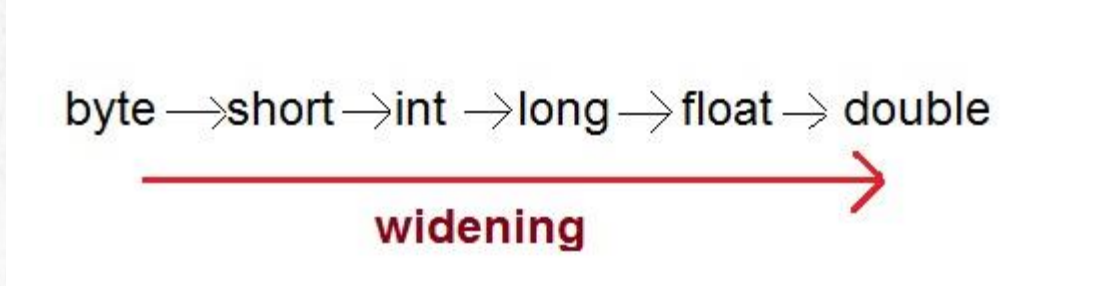# JAVA CASTING

EFTHIMIOS ALEPIS

DEFINITION

- Casting is the process of taking a variable of one particular Data Type and converting it into another Data Type
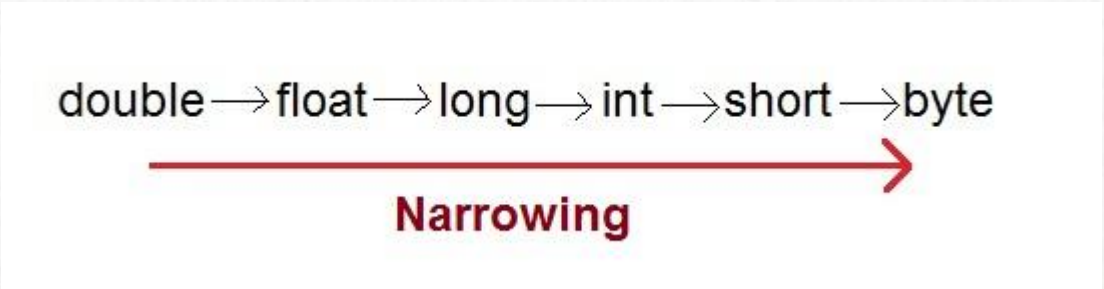
CASTING DATA TYPES IN JAVA

- Casting occurs in the 2 basic Java Data Types:
  - Primitive Data Types
  - Reference Data Types (Objects)

CASTING PRIMITIVES

- Widening Casting

byte →short →int →long → float → double

widening

- Narrowing Casting

double →float →long → int →short →byte

Narrowing

WIDENING

- This kind of casting occurs automatically, implicitly

int i = 100;

long l = i;

float f = l;

NARROWING

- This kind of casting needs to be done explicitly

- You may also loose information…

double d = 3900.17;

long l = (long)d;

int i = (int)l;

CASTING OBJECTS

- When the source class and destination the class are related by <u>inheritance</u>

- Class **Object** is the superclass of all Java classes

- Upcasting and Downcasting

UPCASTING

- Casting from a subclass to a superclass

- Implicitly done by the compiler (no need to do -> (ClassB) objectA)

Cat cat = new Cat();

Animal animal = cat; (no need for -> Animal animal = (Animal) cat;)

DOWNCASTING

- Casting from a superclass to a subclass

- Should be done explicitly

Animal animal = new Cat();

Cat cat = (Cat) animal;

USING ISTANCEOF

- We often use "instanceof" operator to check if an object belongs to a specific type

```
if (animal instanceof Cat) {

    Cat cat = (Cat) animal;

    cat.meow();

}
```