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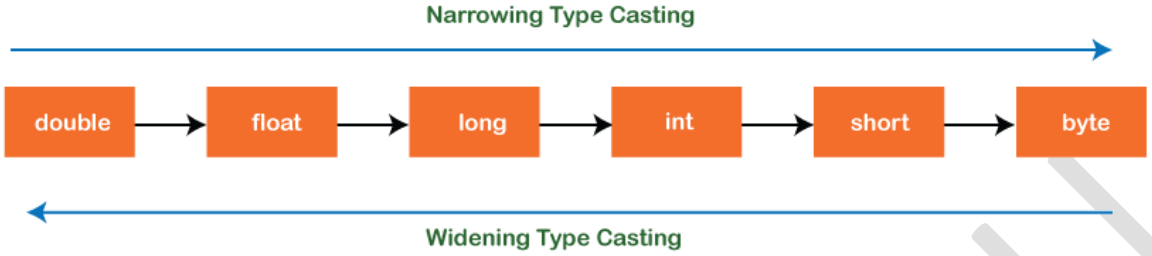
KodNest
CSR 2023 Batch(Online)

Assignment – Type casting in JAVA

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.

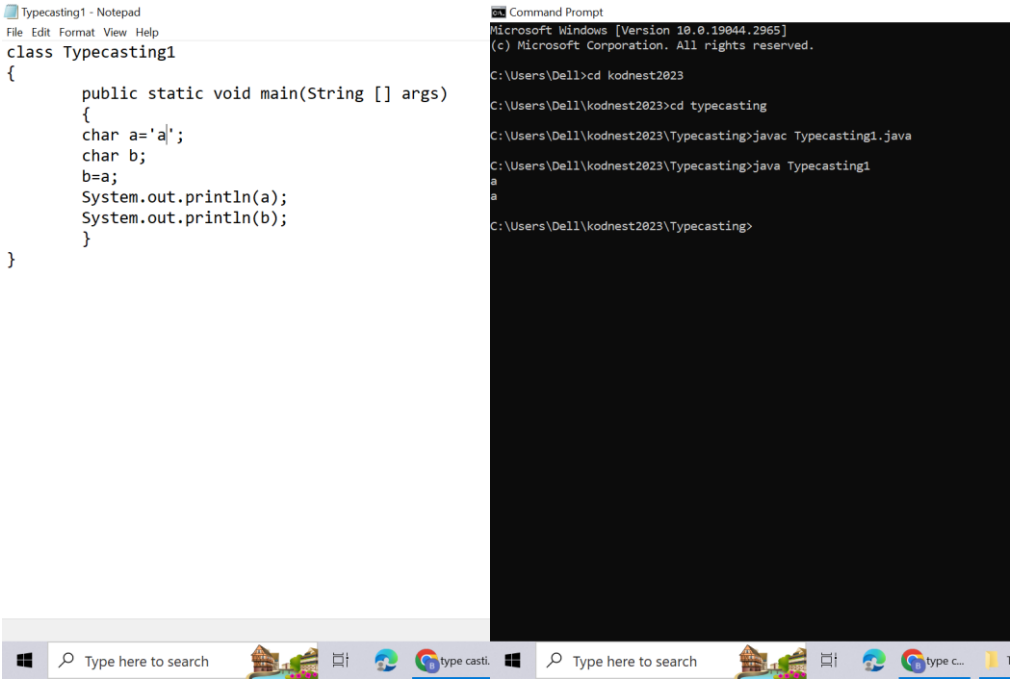
double -> **float** -> **long** -> **int** -> **char** -> **short** -> **byte**

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);

}

}
```



- ✓ 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

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```
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);
        }
}
```

Command Prompt

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

C:\Users\Dell\kodnest2023>cd typecasting

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

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting2.java
Typecasting2.java:8: error: ';' expected
        b=(byte)a
                ^
1 error

C:\Users\Dell\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\Dell\kodnest2023\Typecasting>javac Typecasting2.java

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting2
a
97

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

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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

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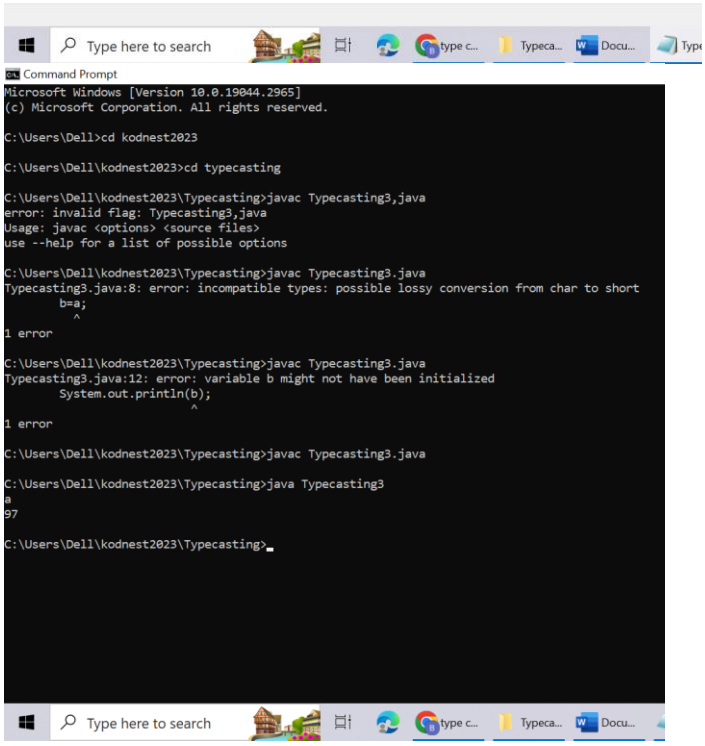
```
class Typecasting3
{
        public static void main(String [] args)
        {
        char a='a';
        short b;
        //Below line gives error
        //b=a;
        // So we can explicitly convert but it may be a lossy conversion
        b=(short)a;
        System.out.println(a);
        System.out.println(b);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



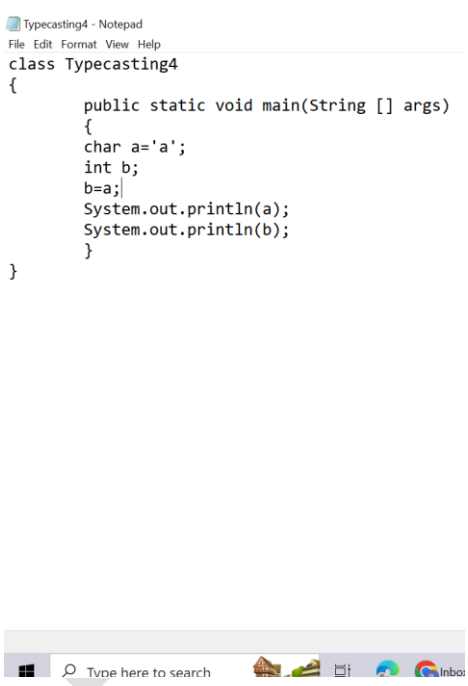

```
class Typecasting3

{

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);
```

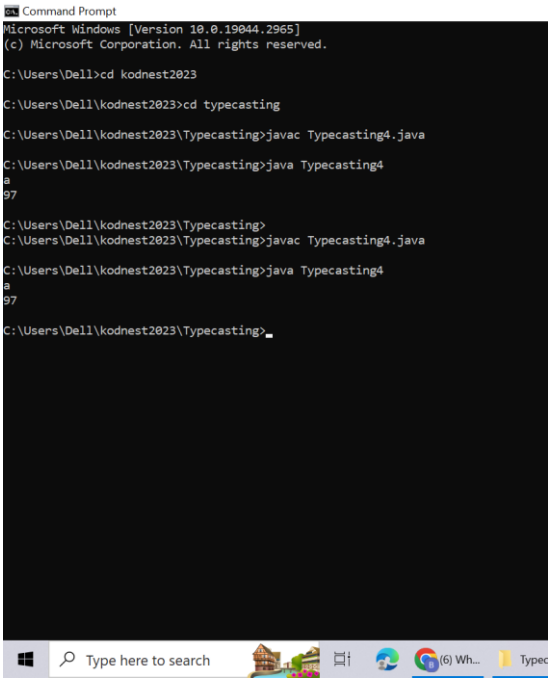
- ✓ Implicit Typecasting - Not Possible
- ✓ Explicit Typecasting - Possible but data loss would occur

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);
}
}
```



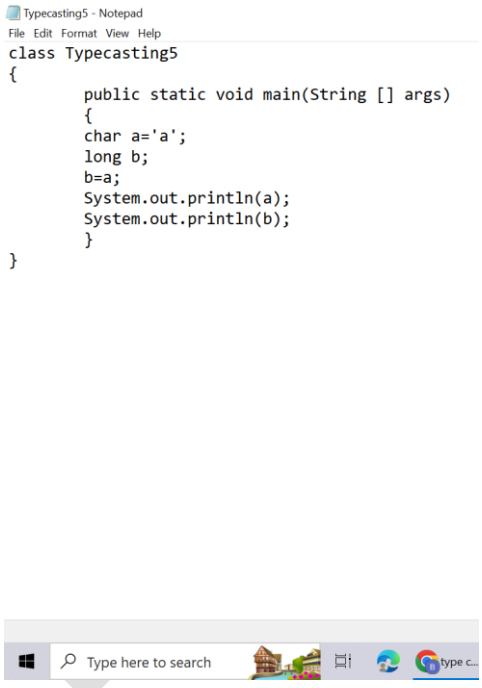


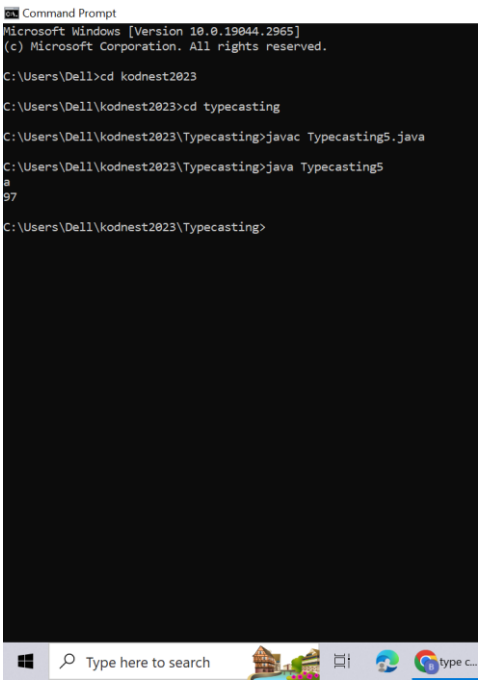
- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

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);

}

}
```



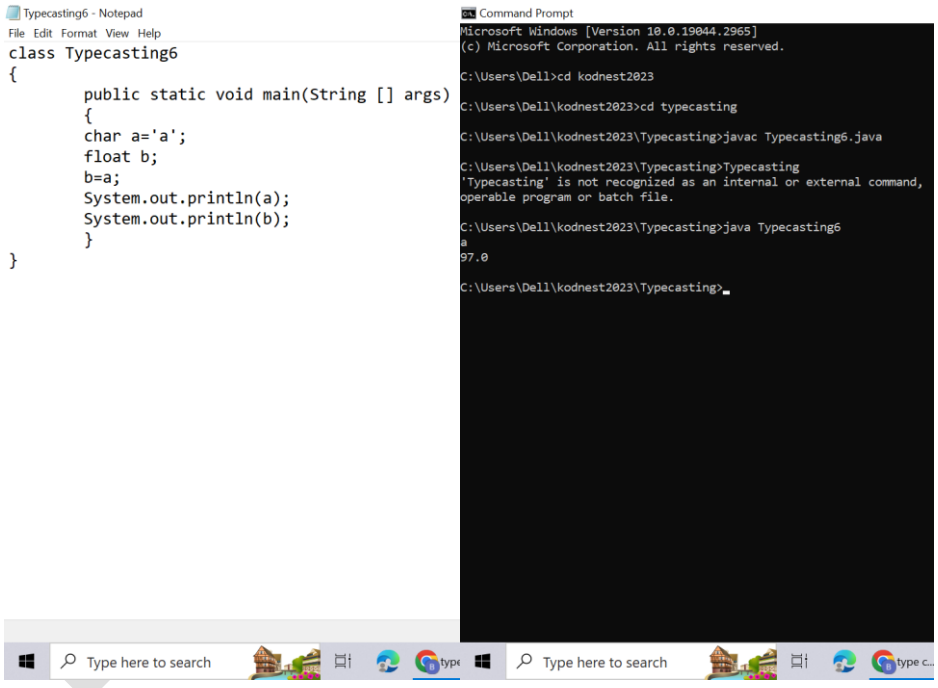


- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

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);

}

}
```

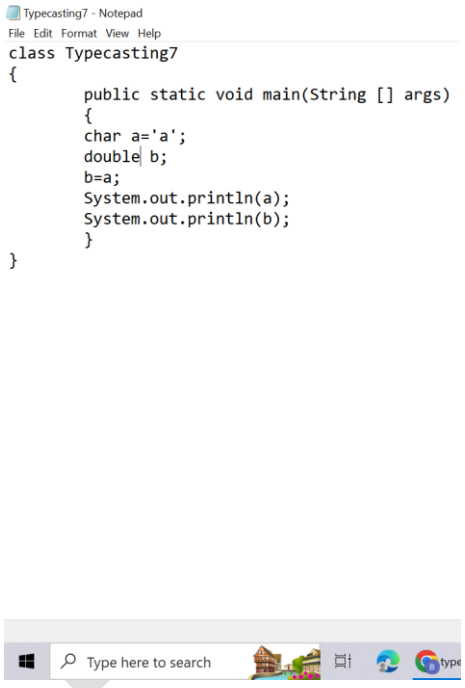


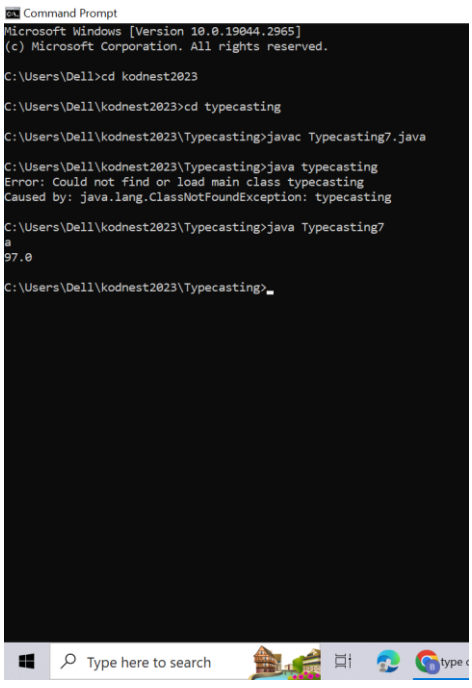
- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

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);

}

}
```





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

Program 8

Data of char datatype to boolean datatype casting:

Typecasting8 - Notepad

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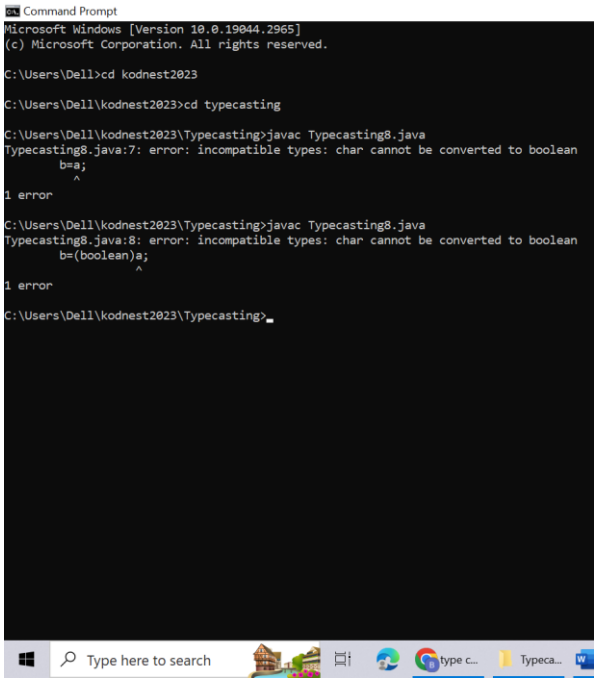
```
class Typecasting8
{
        public static void main(String [] args)
        {
        char a='a';
        boolean b;
        //below line gives an error because char datatype data can't be converted to boolean datatype
        //b=a;
        //below line gives an error because char datatype data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



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

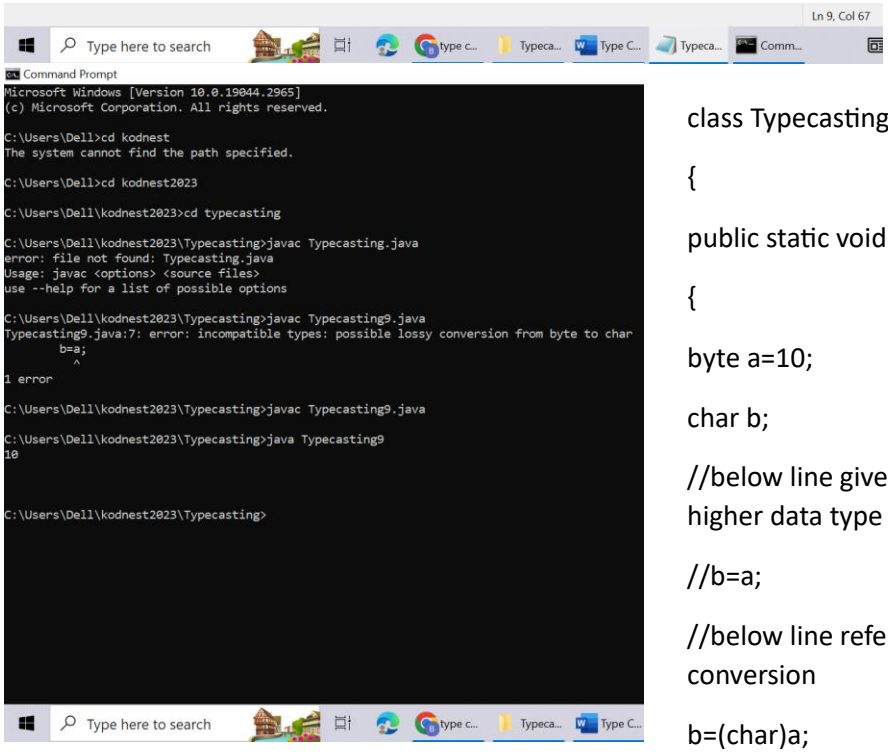
Program 7

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);
        }
}
```



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);

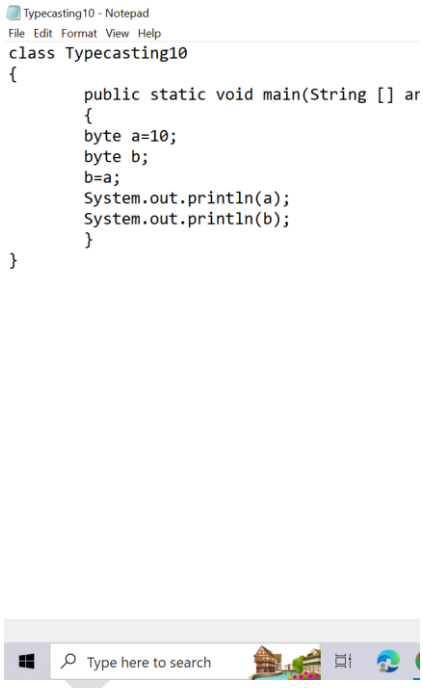
}

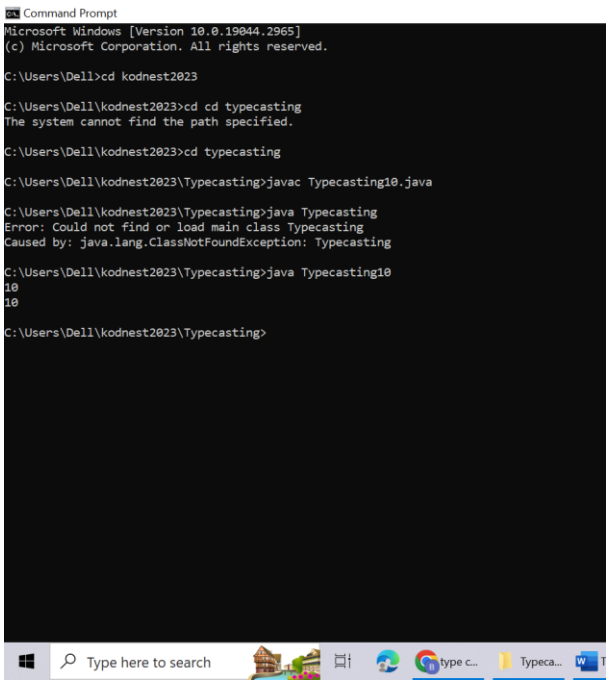
- ✓ Implicit Typecasting - Not Possible
- ✓ Explicit Typecasting – Possible but data loss would occur

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);

}

}
```



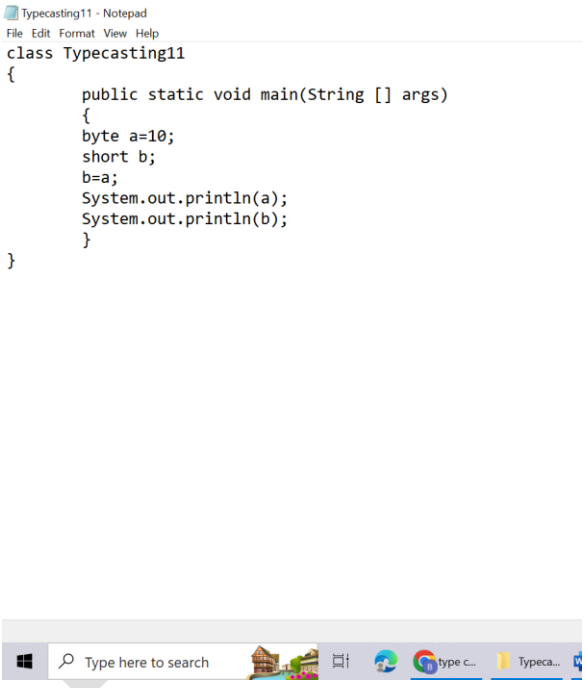


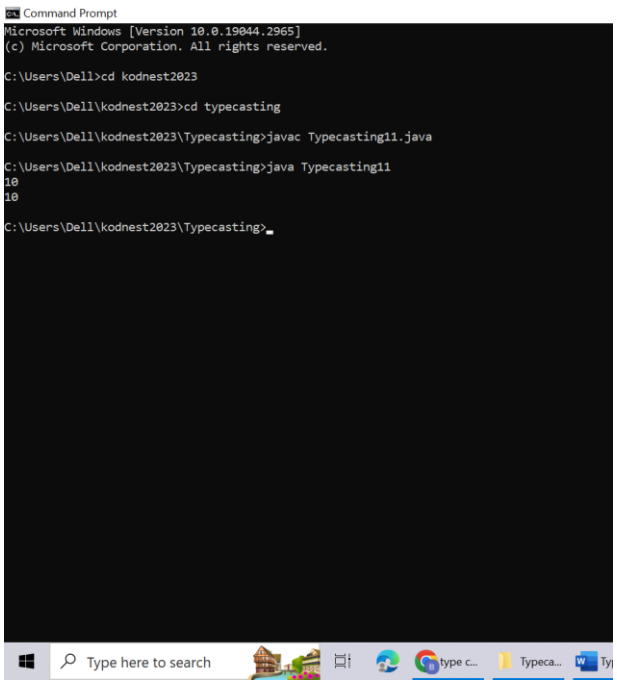
- ✓ Implicit Typecasting - Possible but not required
- ✓ Explicit Typecasting - Possible but not required

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);
}
}
```



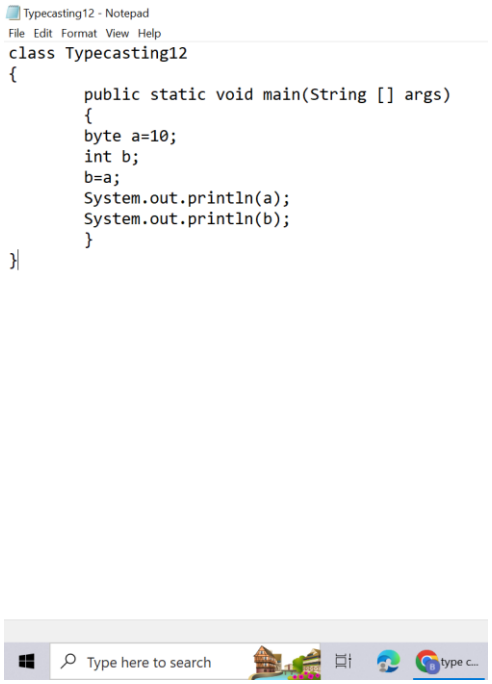


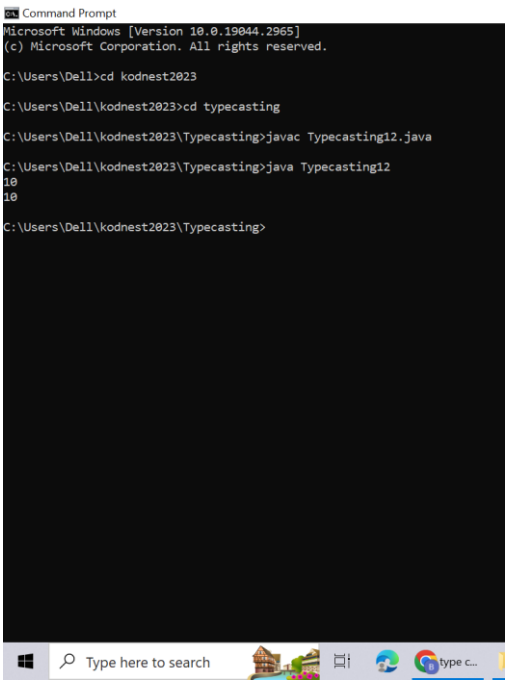
- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

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);

}

}
```



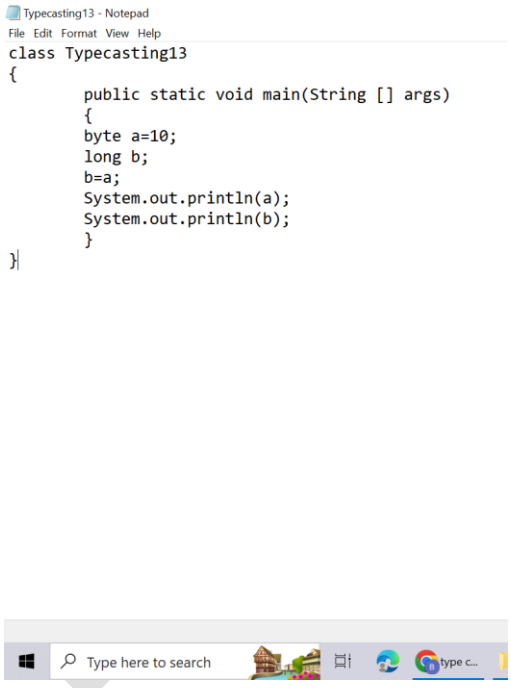


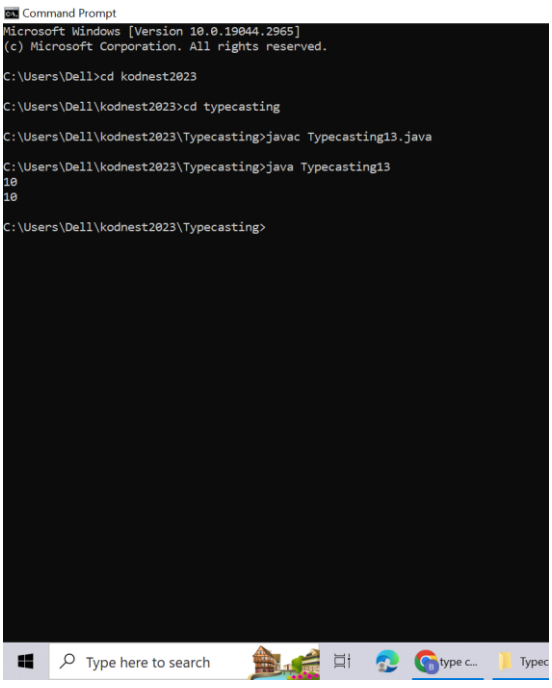
- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting – Possible
- ✓

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);

}

}
```



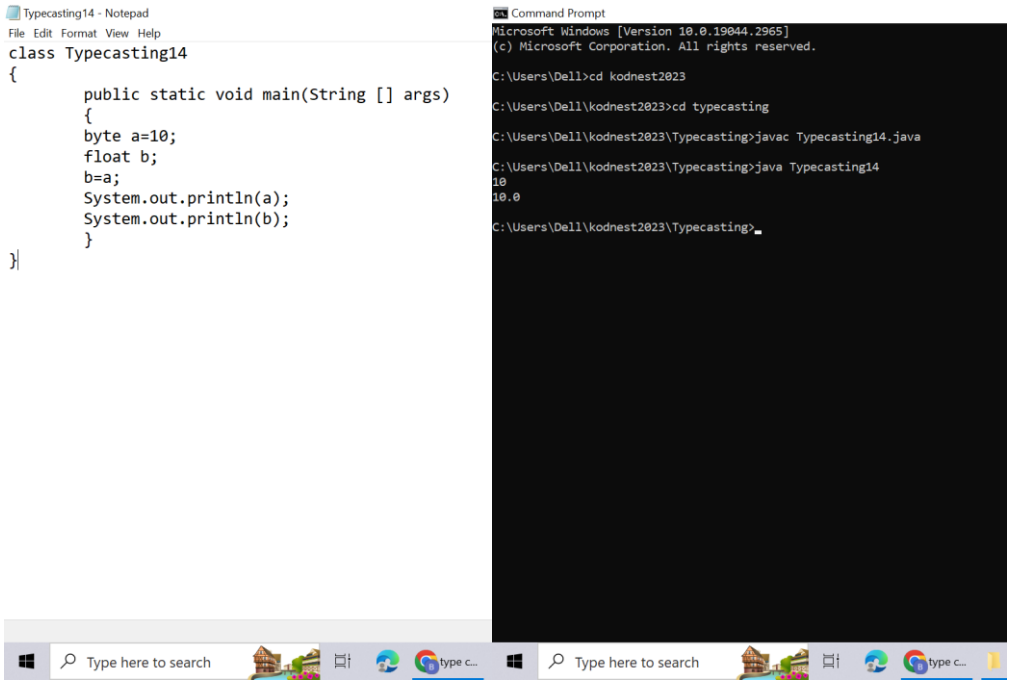


- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

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);

}

}
```

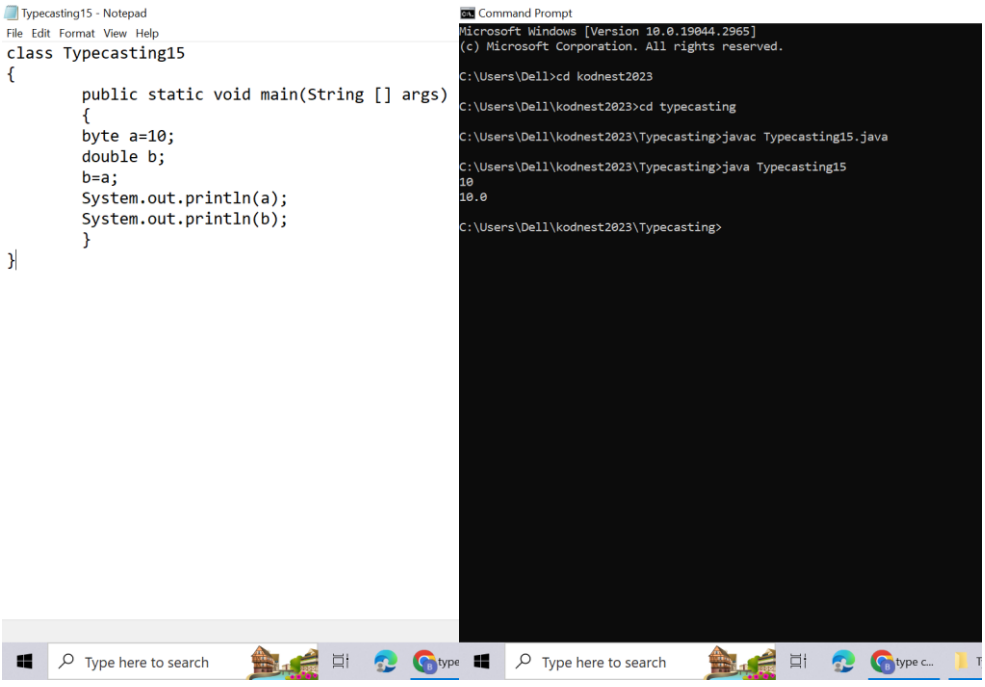


- ✓ Implicit Typecasting - Possible
- ✓ Explicit Typecasting - Possible

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);
}
```



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

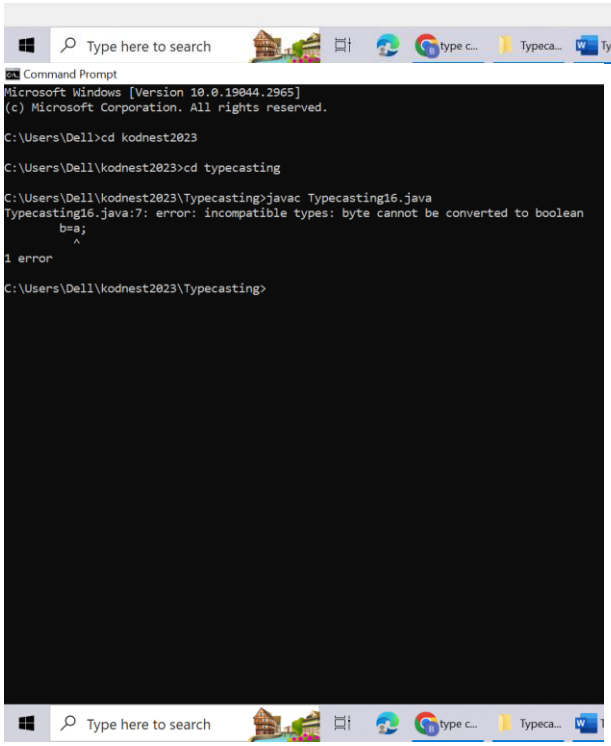
Program 16

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);
        }
}
```




```
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

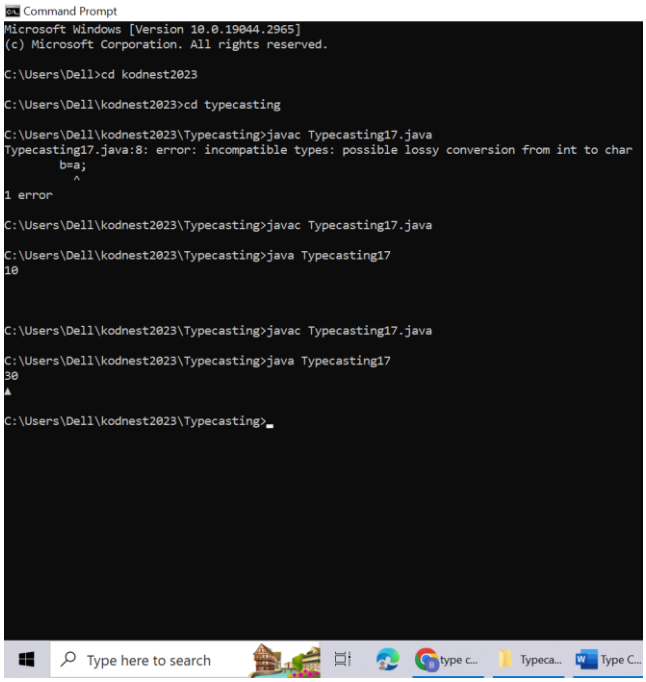
Program 17

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);
        }
}
```



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

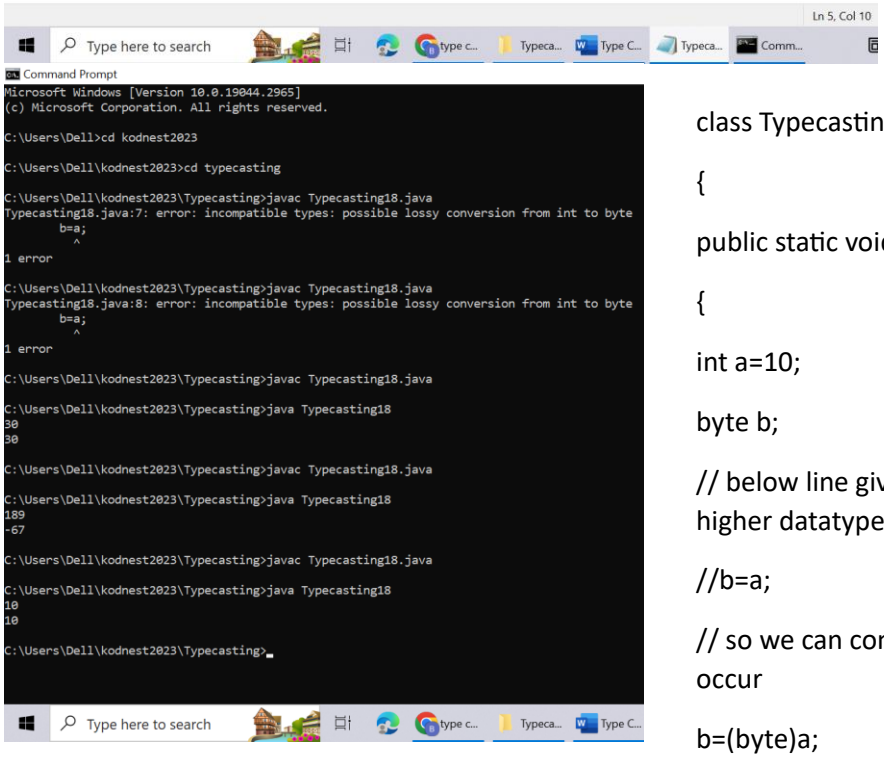
Program 18

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 dataloss would occur
        b=(byte)a;
        System.out.println(a);
        System.out.println(b);
        }
}
```



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 dataloss 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 beacuse 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);
        }
}
```

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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 Typecasting19.java
Typecasting19.java:7: error: incompatible types: possible lossy conversion from int to short
        b=a;
          ^
1 error

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting19.java

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting19
10
10

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting19.java

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting19
32768
-32768

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting19.java

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting19
32868
-32668

C:\Users\Dell\kodnest2023\Typecasting>
C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting19.java

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting19
50
50

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

Type here to search

```
class Typecasting19

{

public static void main(String [] args)

{

int a=50;

short b;

// below line gives error beacuse 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

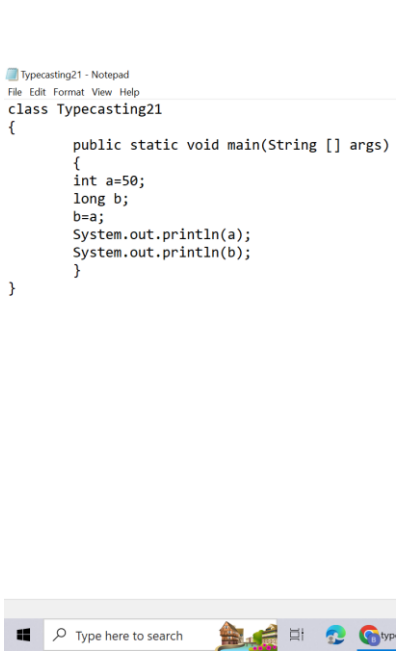
Data of int datatype to int datatype casting:

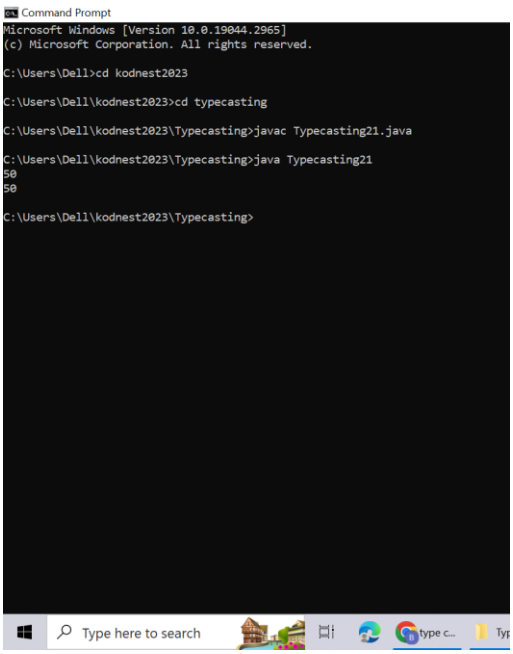
This conversion is not required because the both the datatypes are same.

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);
}
}
```



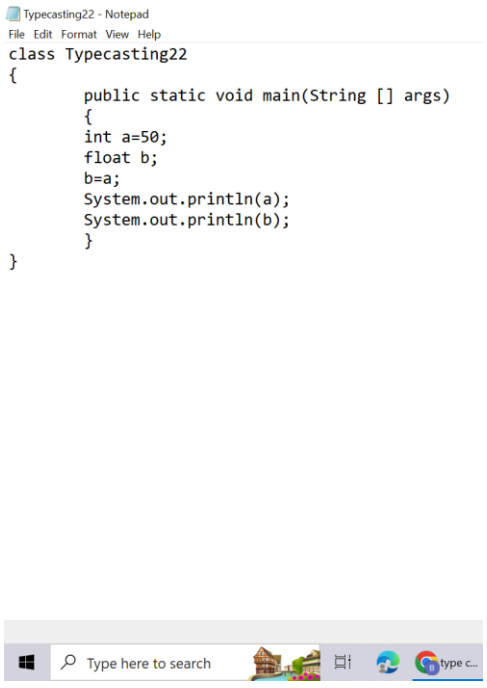


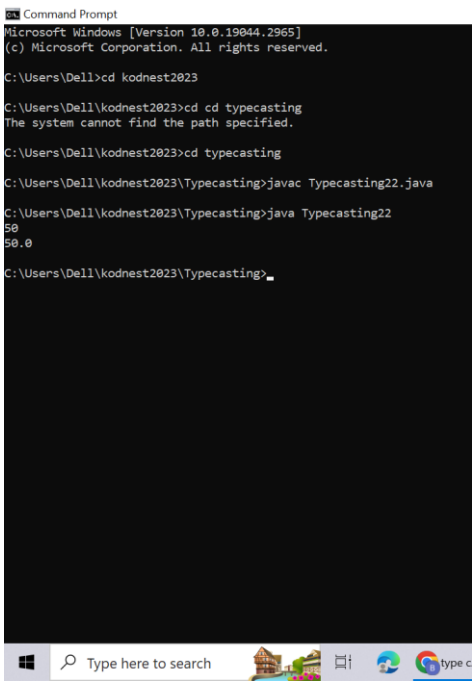
- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

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);

}

}
```



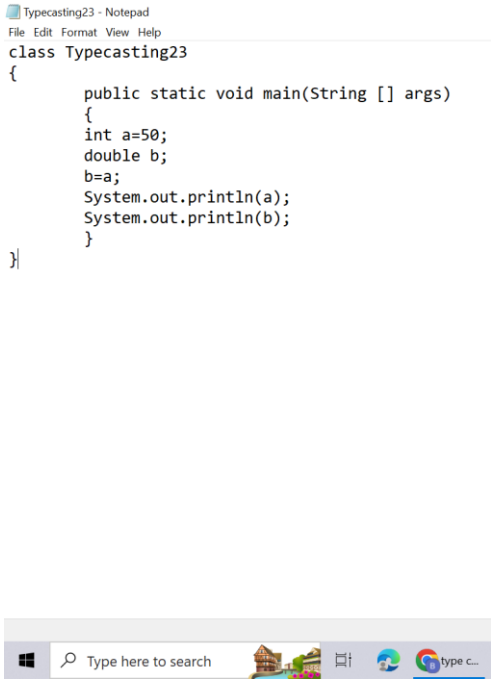


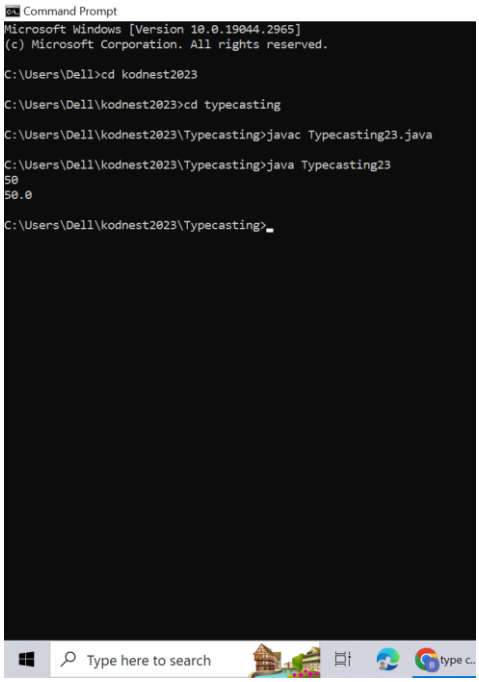
- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

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);
}
}
```



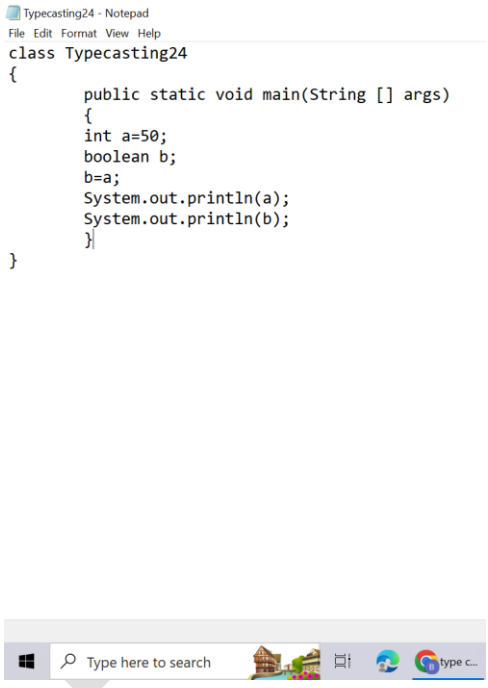


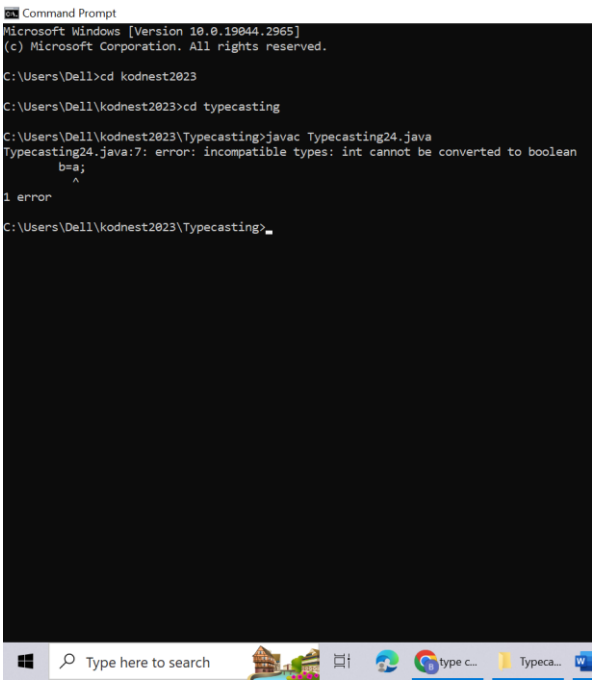
- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

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);

}

}
```



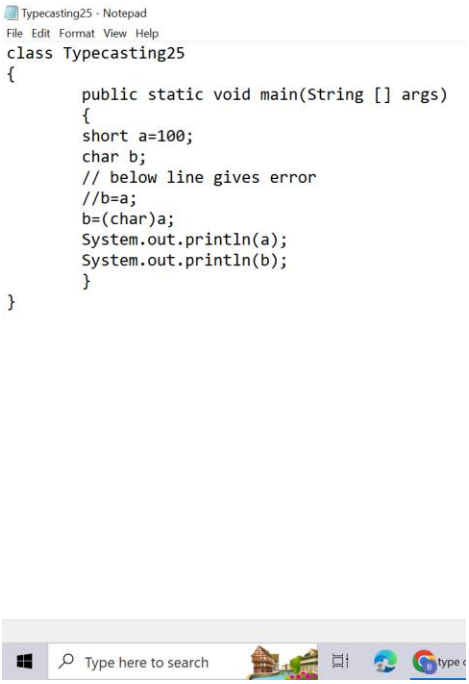


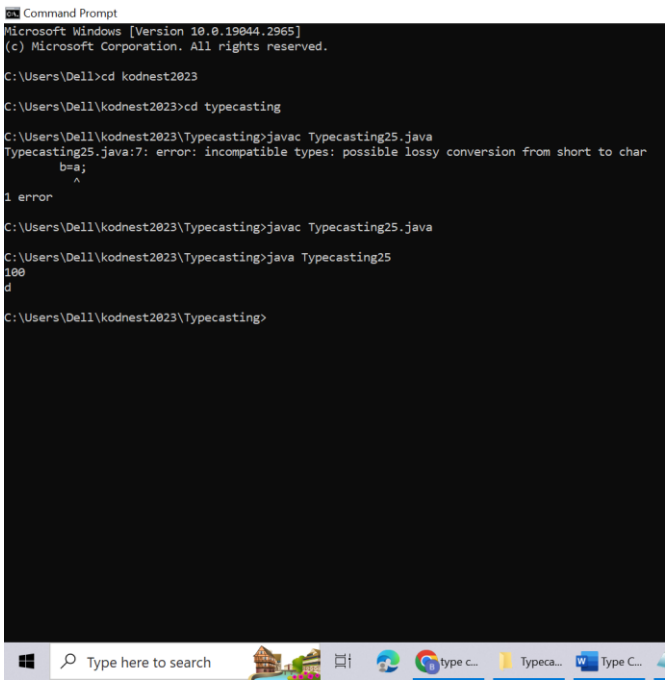
- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Not Possible

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);

}

}
```



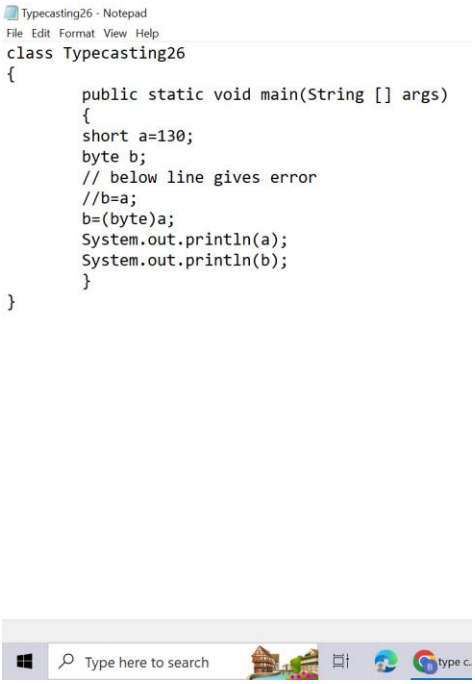


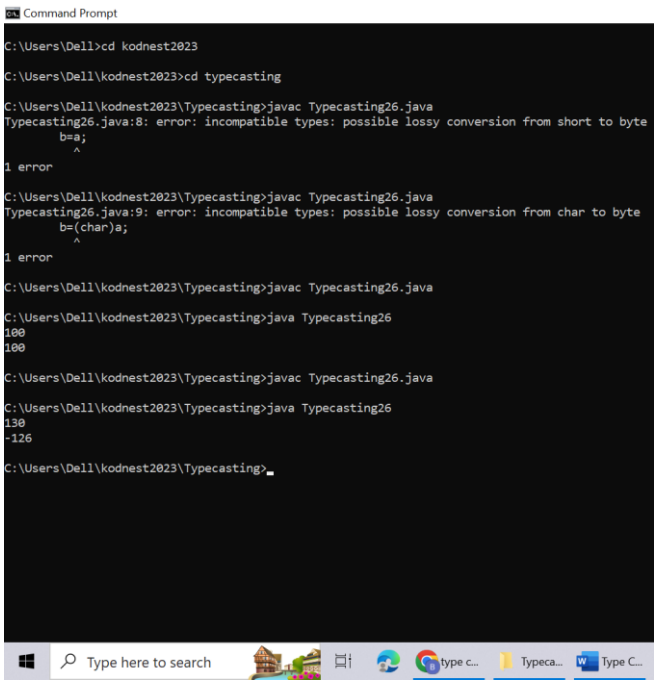
- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but data would loss
- ✓

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);
}
}
```





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

Program 27

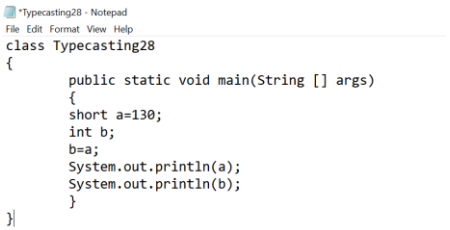
Data of short datatype to short datatype casting:

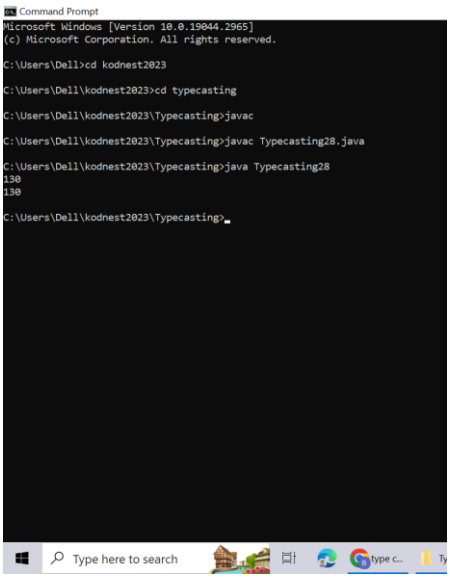
This conversion is not required because the both the datatypes are same.

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);
}
}
```



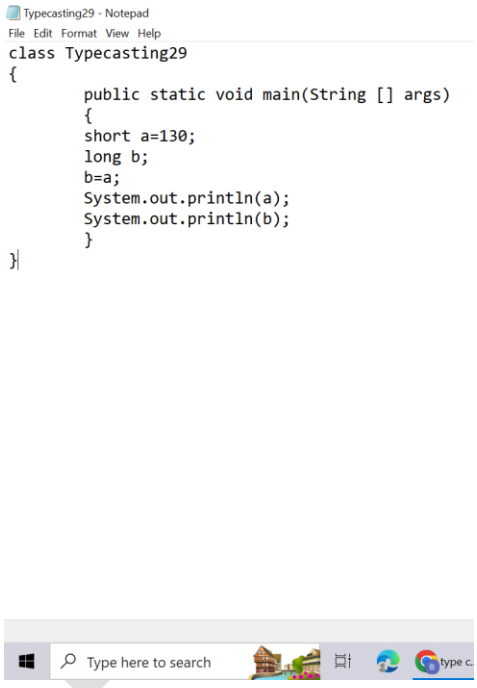


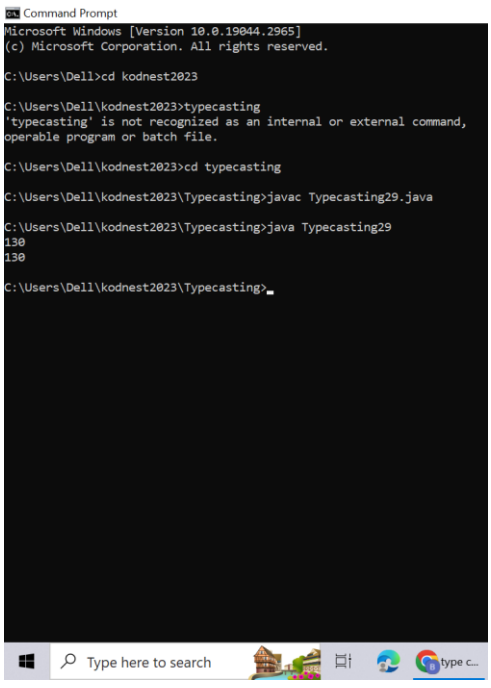
- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

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);

}

}
```



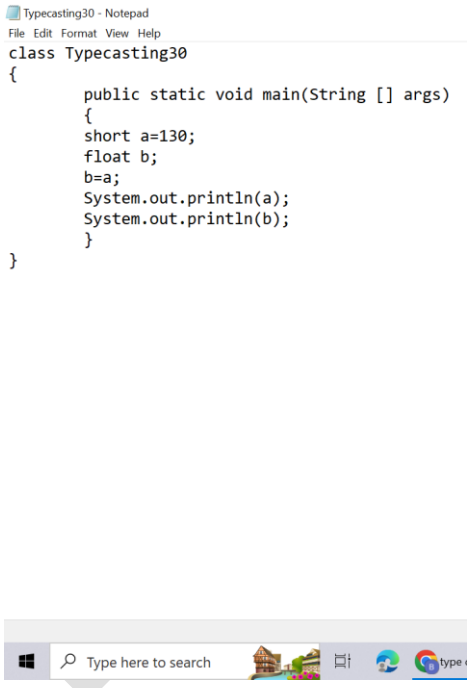


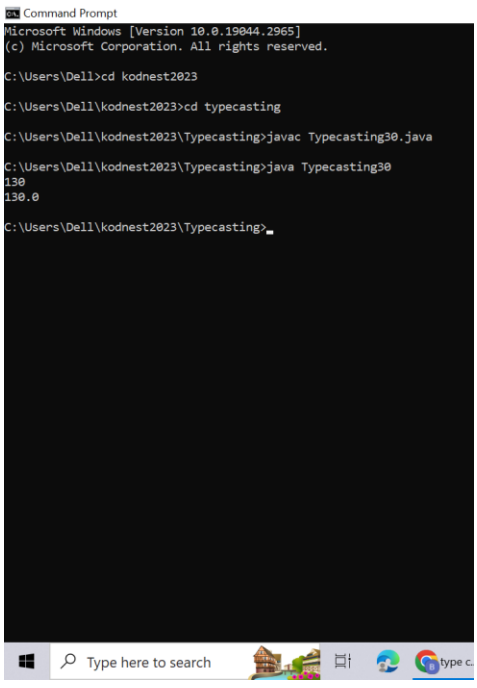
- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

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);
}
}
```



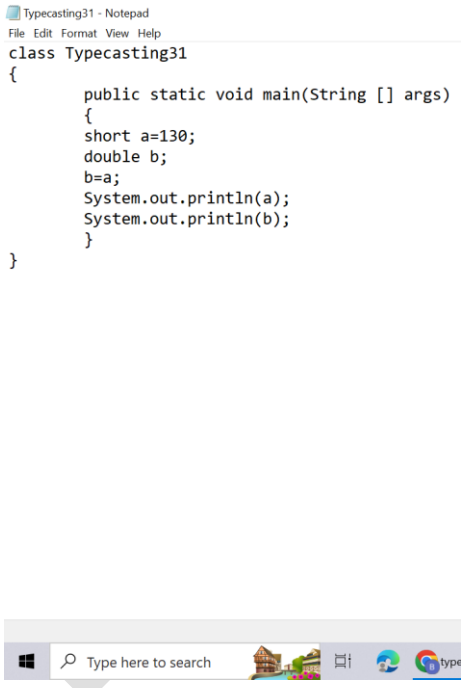


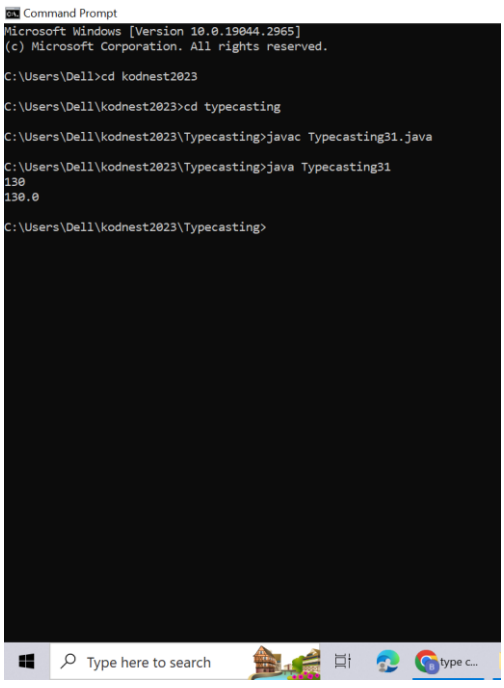
- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

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);

}

}
```



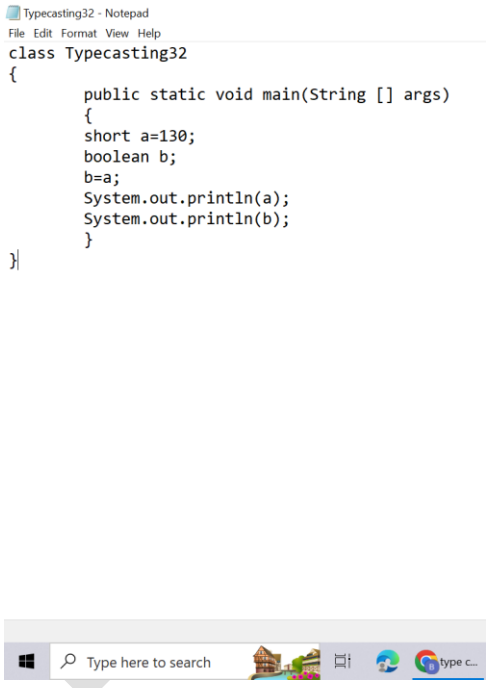


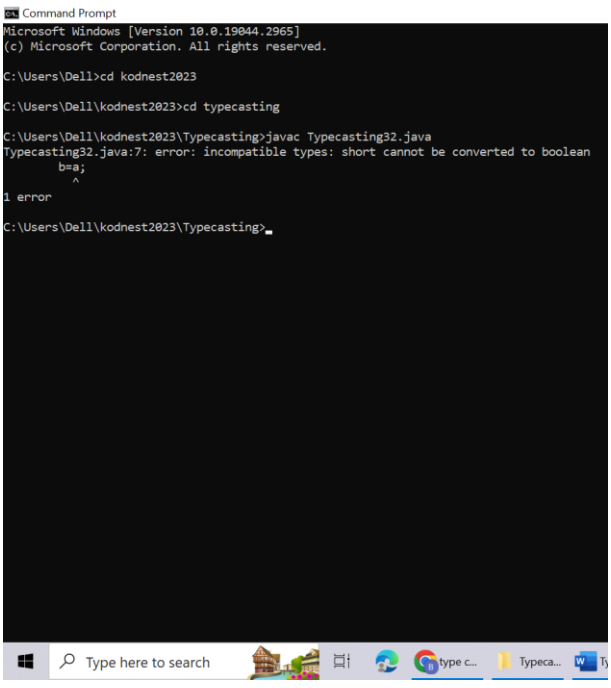
- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

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);

}

}
```





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

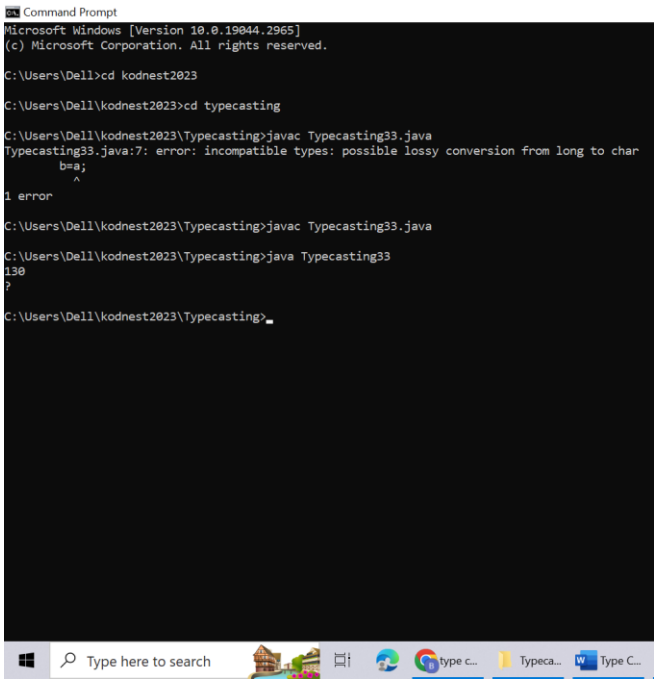
Program 33

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);
        }
}
```

Command Prompt

```
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>javac Typecasting34.java

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=19901;
        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);
        }
}
```

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>java Typecasting35.java
Typecasting35.java:8: error: incompatible types: possible lossy conversion from long to int
        b=a;
          ^
1 error
error: compilation failed

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting35.java

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting35
130
130

C:\Users\Dell\kodnest2023\Typecasting>javac Typecasting35.java

C:\Users\Dell\kodnest2023\Typecasting>java Typecasting35
1990
1990

C:\Users\Dell\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

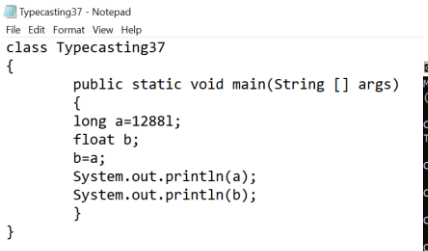
Data of long datatype to long datatype casting:

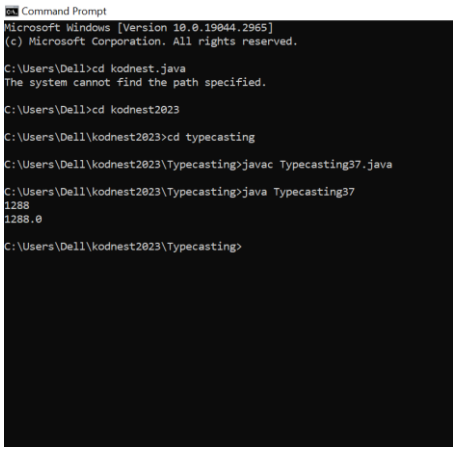
This conversion is not required because the both the datatypes are same.

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);
}
}
```



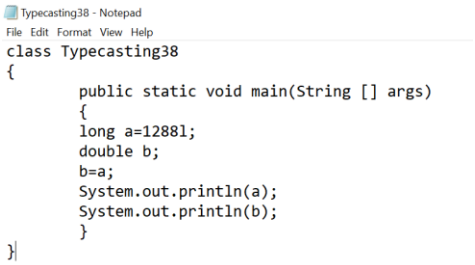


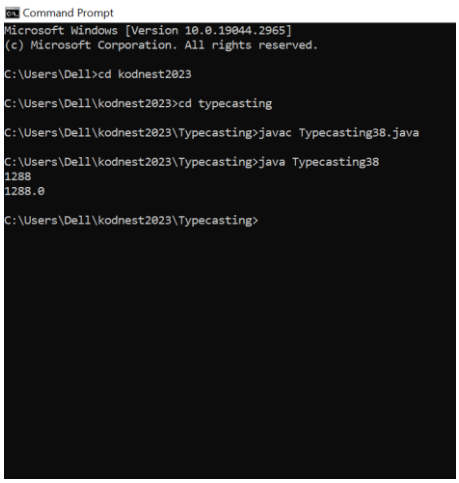
- ✓ Implicit Typecasting – Possible
- ✓ Explicit Typecasting – Possible

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);

}

}
```





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

Program 38

Data of long datatype to boolean datatype casting:

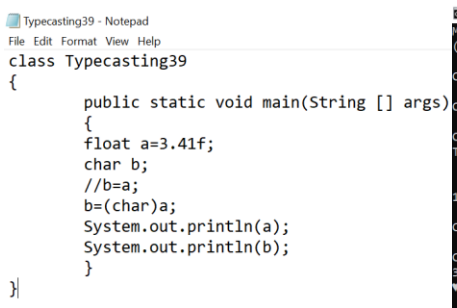
Implicit Typecasting – Not Possible

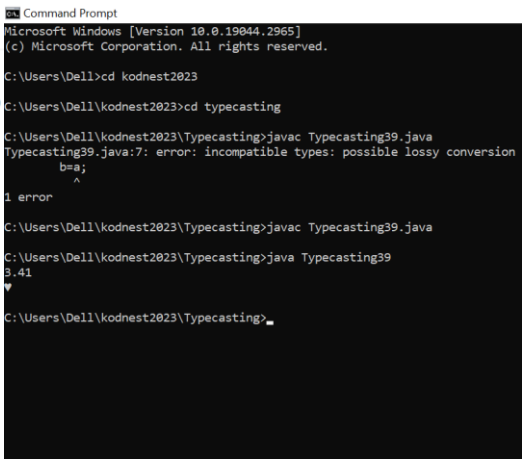
Explicit Typecasting – Not Possible

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);
	}
}
```





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 dataype
//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>javac Typecasting40.java

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

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

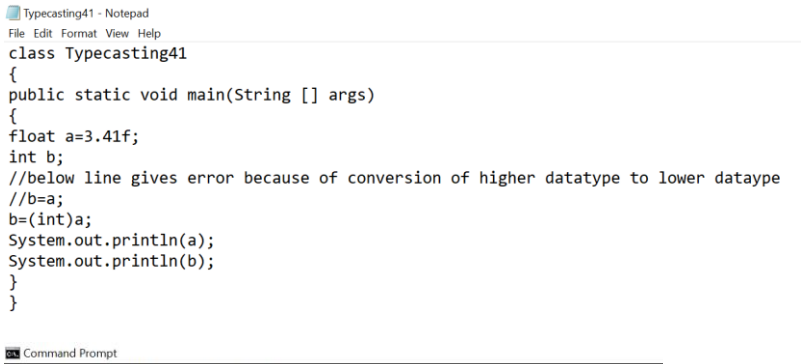
```
class Typecasting40
{
public static void main(String [] args)
{
float a=3.41f;
byte b;
//below line gives error because of conversion of higher datatype to lower dataype
//b=a;
b=(byte)a;
System.out.println(a);
System.out.println(b);
}
}
```

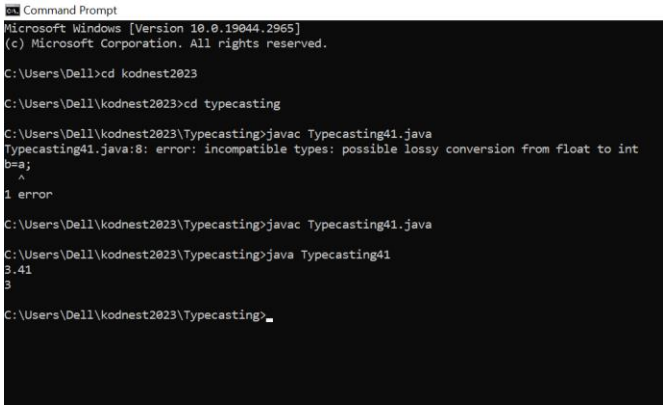
- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible but data loss would occur

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 dataype

//b=a;

b=(int)a;

System.out.println(a);

System.out.println(b);

}

}
```



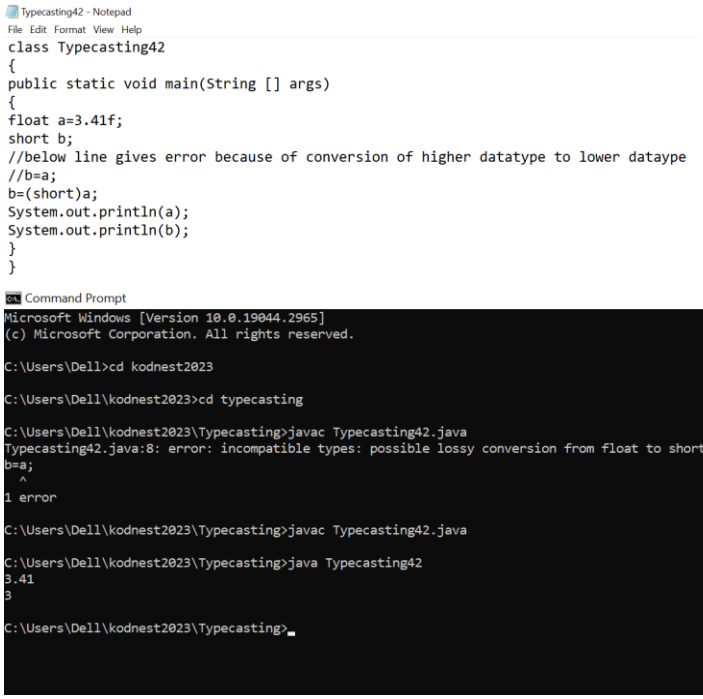


- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

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 dataype

//b=a;

b=(short)a;

System.out.println(a);

System.out.println(b);

}

}
```

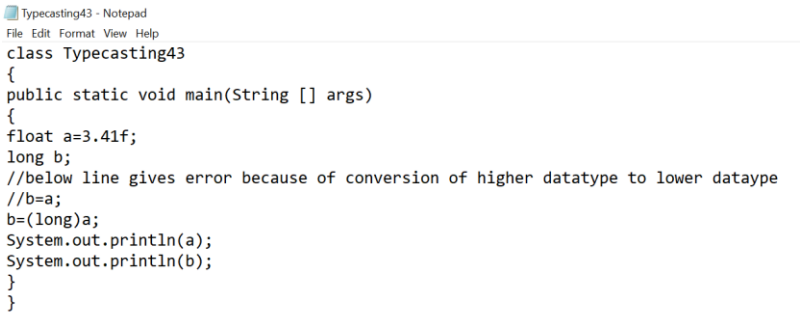


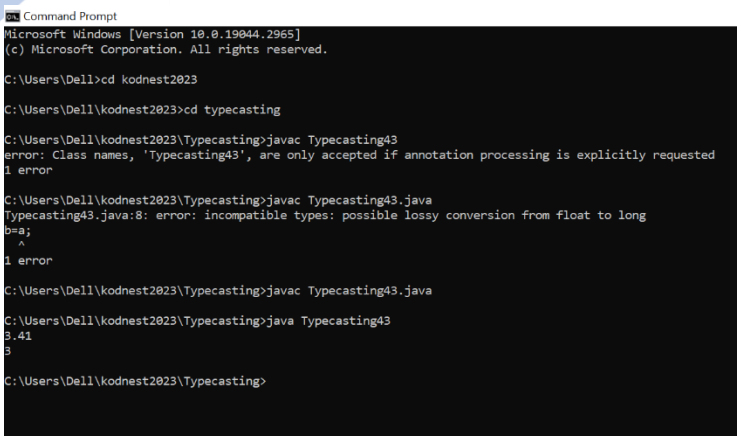
- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

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 dataype
//b=a;
b=(long)a;
System.out.println(a);
System.out.println(b);
}
}
```





- ✓ 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
3.410000858306885

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

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

Program 46

Data of float datatype to doolean datatype casting:

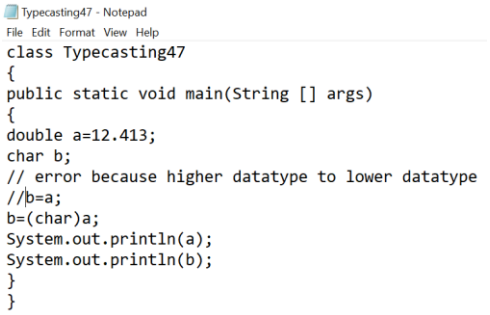
- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Not Possible

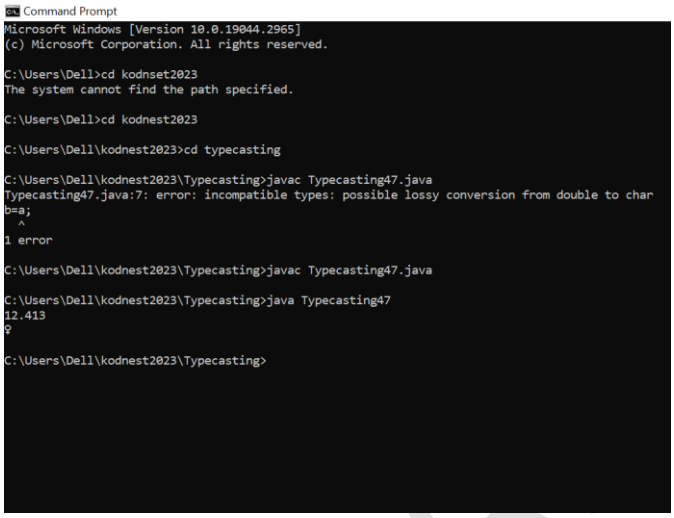
Program 47

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);
}
```

}





- ✓ 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 kondnest2023
The system cannot find the path specified.

C:\Users\Dell>cd kodnest2023

C:\Users\Dell\kodnest2023>cd typecasting

C:\Users\Dell\kodnest2023\Typecasting>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>javac Typecasting48.java

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

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

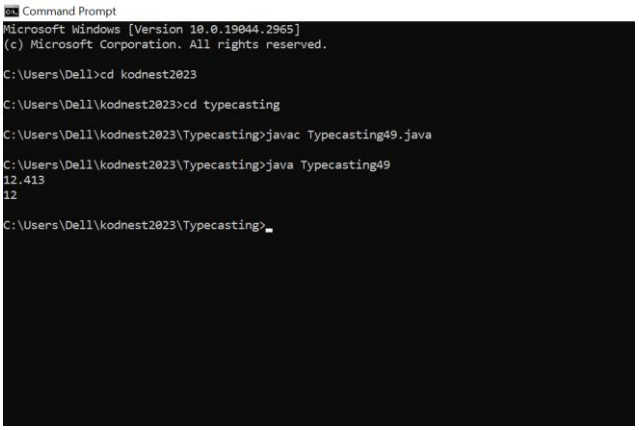
- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

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);
}
}
```

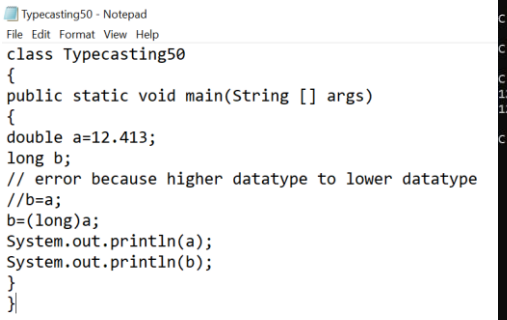


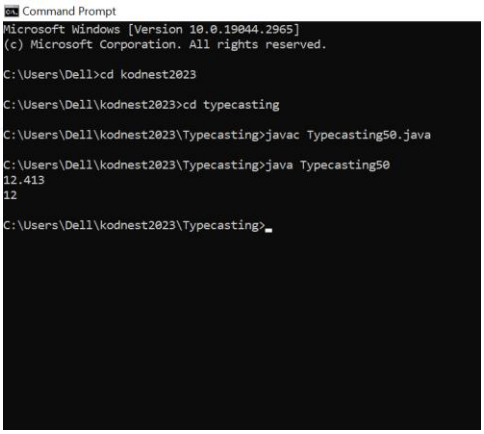
- ✓ Implicit Typecasting – Not Possible
- ✓ Explicit Typecasting – Possible

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);
}
}
```





✓ 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);
}
}
```

Typecasting51 - Notepad

File Edit Format View Help

```
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>cd 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

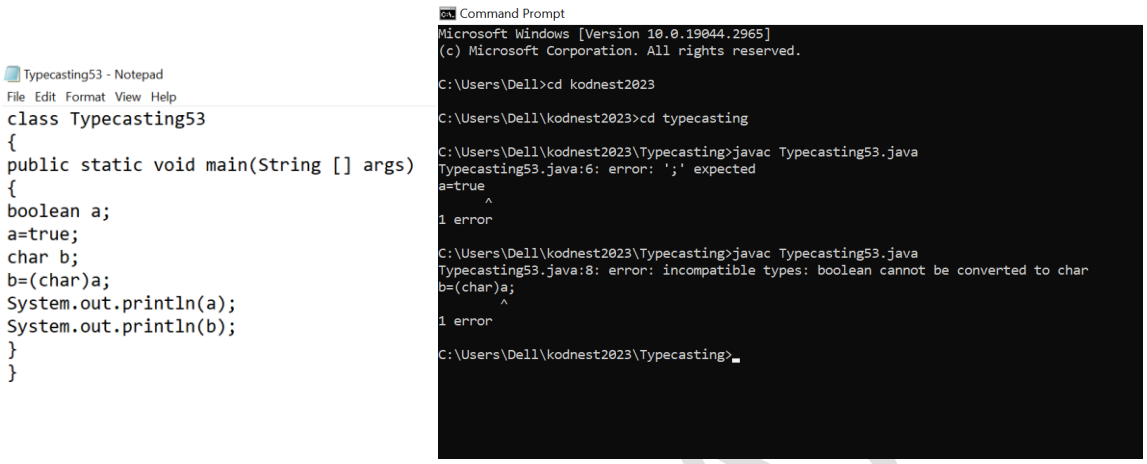
Explicit Typecasting – Not Possible

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);

}

}
```



- ✓ 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:

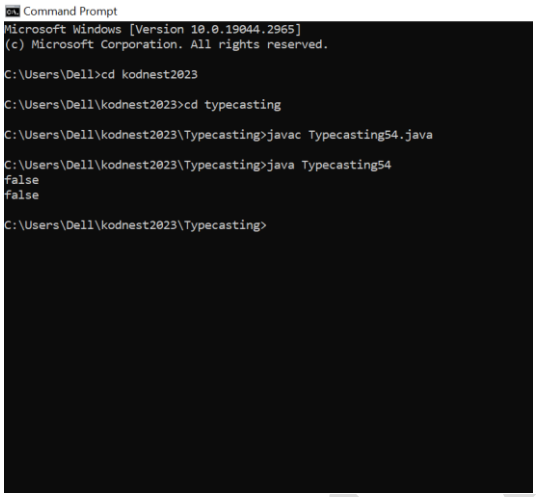
```
class Typecasting54

{

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);
}
}
```



- ✓ 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 Exp	Y Exp	Y Imp	Y Imp	Y Imp	Y Imp	N
byte	Y Exp	CNR	Y Imp	Y Imp	Y Imp	Y Imp	Y Imp	N
short	Y Exp	Y Exp	CNR	Y Imp	Y Imp	Y Imp	Y Imp	N
int	Y Exp	Y Ex	Y Exp	CNR	Y Imp	Y Imp	Y Imp	N
long	Y Exp	Y Exp	Y Exp	Y Exp	CNR	Y Imp	Y Imp	N
float	Y Exp	Y Ex	Y Exp	Y Exp	Y Exp	CNR	Y Imp	N
double	Y Exp	Y Ex	Y Exp	Y Exp	Y Exp	Y Expl	CNR	N
boolean	N	N	N	N	N	N	N	CNR

Y – Yes

N – No

Imp – Implicit

Exp – Explicit

CNR – Conversion Not Required