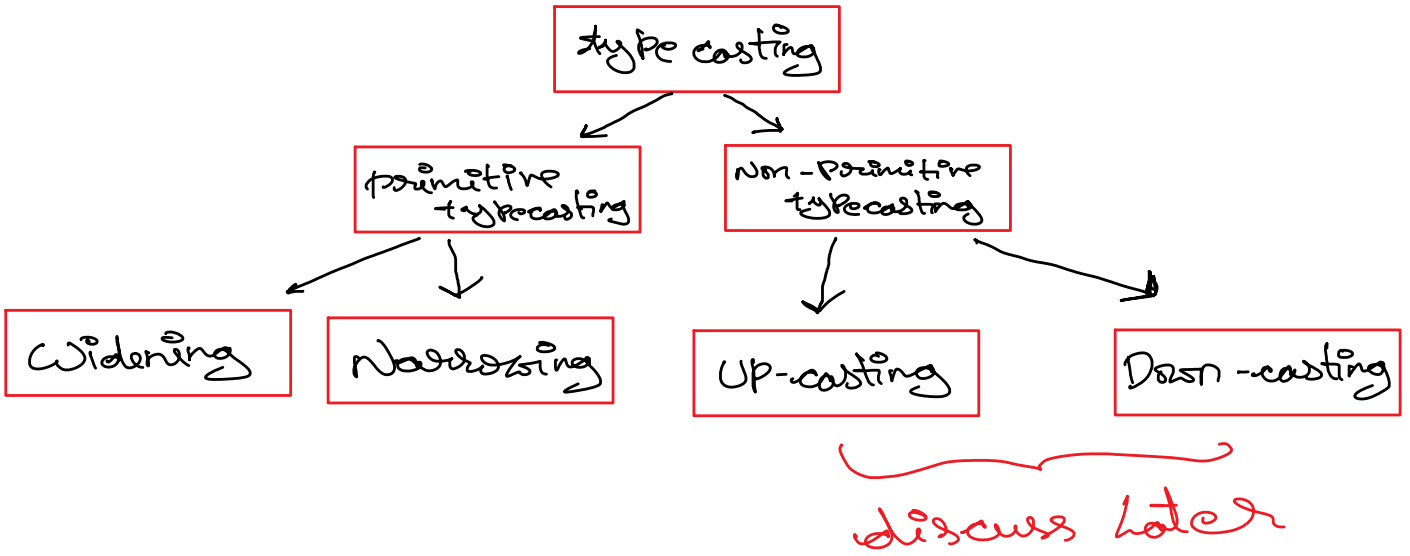
Saturday, April 18, 2020 12:48 PM

Type Casting

The process of converting one type of datatype into another type of datatype, is known as typecasting.

Type casting is further classified into 2 types they are :

1. primitive type casting
2. non-primitive / derived typecasting



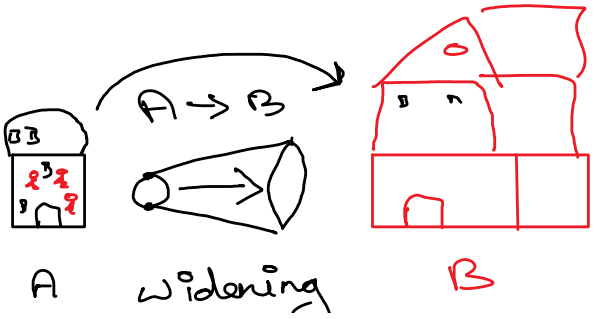
Primitive Typecasting :

The process of converting one primitive type into another primitive type is known as primitive type casting.

In, primitive type casting we have 2 classifications they are :

1. widening
2. narrowing

Case 1

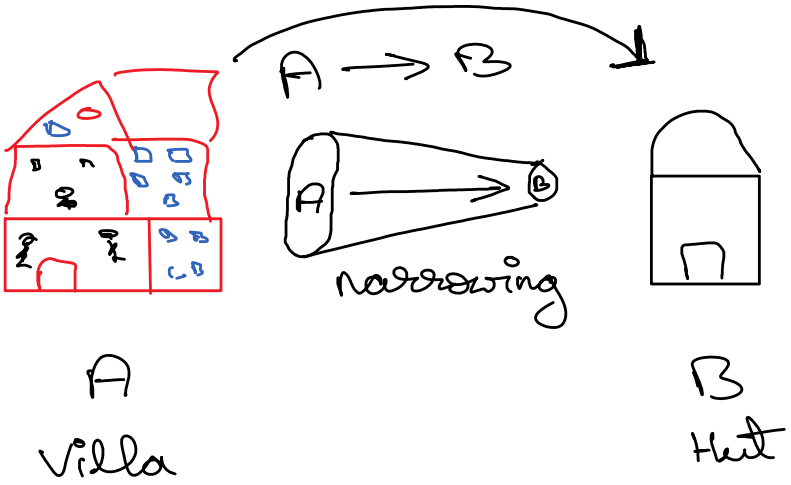


1.) No Data loss

2.) implicitly

2.) implicitly
By
Compiler

Case 2:



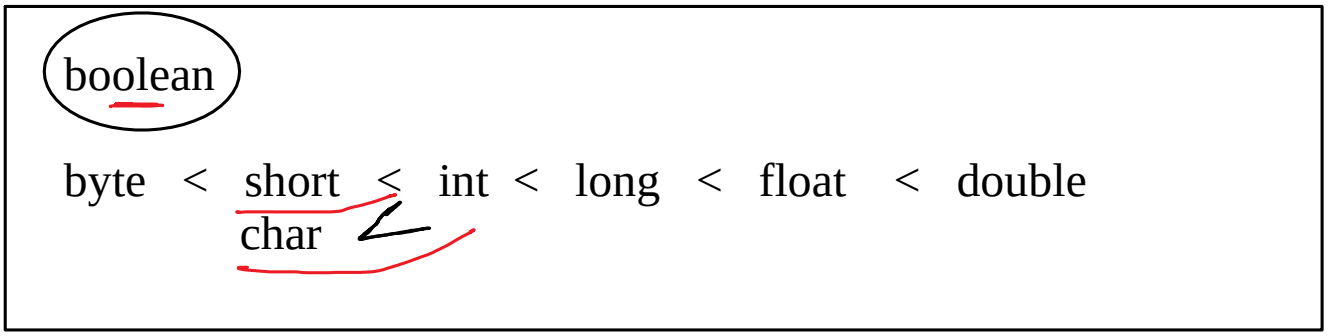
1. possibility
of
Data loss
2. Explicitly
by
programmer

1. Widening :

The process of converting smaller range primitive datatype into larger range primitive datatype is known as widening.

Note :

1. In widening there is no data loss.
2. Widening can be done implicitly by the compiler, hence it is also known as auto-widening or implicit type-casting.



Note:

1. boolean datatype cannot be converted into any other primitive type.
2. we cannot convert any primitive type into boolean type.

Assignment 1 :

1. Write programs for the following :
    1. byte :
        - byte -> short
        - byte -> int
        - byte -> long
        - byte -> float
        - byte -> double
        - byte -> char
        - byte -> boolean
    2. short:

- short -> int
- short -> long
- short -> float
- short -> double
- short-> char
- short > boolean

3. int
4. long
5. float
6. double
7. char

Narrowing :

The process of converting larger range primitive data type into smaller range primitive data type is known as narrowing.

Note:

1. There is a possibility of data loss.
2. narrowing is **not done** implicitly by the compiler.
3. narrowing is done by the programmer with the help of **type-cast operator**

typecast operator :

Syntax:

(type) literal / expression

it is a unary operator, which is used to convert the value or expression into the specified datatype.

example :

1. int a ;
   a = 10.0 ;

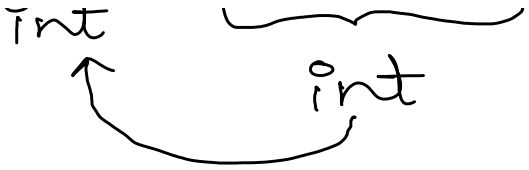
int double

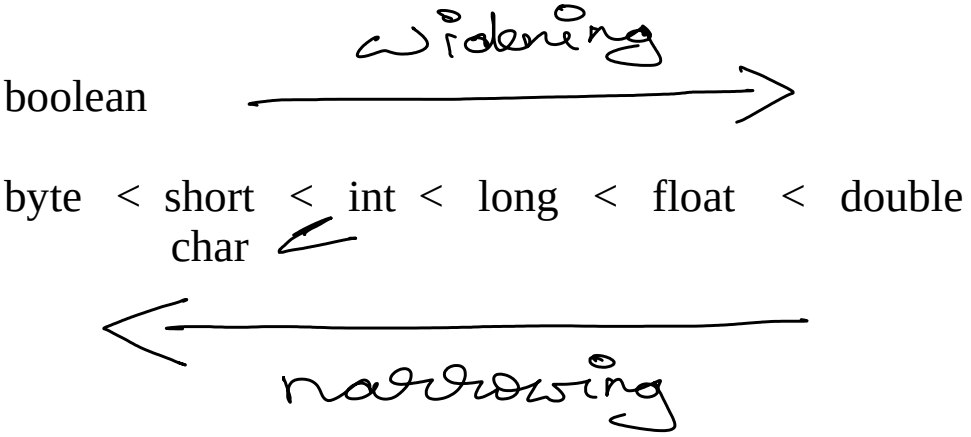
double to int is narrowing
// we get CTE

Solution:

```
int a;
a = (int)10.0; // Narrowing process
```

int ← double → int





Assignment2 :

1. double :
   - double --> float
   - double --> long
   - double --> int
   - double --> short
   - double --> byte
   - double --> char
   - double --> boolean
2. float
3. long
4. int
5. short
6. byte