

Syntax Errors In Array Decl

- ① `[✓] int arr[10];` → const in array size is always allowed
- `[int n = 10;
int arr[n];` Variable in array size, is allowed by
C99
- But it is an error TC
- ② `int arr[0];` ✗
- ③ `int arr[];` Size cannot be left empty except in 1 special case.

Initializing An Array

- ① `int months[12];` ② `int months[12] = { 31, 28, 31, 30, ... 31 };`

`months[0] = 31;
months[1] = 28;
months[2] = 31;
⋮
months[11] = 31;`

- ③ `int months[12];`
✗ `months[12] = { 31, 28, 31, ... };`
✗ `months = { 31, 28, 31, ... };`

- ④ `int arr[5] = { 10, 20, 30, 40, 50};` ✓
- ⑤ `int arr[5] = { 10, 20, 30};` ✓
- ⑥ `int arr[3] = { 10, 20, 30, 40, 50};` TC X
Mingw/GCC ✓
but extra data will be replaced with garbage
- ⑦ `int arr[5] = { 10, , 30, , 50};` X holes
- ⑧ `int arr[] = { 10, 20, 30, 40, 50};`

WAP to create an integer array of size 10 , accept values from the user in it and finally display the sum and average of all array elements.

```
#include <stdio.h>
int main()
{
    int arr[10];
    int i, sum=0;
    for(i=0; i<=9; i++)
    {
        printf("Enter a no:");
        scanf("%d", &arr[i]);
        sum = sum + arr[i];
    }
    printf("Sum is %d", sum);
    printf("\nAvg is %f", sum/10.0);
    return 0;
}
```

$$\begin{aligned}
 \text{Sum} &= 0 + 20 \\
 &= 20 + 15 \\
 &= 35 + 40 \\
 &= 75
 \end{aligned}$$

arr	
i → 0	20
i → 1	15
i → 2	40
3	
4	
5	
6	
7	
8	
9	

Modify the previous code so that now we display the sum of even nos and the sum of odd nos of the array separately

```
#include <stdio.h>
int main()
{
    int arr[10];
    int i, soe=0, sod=0;
    for(i=0; i<=9; i++)
    {
        printf("Enter a no:");
        scanf("%d", &arr[i]);
        if(arr[i]%2==0)
            soe=soe+arr[i];
        else
            sod=sod+arr[i];
    }
    printf("Sum of even is is %d", soe);
    printf("\nSum of odd is %d", sod);
    return 0;
}
```

$i = 0 + 2 + 3$

$soe = 0 + 20 \Rightarrow 20$
 $20 + 18 \Rightarrow 38$
 $sod = 0 + 15 \Rightarrow 15$
 $15 + 29 = 44$
 $44 + 11 \Rightarrow 55$

$(arr[i] \% 2 == 0) ? (soe = soe + arr[i]) : (sod = sod + arr[i])$

0	20
1	15
2	18
3	29
4	11
5	31
6	42
7	12
8	19
9	23

Again modify the previous code so that along with sum we are able to display the average of even and odd nos also.

```
#include <stdio.h>
int main()
{
    int arr[10];
    int i, soe=0, sod=0, count=0;
    for(i=0; i<=9; i++)
    {
        printf("Enter a no:");
        scanf("%d", &arr[i]);
        if(arr[i]%2==0){
            soe=soe+arr[i];
            count++;
        }
        else
            sod=sod+arr[i];
    }
    printf("Sum of even is is %d, Avg is %f", soe, (float)soe/count);
    printf("\nSum of odd is %d, Avg is %f", sod, (float)sod/(10-count));
    return 0;
}
```

$i = 0 + 2 + 3$

$soe = 0 + 20 \Rightarrow 20$
 $20 + 18 \Rightarrow 38$
 $sod = 0 + 15 \Rightarrow 15$
 $15 + 29 = 44$
 $44 + 11 \Rightarrow 55$

$(arr[i] \% 2 == 0) ? (soe = soe + arr[i], count++) : (sod = sod + arr[i])$

0	20
1	15
2	18
3	29
4	11
5	31
6	42
7	12
8	19
9	23

WAP to create an integer array of size 10 , accept values from the user in it . Then again ask the user to input another number and SEARCH it in the array. If the number is present then print its POSITION otherwise print the message number not found . Assume that the array contains unique elements only

