

# 2. TYPECASTING IN JAVA

Experiment no. 2

Date: 16/7/24

Rollno: B014

Aim: To test various Datatypes and typecasting in Java.

Theory:

Primitive datatypes:

Data types in Java are of different types, sizes and values that can be stored in the variable that is made as per convenience and circumstances to cover up all test cases.

Examples of Primitive Data Types are:

Boolean, char, int, short, Byte, float and double.

Typecasting in Java:

Typecasting in Java is the process of converting one data type to another data type using the casting operator. When one assigns a value from 1 primitive data type to another data type, it is known as type casting. To enable the use of a variable in a specific manner, this method requires explicitly instructing the Java compiler to treat a variable of one data type as a variable of another data type.

Types of typecasting are:

- Widening Type casting.
- Narrow Type Casting.

syntax:

datatype variableName = (datatype) value;

Type conversion in Java:

Java provides various data types just like any other dynamic language such as boolean, char, int, unsigned int, signed int, float, double, long etc. In all, providing 7 types where every data type acquires different space while storing in memory. When you assign a value of one data type to another, the 2 types might not be compatible with each other. If the data types are compatible, then Java will perform the conversion automatically, known as Automatic Type conversion, and if not then they need to cast / converted explicitly.

Use of scanner class in Java:

In Java, scanner is a class in 'java.util' package used for obtaining the input in a java program of the primitive like int, double, float etc. and any string.

It is the easiest way to read input in Java program, though not very efficient if one wants and inputs methods for scenarios where time is a constraint.

Syntax:

```
Scanner sc = new Scanner (System.in);
```

Procedure:

Program 1: Widening and narrowing.

```

class exp 2 c {
    public static void main (String [] args) {
        int a=10;
        float f = a;
        float c = 10.5f;
        int d;
        d = (int)c;

        System.out.println ("value of a:" + a);
        System.out.println ("value of float f after
                               widening : " + f);
        system.out.println ("value of float c:" + c);
        system.out.println ("value of integer d after
                               narrowing : " + d);
    }
}

```

Program 2:

```

import java.util.Scanner;
class datatype c {
    public static void main (String [] args) {
        Scanner sc = new Scanner (System.in);
        System.out.println ("Enter a string:");
        String str = sc.nextLine();
        System.out.println ("the entered string is:" + str);

        System.out.println ("enter a character:");
        char ch = sc.next().charAt(0);
        System.out.println ("the entered character is:" + ch);
        System.out.println ("");
    }
}

```

Program output

value of a : 10

value of float (after widening) : 10.0

value of float c : 10.5

value of integer d after narrowing : 10

```

System.out.println("enter a byte: ");
byte b = sc.nextByte();
System.out.println("the entered byte value is:" + b);

```

```

System.out.println("enter a short number: ");
short s = sc.nextShort();
System.out.println("the entered short no. is:" + s);

```

```

System.out.println("enter a long number: ");
long l = sc.nextLong();
System.out.println("the entered long no. is:" + l);

```

```

System.out.println("enter a float number: ");
float f = sc.nextFloat();
System.out.println("the entered float no. is:" + f);

```

```

System.out.println("enter a double: ");
double d = sc.nextDouble();
System.out.println("the entered double is:" + d);

```

```

System.out.println("enter a boolean value: ");
boolean bl = sc.nextBoolean();
System.out.println("the entered boolean is:" + bl);

```

```

}
}

```

program 3 output:

enter a string

Rudraa

The entered string is : Rudraa

enter a character:

A

The entered character is: A

enter a byll:

11

The entered byll value is: 11

enter a short number:

124

the entered short no. is : 124

enter a long number:

12345689101

The entered long no. is : 12345689101

Enter a float number:

100

The entered float no is : 100

enter a double

11.0

the entered double is : 11.0

enter a boolean value:

True

the entered boolean is : True

program

class to

pull

byte

int

double

System

b =

System

System

System

System

System

System

System

System

System

System

System

System

System

System

System

System

System

System

System

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System

Program 3:

class typecasting {

public static void main (String [] args) {

byte b;

int i = 257;

double d = 223.142;

System.out.println ("conversion of int to byte");

b = (byte) i;

System.out.println ("i and b " + i + " " + b);

System.out.println ("i and b" + i + " " + b);

i = (int) d;

System.out.println ("d and i" + d + " " + i);

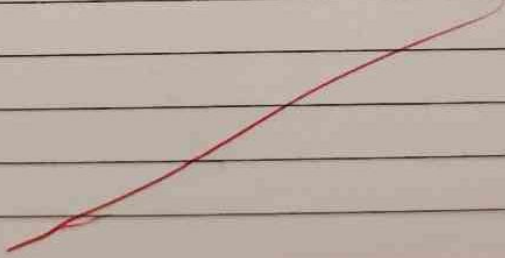
System.out.println ("conversion of double to byte");

b = (byte) d;

System.out.println ("d and b" + d + " " + b);

}

}



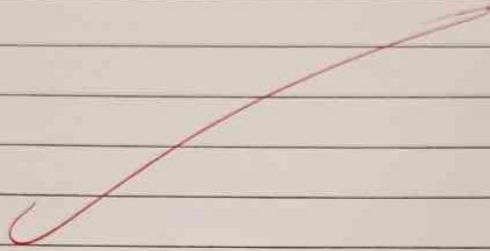
Program 3 output:

conversion of int to byte  
i and b 257: 1

conversion of double to int  
d and i 323.1123 : 323

conversion of double to byte  
d and b 323.1123 : 67

conclusion: Hence, we have performed and tested various datatypes and typecasting in java.



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