# Storage Classes in C

Storage classes are used to define scope and life time of a variable. There are four storage classes in C programming.

* auto
* extern
* static
* register

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| --- | --- | --- | --- | --- |
| **Storage Classes** | **Storage Place** | **Default Value** | **Scope** | **Life-time** |
| auto | RAM | Garbage Value | Local | Within function |
| extern | RAM | Zero | Global | Till the end of main program, May be declared anywhere in the program |
| static | RAM | Zero | Local | Till the end of main program, Retains value between multiple functions call |
| register | Register | Garbage Value | Local | Within function |

## **1) auto**

The auto keyword is applied to all local variables automatically. It is the default storage class that is why it is known as automatic variable.

1. #include <stdio.h>
2. **void** main(){
3. **int** a=10;
4. auto **int** b=10;//same like above
5. printf("%d %d",a,b);
6. }

Output:

10 10

## **2) register**

The register variable allocates memory in register than RAM. Its size is same of register size. It has a faster access than other variables.

It is recommended to use register variable only for quick access such as in counter.

#### *Note: We can't get the address of register variable.*

1. **register** **int** counter=0;

## **3) static**

The **static** variable is initialized only once and exists till the end of the program. It retains its value between multiple functions call.

The static variable has the default value 0 which is provided by compiler.

1. #include <stdio.h>
2. **void** func() {
3. **static** **int** i=0;//static variable
4. **int** j=0;//local variable
5. i++;
6. j++;
7. printf("i= %d and j= %d\n", i, j);
8. }
9. **void** main() {
10. func();
11. func();
12. func();
13. }

Output:

i= 1 and j= 1

i= 2 and j= 1

i= 3 and j= 1

## **4) extern**

The extern variable is visible to all the programs. It is used if two ore more files are sharing same variable or function.

1. **extern** **int** counter=0;