

# Array

is a group of values of the same datatype, allocated at memory as 1 block (after each other)..

Array name is the address of the first element

reminder  
variable :

name  
type  
address  
value  
scope  
life time

x	5	100	4bytes
grades		400	
grades[0]	1	400	
grades[1]	4	404	
grades[2]	6	408	
grades[3]	10	412	
grades[4]	18	416	

Array declaration :

`int grades[5];`      what will happened if i input number to 10 ???

**\*\* declaration - `int arr[5] = {1,2,3,4,5}`**

EX : Write a program to fill the array element and display them  
get the average of the grades  
print the address of the element in the memory

## 2 D Array

if i want to save 3 grades for 3 studentes

Array declaration :

```
int grades[3][3];
```

Base Address →	Memory Address	Data	Array Index
	40000	24	arr[0][0]
	40004	15	arr[0][1]
	40008	34	arr[0][2]
	40012	26	arr[1][0]
	40016	134	arr[1][1]
	40020	194	arr[1][2]
	40024	67	arr[2][0]
	40028	23	arr[2][1]
	40032	345	arr[2][2]

sb	0	1	2
st 0	24	15	34
1	26	134	194
2	67	23	345

$i, j$   
 $24 \Rightarrow 0,0$   
 $26 \Rightarrow 1,0$   
 $67 \Rightarrow 2,0$

Ex : write a program to take 2D array from user and print it  
get the sum of the grades for each student  
and calc the average of the grades for every subject