Assignment-5

Submitted by

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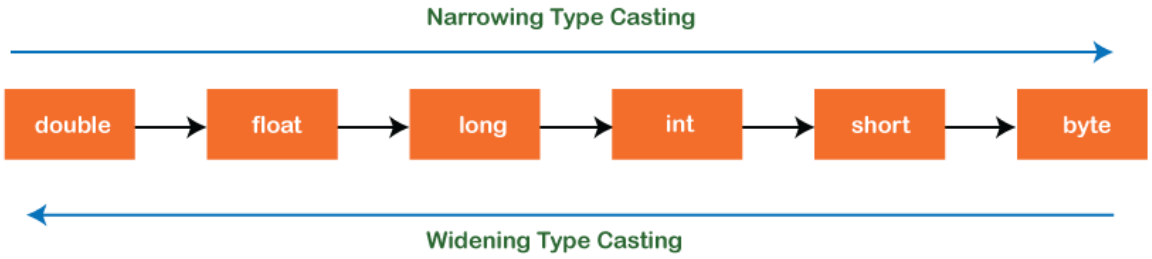
Type casting :

The process of the converting data of one type to another type is called type casting.

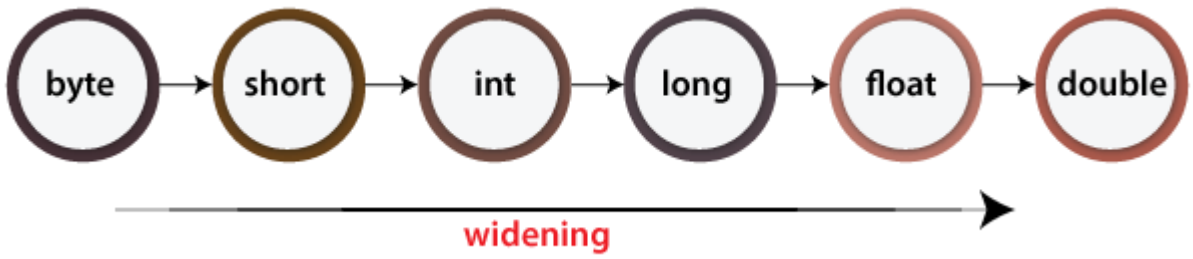


Type Casting in Java

Implicitly Type casting :

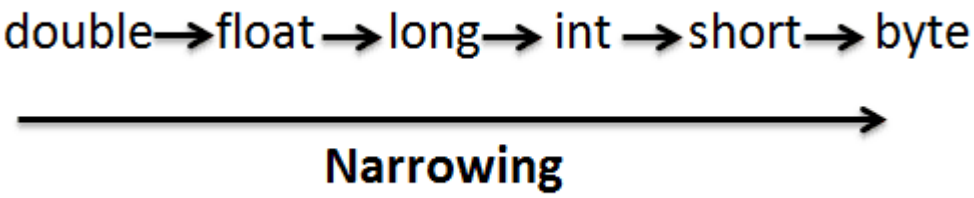
The process of converting one type of object and variable into another type is referred to as **Typecasting**. When the conversion automatically performs by the compiler without the programmer's interference, it is called **implicit type casting** or **widening casting**.

In **implicit typecasting**, the conversion involves a smaller data type to the larger type size. For example, the **byte** datatype implicitly typecast into **short**, **char**, **int**, **long**, **float**, and **double**. The process of converting the lower data type to that of a higher data type is referred to as **Widening**.



Explicitly Type Casting :

When you are assigning a **larger type** to a **smaller type**, then Explicit Casting is required



Program1:

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

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
z

C:\Users\kundh\Downloads>
```

Output: **casting not required (CNR)**

Program2:

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

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
122

C:\Users\kundh\Downloads>
```

Output: **Explicitly Type casting**

Program3:

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

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
122

C:\Users\kundh\Downloads>
```

Output: **Explicit Type casting**

Program4:

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

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
122

C:\Users\kundh\Downloads>
```

Output: **Implicit type casting**

Program5:

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

```
Microsoft Windows [Version 10.0.22621.1702]
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C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
122

C:\Users\kundh\Downloads>
```

Output: **Implicit type casting**

Program6:

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

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
122.0

C:\Users\kundh\Downloads>
```

Output: **Implicit type casting**

Program7:

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

```
Microsoft Windows [Version 10.0.22621.1702]
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C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
122.0

C:\Users\kundh\Downloads>
```

Output: **Implicit type casting**

Program8:

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

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: char cannot be converted to boolean
  b= a;
     ^
1 error

C:\Users\kundh\Downloads>
```

Output: **Not possible**

Program9:

```
class Demo
{
 public static void main(String [] args)
 {
  byte a= 100;
  char b ;
  b=(char)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
d

C:\Users\kundh\Downloads>
```

Output: Explicit type casting

Program10:

```
class Demo
{
 public static void main(String [] args)
 {
  byte a= 100;
  byte b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: Casting not required(CNR)

Program11:

```
class Demo
{
 public static void main(String [] args)
 {
  byte a= 100;
  short b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1702]
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C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: **implicit type casting**

Program12:

```
class Demo
{
 public static void main(String [] args)
 {
  byte a= 100;
  int b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1702]
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C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: **Implicit type casting**

Program13:

```
class Demo
{
 public static void main(String [] args)
 {
  byte a= 100;
  long b ;
  b=a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: **Implicit type casting**

Program14:

```
class Demo
{
 public static void main(String [] args)
 {
  byte a= 100;
  float b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100.0

C:\Users\kundh\Downloads>
```

Output: Implicit type casting

Program15:

```
class Demo
{
 public static void main(String [] args)
 {
  byte a= 100;
  double b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100.0

C:\Users\kundh\Downloads>
```

Output: Implicit type casting

Program16:

```
class Demo
{
 public static void main(String [] args)
 {
  byte a= 100;
  boolean b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

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

C:\Users\kundh\Downloads>
```

Output: **Not possible**

Program17:

```
class Demo
{
 public static void main(String [] args)
 {
  short a= 100;
  char b ;
  b=(char)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
d

C:\Users\kundh\Downloads>
```

Output: **Explicit type casting**

Program18:

```
class Demo
{
 public static void main(String [] args)
 {
  short a= 100;
   byte b ;
  b=(byte)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: **Explicit type casting**

Program19:

```
class Demo
{
 public static void main(String [] args)
 {
  short a= 100;
  short b ;
  b= a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: Casting not possible(CNR)

Program20:

```
class Demo
{
 public static void main(String [] args)
 {
  short a= 100;
  int b ;
  b= a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
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C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: implicit type casting

Program21:

```
class Demo
{
 public static void main(String [] args)
 {
  short a= 100;
  long b ;
  b= a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: Implicit type casting

Program22:

```
class Demo
{
 public static void main(String [] args)
 {
  short a= 100;
  float b ;
  b= a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100.0

C:\Users\kundh\Downloads>
```

Output: Implicit type casting

Program23:

```
class Demo
{
 public static void main(String [] args)
 {
  short a= 100;
  double b ;
  b= a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100.0

C:\Users\kundh\Downloads>
```

Output: implicit type casting

Program24:

```
class Demo
{
 public static void main(String [] args)
 {
  short a= 100;
  boolean b ;
  b= a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: short cannot be converted to boolean
  b= a;
     ^
1 error

C:\Users\kundh\Downloads>
```

Output: **Not possible**

Program25:

```
class Demo
{
 public static void main(String [] args)
 {
  int a= 100;
  char b ;
  b=(char)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
d

C:\Users\kundh\Downloads>
```

Output: explicit type casting

Program26:

```
class Demo
{
 public static void main(String [] args)
 {
  int a= 100;
  short b ;
  b=(short)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: **explicit type casting**

Program27:

```
class Demo
{
 public static void main(String [] args)
 {
  int a= 100;
  int b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: **Casting not required**

Program28:

```
class Demo
{
 public static void main(String [] args)
 {
  int a= 100;
  long b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: implicit type casting

Program29:

```
class Demo
{
 public static void main(String [] args)
 {
  int a= 100;
  float b ;
  b=(float)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100.0

C:\Users\kundh\Downloads>javac Demo.java
```

Output: Implicit type casting

Program30:

```
class Demo
{
 public static void main(String [] args)
 {
  int a= 100;
  double b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100.0
```

Output: **implicit type casting**

Program31:

```
class Demo
{
 public static void main(String [] args)
 {
  int a= 100;
  boolean b ;
  b=a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: int cannot be converted to boolean
  b=a;
    ^
1 error

C:\Users\kundh\Downloads>
```

Output: **Not possible**

Program32:

```
class Demo
{
 public static void main(String [] args)
 {
  int a= 100;
  byte b ;
  b=(byte)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: Explicit type casting

Program33:

```
class Demo
{
 public static void main(String [] args)
 {
  long a= 2146748671;
  char b ;
  b=(char)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
?

C:\Users\kundh\Downloads>
```

Output : Explicit type casting

Program34:

```
class Demo
{
 public static void main(String [] args)
 {
  long a= 2146748671;
  byte b ;
  b=(byte)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
-77

C:\Users\kundh\Downloads>
```

Output: Explicit type casting

Program35:

```
class Demo
{
 public static void main(String [] args)
 {
  long a= 2146748671;
  short b ;
  b=(short)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
-21069

C:\Users\kundh\Downloads>
```

Output: **explicit type casting**

Program36:

```
class Demo
{
 public static void main(String [] args)
 {
  long a= 2146748671;
  int b ;
  b=(int)a;
  System.out.println(b);
 }
}
```

```
Microsoft Windows [Version 10.0.22621.1848]
(c) Microsoft Corporation. All rights reserved.

C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
214674867
```

Output: **explicit type casting**

Program37:

```
class Demo
{
 public static void main(String [] args)
 {
  long a= 2146748671;
  long b ;
  b=a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
214674867

C:\Users\kundh\Downloads>
```

Output: **casting not required**

Program38:

```
class Demo
{
 public static void main(String [] args)
 {
  long a= 2146748671;
  float b ;
  b=(float)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
2.14674864E8

C:\Users\kundh\Downloads>
```

Output: **explicit type casting**

Program39:

```
class Demo
{
 public static void main(String [] args)
 {
  long a= 2146748671;
  double b ;
  b=a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
2.14674867E8

C:\Users\kundh\Downloads>
```

Output: Implicit type casting

Program40:

```
class Demo
{
 public static void main(String [] args)
 {
  long a= 2146748671;
  boolean b ;
  b=a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: long cannot be converted to boolean
  b=a;
    ^
1 error

C:\Users\kundh\Downloads>
```

Output: Not possible

Program41:

```
class Demo
{
 public static void main(String [] args)
 {
  float a=100.45f;
   char b ;
  b=(char)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
d
```

Output: Not possible

Program42:

```
class Demo
{
 public static void main(String [] args)
 {
  float a=3.147f;
  byte b ;
  b=(byte)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
3

C:\Users\kundh\Downloads>
```

Output: explicit type casting

Program43:

```
class Demo
{
 public static void main(String [] args)
 {
  float a=3.147f;
  short b ;
  b=(short)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
3

C:\Users\kundh\Downloads>
```

Output: explicit type casting

Program44:

```
class Demo
{
 public static void main(String [] args)
 {
  float a=100.45f;
  int b ;
  b=(int)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: **Explicit type casting**

Program45:

```
class Demo
{
 public static void main(String [] args)
 {
  float a=100.45f;
  long b ;
  b=(long)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100

C:\Users\kundh\Downloads>
```

Output: **explicit type casting**

Program46:

```
class Demo
{
 public static void main(String [] args)
 {
  float a=100.45f;
  float b ;
  b=a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100.45

C:\Users\kundh\Downloads>
```

Output: **Casting not required (CNR)**

Program47:

```
class Demo
{
 public static void main(String [] args)
 {
  float a=100.45f;
  double b ;
  b=a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
100.44999694824219

C:\Users\kundh\Downloads>
```

Output: **Implicit type casting**

Program48:

```
class Demo
{
 public static void main(String [] args)
 {
  float a=100.45f;
  boolean b ;
  b=a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: float cannot be converted to boolean
  b=a;
    ^
1 error

C:\Users\kundh\Downloads>
```

Output: **Not possible**

Program 49:

```
class Demo
{
 public static void main(String [] args)
 {
  double a=33.14;
  char b ;
  b=(char)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
!

C:\Users\kundh\Downloads>
```

Output: **Explicit type casting**

Program50:

```
class Demo
{
 public static void main(String [] args)
 {
  double a=33.14;
  byte b ;
  b=(byte)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
33

C:\Users\kundh\Downloads>
```

Output: explicit type casting

Program51:

```
class Demo
{
 public static void main(String [] args)
 {
  double a=33.14;
  short b ;
  b=(short)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
33
```

Output: explicit type casting

Program52:

```
class Demo
{
 public static void main(String [] args)
 {
  double a=33.14;
  int b ;
  b=(int)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
33
```

Output: Explicit type casting

Program53:

```
class Demo
{
 public static void main(String [] args)
 {
  double a=33.14;
  long b ;
  b=(long)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
33
```

Output: **Explicit type casting**

Program54:

```
class Demo
{
 public static void main(String [] args)
 {
  double a=33.14;
  float b ;
  b=(float)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
33.14

C:\Users\kundh\Downloads>
```

Output: **Explicit type casting**

Program55:

```
class Demo
{
 public static void main(String [] args)
 {
  double a=33.14;
  double b ;
  b=(double)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
33.14
```

Output: **Casting not required (CNR)**

Program56:

```
class Demo
{
 public static void main(String [] args)
 {
  double a=33.14;
  boolean b ;
  b=(boolean)a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: double cannot be converted to boolean
  b=a;
    ^
1 error

C:\Users\kundh\Downloads>java Demo
33.14
```

Output: **Not possible**

Program57:

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

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: boolean cannot be converted to char
  b=(char)a;
          ^
1 error
```

Output: **Not possible**

Program58:

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

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: boolean cannot be converted to byt
  b=(byte)a;
          ^
1 error
```

Output: **Not possible**

Program58:

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

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: boolean cannot be converted to short
  b=a;
    ^
1 error
```

Output: Not possible

Program59:

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

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: boolean cannot be converted to int
  b=a;
    ^
1 error
```

Output: Not possible

Program60:

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

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: boolean cannot be converted to long
  b=a;
    ^
1 error
```

Output: **Not possible**

Program61:

```
class Demo
{
 public static void main(String [] args)
 {
  boolean a =true;
  float b ;
  b=a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: boolean cannot be converted to float
  b=a;
    ^
1 error
```

Output: **Not possible**

Program62:

```
class Demo
{
 public static void main(String [] args)
 {
  boolean a =true;
  double b ;
  b=a;
  System.out.println(b);
 }
}
```

```
C:\Users\kundh\Downloads>javac Demo.java
Demo.java:7: error: incompatible types: boolean cannot be converted to double
  b=a;
    ^
1 error
```

Output: **Not possible**

✓ Program63:

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

```
C:\Users\kundh\Downloads>javac Demo.java

C:\Users\kundh\Downloads>java Demo
true

C:\Users\kundh\Downloads>
```

Output: **casting not required(CNR)**

Implicit and Explicit Table:

	char	byte	short	int	long	float	double	boolean
char	CNR	**E**	**E**	**I**	**I**	**I**	**I**	**x**
byte	**E**	CNR	**I**	**I**	**I**	**I**	**I**	**X**
short	**E**	**E**	CNR	**I**	**I**	**I**	**I**	**X**
int	**E**	**E**	**E**	CNR	**I**	**I**	**I**	**x**
long	**E**	**E**	**E**	**E**	CNR	**E**	**I**	**x**
float	**E**	**E**	**E**	**E**	**E**	CNR	**I**	**x**
double	**E**	**E**	**E**	**E**	**E**	**E**	CNR	**x**
boolean	**x**	**x**	**x**	**x**	**x**	**x**	**x**	CNR

I = Implicit

E = explicit

X = Not possible

CNR = casting not required