array

Collection of similar types of data elements.

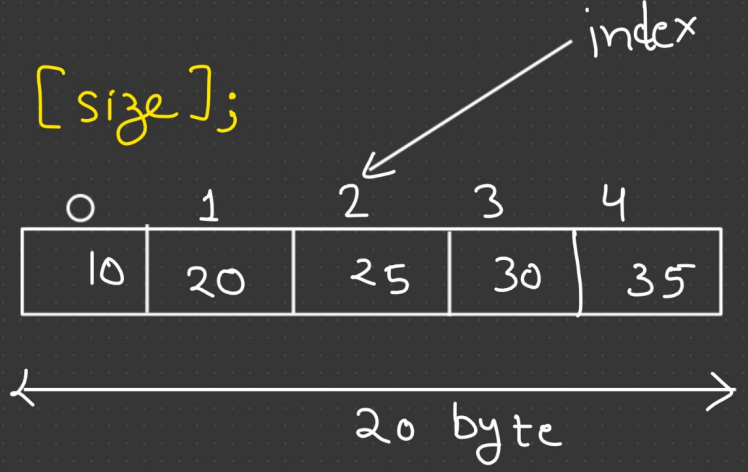
int = 4 byte

4 x 5 = 20 byte

① How to create an Array ?
② How to assign an element in an array ?
③ How to use an array ?

Data Type variable_name [size];

```
int a[5];
```



① Assignment
② Initialization

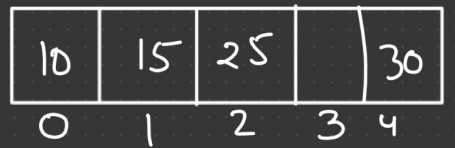
```
int a[5] = {10, 20, 25, 30, 35};
int b[3] = {1, 2, 3, 4};  // Error
int c[4] = {1, 2};
```

1	2	0	0

```
int a[ ]; //Error
```

```
int a[] = {1,2,3};
```

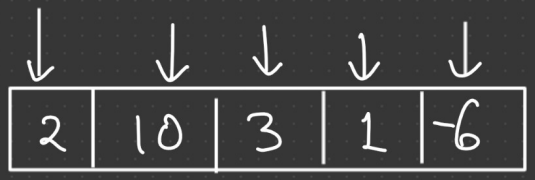

```
int a[5];
```




```
a[0] = 10
a[1] = 15
a[2] = 25
a[4] = 30
```

```
for(int i=0; i<5; i++)
    cin >> a[i];
```

WAP to find maximum element in an array ?




```
int main()
{
    int a[ ] = { 10, 15, 5, -3, 2, 11, 3 };
    int max = a[0];
    for(int i=1 ; i< 7 ;i++)
    {
        if ( max< a[i])
            max = a[i];
    }
    Cout<<" Max element is"<< max ;
    return 0;
}
```

Vector STL

```
#include <vector>
using namespace std;

vector<int> v;

v.push_back(2);

cout << v[2];
```

```
v1 = v2;
```

```
int removeDuplicate(int a[], int n)
{
    int k = 1;
    int temp[n];
    temp[0] = a[0];
    for (int i = 1; i < n; i++)
    {
        if (a[i] == a[i-1])
            continue;
        else
            temp[k] = a[i]; k++;
    }
    for (int i = 0; i < k; i++)
        a[i] = temp[i];
    return k;
}
```

i = 1 2 3 4 5

k = 1 2 3

0	1	2	3	4	
1	2	2	3	3	a

1	2	3			

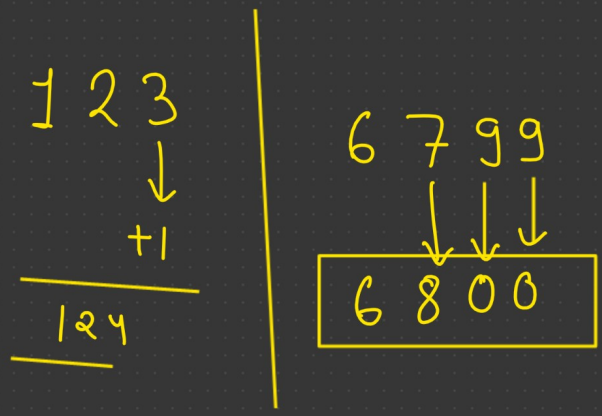
temp

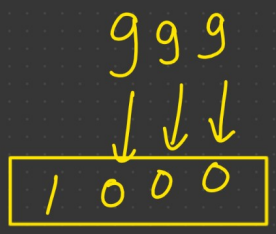
inplace

```
vector <int> digits;

int n = digits.size();

for (int i=n-1 ; i>=0; i--)
{
    if (digit[i] <9)
    {
        digit[i]++;
        return digit;
    }
    else
        digit[i]=0;
}
```





```
int num1[6] = {1, 2, 3};
int num2[3] = {2, 5, 6};

int m = 3;
int n = 3;

int k = m+n-1;
int i = m-1; int j = n-1;
```

k = 6


```
while ( i >=0 && j >=0)
{
    if ( num1[i] > num2[j])
    {   num1[k] = num1[i];
        i--;
        k--;
    }
    else {
        num1[k] = num2[j];
        j--;
        k--;
    }
}
```

```
while ( j >= 0)
 {
     num1[k] = num2[j];
        j--;
        k--;
 }
}
```