

## Lesson 6.2 Array Initialisation

In the previous video lesson, we learned what is an array and how to declare the array without initialisation.

In this video lesson, we will learn how to initialise the arrays declared.

**INITIALISATION OF ARRAYS**

**Initialise array** variables at declaration:

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After an array has been declared, it must be initialised.  
Arrays can be initialised at compile time after declaring them.

**INITIALISATION OF ARRAYS**

**Initialise array** variables at declaration:

**type\_specifier**

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The format for initializing an array is  
**type specifier**

## INITIALISATION OF ARRAYS

**Initialise array** variables at declaration:

**type\_specifier** **array\_name**

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**array name**

## INITIALISATION OF ARRAYS

Initialise array variables at declaration:

**type\_specifier** **array\_name**[**array\_size**]

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Square bracket **array size** square bracket

## INITIALISATION OF ARRAYS

Initialise array variables at declaration:

```
type_specifier array_name[array_size]={list_of_values};
```

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Equals curly bracket **list of values** curly bracket.

## INITIALISATION OF ARRAYS

**Initialise array** variables at declaration:

**type\_specifier** **array\_name**[**array\_size**]={**list\_of\_values**};

Example:

```
#define MTHS 12    /* define a constant */
```

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For example,  
we can first define a constant called months to be of value 12.

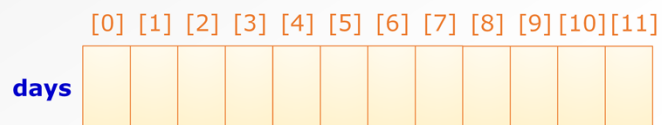
## INITIALISATION OF ARRAYS

Initialise array variables at declaration:

**type\_specifier** **array\_name**[**array\_size**]={**list\_of\_values**};

Example:

```
#define MTHS 12      /* define a constant */  
int days[MTHS]
```



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**integer days square bracket months square bracket** will declare an array called days with 12 elements.



## INITIALISATION OF ARRAYS

Initialise array variables at declaration:

**type\_specifier** **array\_name**[**array\_size**]={**list\_of\_values**};

Example:

```
#define MTHS 12      /* define a constant */  
int days[MTHS]={31,28,31,30,31,30,31,31,30,31,30,31};
```

	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
<b>days</b>	31	28	31	30	31	30	31	31	30	31	30	31

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When the array equals curly bracket with 12 listed items separated by commas we have initialised the array **days** with 12 data items.

**INITIALISATION OF ARRAYS**

**Partial array initialisation:**

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An array can also be declared and initialised partially in which the number of elements in the curly bracket list is less than the number of array elements.

## INITIALISATION OF ARRAYS

### Partial array initialisation:

Example (Initialise first 7 elements):

```
#define MTHS 12      /* define a constant */  
int days[MTHS]={31,28,31,30,31,30,31};
```

Array size of 12 declared but only the first 7 elements of the array are initialised

In this example, an array of size 12 is declared but only the first 7 elements of the array are initialised.

## INITIALISATION OF ARRAYS

### Partial array initialisation:

Example (Initialise first 7 elements):

```
#define MTHS 12      /* define a constant */  
int days[MTHS]={31,28,31,30,31,30,31};
```

Array size of 12 declared but only the first 7 elements of the array are initialised

	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
days	31	28	31	30	31	30	31					

first 7 array elements are initialised

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After the first 7 array elements are initialised,

## INITIALISATION OF ARRAYS

### Partial array initialisation:

Example (Initialise first 7 elements):

```
#define MTHS 12      /* define a constant */  
int days[MTHS]={31,28,31,30,31,30,31};
```

Array size of 12 declared but only the first 7 elements of the array are initialised

	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]
days	31	28	31	30	31	30	31	0	0	0	0	0

first 7 array elements are initialised    the remaining array elements  
will be initialised to 0

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the remaining array elements will be initialised to 0.

**INITIALISATION OF ARRAYS**

**Omitting the size in array initialisation:**

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In addition, an array can also be declared and initialised without explicitly indicating the array size.

## INITIALISATION OF ARRAYS

Omitting the size in array initialisation:

`int days[]={31,28,31,30,31,30,31};`

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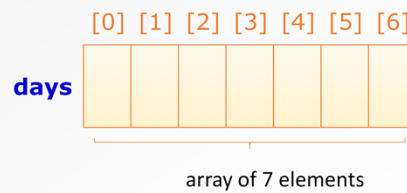
The declaration

**integer days square bracket square bracket equals curly bracket  
31,28,31,30,31,30,31 curly bracket** is valid.

## INITIALISATION OF ARRAYS

Omitting the size in array initialisation:

```
int days[]={31,28,31,30,31,30,31};
```



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It declares **days** as an array of 7 elements



## INITIALISATION OF ARRAYS

Omitting the size in array initialisation:

```
int days[]={31,28,31,30,31,30,31};
```

7 elements in the list

	[0]	[1]	[2]	[3]	[4]	[5]	[6]
days	31	28	31	30	31	30	31

array of 7 elements

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as there are 7 elements in the list.

**SUMMARY**

- Initialise array variables at declaration

```
#define MTHS 12    /* define a constant */  
int days[MTHS]={31,28,31,30,31,30,31,31,30,31,30,31};
```

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Let's do a quick summary on the initialisation of array.

We can initialise array variables at declaration.

In this example shown, array of size 12 is declared and all elements are initialised.

## SUMMARY

- Initialise array variables at declaration

```
#define MTHS 12    /* define a constant */  
int days[MTHS]={31,28,31,30,31,30,31,31,30,31,30,31};
```

- Partial array initialisation

```
#define MTHS 12    /* define a constant */  
int days[MTHS]={31,28,31,30,31,30,31};
```

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We can also do a partial array initialization.

In this example shown, array of size 12 is declared but only the first 7 elements are initialised. The rest of the elements will take the value of 0.

## SUMMARY

- Initialise array variables at declaration

```
#define MTHS 12    /* define a constant */  
int days[MTHS]={31,28,31,30,31,30,31,31,30,31,30,31};
```

- Partial array initialisation

```
#define MTHS 12    /* define a constant */  
int days[MTHS]={31,28,31,30,31,30,31};
```

- Omitting the size in array declaration

```
int days[]={31,28,31,30,31,30,31};
```

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We can also omit the size in array declaration.

In the example shown, the array declared will be an array of 7 elements since there are 7 elements in the list.

We will cover operations on arrays in the next video lesson.