

```
#include <iostream>
```

```
//Blaine Mason  
//COSC220 Lab-1  
//8-27-2019  
//This program allows the user to enter any amount of integers then computes the mean and  
displays  
//that to the user.
```

```
using namespace std;
```

```
//Prototypes
```

```
double mean(int ar[], int size); //takes in array and size of array and reutrns a double mean
```

```
double mean2(int* ar, int size); //takes in array and size of array and returns a double mean
```

```
int main(){
```

```
    //creates a pointer to arr
```

```
    int* arr;
```

```
    int* newarr;
```

```
    //arr is assigned an integer array of initial size 10
```

```
    arr = new int[10];
```

```
    //temp will hold the value the user enters
```

```
    //count will count the elements of the array
```

```
    int temp, count = 0;
```

```
    do{//do-while loop allows the user to keep inputing integers until a -1 is entered
```

```
        cout << "Enter an integer to be stored into an array(-1 to quit): ";
```

```
        cin >> temp;
```

```
        //newarr points to an array that is one item larger
```

```
        newarr = new int[count + 1];
```

```
        //the contents of arr are copied to newarr
```

```
        for(int i = 0; i < count; i++)
```

```
        {
```

```
            *(newarr + i) = *(arr + i);
```

```
        }
```

```
        //what arr was pointing to before the new element was added
```

```
        //is now deleted.
```

```
        delete[] arr;
```

```
        //arr now points to the newarr that holds the extra element
```

```
        arr = newarr;
```

```
        if(temp != -1){//when the user wants to keep storing integers
```

```
            //store the temp value in arr[count]
```

```
            arr[count] = temp;
```

```
            //increment count
```

```
            count++;
```

```
        }
```

```
    }while(temp != -1);
```

```
    //the output of the two funcitons mean and mean2 are displayed
```

```
    cout << "Mean: " << mean(arr, count) << endl;
```

```
    cout << "Mean 2: " << mean2(arr, count) << endl;
```

```
    //finally arr is deleted to prevent a memory leak
```

```
    delete[] arr;
```

```
    cout << "Arr[] Deleted\nGoodbye." << endl;
```

```
    return 0;
```

```
}
```

```
double mean(int ar[], int size){
```

```
    //sum will store the sum of all the elements in order to calculate the mean
```

```
    double sum = 0;
```

```
    for(int i = 0; i < size; i++){
```

```
        sum += ar[i];
```

```
    }
```

```
    //returns the mean
```

```
    return sum/size;
```

```
}  
double mean2(int* ar, int size){  
    double sum = 0;  
    for(int i = 0; i < size; i++)  
    {  
        //ar[i] is now being done by the dereferencing of the first element of ar  
        //then added to the int i, to get the memory location of ar[i] which is  
        //dereferenced to be added to sum.  
        sum += *(ar + i);  
    }  
    //returns the mean  
    return sum/size;  
}
```