OBJECTIVE-C TYPE CASTING

Type casting is a way to convert a variable from one data type to another data type. For example, if you want to store a long value into a simple integer then you can type cast long to int. You can convert values from one type to another explicitly using the **cast operator** as follows:

```
(type_name) expression
```

In Objective-C, we generally use CGFloat for doing floating point operation, which is derived from basic type of float in case of 32-bit and double in case of 64-bit. Consider the following example where the cast operator causes the division of one integer variable by another to be performed as a floating-point operation:

```
#import <Foundation/Foundation.h>

int main()
{
   int sum = 17, count = 5;
   CGFloat mean;

   mean = (CGFloat) sum / count;
   NSLog(@"Value of mean : %f\n", mean );

   return 0;
}
```

When the above code is compiled and executed, it produces the following result:

```
2013-09-11 01:35:40.047 demo[20634] Value of mean : 3.400000
```

It should be noted here that the cast operator has precedence over division, so the value of **sum** is first converted to type **double** and finally it gets divided by count yielding a double value.

Type conversions can be implicit which is performed by the compiler automatically or it can be specified explicitly through the use of the **cast operator**. It is considered good programming practice to use the cast operator whenever type conversions are necessary.

Integer Promotion

Integer promotion is the process by which values of integer type "smaller" than **int** or **unsigned int** are converted either to **int** or **unsigned int**. Consider an example of adding a character in an int:

```
#import <Foundation/Foundation.h>

int main()
{
   int  i = 17;
   char c = 'c'; /* ascii value is 99 */
   int sum;

   sum = i + c;
   NSLog(@"Value of sum : %d\n", sum );

   return 0;
}
```

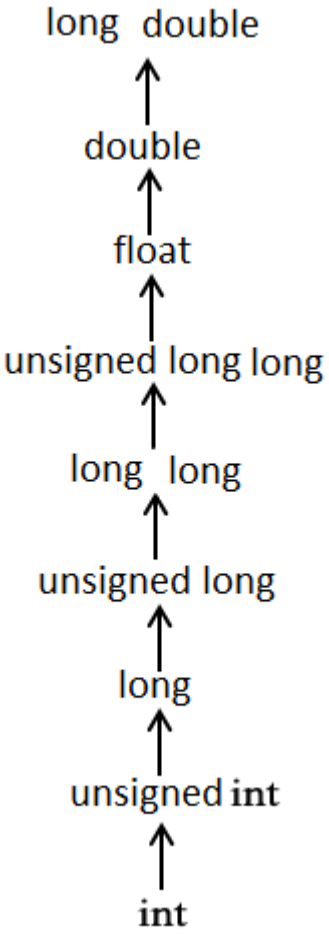
When the above code is compiled and executed, it produces the following result:

```
2013-09-11 01:38:28.492 demo[980] Value of sum : 116
```

Here, value of sum is coming as 116 because compiler is doing integer promotion and converting the value of 'c' to ascii before performing actual addition operation.

Usual Arithmetic Conversion

The **usual arithmetic conversions** are implicitly performed to cast their values in a common type. Compiler first performs *integer promotion*, if operands still have different types then they are converted to the type that appears highest in the following hierarchy:



The usual arithmetic conversions are not performed for the assignment operators, nor for the logical operators && and ||. Let us take following example to understand the concept:

```
#import <Foundation/Foundation.h>

int main()
{
   int  i = 17;
   char c = 'c'; /* ascii value is 99 */
   CGFloat sum;

   sum = i + c;
   NSLog(@"Value of sum : %f\n", sum );
   return 0;
}
```

When the above code is compiled and executed, it produces the following result:

```
2013-09-11 01:41:39.192 demo[15351] Value of sum : 116.000000
```

Here, it is simple to understand that first c gets converted to integer but because final value is float, so usual arithmetic conversion applies and compiler converts i and c into float and add them yielding a float result.