Typecast and Type conversion

Type cast

In type casting, a data type is converted into another data type **by the programmer** using the casting operator () within the program.

In type casting, the destination data type may be smaller than the source data type. **It is also known as narrowing conversion.**

Type cast

Syntax:

Destination data type= (target data type)variable;

Here () is a casting operator.

Target data type is a data type in which we want to convert the source data type.

Type cast

For Example:

float x;

int y;

…

y=(int)x;

Here, float data type is converted into int data type as y is int and x is float. And, x is bigger in size.

Type conversion

In type conversion, data type is automatically converted into another data type **by the compiler** at the compile time.

Here, the destination data type cannot be smaller than source data type.

It is also known as widening conversion. Type conversion can be applied only to compatible data types.

Type conversion

For example:

```
int x=30;

float y;

…

y=x;        //now, y is 30.000000
```

Difference between Type cast and Type Conversion

Type cast (Explicit typecasting)	Type Conversion (Implicit typecasting)
It is performed explicitly by the programmer with the help of casting operator.	It is performed automatically by the compiler.
Type casting can be applied to **compatible data types** as well as **incompatible data types**.	Type conversion can only be applied to **compatible datatypes**.
Casting operator is needed in order to cast a data type to another data type.	There is no need for a casting operator.
There is loss of data.	There is no loss of data.

Difference between Type cast and Type Conversion

Type cast (Explicit typecasting)	Type Conversion (Implicit typecasting)
It is also called as explicit typecasting.	It is also called as implicit type casting.
The destination data type may be smaller than the source data type, when converting the data type to another data type.	Type conversion, the destination data type can't be smaller than source data type.
Type casting takes place during the program design by programmer.	Whereas type conversion is done at the compile time.
Type casting is also called **narrowing conversion** because in this, the destination data type may be smaller than the source data type.	Whereas type conversion is also called **widening conversion** because in this, the destination data type cannot be smaller than the source data type.

Difference between Type cast and Type Conversion

Type cast (Explicit typecasting)	Type Conversion (Implicit typecasting)

#include<stdio.h>
void main()
{
float a=5.8;
int b;
b=(int)a;
printf("%d",b);
}
 	
//Output: 5
	#include<stdio.h>
	void main()
	{
	int a=5;
	float b;
	b=a;
	printf("%f",b);
	}
	
	//Output: 5.000000

Thank You