KODNEST ASSIGNMENT 4

TYPE CASTING

Submitted by

Ragendu V S

Email:ragendhuvs02@gmail.com

TYPE CASTING

Type casting in Java refers to the process of converting a value of one data type into another data type. This is necessary when you want to assign a value of one data type to a variable of another data type, or when you need to perform operations involving different data types.

There are two types of type casting in Java:

Implicit (Automatic) Type Casting:

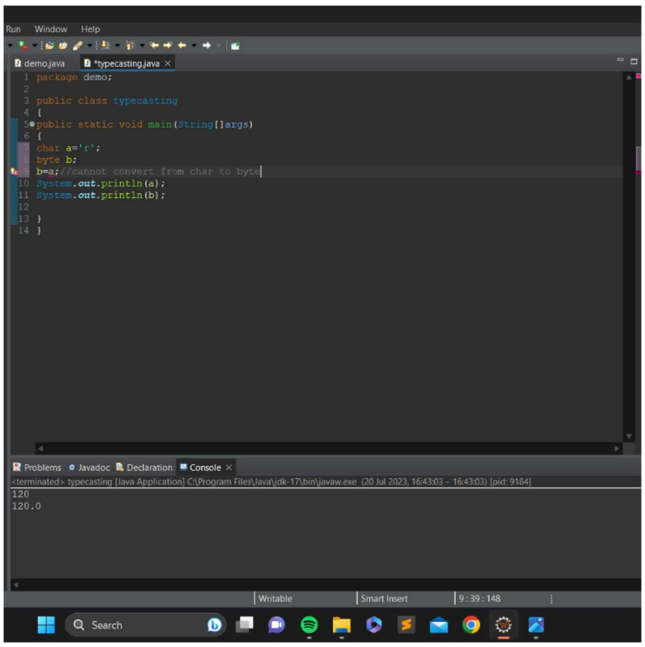
Implicit type casting occurs automatically when a smaller data type is assigned to a larger data type. Java performs this conversion safely, as there is no risk of data loss.

Explicit (Manual) Type Casting:

Explicit type casting, also known as "casting" or "downcasting," is done manually when you want to convert a larger data type into a smaller data type. This operation can potentially lead to data loss if the value being converted exceeds the range of the target data type. You must explicitly specify the target data type in parentheses before the value.

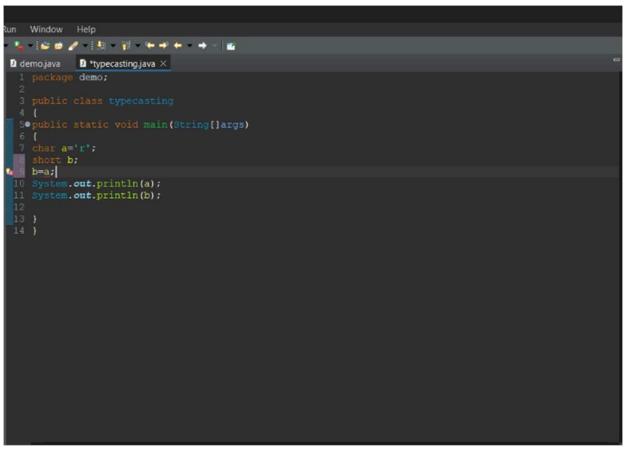
TYPE CONVERSIONS

Char to byte

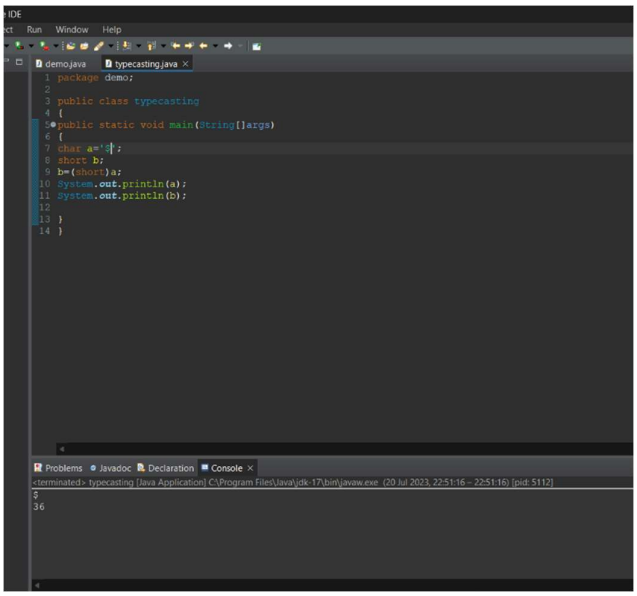


Explicit conversion has to be done when converting from char to byte.

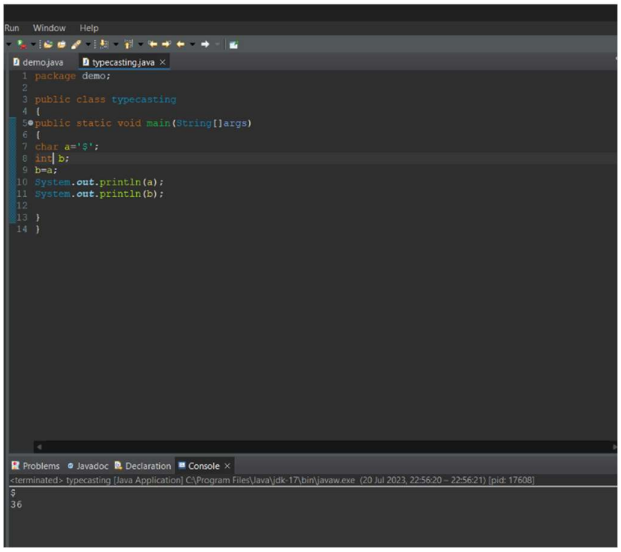
Char to short



Error because explicit type casting should be done.

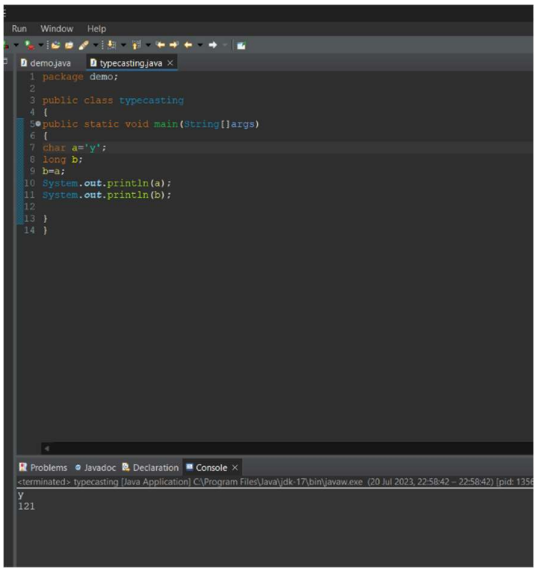


Char to int



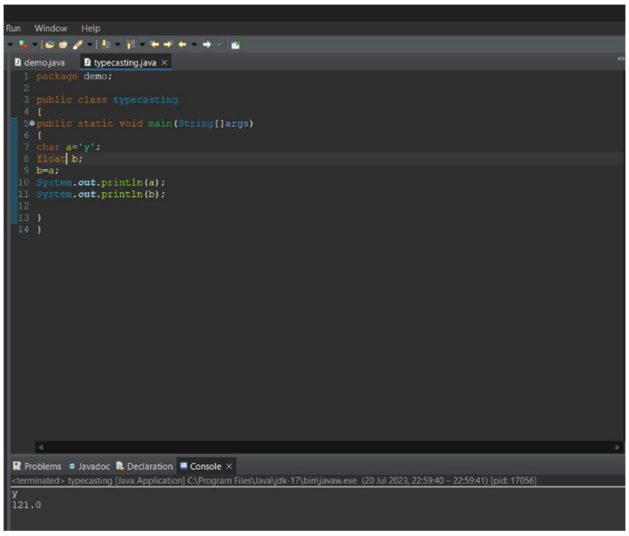
Implicit casting is done.

Char to long



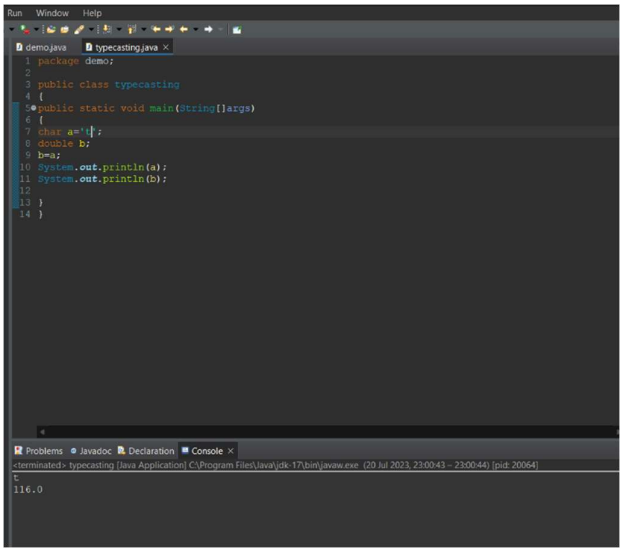
Implicit type casting done.

Char to float



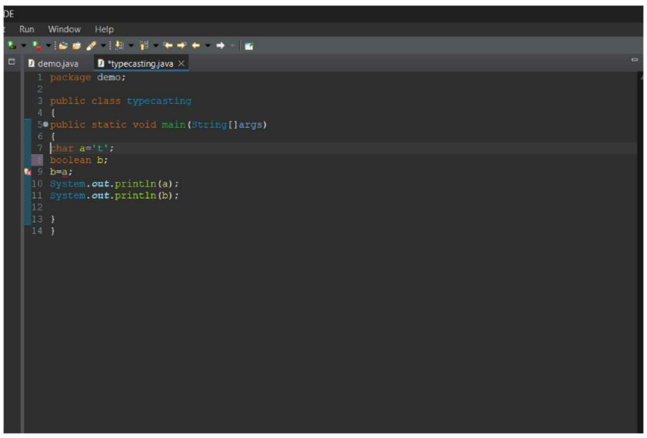
Implicit type casting is done.

Char to double



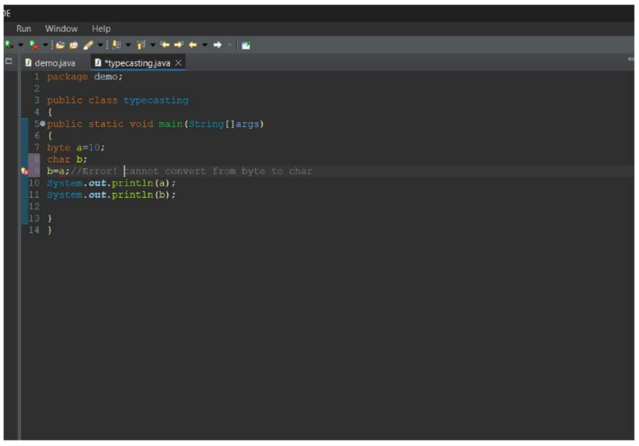
Implicit type casting is done to convert from char to double

Char to Boolean

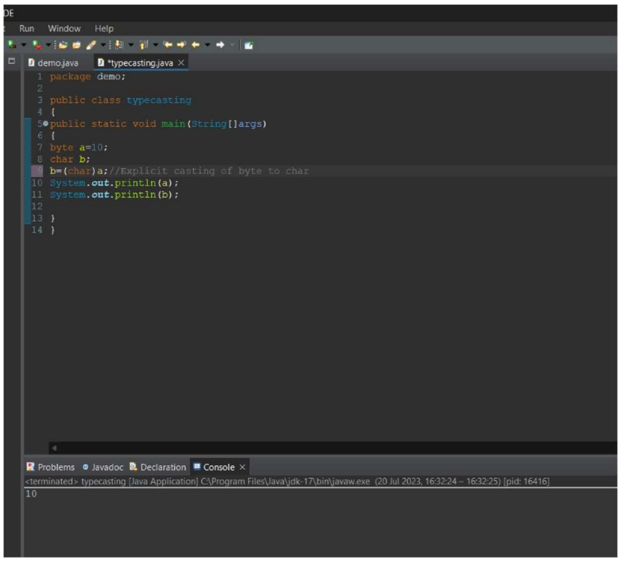


Type casting is Not possible

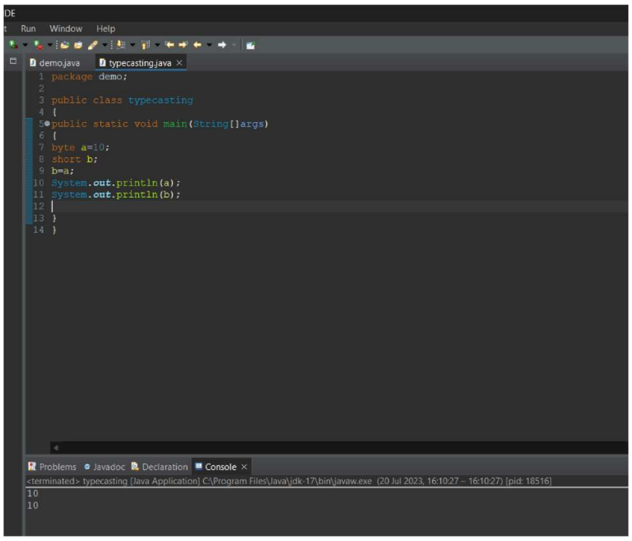
Byte to char



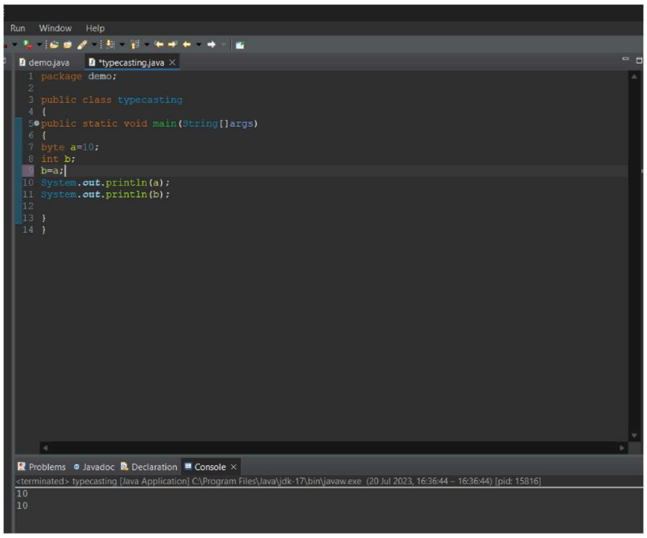
Error because explicit type casting should be done.



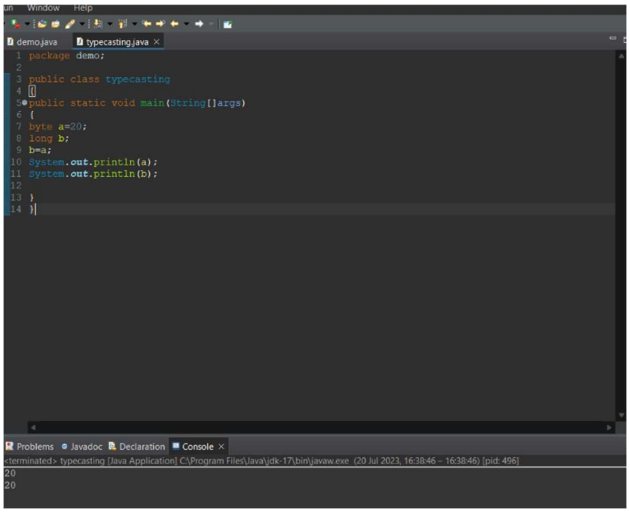
Byte to short



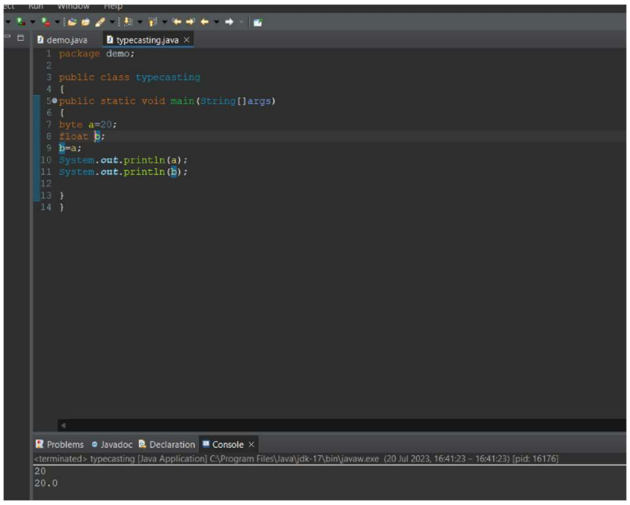
Byte to int



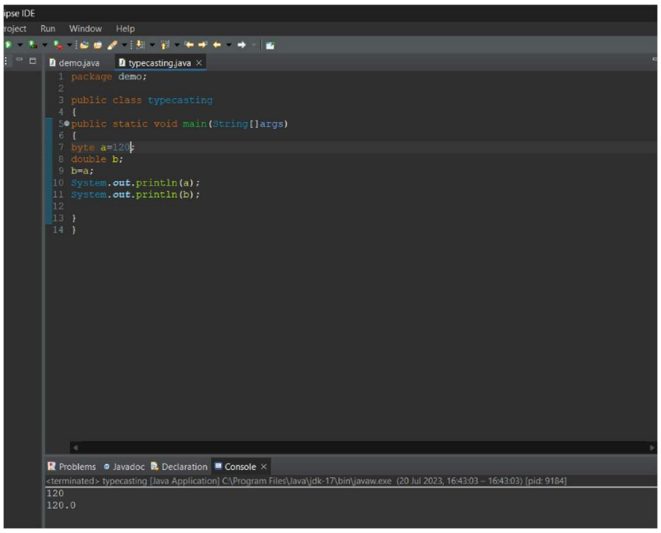
Byte to long



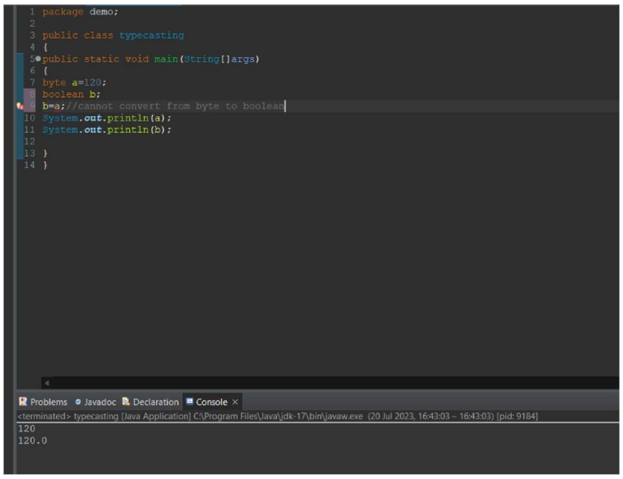
Byte to float



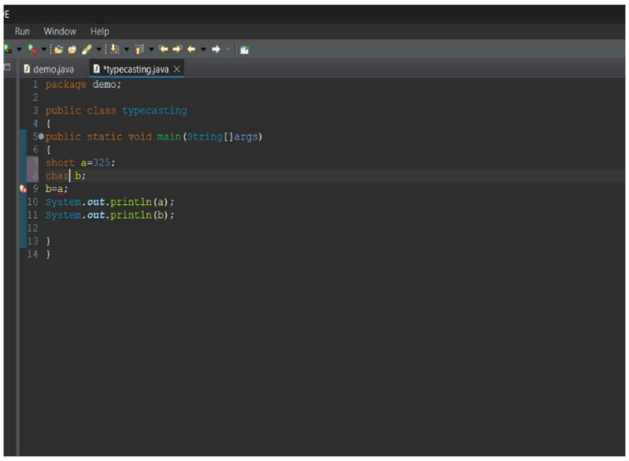
Byte to double



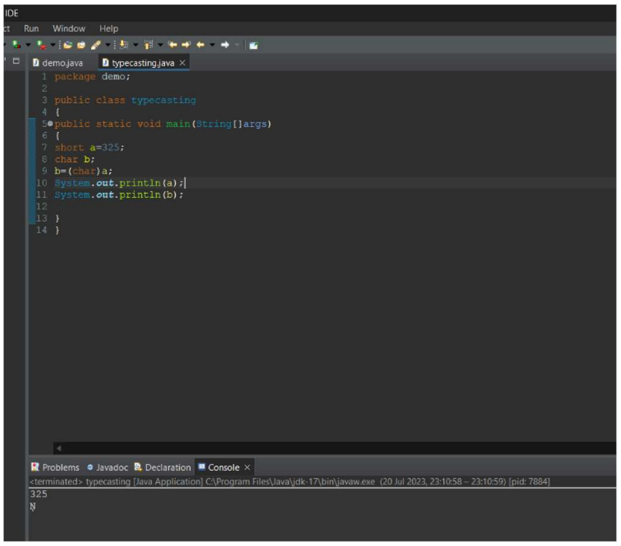
Byte to Boolean



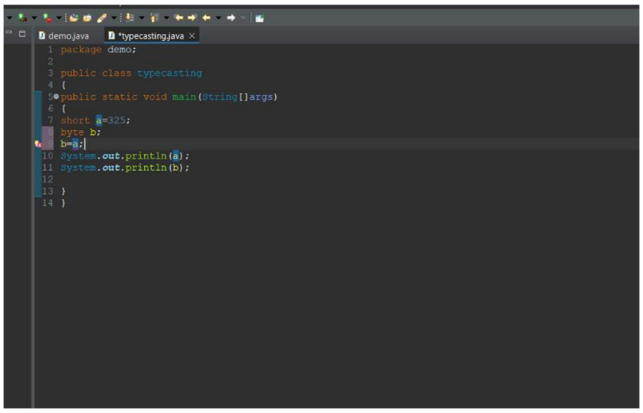
Short to char



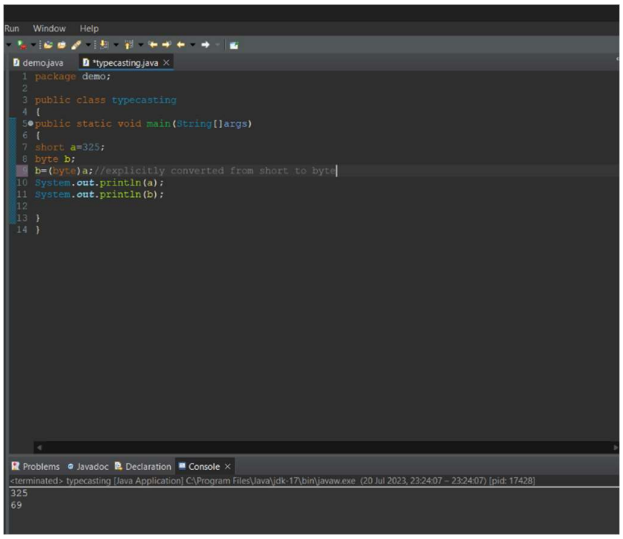
Error



Short to byte



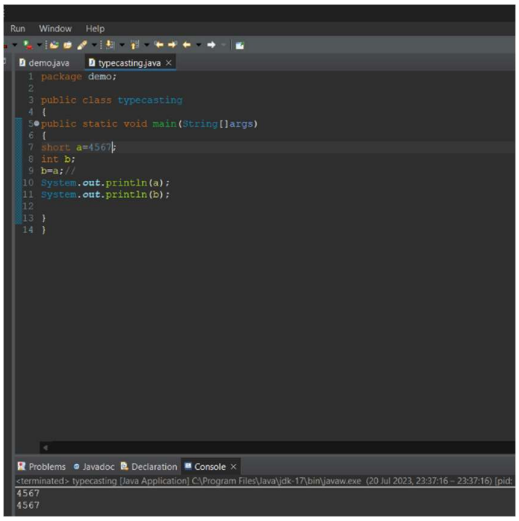
Error



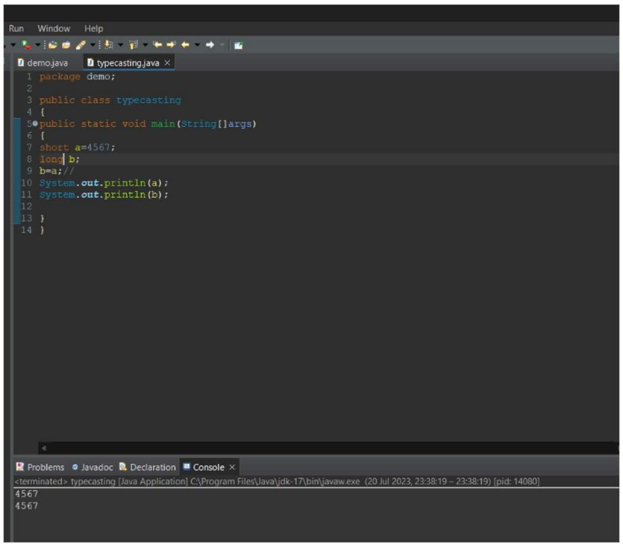
Explicit type casting is done to convert from short to byte

Short to int

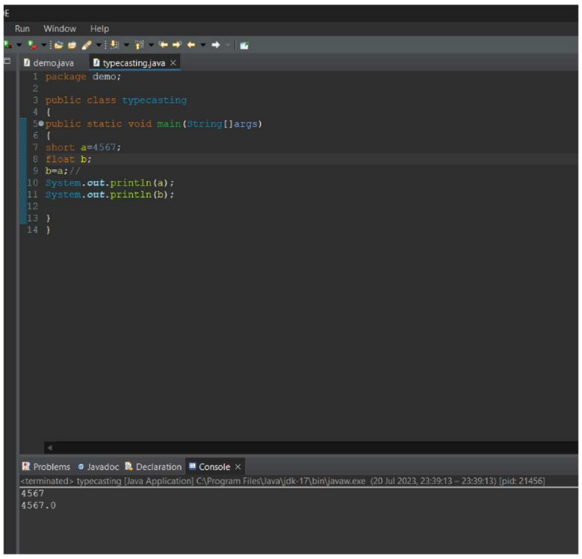
Implicit type casting is done inorder to convert from short to int.



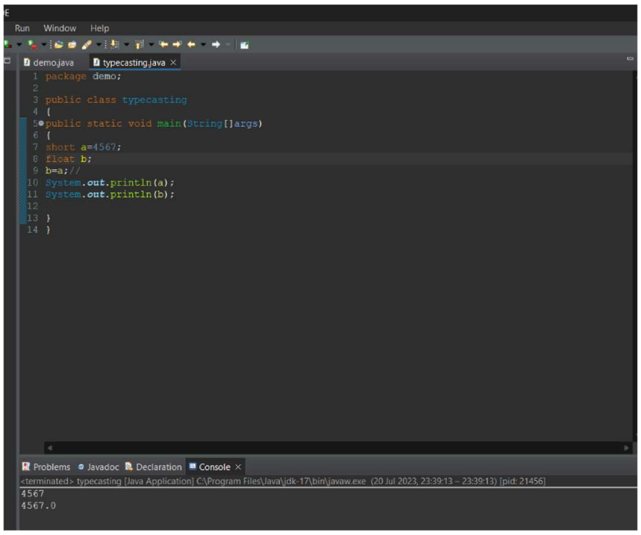
Short to long



Short to float

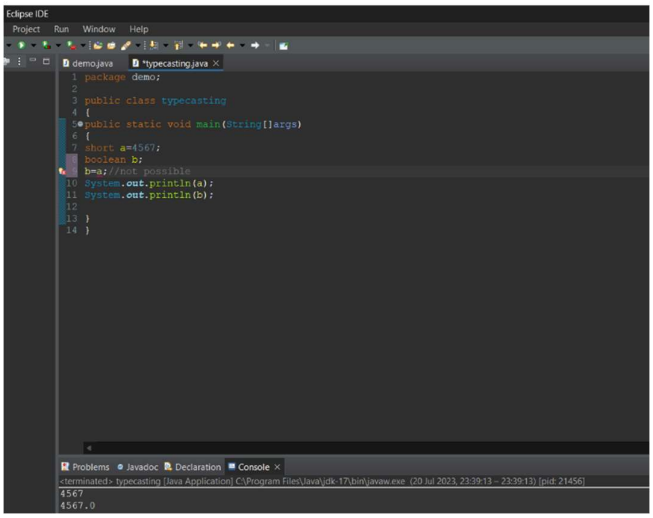


Short to double

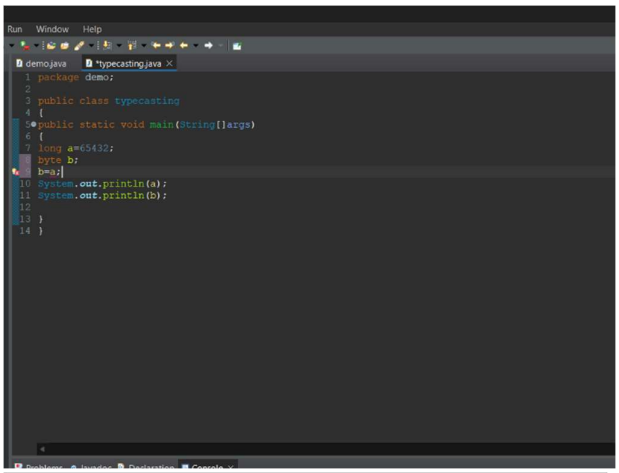


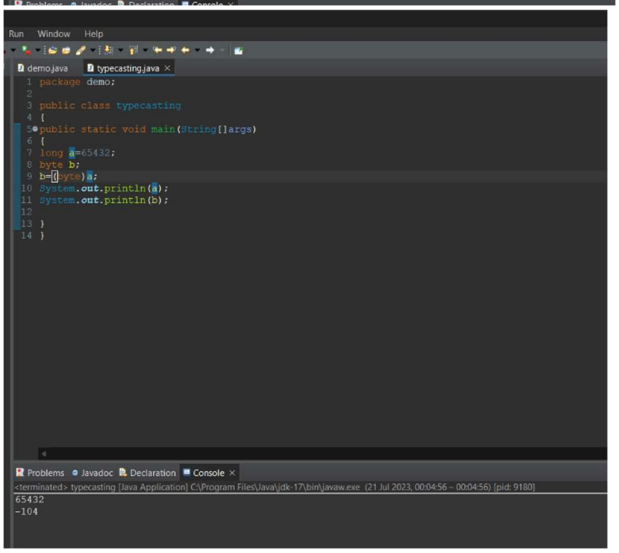
Short to Boolean

Not possible

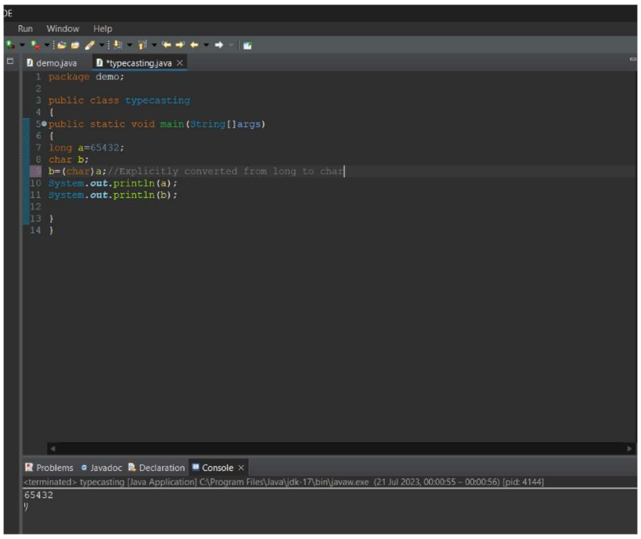

Eclipse IDE
Project Run Window Help
demo.java *typecasting.java
1 package demo;
2
3 public class typecasting
4 {
5 public static void main(String[]args)
6 {
7 short a=4567;
8 boolean b;
9 b=a;//not possible
10 System.out.println(a);
11 System.out.println(b);
12
13 }
14 }
Problems Javadoc Declaration Console
<terminated> typecasting [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20 Jul 2023, 23:39:13 – 23:39:13) [pid: 21456]
4567
4567.0

Long to byte

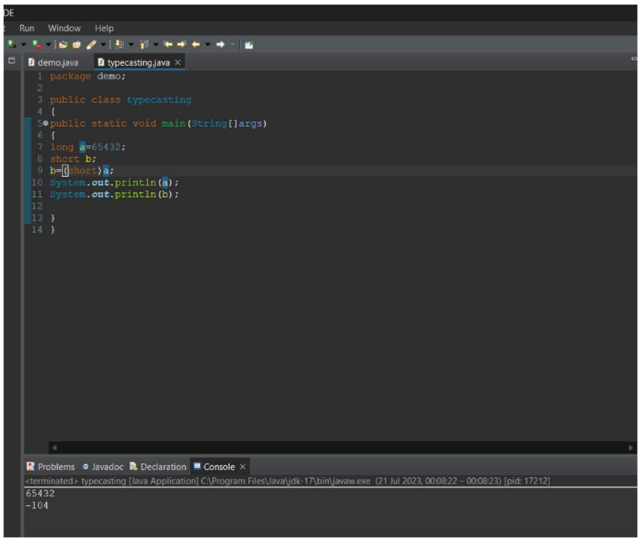

Run Window Help
demo.java *typecasting.java
1 package demo;
2
3 public class typecasting
4 {
5 public static void main(String[]args)
6 {
7 long a=65432;
8 byte b;
9 b=a;
10 System.out.println(a);
11 System.out.println(b);
12
13 }
14 }


Run Window Help
demo.java typecasting.java
1 package demo;
2
3 public class typecasting
4 {
5 public static void main(String[]args)
6 {
7 long a=65432;
8 byte b;
9 b=(byte)a;
10 System.out.println(a);
11 System.out.println(b);
12
13 }
14 }
Problems Javadoc Declaration Console
<terminated> typecasting [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (21 Jul 2023, 00:04:56 – 00:04:56) [pid: 9180]
65432
-104

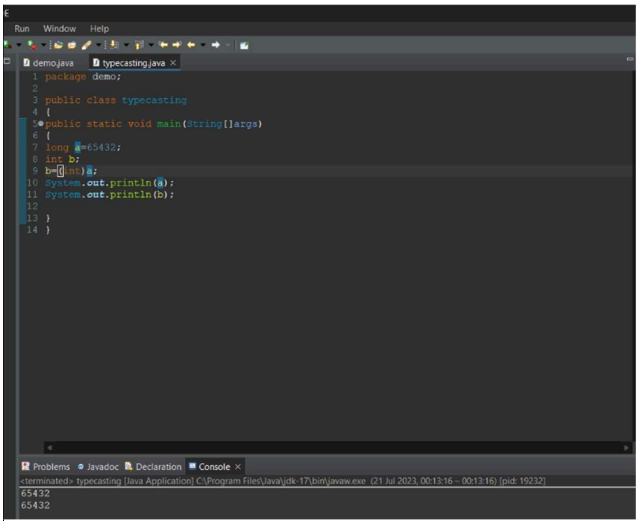
Long to char



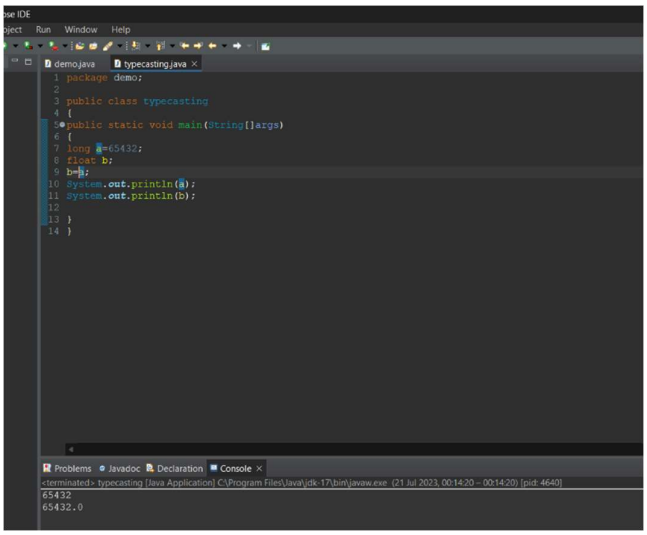
Long to short



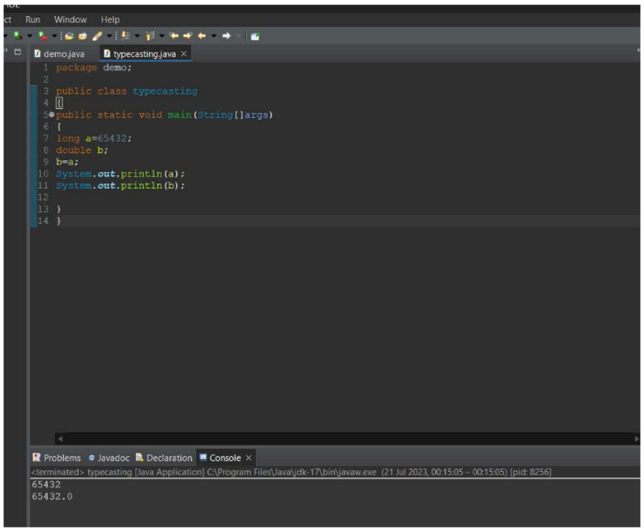
Long to int



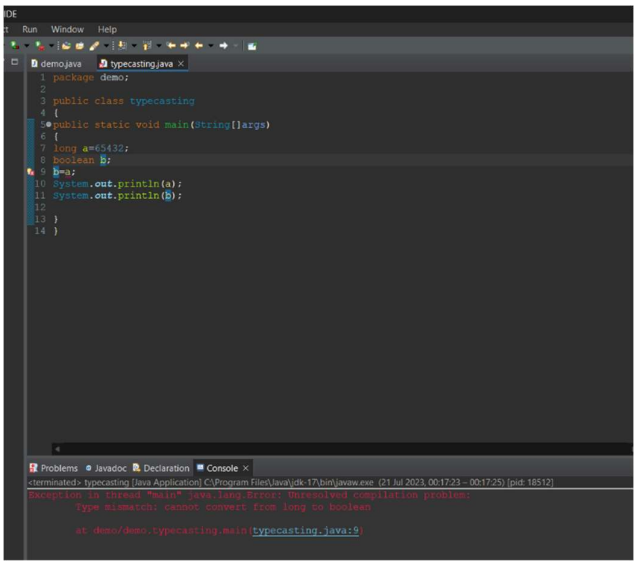
Long to float



Long to double

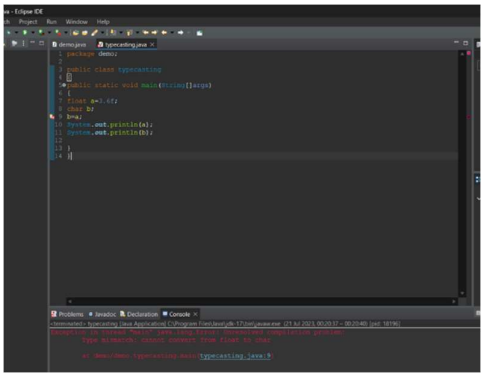


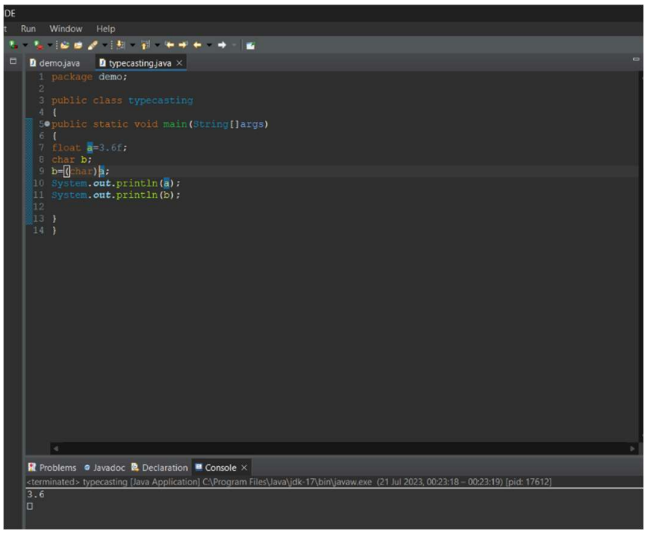
Long to Boolean



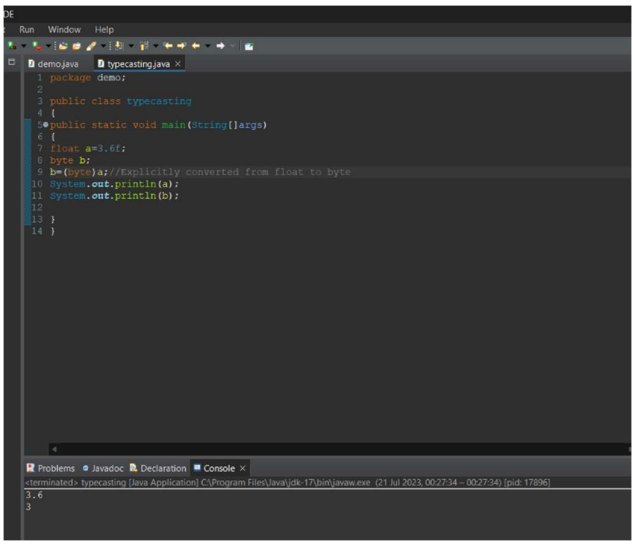
Float to char

Type casting from float to char cannot be done implicitly.

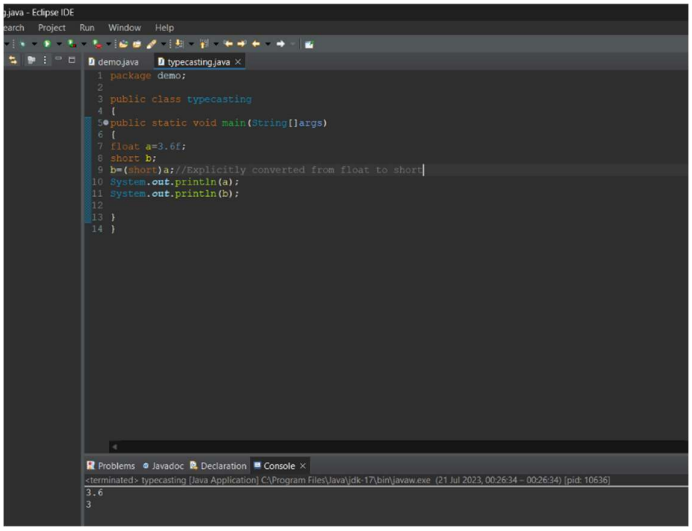




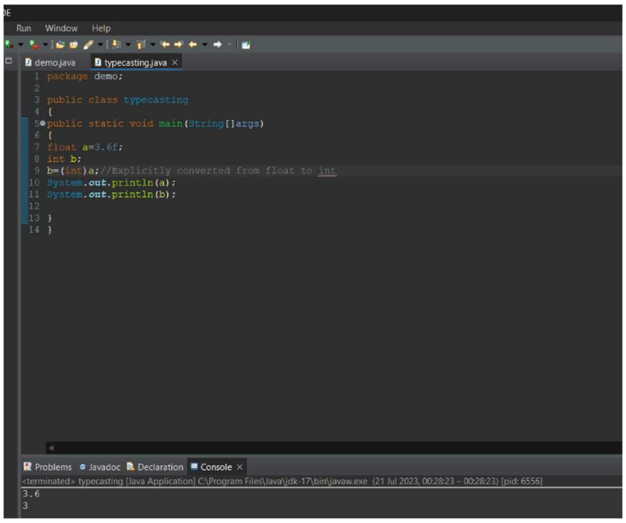
Float to byte



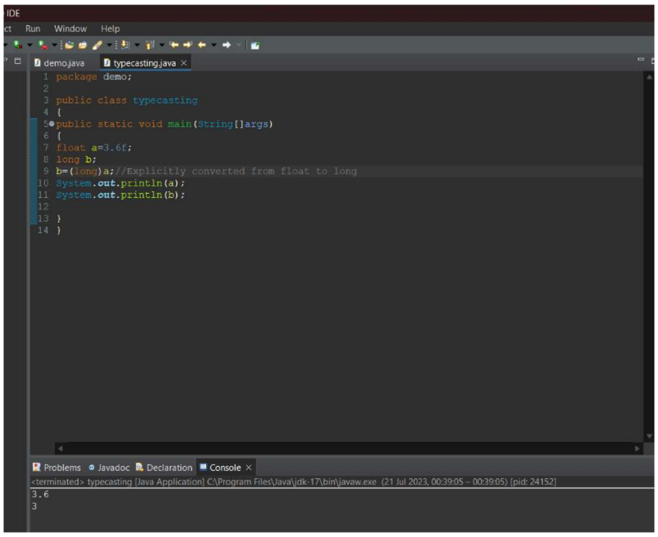
Float to short



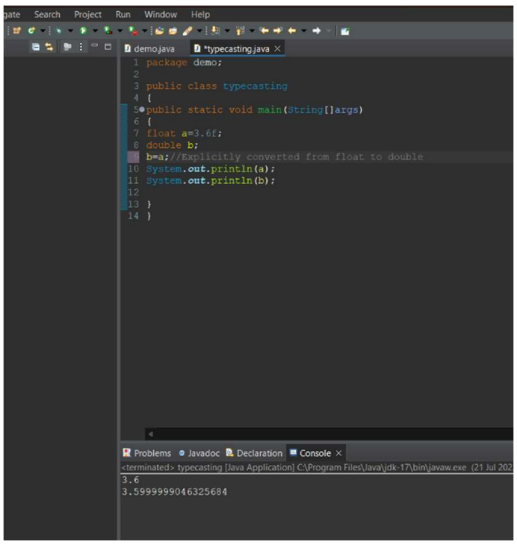
Float to int



Float to long



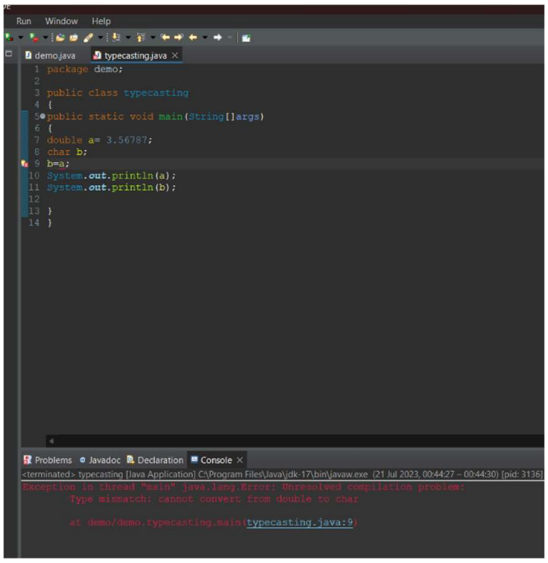
Float to double

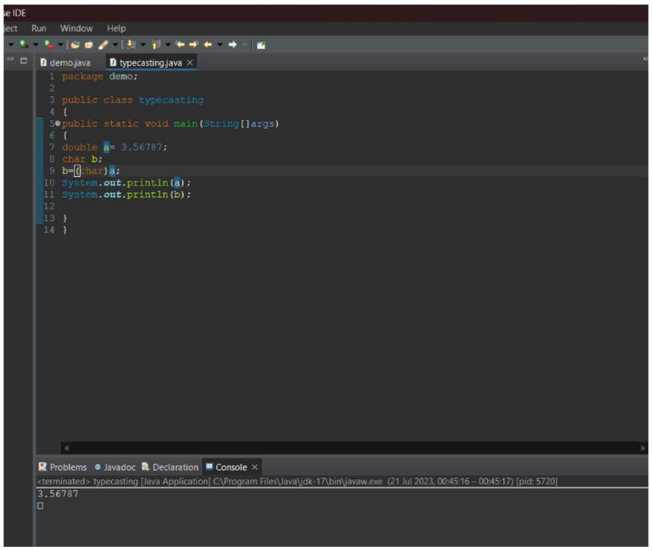


Float to Boolean

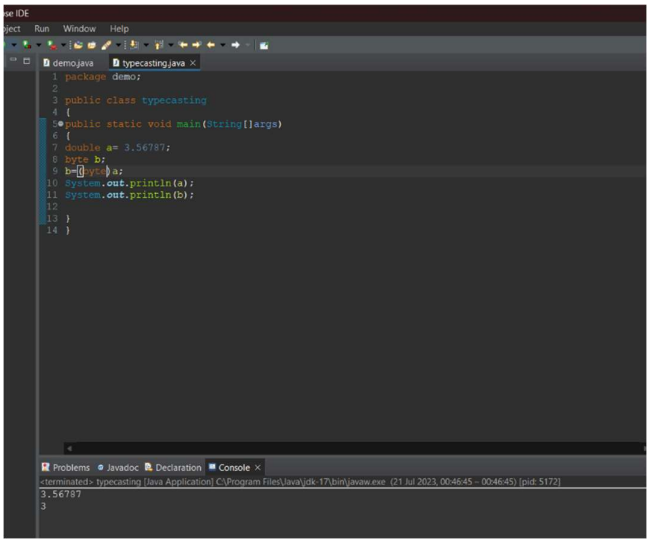
Not possible to convert from float to Boolean.

Double to char

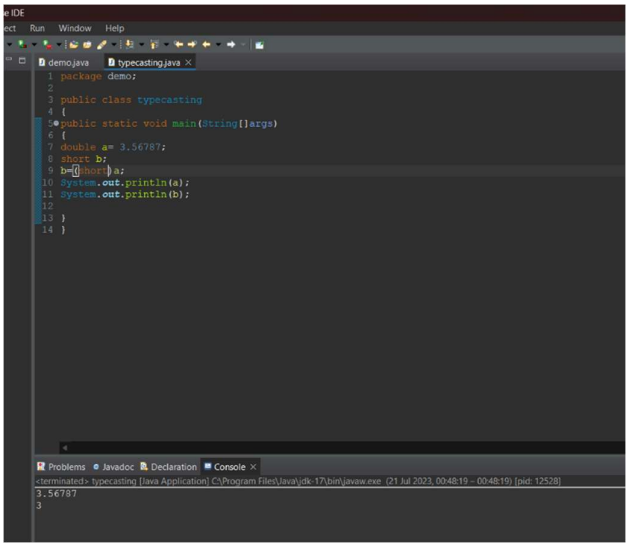




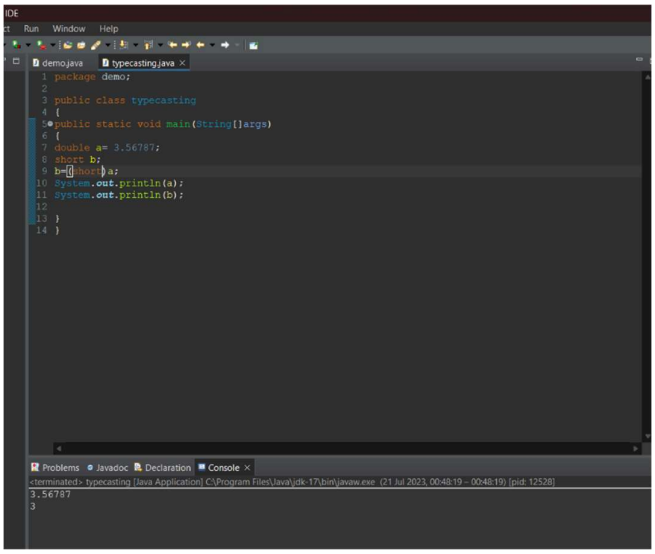
Double to byte



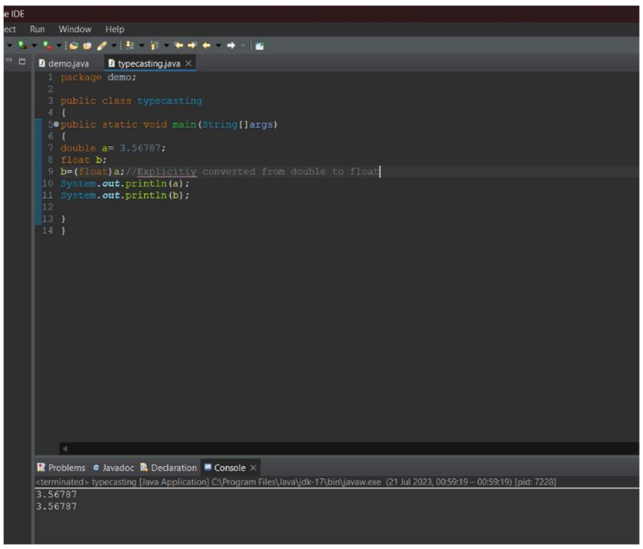
Double to short



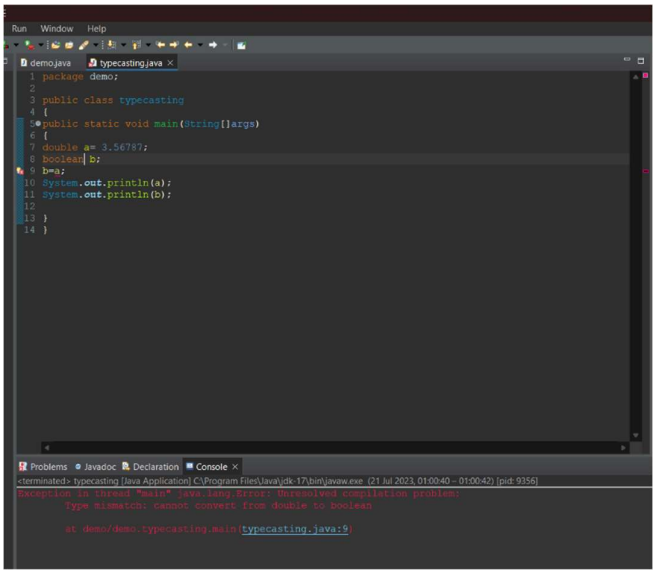
Double to int



Double to float

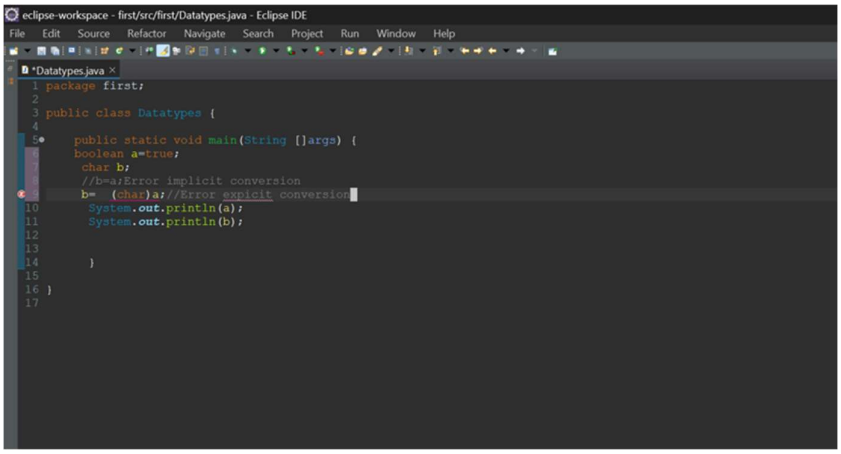


Double to Boolean



It is not possible to convert from double to Boolean.

Boolean to char



Not possible

Boolean to byte

```
package first;

public class Datatypes {

    public static void main(String []args) {
    boolean a=true;
     byte b;
     //b=a;Error implicit conversion
     b=  (byte)a//Error explicit conversion
      System.out.println(a);
      System.out.println(b);



}
```

Boolean to float

```
package first;

public class Datatypes {

    public static void main(String []args) {
    boolean a=true;
       float b;
       b=a;//Error in implicit and explicit conversion
      System.out.println(a);
      System.out.println(b);

    }


}
```

You cannot convert data in a Boolean datatype to any of the other datatypes.

TYPE CASTING CHART

X	char	byte	short	int	long	float	double	boolean
Char	**NCR**	**Y/EC**	**Y/EC**	**Y/IC**	**Y/IC**	**Y/IC**	**Y/IC**	**NIL**
Byte	**Y/EC**	**NCR**	**Y/IC**	**Y/IC**	**Y/IC**	**Y/IC**	**Y/IC**	**NIL**
Short	**Y/EC**	**Y/EC**	**NCR**	**Y/IC**	**Y/IC**	**Y/IC**	**Y/IC**	**NIL**
Int	**Y/EC**	**Y/EC**	**Y/EC**	**NCR**	**Y/IC**	**Y/IC**	**Y/IC**	**NIL**
Long	**Y/EC**	**Y/EC**	**Y/EC**	**Y/EC**	**NCR**	**Y/IC**	**Y/IC**	**NIL**
Float	**Y/EC**	**Y/EC**	**Y/EC**	**Y/EC**	**Y/EC**	**NCR**	**Y/IC**	**NIL**
double	**Y/EC**	**Y/EC**	**Y/EC**	**Y/EC**	**Y/EC**	**Y/EC**	**NCR**	**NIL**
boolean	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NIL**	**NCR**

NCR- no conversion required

Y/EC – yes, Explicit conversion

Y/IC – yes, Implicit conversion

NIL- can’t convert

TYPE CASTING GRAPH

Implicit type Casting

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

Explicit type Casting

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