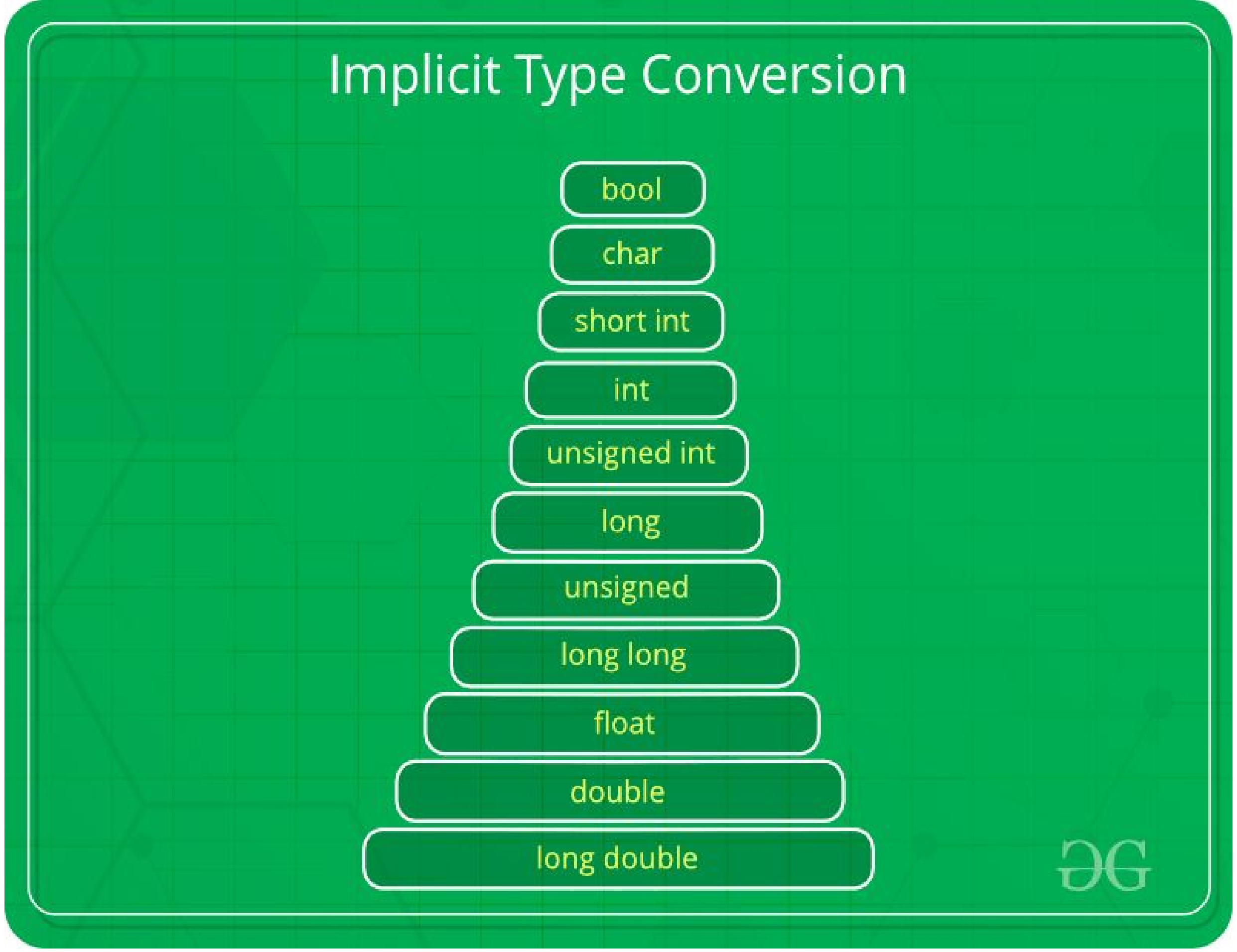
Type Conversion in C

- Typecasting is converting one data type into another one. It is also called as data conversion or type conversion in C language.
- There are two types of Conversion -
- Implicit type casting
- Explicit type casting

Implicit Type Conversion -

- Also known as ‘automatic type conversion’.
- Done by the compiler on its own, without any external trigger from the user.
- Generally takes place when in an expression more than one data type is present.
- In such condition type conversion (type promotion) takes place to avoid loss of data.
- All the data types of the variables are upgraded to the data type of the variable with largest data type.
- It is possible for implicit conversions to lose information, signs can be lost (when signed is implicitly converted to unsigned), and overflow can occur (when long long is implicitly converted to float).

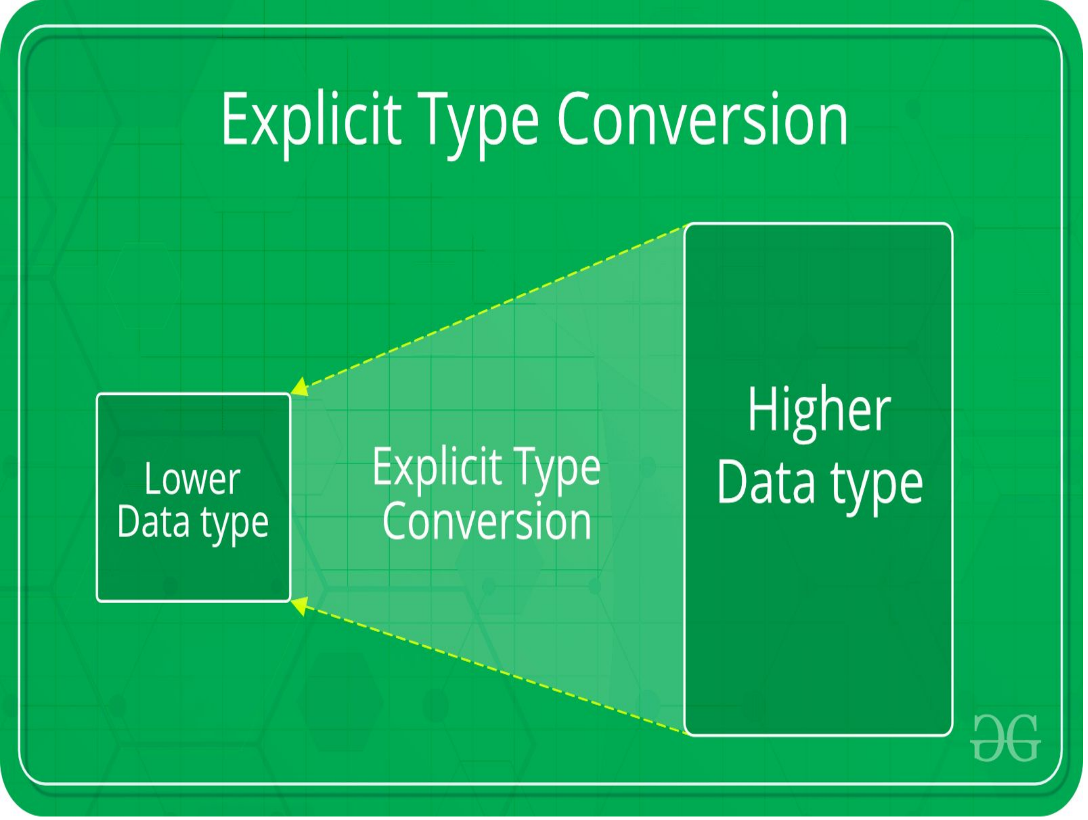
bool -> char -> short int -> int -> unsigned int -> long -> unsigned -> long long -> float -> double -> long double



```
// An example of implicit conversion
#include<stdio.h>
int main()
{
    int x = 10;    // integer x
    char y = 'a';  // character c
  // y implicitly converted to int. ASCII
    // value of 'a' is 97
    x = x + y;
   // x is implicitly converted to float
   float z = x + 1.0;
   printf("x = %d, z = %f", x, z);
   return 0;
}                  // output - x = 107, z = 108.000000
```

Explicit Type Conversion -

- This process is also called type casting and it is user defined. Here the user can type cast the result to make it of a particular data type.
- The syntax in C: **(type) expression;**
- Type indicated the data type to which the final result is converted.



```
// C program to demonstrate explicit type casting
#include<stdio.h>
int main()
{
  double x = 1.2;
  // Explicit conversion from double to int
  int sum = (int)x + 1;
  printf("sum = %d", sum);
   return 0;
}                    // output – sum = 2
```

Advantages of Type Conversion

- This is done to take advantage of certain features of type hierarchies or type representations.
- It helps us to compute expressions containing variables of different data types