Type casting

1.Char to char

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

```

```
PS E:\study material\kodJava>  & 'C:\Program Files\Java\jdk-20\bin\java
eDetailsInExceptionMessages' '-cp' 'C:\Users\ejaju\AppData\Roaming\Code
42cebc5a6eab300ff\redhat.java\jdt_ws\kodJava_c43ca90b\bin' 'TypeCasting
a
```

Conclusion: char to char typecasting is possible but it is not required.

2. char to byte

```java
TypeCasting.java > ...
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        char a='a';
        byte b;
        b=(byte)a;
        System.out.println(b);
    }
}

```

```
97
PS E:\study material\kodJava>
```

Conclusion: char to byte is a explicit type casting, it converts the value of ‘a’ into ascii value.

3. char to short

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        char a='a';
        short b;
        b=(short)a;
        System.out.println(b);
    }
}
```

```
97
PS E:\study material\kodJava>
```

Conclusion: char to short is a explicit type casting, it converts the value of ‘a’ into ascii value.

4. char to int

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

```
97
PS E:\study material\kodJava>
```

Conclusion: char to int is a implicit type casting, it converts the value of ‘a’ into ascii value.

5. char to long

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

```
97
PS E:\study material\kodJava>
```

Conclusion: char to long is a implicit type casting, it converts the value of ‘a’ into ascii value.

6. char to float

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

```
97.0
PS E:\study material\kodJava>
```

Conclusion: char to float is a implicit type casting, it converts the value of ‘a’ into ascii value.

7. char to double

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

```
97.0
PS E:\study material\kodJava>
```

Conclusion: char to double is a implicit type casting, it converts the value of ‘a’ into ascii value is 97.0.

8. char to Boolean

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        char a='a';
        boolean b;
        b=(boolean)a;
        System.out.println(b);
    }
}
```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Cannot cast from char to boolean

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: we cannot typecast from char to Boolean it throws an error.

9. byte to char

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        byte a= 12;
        char b;
        b=(char)a;
        System.out.println(b);
    }
}
```

```
PS E:\study material\kodJava>
```

Conclusion: it is explicit typecasting but cannot show any output.

10. byte to byte

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        byte a= 12;
        byte b;
        b=a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: we can typecast byte to byte but it is not required.

11. byte to short

```
TypeCasting.java > TypeCasting > main(String[])
1   public class TypeCasting {
        Run | Debug
2       public static void main(String[] args) {
3           byte a= 12;
4           short b;
5           b=a;
6           System.out.println(b);
7       }
8   }
9
```

```
12
PS E:\study material\kodJava>
```

Conclusion: byte to short is a implicit type casting.

12. byte to int

```
1   public class TypeCasting {
        Run | Debug
2       public static void main(String[] args) {
3           byte a= 12;
4           int b;
5           b=a;
6           System.out.println(b);
7       }
8   }
9
```

```
12
PS E:\study material\kodJava>
```

Conclusion: byte to int is a implicit type casting.

13. byte to long

```java
TypeCasting.java > TypeCasting > main(String[])
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        byte a= 12;
        long b;
        b=a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: byte to long is a implicit type casting.

14. byte to float

```java
TypeCasting.java > ...
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        byte a= 12;
        float b;
        b=a;
        System.out.println(b);
    }
}
```

```
12.0
PS E:\study material\kodJava>
```

Conclusion: it is possible to typecast from byte to float and it is implicit type casting.

15. byte to double

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        byte a= 12;
        double b;
        b=a;
        System.out.println(b);
    }
}
```

```
12.0
PS E:\study material\kodJava>
```

Conclusion: it is possible to typecast from byte to double and it is implicit type casting.

16. byte to Boolean

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        byte a= 12;
        boolean b;
        b=(boolean)a;
        System.out.println(b);
    }
}
```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Cannot cast from byte to boolean

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: we cannot convert byte to boolean because byte data type only store integer value.

17. Short to char

```java
TypeCasting.java > ...
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        short a= 12;
        char b;
        b=(char)a;
        System.out.println(b);
    }
}
```

```
PS E:\study material\kodJava>
```

Conclusion: it is explicit typecasting but it cannot generate out any output.

18.short to byte

```java
TypeCasting.java > TypeCasting
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        short a= 12;
        byte b;
        b=(byte)a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: short to byte is a explicit typecasting.

19.short to short

```java
public class TypeCasting {
    public static void main(String[] args) {
        short a= 12;
        short b;
        b=a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: short to short is implicit but it is not required.

20. short to int.

```java
public class TypeCasting {
    public static void main(String[] args) {
        short a= 12;
        int b;
        b=a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: short to int is a implicit typecasting.

21. short to long.

```java
public class TypeCasting {
    public static void main(String[] args) {
        short a= 12;
        long b;
        b=a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: short to long is a implicit typecasting.

22. short to float

```java
public class TypeCasting {
    public static void main(String[] args) {
        short a= 12;
        float b;
        b=a;
        System.out.println(b);
    }
}
```

```
12.0
PS E:\study material\kodJava>
```

Conclusion: short to float is a implicit typecasting.

23. short to double.

```java
public class TypeCasting {
    public static void main(String[] args) {
        short a= 12;
        double b;
        b=a;
        System.out.println(b);
    }
}
```

```
12.0
PS E:\study material\kodJava>
```

Conclusion: short to double is a implicit typecasting.

24. short to Boolean

```java
public class TypeCasting {
    public static void main(String[] args) {
        short a= 12;
        boolean b;
        b=a;
        System.out.println(b);
    }
}
```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from short to boolean

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: we cannot convert short to boolean because short data type only store integer value.

25. int to char.

```java
public class TypeCasting {
    public static void main(String[] args) {
        int a= 12;
        char b;
        b=(char)a;
        System.out.println(b);
    }
}
```

```
PS E:\study material\kodJava>
```

Conclusion: int to char is a explicit typecasting but it cannot give any value.

26. int to byte.

```java
public class TypeCasting {
    public static void main(String[] args) {
        int a= 12;
        byte b;
        b=(byte)a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: int to byte is explicit typecasting.

27.int to short.

```java
public class TypeCasting {
    public static void main(String[] args) {
        int a= 12;
        short b;
        b=(short)a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: int to short is explicit typecasting.

28. int to int.

```java
public class TypeCasting {
    public static void main(String[] args) {
        int a= 12;
        int b;
        b=a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: int to int typecasting is possible but it is not required.

29. int to long.

```java
public class TypeCasting {
    public static void main(String[] args) {
        int a= 12;
        long b;
        b=a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: int to long is a implicit typecasting.

30. int to float.

```java
public class TypeCasting {
    public static void main(String[] args) {
        int a= 12;
        float b;
        b=a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: int to float is a implicit typecasting as well as explicit typecasting.

31. int to double

```java
public class TypeCasting {
    public static void main(String[] args) {
        int a= 12;
        double b;
        b=a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: int to double is a implicit typecasting.

32. int to Boolean.

```java
public class TypeCasting {
    public static void main(String[] args) {
        int a= 12;
        boolean b;
        b=a;
        System.out.println(b);
    }
}
```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from int to boolean

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: int to Boolean typecasting is not possible because Boolean can only store two values true or false.

33. long to char.

```java
public class TypeCasting {
    public static void main(String[] args) {
        long a= 12;
        char b;
        b=(char)a;
        System.out.println(b);
    }
}
```

```
PS E:\study material\kodJava>
```

Conclusion: long to char is a explicit type casting, but it cannot give any output.

34.long to byte

```java
public class TypeCasting {
    public static void main(String[] args) {
        long a= 12l;
        byte b;
        b=(byte)a;
        System.out.println(b);
    }
}
```

```
12
PS E:\study material\kodJava>
```

Conclusion: long to byte is a explicit type casting.

35.long to short.

```java
public class TypeCasting {
    public static void main(String[] args) {
        long a= 12111l;
        short b;
        b=(byte)a;
        System.out.println(b);
    }
}
```

```
79
PS E:\study material\kodJava>
```

Conclusion: long to short is a explicit typecasting.

36.long to int.

```java
public class TypeCasting {
    public static void main(String[] args) {
        long a= 12111l;
        int b;
        b=(int)a;
        System.out.println(b);
    }
}
```

```
12111
PS E:\study material\kodJava>
```

Conclusion: long to int is a explicit typecasting.

37.long to long.

```java
public class TypeCasting {
    public static void main(String[] args) {
        long a= 12111111111111111l;
        long b;
        b=a;
        System.out.println(b);
    }
}
```

```
12111111111111111
PS E:\study material\kodJava>
```

Conclusion: long to long typecasting is possible but it is not required.

38. long to float.

```java
public class TypeCasting {
    public static void main(String[] args) {
        long a= 12110000000000000l;
        float b;
        b=a;
        System.out.println(b);
    }
}
```

```
1.211E16
PS E:\study material\kodJava>
```

Conclusion: long to float is a implicit typecasting as well as explicit typecasting and some data are loss.

39. long to double

```java
TypeCasting.java > TypeCasting > main(String[])
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        long a= 1211001234561;
        double b;
        b=a;
        System.out.println(b);
    }
}
```

```
1.21100123456E11
PS E:\study material\kodJava>
```

Conclusion: long to double is both implicit as well as explicit type casting.

40.long to Boolean

```java
TypeCasting.java > TypeCasting
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        long a= 1211001234561;
        boolean b;
        b=a;
        System.out.println(b);
    }
}
```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from long to boolean

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: long to Boolean typecasting is not possible because Boolean can store only true or false.

41.float to chat

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        float a=3.14f;
        char b;
        b=(char)a;
        System.out.println(b);
    }
}
```

```
♥
PS E:\study material\kodJava>
```

Conclusion: float to char is a explicit typecasting.

42.float to byte.

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        float a=3.14f;
        byte b;
        b=(byte)a;
        System.out.println(b);
    }
}
```

```
3
PS E:\study material\kodJava>
```

Conclusion: float to byte is a explicit typecasting.

43. float to short.

```java
public class TypeCasting {
    public static void main(String[] args) {
        float a=3.14f;
        short b;
        b=(short)a;
        System.out.println(b);
    }
}
```

```
3
PS E:\study material\kodJava>
```

Conclusion: float to short is a explicit typecasting.

44.float to int.

```java
public class TypeCasting {
    public static void main(String[] args) {
        float a=3.14f;
        int b;
        b=(int)a;
        System.out.println(b);
    }
}
```

```
3
PS E:\study material\kodJava>
```

Conclusion: float to int is a explicit typecasting.

45. float to long.

```java
public class TypeCasting {
    public static void main(String[] args) {
        float a=3.14f;
        long b;
        b=(long)a;
        System.out.println(b);
    }
}
```

```
3
PS E:\study material\kodJava>
```

Conclusion: float to long is a explicit typecasting.

46. float to float.

```java
public class TypeCasting {
    public static void main(String[] args) {
        float a=3.14f;
        float b;
        b=a;
        System.out.println(b);
    }
}
```

```
3.14
PS E:\study material\kodJava>
```

Conclusion: float to float is a both implicit as well explicit but it is not required a typecasting.

47.float to double.

```java
public class TypeCasting {
    public static void main(String[] args) {
        float a=3.14f;
        double b;
        b=a;
        System.out.println(b);
    }
}
```

```
3.140000104904175
PS E:\study material\kodJava>
```

Conclusion: float to double Is implicit typecasting.

48. float to Boolean

```java
public class TypeCasting {
    public static void main(String[] args) {
        float a=3.14f;
        boolean b;
        b=a;
        System.out.println(b);
    }
}
```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from float to boolean

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: float to Boolean typecasting is not possible because Boolean is only store true or false value.

49. double to char.

```java
public class TypeCasting {
    public static void main(String[] args) {
        double a=3.14444d;
        char b;
        b=(char)a;
        System.out.println(b);
    }
}
```

```
♥
PS E:\study material\kodJava>
```

Conclusion: double to char is a explicit typecasting but it loss a data.

50.double to byte.

```java
public class TypeCasting {
    public static void main(String[] args) {
        double a=3.14444d;
        byte b;
        b=(byte)a;
        System.out.println(b);
    }
}
```

```
3
PS E:\study material\kodJava>
```

Conclusion: double to byte is a explicit typecasting and it loss the data.

51. double to short

```java
public class TypeCasting {
    public static void main(String[] args) {
        double a=3.14444d;
        short b;
        b=(byte)a;
        System.out.println(b);
    }
}
```

```
3
PS E:\study material\kodJava>
```

Conclusion: double to short is a explicit typecasting and it loss the data.

52. double to int

```java
public class TypeCasting {
    public static void main(String[] args) {
        double a=3.14444d;
        int b;
        b=(byte)a;
        System.out.println(b);
    }
}
```

```
3
PS E:\study material\kodJava>
```

Conclusion: double to int is a explicit typecasting and it loss data.

53. double to long

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        double a=3.14444d;
        long b;
        b=(long)a;
        System.out.println(b);
    }
}
```

```
3
PS E:\study material\kodJava>
```

Conclusion: double to long is a explicit typecasting and it loss data.

54. double to float

```java
public class TypeCasting {
    Run | Debug
    public static void main(String[] args) {
        double a=3.14444d;
        float b;
        b=(float)a;
        System.out.println(b);
    }
}
```

```
3.14444
PS E:\study material\kodJava>
```

Conclusion: double to float is a explicit typecasting.

55.double to double

```java
public class TypeCasting {
    public static void main(String[] args) {
        double a=3.14444d;
        double b;
        b=a;
        System.out.println(b);
    }
}
```

```
3.14444
PS E:\study material\kodJava>
```

Conclusion: double to double typecasting is possible but it is not required.

56. double to Boolean

```java
public class TypeCasting {
    public static void main(String[] args) {
        double a=3.14444d;
        boolean b;
        b=a;
        System.out.println(b);
    }
}
```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from double to boolean

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: double to Boolean typecasting is not possible because Boolean store only true and false.

57. Boolean to char

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

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from boolean to char

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: boolean to char typecasting is not possible because Boolean store only true and false.

58. Boolean to byte

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

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from boolean to byte

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: boolean to byte typecasting is not possible because Boolean store only true and false.

59. Boolean to short

TypeCasting.java > ...

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

```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from boolean to short

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: boolean to byte typecasting is not possible because Boolean store only true and false.

60. Boolean to int

TypeCasting.java > ...

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

```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from boolean to int

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: boolean to int typecasting is not possible because Boolean store only true and false.

61.boolean to long

TypeCasting.java > ...

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

```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from boolean to long

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: boolean to long typecasting is not possible because Boolean store only true and false.

62. Boolean to float

TypeCasting.java > ...

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

```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from boolean to float

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: boolean to float typecasting is not possible because Boolean store only true and false.

63. Boolean to double

```
TypeCasting.java > TypeCasting
1   public class TypeCasting {
        Run | Debug
2       public static void main(String[] args) {
3           boolean a=true;
4           double b;
5           b=a;
6           System.out.println(b);
7       }
8   }
9
```

```
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
        Type mismatch: cannot convert from boolean to double

        at TypeCasting.main(TypeCasting.java:5)
PS E:\study material\kodJava>
```

Conclusion: boolean to double typecasting is not possible because Boolean store only true and false.

64.boolean to Boolean

```
TypeCasting.java > ...
1   public class TypeCasting {
        Run | Debug
2       public static void main(String[] args) {
3           boolean a=true;
4           boolean b;
5           b=a;
6           System.out.println(b);
7       }
8   }
9
```

```
true
PS E:\study material\kodJava>
```

Conclusion: boolean to Boolean conversion is possible but it is not required.

Flow chart

Implicit typecasting: -

Byte→short→int→long→float→double

Explicit typecasting: -

Double→float→long→int→short→byte

Both conversions happened implicit and explicit

Int→float

Long→float

Long→double

Conversions that not required

Char→char

Byte→byte

Short→short

Int→int

Long→long

Float→float

Double→double

Boolean→boolean

Table: -

	char	byte	short	int	long	float	double	boolean
char	CNR	EXP	EXP	IMP	IMP	IMP	IMP	NP
Byte	EXP	CNR	IMP	IMP	IMP	IMP	IMP	NP
Short	EXP	EXP	CNR	IMP	IMP	IMP	IMP	NP
Int	EXP	EXP	EXP	CNR	IMP	IMP/EXP	IMP	NP
Long	EXP	EXP	EXP	EXP	CNR	IMP/EXP	IMP/EXP	NP
Float	EXP	EXP	EXP	EXP	EXP	CNR	IMP	NP
Double	EXP	EXP	EXP	EXP	EXP	EXP	CNR	NP
boolean	NP	NP	NP	NP	NP	NP	NP	CNR

CNR→conversion not required.

EXP→explicit typecasting.

IMP→implicit typecasting.

NP→not possible.

IMP/EXP→implicit and explicit both are happened.