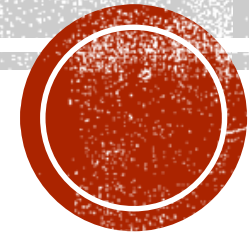# COMPUTER PROGRAMMING CONCEPTS

CS&IT 1101

Instructor: Shakar H. Salih

E-mail: shakar.salih@uhd.edu.iq

OUTLINES

1. Casting
2. String Data Type
3. Scanner

TYPE CASTING

- The process of automatic converting values from one data type to another
- Example
  - int $\rightarrow$ double
  - byte $\rightarrow$ int
  - float $\rightarrow$ double

- Kinds of casting
  - Implicit casting: automatic conversion
  - Explicit casting: performed by developer
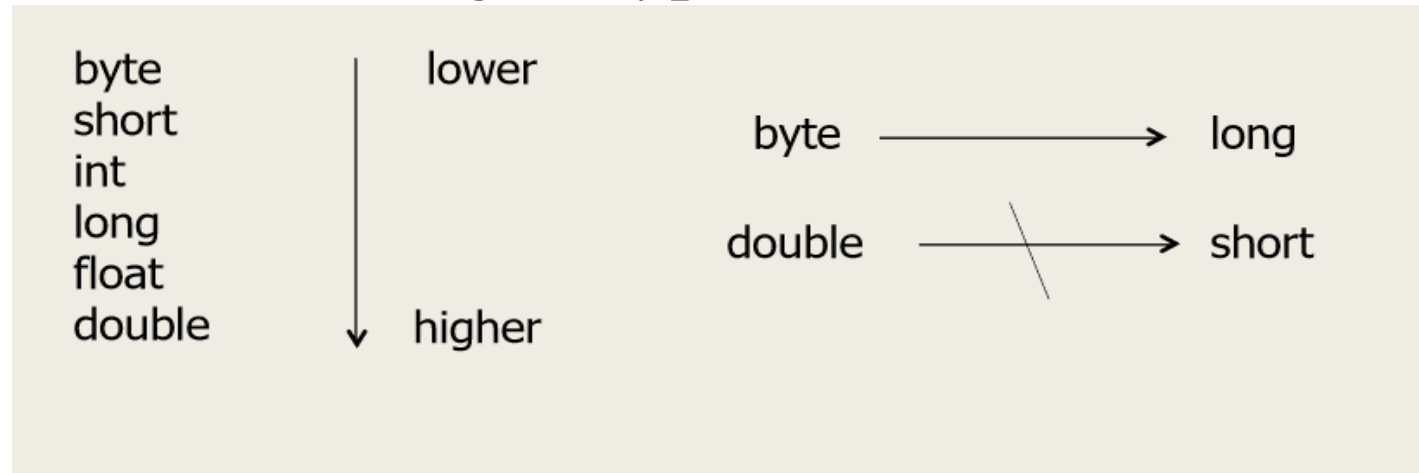
IMPLICIT CASTING

- An implicit conversion is changing in the data type automatically without any transformation
  - When we will store a value of a data type to a variable declared with a different type, the compiler will not return an error.

  Example
  - **double** Price = 13;
  - Price will contain 13.0 after running

IMPLICIT CASTING CONT'D

- Implicit casting can be done between types from lower data type to higher data type (upcasting), because

  - Higher types have more precision
  - Lower types are "subsets" of higher types

EXPLICIT CASTING

- An explicit conversion is changing in the data type manually by the user.

- Syntax: (data type) value

- Example

int Price;

Price = (int) 1.2135

Price will contain 1 after running

EXAMPLES

- Example1:
  - int i = 1000;
  - double j = i;   //Implicit (j converted to int)
    - int k = (int) j;   //Explicit (k converted to int)

- Example2:
- int mark1 = 81, mark2 = 74, mark3 = 65;
- double average = 0.0;
- average = (double) (mark1+mark2+mark3)/3;
- Here summation of marks is converted to double

STRING DATA TYPE

- The char type only represents one character.
- To represent a string of characters, use the data type called String.
- For example

String message = "WELCOME";

0	1	2	3	4	5	6
W	E	L	C	O	M	E

EXAMPLE

By using Char data type (Typing "Welcome stage 1")

Char a='W', b='e', c='l', d='c', e='o', f='m', ………(needs 15 variable)……

By using String data type (Typing "Welcome stage 1")

String s="Welcome stage 1"   (need just 1 variable)

INPUT (READ) STATEMENT

- Reads input from the console, While the program runs, it asks the user to type input.

- The input typed by the user is stored in variables in the code by using Scanner.

- The **Scanner** class is found in the **java.util** package.

- Syntax:

  Scanner object=new Scanner(System.in);

HOW TO USE SCANNER ?

1. import java.util.*;   // **so you can use Scanner**

2. Scanner Any**name** = new Scanner(System.in);

3. Store the value reader inside the variable.

   for example:

   Scanner object=new Scanner(System.in);

   int x=object.nextInt();

EXAMPLE

```java
import java.util.*;   // so that I can use Scanner

public class ScannerTest {
    public static void main(String[] args) {
        Scanner obj = new Scanner(System.in);

        System.out.print("Please type two numbers: ");
        int num1 = obj.nextInt();
        int num2 = obj.nextInt();

System.out.println("The first number is " + num1);
System.out.println("The second number is " + num2);

    }
}
```

THANK YOU........

DO YOU HAVE ANY QUESTIONS ?