

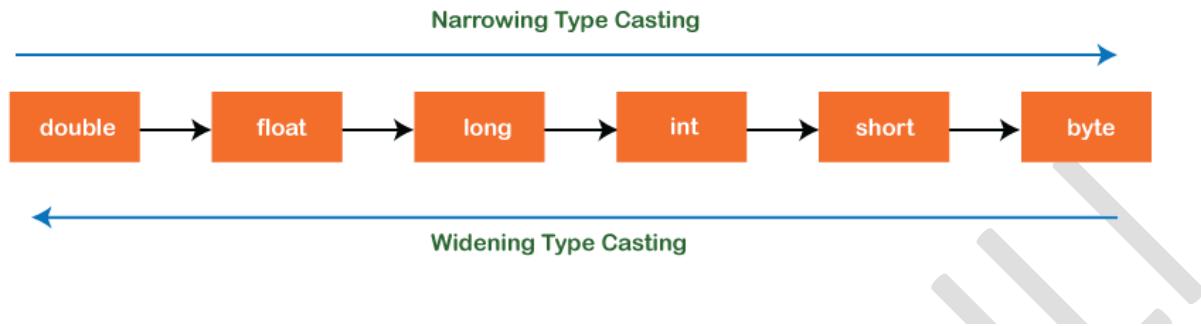
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CSR 2023 Batch(Online)

Assignment – Type casting in JAVA



Type Casting in Java

In Java, **type casting** is a method or process that converts a data type into another data type in both ways manually and automatically. The automatic conversion is done by the compiler and manual conversion performed by the programmer.



Type casting

Convert a value from one data type to another data type is known as **type casting**.

Types of Type Casting

There are two types of type casting:

- Widening Type Casting
- Narrowing Type Casting

Widening Type Casting (Implicit Typecasting)

Converting a lower data type into a higher one is called **widening** type casting. It is also known as **implicit conversion** or **casting down**. It is done automatically. It is safe because there is no chance to lose data. It takes place when:

- Both data types must be compatible with each other.
- The target type must be larger than the source type.

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

Narrowing Type Casting (Explicit Typecasting)

Converting a higher data type into a lower one is called **narrowing** type casting. It is also known as **explicit conversion** or **casting up**. It is done manually by the programmer. If we do not perform casting then the compiler reports a compile-time error.

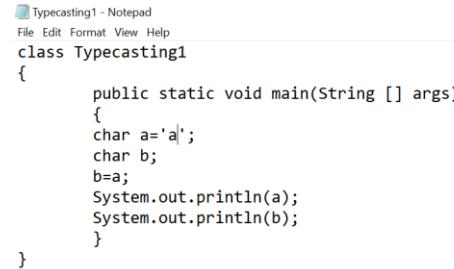
double -> float -> long -> int -> char -> short -> byte

Let's see the examples for all the Data Typecasting

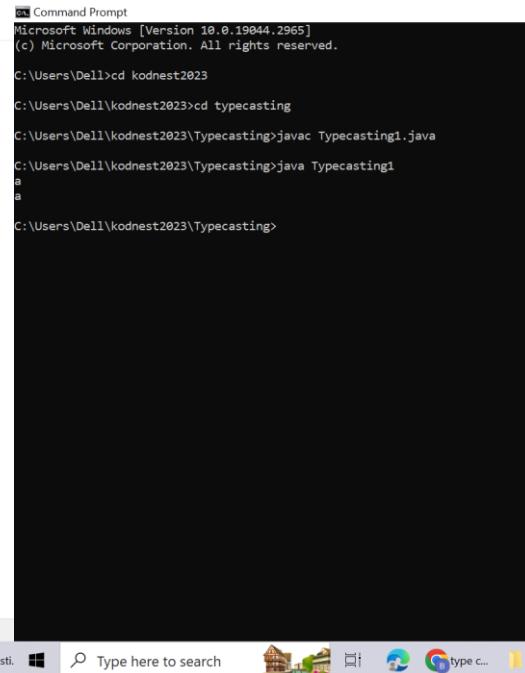
Program 1

Data of char datatype to char datatype casting:

```
class Typecasting1
{
    public static void main(String [] args)
    {
        char a='a';
        char b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



```
Typecasting1 - Notepad
File Edit Format View Help
class Typecasting1
{
    public static void main(String [] args)
    {
        char a='a';
        char b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Dell>cd kodnest2023
C:\Users\Dell\kodnest2023>cd typecasting
C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting1.java
C:\Users\Dell\kodnest2023\Typecasting>java Typecasting1
a
a

C:\Users\Dell\kodnest2023\Typecasting>
```

- ✓ Type conversion is possible but it's **Not Required** because of same source and destination datatypes

Program 2

Data of char datatype to byte datatype casting:

```
*Typecasting2 - Notepad
File Edit Format View Help
class Typecasting2
{
    public static void main(String [] args)
    {
        char a='a';
        byte b;
        //Below line gives error because of conversion higher datatype to lower datatype
        //b=a;
        // So we can explicitly convert but it may be a lossy conversion
        b=(byte)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
C:\Command Prompt
C:\Users\Kodnest2023>cd kodnest2023
C:\Users\Kodnest2023>cd typecasting
C:\Users\Kodnest2023\Typecasting>javac Typecasting2.java
Typecasting2.java:7: error: incompatible types: possible lossy conversion from char to byte
    b=a;
           ^
1 error

C:\Users\Kodnest2023\Typecasting>javac Typecasting2.java
Typecasting2.java:8: error: ';' expected
    b=(byte)a
           ^
1 error

C:\Users\Kodnest2023\Typecasting>javac Typecasting2.java
Typecasting2.java:7: error: incompatible types: possible lossy conversion from char to byte
    b=a; //Error
           ^
1 error

C:\Users\Kodnest2023>Typecasting>java Typecasting2
a
97

C:\Users\Kodnest2023\Typecasting>
```

class Typecasting2

```
{
public static void main(String [] args)
{
    char a='a';
    byte b;
    //Below line gives error because of conversion
    //higher datatype to lower datatype
    //b=a;
    // So we can explicitly convert but it may be a
    //lossy conversion
    b=(byte)a;
    System.out.println(a);
    System.out.println(b);
```

- ✓ Implicit Typecasting - Not Possible
- ✓ Explicit Typecasting - Possible but data loss would occur

Program 3

Data of char datatype to short datatype casting:

```
Typecasting3 - Notepad
File Edit Format View Help
class Typecasting3
{
    public static void main(String [] args)
    {
        char a='a';
        short b;
        //Below line gives error
        //b=a;
        // So we can explicitly convert but it may be a lossy conversion
        b=(short)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Kodnest>cd kodnest2023

C:\Users\Kodnest>cd typecasting

C:\Users\Kodnest>javac Typecasting3.java
error: invalid flag: Typecasting3.java
Usage: javac <options> <source files>
use --help for a list of possible options

C:\Users\Kodnest>javac Typecasting3.java
Typecasting3.java:8: error: incompatible types: possible lossy conversion from char to short
    b=a;
           ^
1 error

C:\Users\Kodnest>javac Typecasting3.java
Typecasting3.java:12: error: variable b might not have been initialized
    System.out.println(b);
                   ^
1 error

C:\Users\Kodnest>javac Typecasting3.java
C:\Users\Kodnest>java Typecasting3
a
97

C:\Users\Kodnest>
```

```
class Typecasting3

{
    public static void main(String [] args)
    {
        char a='a';

        short b;

        //Below line gives error
        //b=a;

        // So we can explicitly convert but it may be a lossy conversion
        b=(short)a;

        System.out.println(a);

        System.out.println(b);
```

- ✓ Implicit Typecasting - Not Possible
- ✓ Explicit Typecasting - Possible but data loss would occur

Program 4

Data of char datatype to int datatype casting:

```
class Typecasting4

{
    public static void main(String [] args)
    {
        char a='a';
        int b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows a Windows desktop environment. On the left, there is a Notepad window titled "Typecasting4 - Notepad" containing the Java code provided above. On the right, there is a Command Prompt window titled "Command Prompt" showing the execution of the code. The command prompt shows the path "C:\Users\...\", the compilation of the Java file "javac Typecasting4.java", and the execution of the program "java Typecasting4". The output of the program, "a\n97", is displayed in the command prompt.

- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

Program 5

Data of char datatype to long datatype casting:

```
class Typecasting5
{
    public static void main(String [] args)
    {
        char a='a';
        long b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting5 - Notepad' containing the Java code provided above. On the right is a 'Command Prompt' window showing the execution of the code. The command prompt shows the directory path 'C:\Users\...'. It then runs 'javac Typecasting5.java' to compile the code, followed by 'java Typecasting5' to run it. The output of the program, 'a' followed by '97', is displayed in the command prompt.

```
Typecasting5 - Notepad
File Edit Format View Help
class Typecasting5
{
    public static void main(String [] args)
    {
        char a='a';
        long b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\...>cd kodnest2023
C:\Users\...>cd typecasting
C:\Users\...>javac Typecasting5.java
C:\Users\...>java Typecasting5
a
97
C:\Users\...>
```

- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

Program 6

Data of char datatype to float datatype casting:

```
class Typecasting6
{
    public static void main(String [] args)
    {
        char a='a';
        float b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting6 - Notepad' containing the Java code provided above. On the right is a 'Command Prompt' window showing the execution of the code. The command prompt shows the directory 'C:\Users\...'. It first navigates to the 'typecasting' folder. Then, it runs 'javac Typecasting6.java' which fails because 'Typecasting' is not recognized as a command. Finally, it runs 'java Typecasting6' which outputs 'a' and '97.0'.

```
File Edit Format View Help
class Typecasting6
{
    public static void main(String [] args)
    {
        char a='a';
        float b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\...>d kodnest2023
C:\Users\...>cd typecasting
C:\Users\...>javac Typecasting6.java
C:\Users\...>Typecasting
'Typecasting' is not recognized as an internal or external command,
operable program or batch file.
C:\Users\...>java Typecasting6
a
97.0
C:\Users\...>
```

- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

Program 7

Data of char datatype to double datatype casting:

```
class Typecasting7

{
    public static void main(String [] args)
    {
        char a='a';
        double b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting7 - Notepad' containing the Java code provided above. On the right is a 'Command Prompt' window with the following output:

```
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL\KODNEST2023>cd typecasting
C:\Users\DELL\KODNEST2023\typecasting>javac Typecasting7.java
C:\Users\DELL\KODNEST2023\typecasting>java Typecasting7
Error: Could not find or load main class Typecasting7
Caused by: java.lang.ClassNotFoundException: Typecasting7
C:\Users\DELL\KODNEST2023\typecasting>java Typecasting7
a
97.0
C:\Users\DELL\KODNEST2023\typecasting>
```

- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

Program 8

Data of char datatype to boolean datatype casting:

```
Typecasting8 - Notepad
File Edit Format View Help
class Typecasting8
{
    public static void main(String [] args)
    {
        char a='a';
        boolean b;
        //below line gives an error because char datatype data can't be converted to boolean datatype
        //b=a;
        //below line gives an error because char datatype data can't be converted to boolean datatype
        b=(boolean)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Del...>cd kodnest2023
C:\Users\Del...>cd typecasting
C:\Users\Del...>javac Typecasting8.java
Typecasting8.java:7: error: incompatible types: char cannot be converted to boolean
    b=a;
           ^
1 error

C:\Users\Del...>javac Typecasting8.java
Typecasting8.java:8: error: incompatible types: char cannot be converted to boolean
    b=(boolean)a;
           ^
1 error

C:\Users\Del...>
```

```
class Typecasting8
{
    public static void main(String [] args)
    {
        char a='a';
        boolean b;

        //below line gives an error because char datatype data
        //can't be converted to boolean datatype
        //b=a;

        //below line gives an error because char datatype data
        //can't be converted to boolean datatype
        b=(boolean)a;

        System.out.println(a);

        System.out.println(b);
    }
}
```

- ✓ Implicit Typecasting - Not Possible
- ✓ Explicit Typecasting - Not Possible

Program 7

Data of byte datatype to char datatype casting;

```
Typecasting9 - Notepad
File Edit Format View Help
class Typecasting9
{
    public static void main(String [] args)
    {
        byte a=10;
        char b;
        //below line gives error because of conversion of higher data type to lower datatype
        //b=a;
        //below line refers to explicit typecasting with lossy conversion
        b=(char)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Kodnest>cd kodnest2023
The system cannot find the path specified.

C:\Users\Kodnest>cd kodnest2023\typecasting

C:\Users\Kodnest\kodnest2023\Typecasting>javac Typecasting9.java
error: file not found: Typecasting9.java
Usage: javac <options> <source files>
use --help for a list of possible options

C:\Users\Kodnest\kodnest2023\Typecasting>javac Typecasting9.java
Typecasting9.java:7: error: incompatible types: possible lossy conversion from byte to char
        b=a;
               ^
1 error

C:\Users\Kodnest\kodnest2023\Typecasting>java Typecasting9
10

C:\Users\Kodnest\kodnest2023\Typecasting>
```

```
class Typecasting9
{
    public static void main(String [] args)
    {
        byte a=10;
        char b;
        //below line gives error because of conversion of
        //higher data type to lower datatype
        //b=a;
        //below line refers to explicit typecasting with lossy
        //conversion
        b=(char)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

- ✓ Implicit Typecasting - Not Possible
- ✓ Explicit Typecasting – Possible but data loss would occur

Program 10

Data of byte datatype to byte datatype casting:

```
class Typecasting10
{
    public static void main(String [] args)
    {
        byte a=10;
        byte b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting10 - Notepad' containing the Java code provided above. On the right is a 'Command Prompt' window with the following text:

```
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\sell\cmd /k odnest2023>cd kodnest2023
C:\Users\sell\cmd /k odnest2023>cd cd typecasting
The system cannot find the path specified.

C:\Users\sell\cmd /k odnest2023>cd typecasting

C:\Users\sell\cmd /k odnest2023>javac Typecasting10.java

C:\Users\sell\cmd /k odnest2023>java Typecasting10
Error: Could not find or load main class Typecasting
Caused by: java.lang.ClassNotFoundException: Typecasting

C:\Users\sell\cmd /k odnest2023>java Typecasting10
10
10

C:\Users\sell\cmd /k odnest2023>
```

- ✓ Implicit Typecasting - Possible but not required
- ✓ Explicit Typecasting - Possible but not required

Program 11

Data of byte datatype to short datatype casting:

```
class Typecasting11

{
    public static void main(String [] args)
    {
        byte a=10;
        short b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting11 - Notepad' containing the Java code for Program 11. On the right is a Command Prompt window showing the execution of the code. The Command Prompt output shows the byte value 10 being cast to a short type, resulting in the same value 10.

```
Typecasting11 - Notepad
File Edit Format View Help
class Typecasting11
{
    public static void main(String [] args)
    {
        byte a=10;
        short b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL>cd kodnest2023
C:\Users\DELL\kodnest2023>cd typecasting
C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting11.java
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting11
10
10
C:\Users\DELL\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

Program 12

Data of byte datatype to int datatype casting:

```
class Typecasting12
{
    public static void main(String [] args)
    {
        byte a=10;
        int b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting12 - Notepad' containing the Java code for Program 12. On the right is a Command Prompt window showing the execution of the code. The command prompt shows the directory 'C:\Users\...\\kodnest2023\\Typecasting', the compilation command 'javac Typecasting12.java', and the execution command 'java Typecasting12'. The output of the program, '10', is displayed at the end.

```
Typecasting12 - Notepad
File Edit Format View Help
class Typecasting12
{
    public static void main(String [] args)
    {
        byte a=10;
        int b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\...\\kodnest2023
C:\Users\...\\kodnest2023>cd typecasting
C:\Users\...\\kodnest2023\Typecasting>javac Typecasting12.java
C:\Users\...\\kodnest2023\Typecasting>java Typecasting12
10
C:\Users\...\\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting – Possible

Program 13

Data of byte datatype to long datatype casting:

```
class Typecasting13
{
    public static void main(String [] args)
    {
        byte a=10;
        long b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting13 - Notepad' containing the Java code for Program 13. On the right is a 'Command Prompt' window showing the execution of the code. The command prompt shows the directory path 'C:\Users\...\\kodnest2023\\Typecasting', the compilation command 'javac Typecasting13.java', and the execution command 'java Typecasting13'. The output of the program, '10', is displayed in the command prompt.

```
Typecasting13 - Notepad
File Edit Format View Help
class Typecasting13
{
    public static void main(String [] args)
    {
        byte a=10;
        long b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\...\\kodnest2023>cd kodnest2023\\Typecasting
C:\Users\...\\kodnest2023\\Typecasting>javac Typecasting13.java
C:\Users\...\\kodnest2023\\Typecasting>java Typecasting13
10
10
C:\Users\...\\kodnest2023\\Typecasting>
```

- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

Program 14

Data of byte datatype to float datatype casting:

```
class Typecasting14
{
    public static void main(String [] args)
    {
        byte a=10;
        float b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting14 - Notepad' containing the Java code for Program 14. On the right is a 'Command Prompt' window showing the execution of the code. The command prompt shows the directory path 'C:\Users\...\\kodnest2023\\Typecasting>', followed by the command 'javac Typecasting14.java', then 'java Typecasting14', and finally the output '10' and '10.0'. The Windows taskbar is visible at the bottom.

```
File Edit Format View Help
class Typecasting14
{
    public static void main(String [] args)
    {
        byte a=10;
        float b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\...\\kodnest2023>cd typecasting
C:\Users\...\\kodnest2023>javac Typecasting14.java
C:\Users\...\\kodnest2023>java Typecasting14
10
10.0
C:\Users\...\\kodnest2023>
```

- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

Program 15

Data of byte datatype to double datatype casting:

```
class Typecasting15
{
    public static void main(String [] args)
    {
        byte a=10;
        double b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled "Typecasting15 - Notepad" containing the Java code for Program 15. On the right is a Command Prompt window titled "Command Prompt" showing the execution of the code. The output shows the value 10 being printed twice, once as a byte and once as a double.

```
Notepad content:
class Typecasting15
{
    public static void main(String [] args)
    {
        byte a=10;
        double b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt output:
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

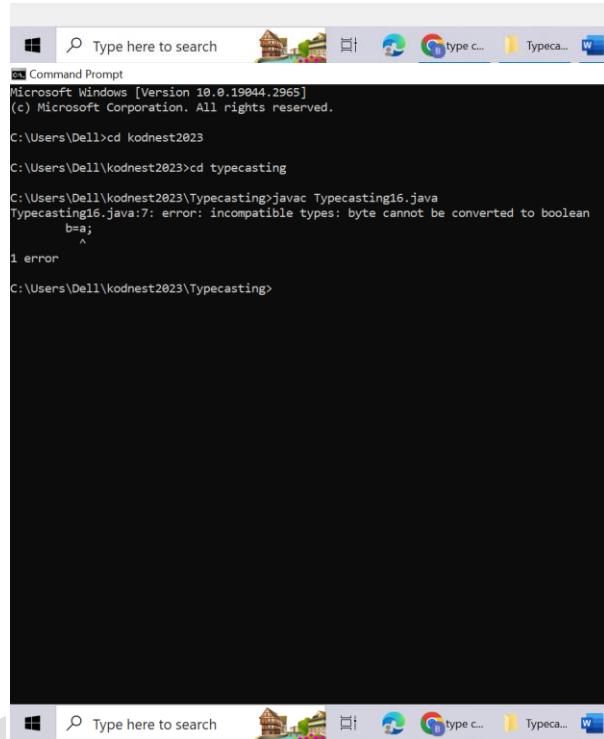
C:\Users\DELL\kodnest2023
C:\Users\DELL\kodnest2023>cd typecasting
C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting15.java
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting15
10
10.0
C:\Users\DELL\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

Program 16

Data of byte datatype to boolean datatype casting:

```
Typecasting16 - Notepad
File Edit Format View Help
class Typecasting16
{
    public static void main(String [] args)
    {
        byte a=10;
        boolean b;
        // below line gives error because byte data of datatype can't be converted to boolean
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



```
Ln 7, Col 49
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Kodnest>cd kodnest2023

C:\Users\Kodnest>cd typecasting

C:\Users\Kodnest>javac Typecasting16.java
Typecasting16.java:7: error: incompatible types: byte cannot be converted to boolean
        b=a;
               ^
1 error

C:\Users\Kodnest>
```

```
class Typecasting16
{
    public static void main(String [] args)
    {
        byte a=10;
        boolean b;
        // below line gives error because byte data of datatype
        // can't be converted to boolean
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Not Possible

Program 17

Data of int datatype to char datatype casting:

```
Typecasting17 - Notepad
File Edit Format View Help
class Typecasting17
{
    public static void main(String [] args)
    {
        int a=30;
        char b;
        // below line gives error because of conversion of higher data type to lower data type
        //b=a;
        //so we can convert explicitly but data loss would occur
        b=(char)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
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C:\Users\Kodnest2023>cd typecasting

C:\Users\Kodnest2023\typecasting>javac Typecasting17.java
Typecasting17.java:8: error: incompatible types: possible lossy conversion from int to char
        b=a;
               ^
1 error

C:\Users\Kodnest2023\typecasting>javac Typecasting17.java

C:\Users\Kodnest2023\typecasting>java Typecasting17
30

C:\Users\Kodnest2023\typecasting>javac Typecasting17.java
C:\Users\Kodnest2023\typecasting>java Typecasting17
30
^

C:\Users\Kodnest2023\typecasting>
```

```
class Typecasting17
{
    public static void main(String [] args)
    {
        int a=30;
        char b;
        // below line gives error because of conversion of
        // higher data type to lower data type
        //b=a;
        //so we can convert explicitly but data loss would
        // occur
        b=(char)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but data loss would occur

Program 18

Data of int datatype to byte datatype casting:

```
Typecasting18 - Notepad
File Edit Format View Help
class Typecasting18
{
    public static void main(String [] args)
    {
        int a=10;
        byte b;
        // below line gives error because of conversion of higher datatype to lower datatype
        //b=a;
        // so we can convert explicitly but data loss would occur
        b=(byte)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Microsoft Windows [Version 10.0.19044.2965]
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C:\Users\Kodnest>cd kodnest2023

C:\Users\Kodnest>cd typecasting

C:\Users\Kodnest>javac Typecasting18.java
Typecasting18.java:7: error: incompatible types: possible lossy conversion from int to byte
        b=a;
               ^
1 error

C:\Users\Kodnest>javac Typecasting18.java
Typecasting18.java:8: error: incompatible types: possible lossy conversion from int to byte
        b=a;
               ^
1 error

C:\Users\Kodnest>java Typecasting18
10
10

C:\Users\Kodnest>javac Typecasting18.java
C:\Users\Kodnest>java Typecasting18
10
10

C:\Users\Kodnest>javac Typecasting18.java
C:\Users\Kodnest>java Typecasting18
10
10

C:\Users\Kodnest>
```

```
class Typecasting18
{
    public static void main(String [] args)
    {
        int a=10;
        byte b;
        // below line gives error because of conversion of
        // higher datatype to lower datatype
        //b=a;
        // so we can convert explicitly but data loss would
        // occur
        b=(byte)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but data loss would occur

Program 19

Data of int datatype to short datatype casting:

```
Typecasting19 - Notepad
File Edit Format View Help
class Typecasting19
{
    public static void main(String [] args)
    {
        int a=50;
        short b;
        // below line gives error because of conversion of higher datatype to lower datatype
        //b=a;
        //so explicit typecasting can be used but data would be loss
        b=(short)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Kodnest>cd kodnest2023

C:\Users\Kodnest>cd typecasting

C:\Users\Kodnest>javac Typecasting19.java
Typecasting19.java:7: error: incompatible types: possible lossy conversion from int to short
        b=a;
               ^
1 error

C:\Users\Kodnest>javac Typecasting19.java

C:\Users\Kodnest>java Typecasting19
50

C:\Users\Kodnest>
```

```
class Typecasting19

{
    public static void main(String [] args)
    {
        int a=50;

        short b;

        // below line gives error because of conversion of
        // higher datatype to lower datatype

        //b=a;

        //so explicit typecasting can be used but data would
        //be loss

        b=(short)a;

        System.out.println(a);

        System.out.println(b);
    }
}
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but data loss would occur

Program 20

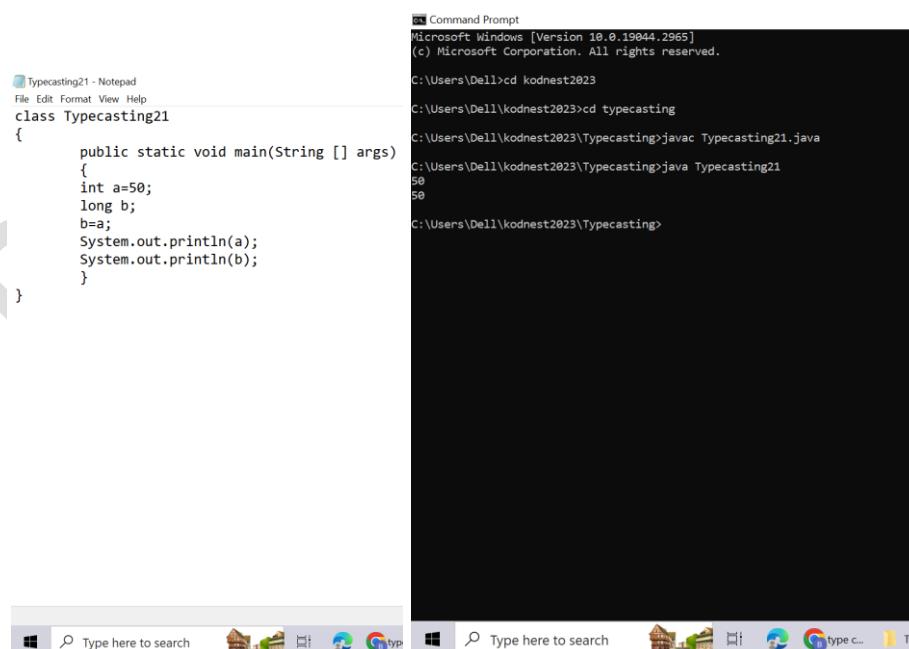
Data of int datatype to int datatype casting:

This conversion is not required because the both the datatypes are same.

Program 21

Data of int datatype to long datatype casting:

```
class Typecasting21
{
    public static void main(String [] args)
    {
        int a=50;
        long b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



The screenshot shows a Windows desktop environment. On the left, there is a Notepad window titled "Typecasting21 - Notepad" containing the Java code for Program 21. On the right, there is a Command Prompt window titled "Command Prompt" showing the execution of the Java program. The output of the program is "50" followed by a new line.

```
Notepad content:
class Typecasting21
{
    public static void main(String [] args)
    {
        int a=50;
        long b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

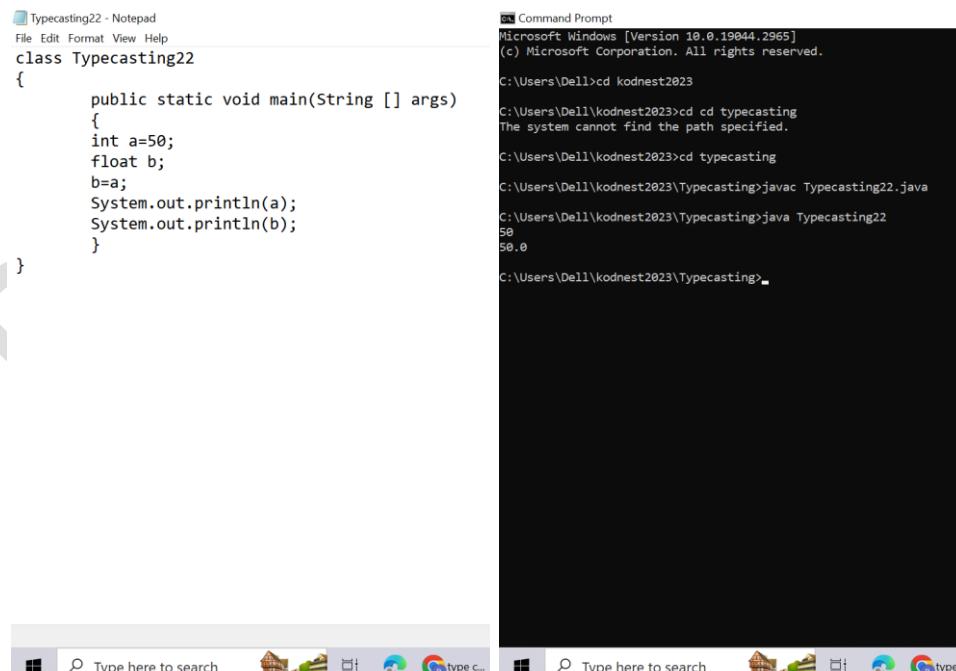
Command Prompt output:
C:\Users\DeLL>cd kodnest2023
C:\Users\DeLL\kodnest2023>cd typecasting
C:\Users\DeLL\kodnest2023\Typecasting>javac Typecasting21.java
C:\Users\DeLL\kodnest2023\Typecasting>java Typecasting21
50
50
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

Program 22

Data of int datatype to float datatype casting:

```
class Typecasting22
{
    public static void main(String [] args)
    {
        int a=50;
        float b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting22 - Notepad' containing the Java code for Program 22. On the right is a Command Prompt window titled 'Command Prompt' showing the execution of the code. The output shows that the integer value 50 is printed as a float value 50.0.

```
Typecasting22 - Notepad
File Edit Format View Help
class Typecasting22
{
    public static void main(String [] args)
    {
        int a=50;
        float b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

C:\ Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL\kodnest2023>cd typecasting
The system cannot find the path specified.

C:\Users\DELL\kodnest2023>javac Typecasting22.java
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting22
50
50.0

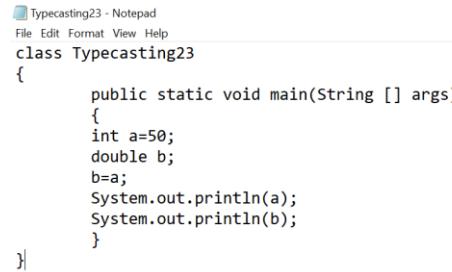
C:\Users\DELL\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

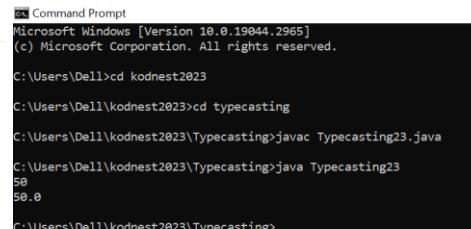
Program 23

Data of int datatype to double datatype casting:

```
class Typecasting23
{
    public static void main(String [] args)
    {
        int a=50;
        double b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



```
Typecasting23 - Notepad
File Edit Format View Help
class Typecasting23
{
    public static void main(String [] args)
    {
        int a=50;
        double b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL>cd kodnest2023
C:\Users\DELL\kodnest2023>cd typecasting
C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting23.java
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting23
50
50.0
C:\Users\DELL\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

Program 24

Data of int datatype to boolean datatype casting:

```
class Typecasting24

{
    public static void main(String [] args)
    {
        int a=50;
        boolean b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting24 - Notepad' containing the Java code provided above. On the right is a 'Command Prompt' window titled 'Microsoft Windows [Version 10.0.19044.2965]' showing the output of running javac on the file. The command prompt shows the directory path and the error message: 'C:\Users\...>javac Typecasting24.java' followed by 'Typecasting24.java:7: error: incompatible types: int cannot be converted to boolean'. The error line is highlighted with a red arrow pointing to the 'b=' assignment.

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Not Possible

Program 25

Data of short datatype to char datatype casting:

```
class Typecasting25
{
    public static void main(String [] args)
    {
        short a=100;
        char b;
        // below line gives error
        //b=a;
        b=(char)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting25 - Notepad' containing the Java code for Program 25. On the right is a 'Command Prompt' window showing the execution of the code.

Notepad Content:

```
Typecasting25 - Notepad
File Edit Format View Help
class Typecasting25
{
    public static void main(String [] args)
    {
        short a=100;
        char b;
        // below line gives error
        //b=a;
        b=(char)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

Command Prompt Output:

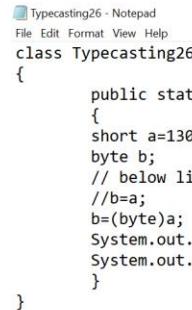
```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.
C:\Users\Dell>cd kodnest2023
C:\Users\Dell\kodnest2023>cd typecasting
C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting25.java
Typecasting25.java:7: error: incompatible types: possible lossy conversion from short to char
        b=a;
               ^
1 error
C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting25.java
C:\Users\Dell\kodnest2023\Typecasting>java Typecasting25
100
d
C:\Users\Dell\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but data would loss

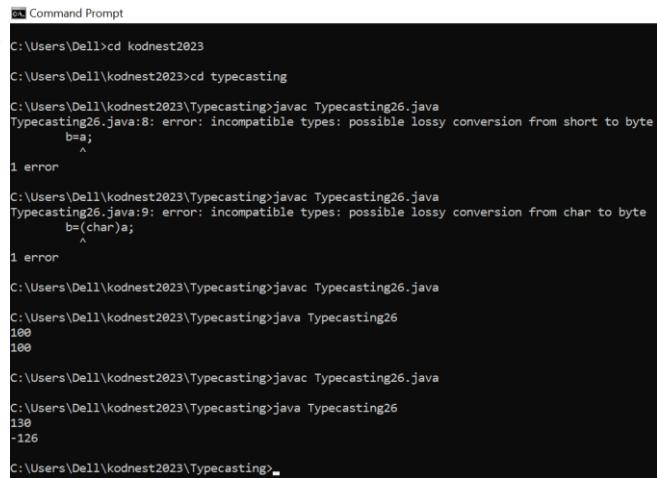
Program 26

Data of short datatype to byte datatype casting:

```
class Typecasting26
{
    public static void main(String [] args)
    {
        short a=130;
        byte b;
        // below line gives error
        //b=a;
        b=(byte)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



```
Typecasting26 - Notepad
File Edit Format View Help
class Typecasting26
{
    public static void main(String [] args)
    {
        short a=130;
        byte b;
        // below line gives error
        //b=a;
        b=(byte)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



```
Command Prompt
C:\Users\DELL>cd kodnest2023
C:\Users\DELL\kodnest2023>cd typecasting
C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting26.java
Typecasting26.java:8: error: incompatible types: possible lossy conversion from short to byte
        b=a;
               ^
1 error

C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting26.java
Typecasting26.java:9: error: incompatible types: possible lossy conversion from char to byte
        b=(char)a;
               ^
1 error

C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting26.java
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting26
100
100

C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting26.java
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting26
130
-126

C:\Users\DELL\kodnest2023\Typecasting>
```



- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but data would loss

Program 27

Data of short datatype to short datatype casting:

This conversion is not required because the both the datatypes are same.

Program 28

Data of short datatype to int datatype casting:

```
class Typecasting28
{
    public static void main(String [] args)
    {
        short a=130;
        int b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

Typecasting28 - Notepad

```
File Edit Format View Help
class Typecasting28
{
    public static void main(String [] args)
    {
        short a=130;
        int b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL\kodnest2023>cd typecasting

C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting28.java

C:\Users\DELL\kodnest2023\Typecasting>java Typecasting28
130
130

C:\Users\DELL\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

Program 29

Data of short datatype to long datatype casting:

```
class Typecasting29

{
    public static void main(String [] args)
    {
        short a=130;

        long b;

        b=a;

        System.out.println(a);

        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting29 - Notepad' containing the Java code for Program 29. On the right is a 'Command Prompt' window showing the execution of the program. The command prompt shows the directory 'C:\Users\...'. When 'javac Typecasting29.java' is run, it fails because 'javac' is not recognized as a command. However, when 'java Typecasting29' is run, it successfully prints '130' to the console.

```
Typecasting29 - Notepad
File Edit Format View Help
class Typecasting29
{
    public static void main(String [] args)
    {
        short a=130;
        long b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\...>cd kodnest2023
C:\Users\...>cd typecasting
C:\Users\...>'typecasting' is not recognized as an internal or external command,
operable program or batch file.

C:\Users\...>cd typecasting
C:\Users\...>javac Typecasting29.java
C:\Users\...>java Typecasting29
130
C:\Users\...>
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

Program 30

Data of short datatype to float datatype casting;

```
class Typecasting30

{
    public static void main(String [] args)
    {
        short a=130;

        float b;

        b=a;

        System.out.println(a);

        System.out.println(b);

    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting30 - Notepad' containing the Java code for Program 30. On the right is a 'Command Prompt' window showing the execution of the code. The command prompt shows the directory path, compilation with 'javac Typecasting30.java', and then execution with 'java Typecasting30'. The output of the program, '130' followed by '130.0', is displayed in the command prompt.

```
Typecasting30 - Notepad
File Edit Format View Help
class Typecasting30
{
    public static void main(String [] args)
    {
        short a=130;
        float b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Dell>cd kodnest2023
C:\Users\Dell\kodnest2023>cd typecasting
C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting30.java
C:\Users\Dell\kodnest2023\Typecasting>java Typecasting30
130
130.0
C:\Users\Dell\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

Program 31

Data of short datatype to double datatype casting:

```
class Typecasting31

{
    public static void main(String [] args)
    {
        short a=130;

        double b;

        b=a;

        System.out.println(a);

        System.out.println(b);

    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting31 - Notepad' containing the Java code for Program 31. On the right is a Command Prompt window titled 'Command Prompt' showing the execution of the code. The output shows the value 130 being cast to a double and printed as 130.0.

```
Notepad content:
class Typecasting31
{
    public static void main(String [] args)
    {
        short a=130;
        double b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

Command Prompt output:
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Kodnest2023>cd typecasting
C:\Users\Kodnest2023>javac Typecasting31.java
C:\Users\Kodnest2023>java Typecasting31
130
130.0
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

Program 32

Data of short datatype to boolean datatype casting:

```
class Typecasting32
{
    public static void main(String [] args)
    {
        short a=130;
        boolean b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting32 - Notepad' containing the Java code provided above. On the right is a 'Command Prompt' window titled 'Microsoft Windows [Version 10.0.19044.2965]' showing the output of running javac on the file. The command is 'C:\Users\user\dell\kodnest2023\Typecasting>javac Typecasting32.java'. The response shows an error: 'Typecasting32.java:7: error: incompatible types: short cannot be converted to boolean b=a; ^ 1 error'. Below the command prompt is a Windows taskbar with icons for File Explorer, Edge browser, and other system icons.

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Not Possible

Program 33

Data of long datatype to char datatype casting:

```
Typecasting33 - Notepad
File Edit Format View Help
class Typecasting33
{
    public static void main(String [] args)
    {
        long a=130l;
        char b;
        // below line gives error because of conversion of higher data type to lower datatype
        //b=a;
        //but by explicit typecasting the data loss would occur
        b=(char)a;
        System.out.println(a);
        System.out.println(b);
    }
}

class Typecasting33
{

public static void main(String [] args)
{
    long a=130l;
    char b;

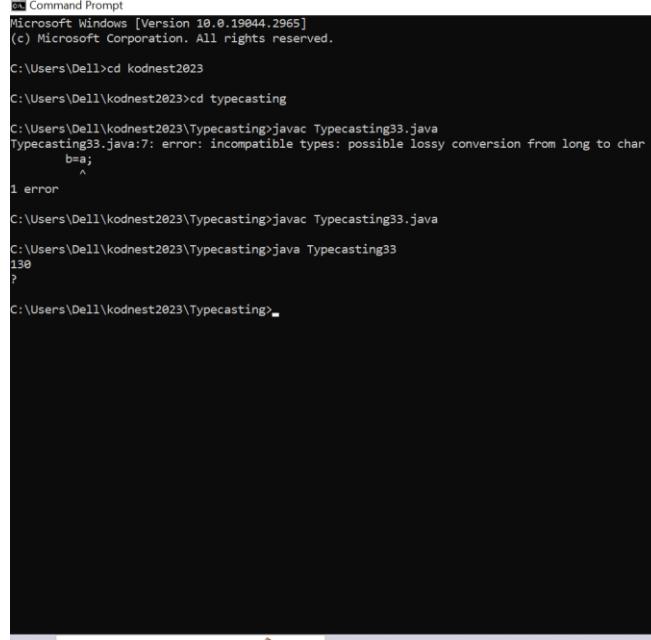
    // below line gives error because of conversion of
    // higher data type to lower datatype
    //b=a;

    //but by explicit typecasting the data loss would
    // occur

    b=(char)a;

    System.out.println(a);

    System.out.println(b);
}
}
```



- ✓ Implicit Typecasting – **not possible**
- ✓ Explicit Typecasting – Possible but data loss would occur

Program 34

Data of long datatype to byte datatype casting:

```
Typecasting34 - Notepad
File Edit Format View Help
class Typecasting34
{
    public static void main(String [] args)
    {
        long a=130l;
        byte b;
        // below line gives error because of conversion of higher data type to lower datatype
        //b=a;
        //but by explicit typecasting the data loss would occur
        b=(byte)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DeLL>cd kodnest.java
The system cannot find the path specified.

C:\Users\DeLL>cd kodnest2023

C:\Users\DeLL\kodnest2023>cd typecasting

C:\Users\DeLL\kodnest2023\Typecasting>javac Typecasting34.java
Typecasting34.java:8: error: incompatible types: possible lossy conversion from long to byte
    b=a;
           ^
1 error

C:\Users\DeLL\kodnest2023\Typecasting>java Typecasting34
130
-126

C:\Users\DeLL\kodnest2023\Typecasting>
```

```
class Typecasting34
```

```
{
public static void main(String [] args)
{
    long a=130l;
    byte b;

    // below line gives error because of conversion of
    // higher data type to lower datatype
    //b=a;

    //but by explicit typecasting the data loss would
    // occur

    b=(byte)a;

    System.out.println(a);

    System.out.println(b);
}
```

✓ Implicit Typecasting – Not Possible

✓ Explicit Typecasting – Possible but data loss would occur

Program 35

Data of long datatype to int datatype casting:

```
Typecasting35 - Notepad
File Edit Format View Help
class Typecasting35
{
    public static void main(String [] args)
    {
        long a=1990l;
        int b;
        // below line gives error because of conversion of higher data type to lower datatype
        //b=a;
        //but by explicit typecasting the data loss would occur
        b=(int)a;
        System.out.println(a);
        System.out.println(b);
    }
}

C:\Users\Kodnest\OneDrive\Desktop>cd kodnest2023
C:\Users\Kodnest\OneDrive\Desktop\kodnest2023>cd typecasting
C:\Users\Kodnest\OneDrive\Desktop\kodnest2023\typecasting>javac Typecasting35.java
Typecasting35.java:8: error: incompatible types: possible lossy conversion from long to int
        b=a;
               ^
1 error
error: compilation failed
C:\Users\Kodnest\OneDrive\Desktop\kodnest2023\typecasting>javac Typecasting35.java
C:\Users\Kodnest\OneDrive\Desktop\kodnest2023\typecasting>java Typecasting35
1990
1990
C:\Users\Kodnest\OneDrive\Desktop\kodnest2023\typecasting>javac Typecasting35.java
C:\Users\Kodnest\OneDrive\Desktop\kodnest2023\typecasting>java Typecasting35
1990
1990
C:\Users\Kodnest\OneDrive\Desktop\kodnest2023\typecasting>
```

class Typecasting35

```
{
public static void main(String [] args)
{
    long a=1990l;
    int b;
    // below line gives error because of conversion of
    // higher data type to lower datatype
    //b=a;
    //but by explicit typecasting the data loss would
    // occur
    b=(int)a;
    System.out.println(a);
    System.out.println(b);
}
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but data loss would occur

Program 36

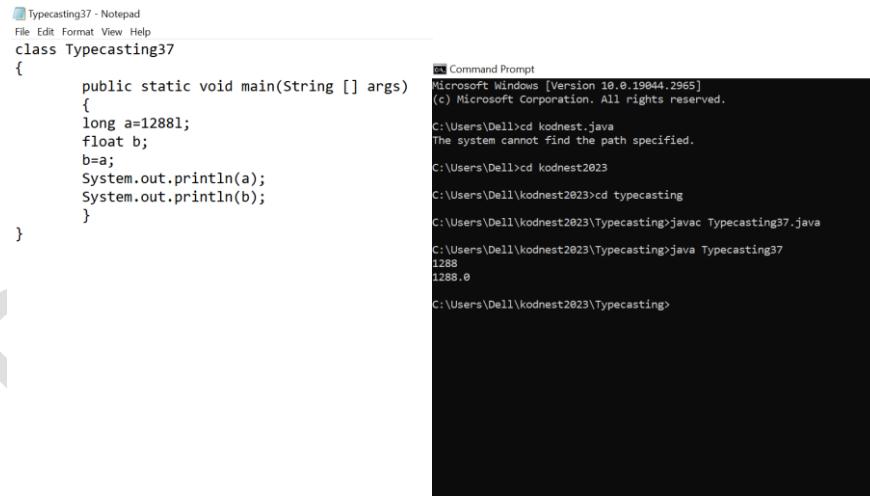
Data of long datatype to long datatype casting:

This conversion is not required because the both the datatypes are same.

Program 37

Data of long datatype to float datatype casting:

```
class Typecasting37
{
    public static void main(String [] args)
    {
        long a=1288l;
        float b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```



The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting37 - Notepad' containing the Java code for Program 37. On the right is a 'Command Prompt' window showing the execution of the code. The command prompt shows the path 'C:\Users\Kodnest2023\kodnest2023>cd typecasting' and the output of the program, which prints '1288' and '1288.0' respectively.

```
Typecasting37 - Notepad
File Edit Format View Help
class Typecasting37
{
    public static void main(String [] args)
    {
        long a=1288l;
        float b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}

C:\Users\Kodnest2023\kodnest2023>cd typecasting
C:\Users\Kodnest2023\kodnest2023>javac Typecasting37.java
C:\Users\Kodnest2023\kodnest2023>java Typecasting37
1288
1288.0
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

Program 38

Data of long datatype to double datatype casting:

```
class Typecasting38
{
    public static void main(String [] args)
    {
        long a=1288l;
        boolean b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

Typecasting38 - Notepad

```
File Edit Format View Help
class Typecasting38
{
    public static void main(String [] args)
    {
        long a=1288l;
        double b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

Command Prompt

```
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL>cd kodnest2023
C:\Users\DELL\kodnest2023>cd typecasting
C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting38.java
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting38
1288
1288.0
C:\Users\DELL\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

Program 38

Data of long datatype to boolean datatype casting:

Implicit Typecasting – Not Possible

Explicit Typecasting – Not Possible

Program 39

Data of float datatype to char datatype casting:

```
class Typecasting39
{
    public static void main(String [] args)
    {
        float a=3.41f;
        char b;
        //b=a;
        b=(char)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'Typecasting39 - Notepad' containing the Java code for Program 39. On the right is a 'Command Prompt' window showing the execution of the code. The command prompt shows the directory 'C:\Users\Kodnest2023\Typecasting', the compilation command 'javac Typecasting39.java', and the resulting error message: 'Typecasting39.java:7: error: incompatible types: possible lossy conversion b=a; ^ 1 error'. Below this, the command 'java Typecasting39' is run, and the output shows the value '3.41' printed to the console.

```
Typecasting39 - Notepad
File Edit Format View Help
class Typecasting39
{
    public static void main(String [] args)
    {
        float a=3.41f;
        char b;
        //b=a;
        b=(char)a;
        System.out.println(a);
        System.out.println(b);
    }
}

C:\Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Kodnest2023>cd typecasting
C:\Users\Kodnest2023\Typecasting>javac Typecasting39.java
Typecasting39.java:7: error: incompatible types: possible lossy conversion
      b=a;
      ^
1 error

C:\Users\Kodnest2023\Typecasting>java Typecasting39
3.41
^

C:\Users\Kodnest2023\Typecasting>
```

Implicit Typecasting – Not Possible

Explicit Typecasting – Possible but data loss would occur

Program 40

Data of float datatype to byte datatype casting:

```
*Typecasting40 - Notepad
File Edit Format View Help
class Typecasting40
{
public static void main(String [] args)
{
float a=3.41f;
byte b;
//below line gives error because of conversion of higher datatype to lower datatype
//b=a;
b=(byte)a;
System.out.println(a);
System.out.println(b);
}
}
```

```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL>cd kodnest2023
C:\Users\DELL\kodnest2023>cd typecasting

C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting40.java
Typecasting40.java:7: error: incompatible types: possible lossy conversion from float to byte
    b=a;
           ^
1 error

C:\Users\DELL\kodnest2023\Typecasting>java Typecasting40
3.41
3

C:\Users\DELL\kodnest2023\Typecasting>
```

```
class Typecasting40
{
public static void main(String [] args)
{
float a=3.41f;
byte b;

//below line gives error because of conversion of
higher datatype to lower datatype

//b=a;

b=(byte)a;

System.out.println(a);

System.out.println(b);

}
}
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but data loss would occur

Program 41

Data of float datatype to int datatype casting:

```
class Typecasting41
{
    public static void main(String [] args)
    {
        float a=3.41f;
        int b;
        //below line gives error because of conversion of higher datatype to lower datatype
        //b=a;
        b=(int)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Typecasting41 - Notepad
File Edit Format View Help
class Typecasting41
{
    public static void main(String [] args)
    {
        float a=3.41f;
        int b;
        //below line gives error because of conversion of higher datatype to lower datatype
        //b=a;
        b=(int)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Dell>cd kodnest2023

C:\Users\Dell\kodnest2023>cd typecasting

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting41.java
Typecasting41.java:8: error: incompatible types: possible lossy conversion from float to int
b=a;
      ^
1 error

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting41.java

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting41
3.41
3

C:\Users\Dell\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

Program 42

Data of float datatype to short datatype casting;

```
class Typecasting42
{
    public static void main(String [] args)
    {
        float a=3.41f;
        short b;
        //below line gives error because of conversion of higher datatype to lower datatype
        //b=a;
        b=(short)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Typecasting42 - Notepad
File Edit Format View Help
class Typecasting42
{
public static void main(String [] args)
{
float a=3.41f;
short b;
//below line gives error because of conversion of higher datatype to lower datatype
//b=a;
b=(short)a;
System.out.println(a);
System.out.println(b);
}

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL>cd kodnest2023

C:\Users\DELL\kodnest2023>cd typecasting

C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting42.java
Typecasting42.java:8: error: incompatible types: possible lossy conversion from float to short
b=a;
^
1 error

C:\Users\DELL\kodnest2023\Typecasting>java Typecasting42
3.41
3

C:\Users\DELL\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

Program 43

Data of float datatype to long datatype casting:

```
class Typecasting43
{
    public static void main(String [] args)
    {
        float a=3.41f;
        long b;
        //below line gives error because of conversion of higher datatype to lower datatype
        //b=a;
        b=(long)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Typecasting43 - Notepad
File Edit Format View Help
class Typecasting43
{
    public static void main(String [] args)
    {
        float a=3.41f;
        long b;
        //below line gives error because of conversion of higher datatype to lower datatype
        //b=a;
        b=(long)a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```

C:\ Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Dell>cd kodnest2023

C:\Users\Dell\kodnest2023>cd typecasting

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting43
error: Class names, 'Typecasting43', are only accepted if annotation processing is explicitly requested
1 error

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting43.java
Typecasting43.java:8: error: incompatible types: possible lossy conversion from float to long
b=a;
      ^
1 error

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting43.java
3.41
3

C:\Users\Dell\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

Program 44

Data of float datatype to float datatype casting:

This conversion is not required because the both the datatypes are same.

Program 45

Data of float datatype to double datatype casting:

```

class Typecasting45
{
    public static void main(String [] args)
    {
        float a=3.41f;
        double b;
        b=a;
        System.out.println(a);
        System.out.println(b);
    }
}
```

```
Typecasting45 - Notepad
File Edit Format View Help
class Typecasting45
{
public static void main(String [] args)
{
float a=3.41f;
double b;
b=a;
System.out.println(a);
System.out.println(b);
}
}
```

```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Dell>cd kodnest2023

C:\Users\Dell\kodnest2023>cd typecasting

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting45.java

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting45
3.41
3.4100000858306885

C:\Users\Dell\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

Program 46

Data of float datatype to doolean datatype casting:

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Not Possible

Program 47

Data of double datatype to char datatype casting:

```
class Typecasting47
{
public static void main(String [] args)
{
double a=12.413;
char b;

// error because higher datatype to lower datatype
//b=a;

b=(char)a;

System.out.println(a);

System.out.println(b);
}
```

```
}
```

The screenshot shows a Windows Command Prompt window titled "Command Prompt". It displays the following text:

```

Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Dell>cd kodnest2023
The system cannot find the path specified.

C:\Users\Dell>cd kodnest2023>cd typecasting
C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting47.java
Typecasting47.java:7: error: incompatible types: possible lossy conversion from double to char
    b=a;
           ^
1 error

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting47
12.413
9

C:\Users\Dell\kodnest2023\Typecasting>

```

On the left, there is a Notepad window titled "Typecasting47 - Notepad" containing the Java code for Typecasting47.

```

Typecasting47 - Notepad
File Edit Format View Help
class Typecasting47
{
public static void main(String [] args)
{
double a=12.413;
char b;
// error because higher datatype to lower datatype
//b=a;
b=(char)a;
System.out.println(a);
System.out.println(b);
}
}

```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

Program 48

Data of double datatype to byte datatype casting:

```

class Typecasting48
{
public static void main(String [] args)
{
double a=12.413;
byte b;

// error because higher datatype to lower datatype
//b=a;

b=(byte)a;

System.out.println(a);

System.out.println(b);

}
}

```

```
Typecasting48 - Notepad
File Edit Format View Help
class Typecasting48
{
public static void main(String [] args)
{
double a=12.413;
byte b;
// error because higher datatype to lower datatype
//b=a;
b=(byte)a;
System.out.println(a);
System.out.println(b);
}
}
```

```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Dell>cd kodnest2023
The system cannot find the path specified.

C:\Users\Dell>cd kodnest2023
C:\Users\Dell\kodnest2023>javac Typecasting48.java
Typecasting48.java:8: error: incompatible types: possible lossy conversion from double to byte
b=a;
      ^
1 error

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting48.java
Typecasting48.java:9: error: incompatible types: possible lossy conversion from char to byte
b=(char)a;
      ^
1 error

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting48
12.413
12

C:\Users\Dell\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

Program 49

Data of double datatype to int datatype casting:

```
class Typecasting49

{
public static void main(String [] args)
{
double a=12.413;

int b;

// error because higher datatype to lower datatype

//b=a;

b=(int)a;

System.out.println(a);

System.out.println(b);

}
}
```

```

File Edit Format View Help
class Typecasting49
{
public static void main(String [] args)
{
double a=12.413;
int b;
// error because higher datatype to lower datatype
//b=a;
b=(int)a;
System.out.println(a);
System.out.println(b);
}
}

C:\Users\Kodnest>cd kodnest2023
C:\Users\Kodnest>cd typecasting
C:\Users\Kodnest>javac Typecasting49.java
C:\Users\Kodnest>java Typecasting49
12.413
12
C:\Users\Kodnest>

```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

Program 50

Data of double datatype to long datatype casting:

```

class Typecasting50

{

public static void main(String [] args)

{

double a=12.413;

long b;

// error because higher datatype to lower datatype

//b=a;

b=(long)a;

System.out.println(a);

System.out.println(b);

}

}

```

```
Typecasting50 - Notepad
File Edit Format View Help
class Typecasting50
{
public static void main(String [] args)
{
double a=12.413;
long b;
// error because higher datatype to lower datatype
//b=a;
b=(long)a;
System.out.println(a);
System.out.println(b);
}
}
```

```
Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\Dell>cd kodnest2023
C:\Users\Dell\kodnest2023>cd typecasting
C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting50.java
C:\Users\Dell\kodnest2023\Typecasting>java Typecasting50
12.413
12
C:\Users\Dell\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

Program 51

Data of double datatype to float datatype casting:

```
class Typecasting51
{
public static void main(String [] args)
{
double a=12.6565565;
float b;
// error because higher datatype to lower datatype
//b=a;
b=(float)a;
System.out.println(a);
System.out.println(b);
}
```



```

Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DELL\kodnest2023
C:\Users\DELL\kodnest2023>cd typecasting
C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting51.java
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting51
12.413
12.413
C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting51.java
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting51
12.6565565
12.656556
C:\Users\DELL\kodnest2023\Typecasting>

```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but Data loss

Program 51

Data of double datatype to double datatype casting:

This conversion is not required because the both the datatypes are same.

Program 52

Data of double datatype to boolean datatype casting:

Implicit Typecasting – Not Possible

Explicit Typecasting – Not Possible

Program 53

Data of boolean datatype to char datatype casting:

```

class Typecasting53
{
    public static void main(String [] args)
    {
        boolean a;
        a=true;
        char b;
    }
}

```

```

b=(char)a;

System.out.println(a);

System.out.println(b);

}

}

```

The screenshot shows a Windows Command Prompt window titled "Command Prompt". The command `javac Typecasting53.java` is run, resulting in two errors:

- Error at line 6: "error: ';' expected" due to the missing semicolon after `a=true`.
- Error at line 8: "error: incompatible types: boolean cannot be converted to char" due to the assignment `b=(char)a;`.

```

c:\ Command Prompt
Microsoft Windows [Version 10.0.19044.2965]
(c) Microsoft Corporation. All rights reserved.

C:\Users\DeLL>cd kodnest2023
C:\Users\DeLL\kodnest2023>cd typecasting
C:\Users\DeLL\kodnest2023\Typecasting>javac Typecasting53.java
Typecasting53.java:6: error: ';' expected
    a=true
          ^
1 error

C:\Users\DeLL\kodnest2023\Typecasting>javac Typecasting53.java
Typecasting53.java:8: error: incompatible types: boolean cannot be converted to char
    b=(char)a;
          ^
1 error

C:\Users\DeLL\kodnest2023\Typecasting>.

```

- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Not Possible

Like this for converting of data of boolean datatype to byte, short, int, long, float, double is not possible.

Program 54

Data of boolean datatype to char boolean casting:

```

class Typecasting54

{

public static void main(String [] args)

{

boolean a;

boolean b;

a=true;

b=false;

a=b;

System.out.println(a);

```

```
System.out.println(b);  
}  
}
```

```
Typecasting54 - Notepad  
File Edit Format View Help  
class Typecasting54  
{  
public static void main(String [] args)  
{  
boolean a;  
boolean b;  
a=true;  
b=false;  
a=b;  
System.out.println(a);  
System.out.println(b);  
}}
```

```
Command Prompt  
Microsoft Windows [Version 10.0.19044.2965]  
(c) Microsoft Corporation. All rights reserved.  
C:\Users\DELL\kodnest2023  
C:\Users\DELL\kodnest2023>cd typecasting  
C:\Users\DELL\kodnest2023\Typecasting>javac Typecasting54.java  
C:\Users\DELL\kodnest2023\Typecasting>java Typecasting54  
false  
false  
C:\Users\DELL\kodnest2023\Typecasting>
```

- ✓ Implicit Typecasting – Possible but not required
- ✓ Explicit Typecasting – Possible but not required

JAVA TYPE CASTING CHART

From/To	char	byte	short	int	long	float	double	boolean
char	CNR	Y	Y	Y	Y	Y	Y	N
		Exp	Exp	Imp	Imp	Imp	Imp	
byte	Y	CNR	Y	Y	Y	Y	Y	N
	Exp		Imp	Imp	Imp	Imp	Imp	
short	Y	Y	CNR	Y	Y	Y	Y	N
	Exp	Exp		Imp	Imp	Imp	Imp	
int	Y	Y	Y	CNR	Y	Y	Y	N
	Exp	Ex	Exp		Imp	Imp	Imp	
long	Y	Y	Y	Y	CNR	Y	Y	N
	Exp	Exp	Exp	Exp		Imp	Imp	
float	Y	Y	Y	Y	Y	CNR	Y	N
	Exp	Ex	Exp	Exp	Exp		Imp	
double	Y	Y	Y	Y	Y	Y	CNR	N
	Exp	Ex	Exp	Exp	Exp	Expl		
boolean	N	N	N	N	N	N	N	CNR

Y – Yes

N – No

Imp – Implicit

Exp – Explicit

CNR – Conversion Not Required