

TYPE CASTING

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Type Casting:

Conversion of data from one data type to another data type is called “Type Casting”.

Type casting is of two types.

- 1.Implicit Typecasting
- 2.Explicit Typecasting

Implicit Typecasting:

Conversion of data from lower data type to higher data type is called “Implicit conversion”. Its is also called as type promotion or widening.

*In implicit conversion no data loss occurs.

Explicit Typecasting:

Conversion of data from higher data type to lower data type is called “Explicit conversion”.

*In explicit conversion we may have the possibility of losing the data.

In java we have 8 primitive data types, viz.

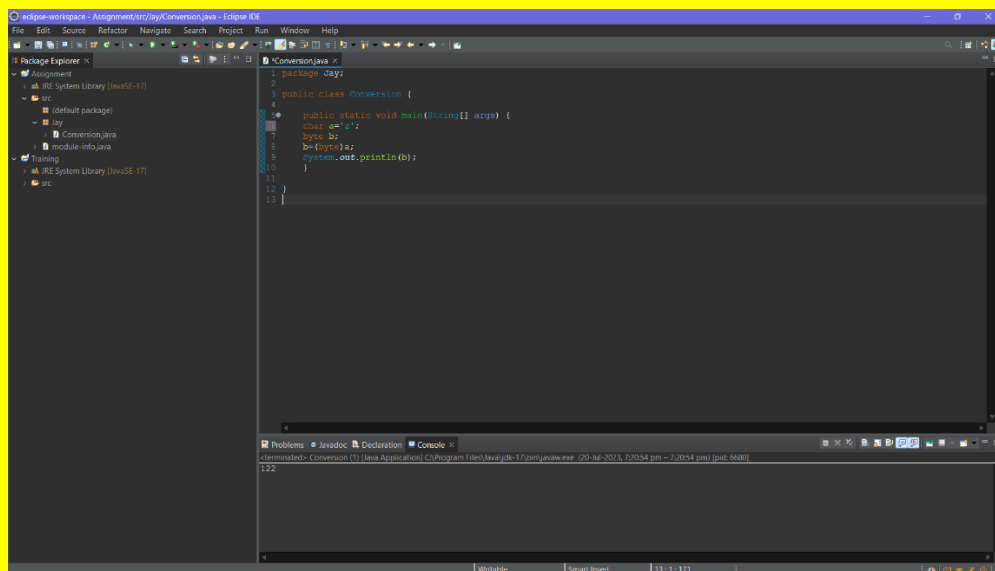
- Char
- Byte
- Short
- Int
- Long
- Float
- Double
- Boolean

Using these 8 types of primitive data types, 64 types of type castings are possible. Let's have a peep into each of these conversion in detail.

1. Char to Char:

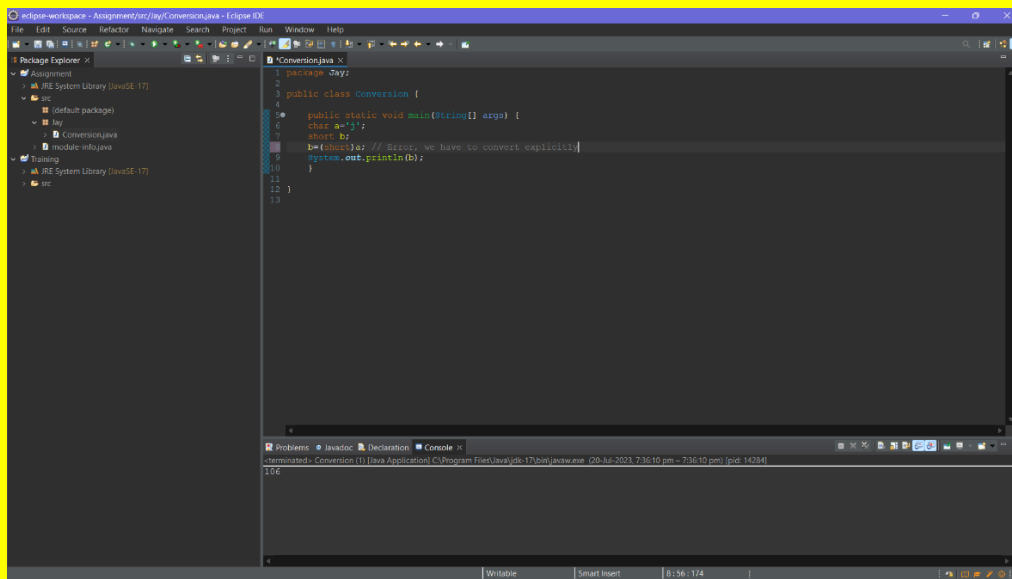
Char to char type casting is not required as they both are of same data types.

2. Char to Byte:



Char to byte is an explicit type casting

3. Char to Short:

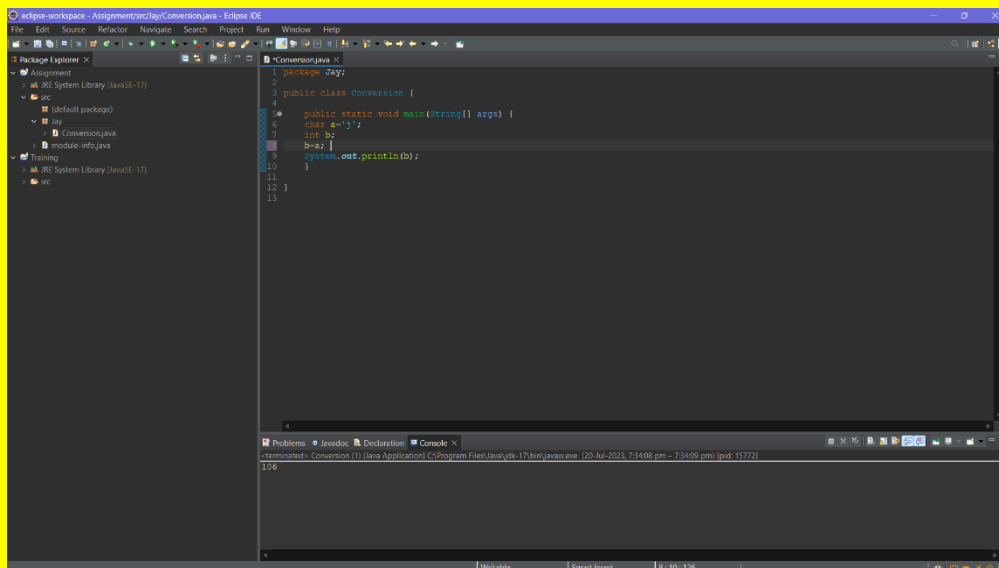


```
1 package Day2;  
2  
3 public class Conversion {  
4  
5     public static void main(String[] args) {  
6         char a='j';  
7         short b;  
8         b=(short)a; // Error: we have to convert explicitly  
9         System.out.println(b);  
10    }  
11  
12 }  
13
```

Console Output: 106

Char to Short is an explicit conversion

4.Char to Int:

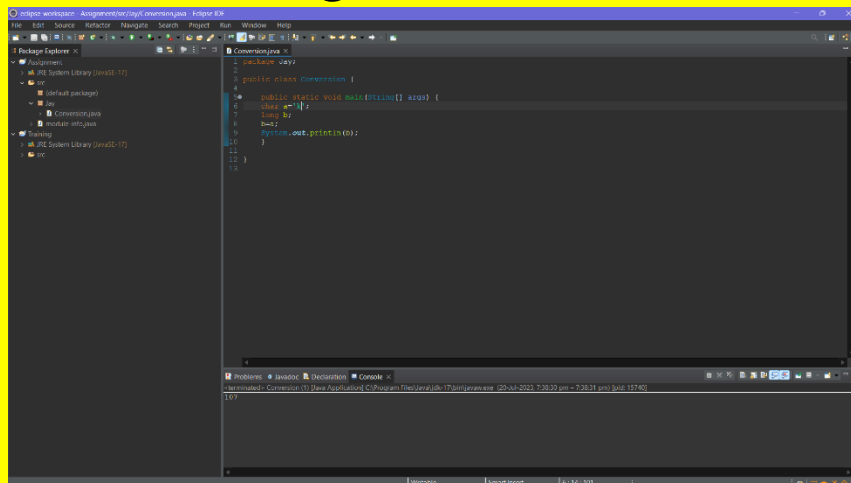


```
1 package Day2;  
2  
3 public class Conversion {  
4  
5     public static void main(String[] args) {  
6         char a='j';  
7         int b;  
8         b=a;  
9         System.out.println(b);  
10    }  
11  
12 }  
13
```

Console Output: 106

Char to int is an implicit type of type casting

5.Char to Long:

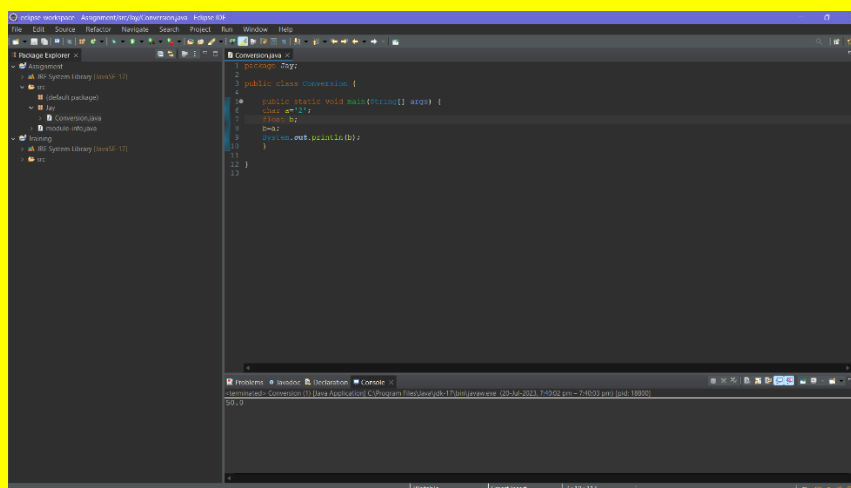


```
1 package Java;
2
3 public class Conversion {
4
5     public static void main(String[] args) {
6         char a = '1';
7         long b;
8         b=a;
9         System.out.println(b);
10    }
11 }
12
13
```

109

Char to long is an implicit type of type conversion

6.Char to Float:

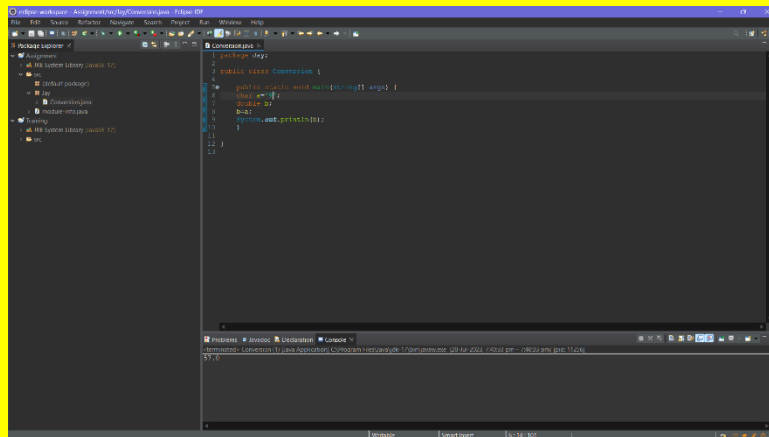


```
1 package Java;
2
3 public class Conversion {
4
5     public static void main(String[] args) {
6         char a='1';
7         float b;
8         b=a;
9         System.out.println(b);
10    }
11 }
12
13
```

109.0

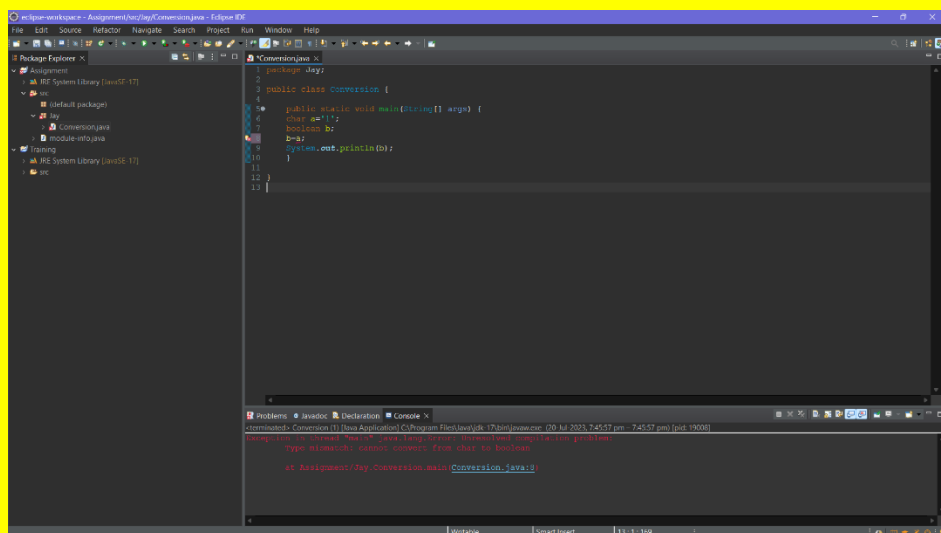
Char to float is an implicit type casting

7.Char to Double:



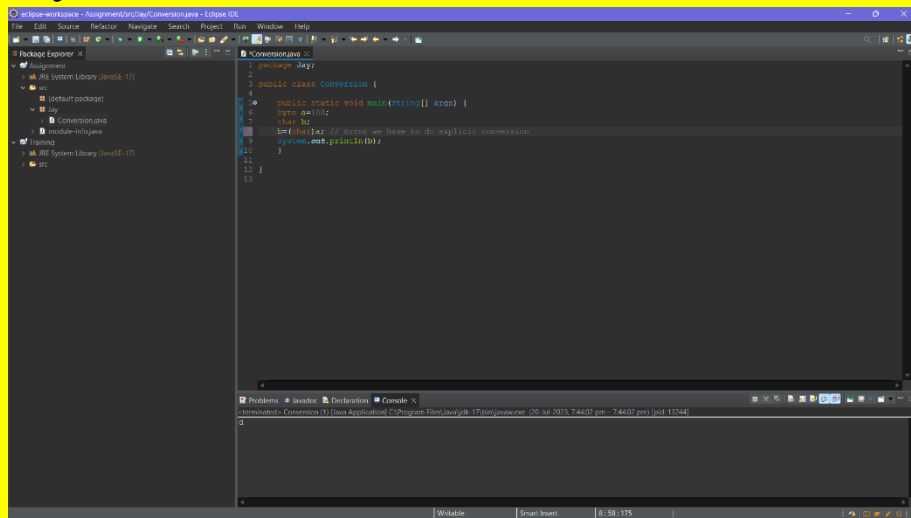
Char to double is an implicit type of type casting

8. Char to Boolean:



Char to Boolean conversion is not possible

9.Byte to Char:

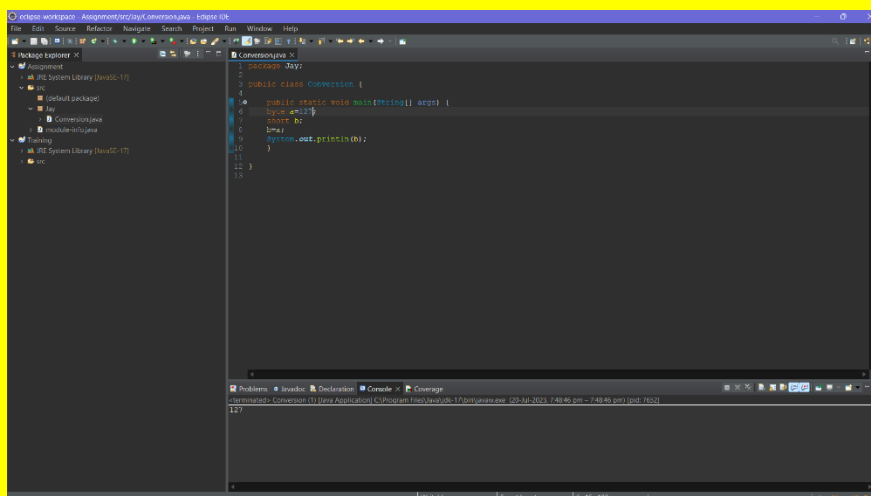


Byte to char is an explicit type casting

10.Byte to Byte:

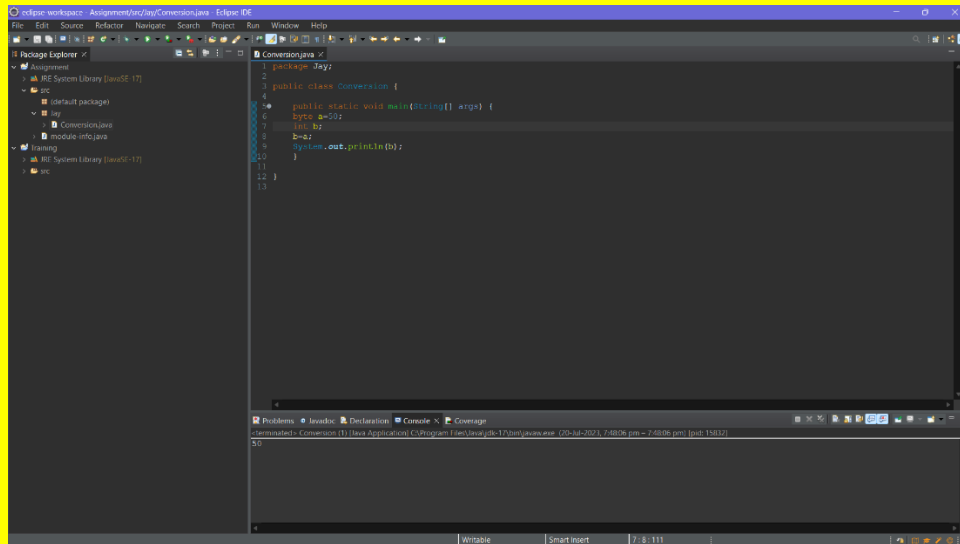
Byte to byte conversion is not required as both are of same data type.

11.Byte to short:



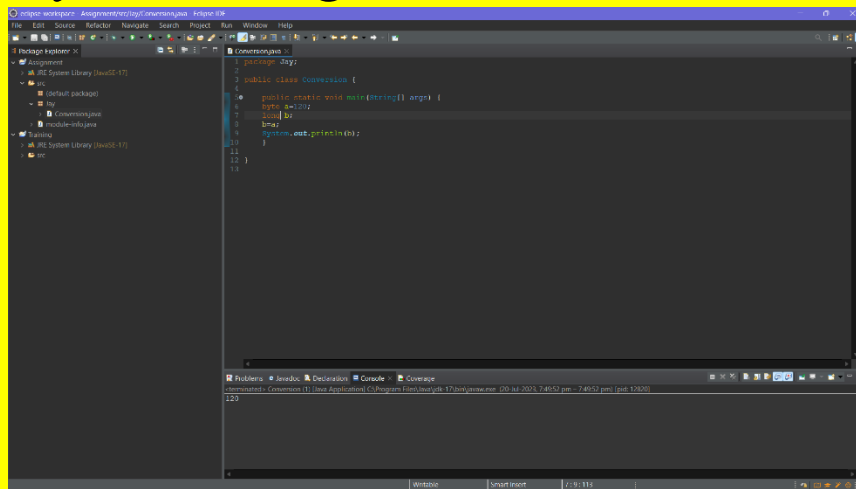
Byte to short is an implicit type of type casting

12.Byte to Int:



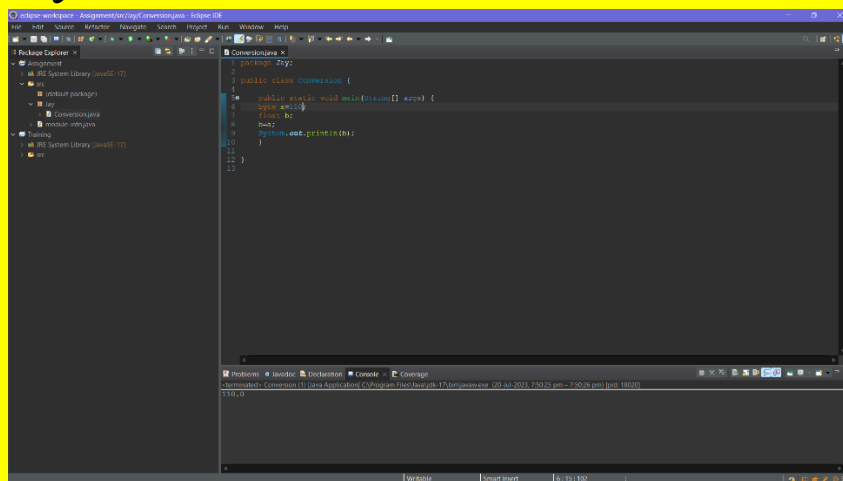
Byte to int is an implicit type of type casting

13.Byte to Long:



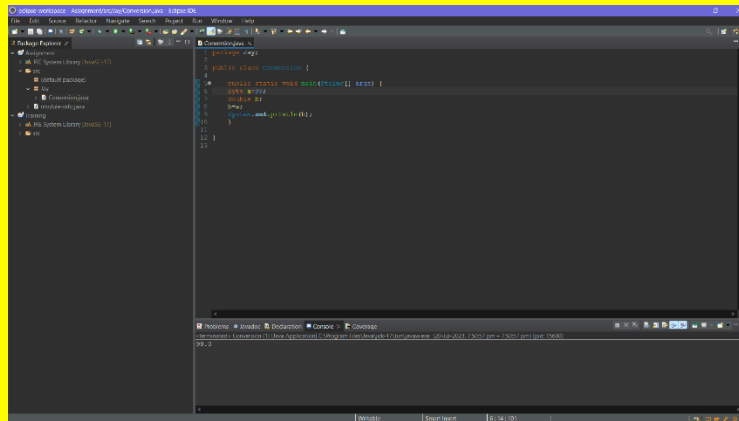
Byte to long is an implicit type casting

14.Byte to Float:



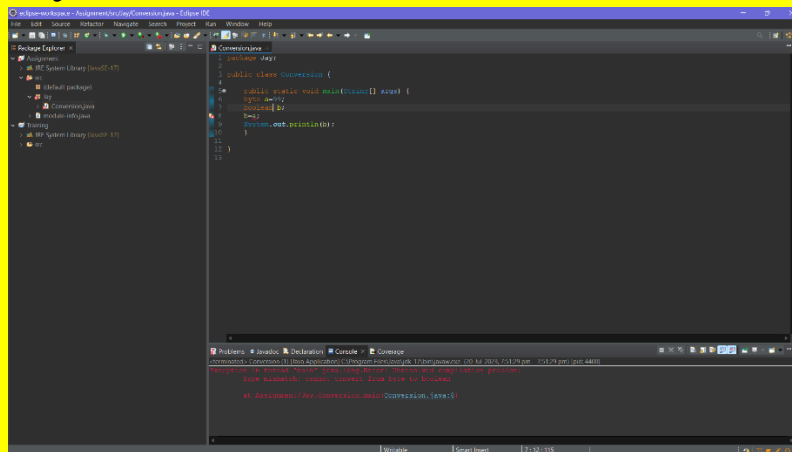
Byte to float is an implicit type casting

15. Byte to Double



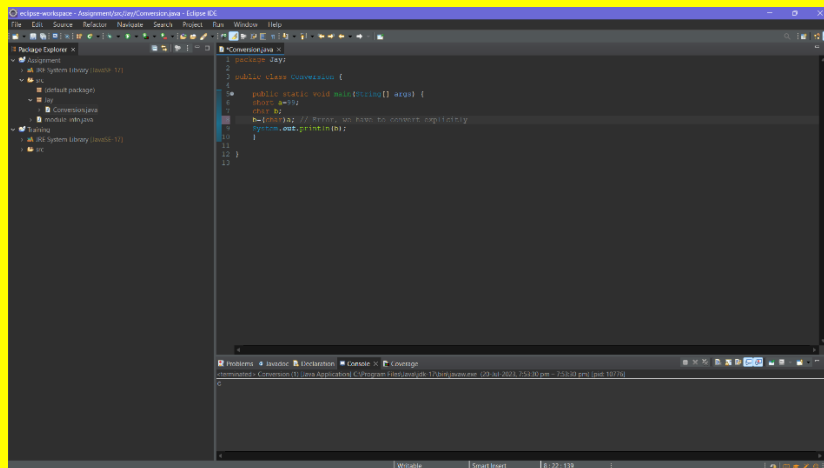
Byte to double is an implicit type conversion

16. Byte to Boolean:



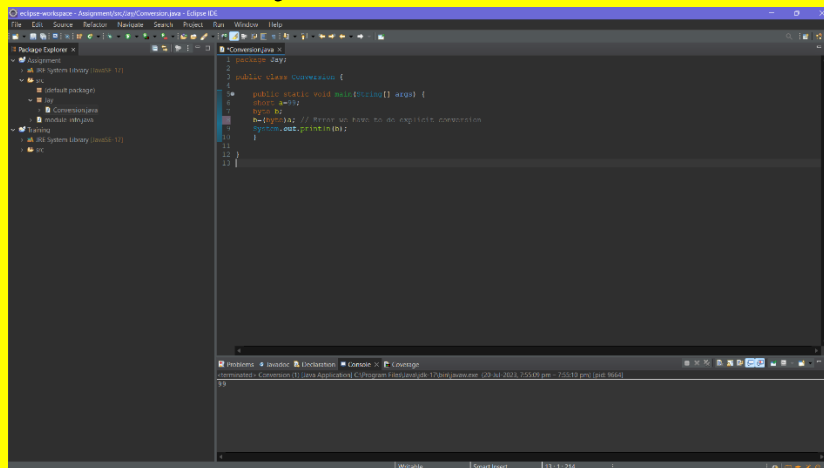
Byte to Boolean conversion is not possible

17.Short to Char:



Short to char is an explicit type of conversion

18.Short to Byte:

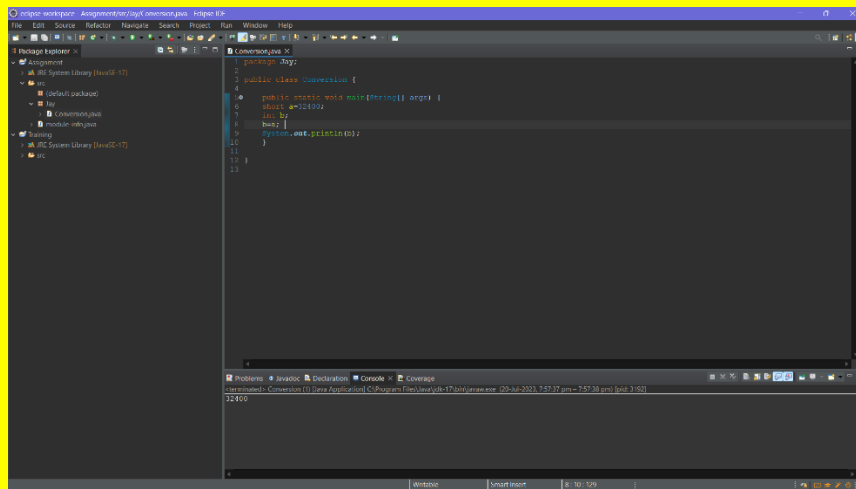


Short to byte is an explicit type of conversion

19.Short to Short:

Short to short type of conversion is not required as they both are of same data type.

20.Short to Int:

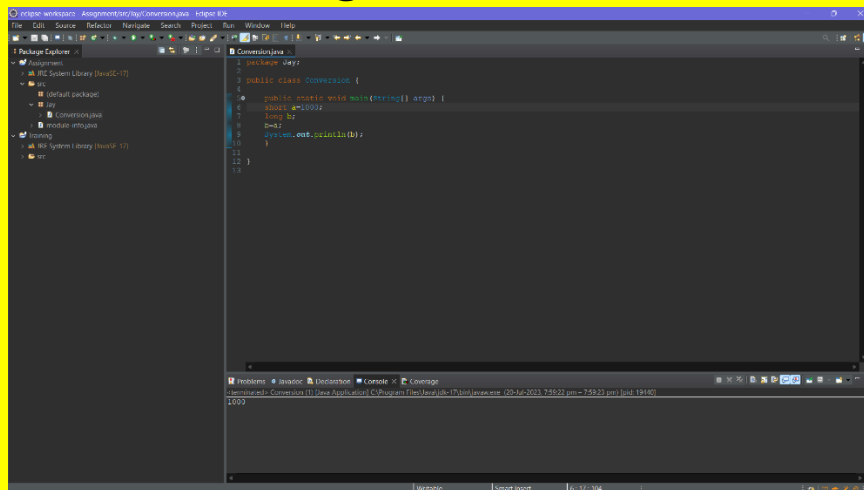


```
1 package Day2;  
2  
3 public class Conversion {  
4  
5     public static void main(String[] args) {  
6         short s=12300;  
7         int i;  
8         i=s;  
9         System.out.println(i);  
10    }  
11  
12 }  
13
```

The screenshot shows an IDE with a package explorer on the left and a code editor on the right. The code editor displays the Java code for a class named 'Conversion'. The code defines a public static void main method that takes a String array as an argument. Inside the main method, a short variable 's' is initialized with the value 12300. Then, an int variable 'i' is declared and assigned the value of 's'. Finally, 'System.out.println(i)' is called to print the value of 'i'. The console output at the bottom shows the value 12300.

Short to int is an implicit type of conversion

21.Short to Long:

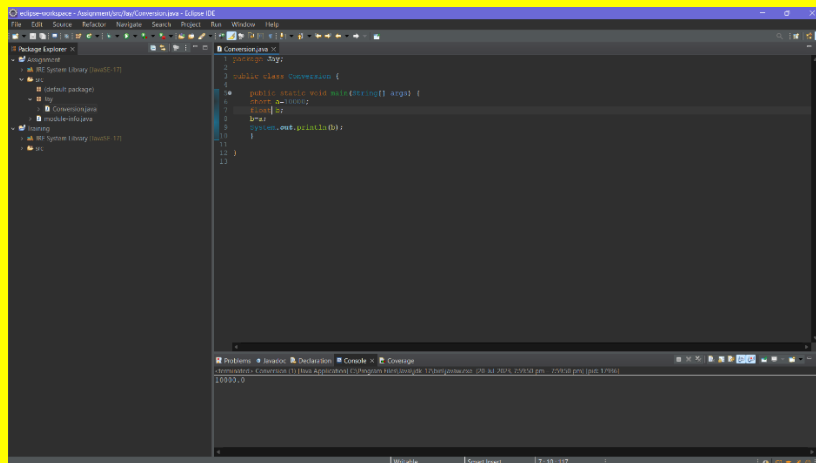


```
1 package Day2;  
2  
3 public class Conversion {  
4  
5     public static void main(String[] args) {  
6         short s=1002;  
7         long l;  
8         l=s;  
9         System.out.println(l);  
10    }  
11  
12 }  
13
```

The screenshot shows an IDE with a package explorer on the left and a code editor on the right. The code editor displays the Java code for a class named 'Conversion'. The code defines a public static void main method that takes a String array as an argument. Inside the main method, a short variable 's' is initialized with the value 1002. Then, a long variable 'l' is declared and assigned the value of 's'. Finally, 'System.out.println(l)' is called to print the value of 'l'. The console output at the bottom shows the value 1002.

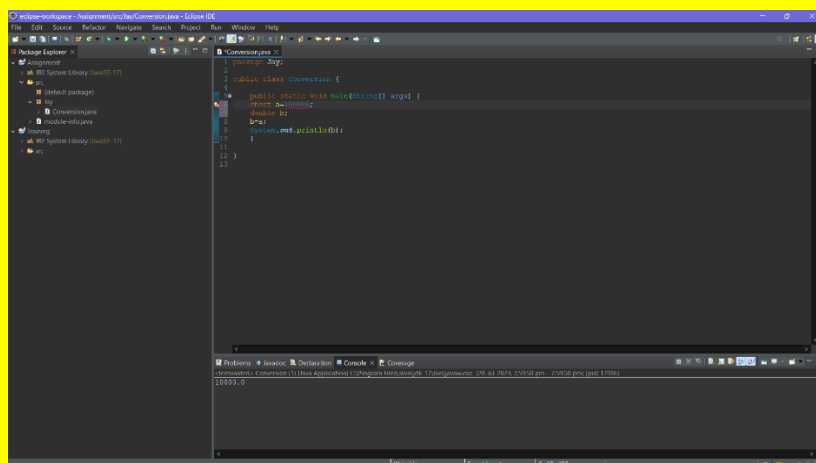
Short to long is an implicit type of conversion

22.Short to Float:



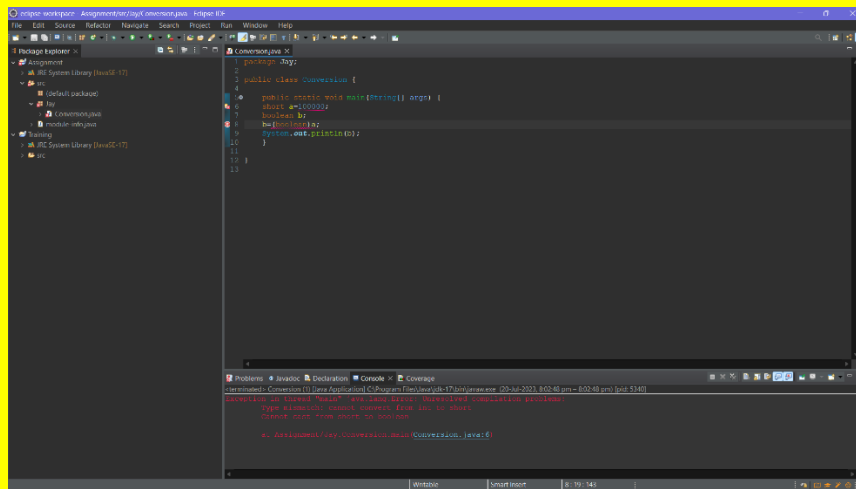
Short to float is an implicit conversion

23.Short to Double:



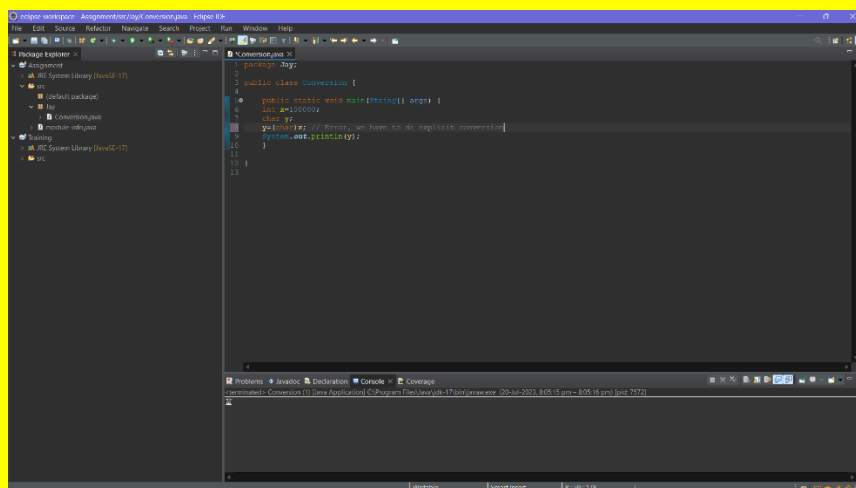
Short to double is an implicit type of type casting

24.Short to Boolean:



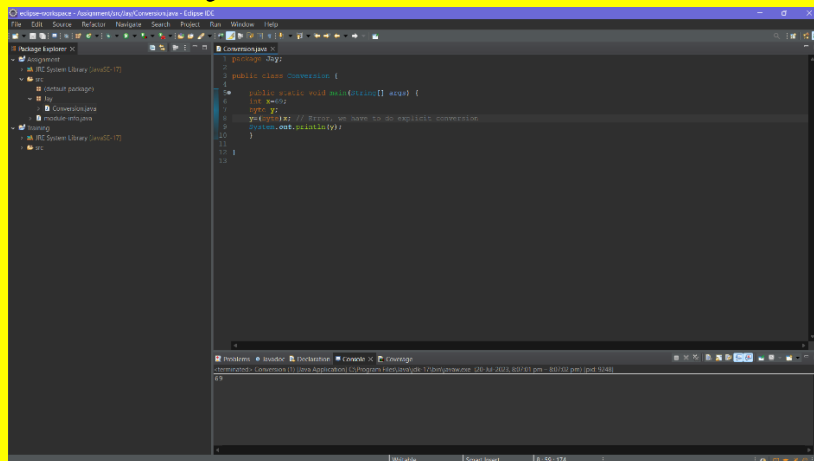
Short to Boolean conversion is not possible

25.Int to Char:



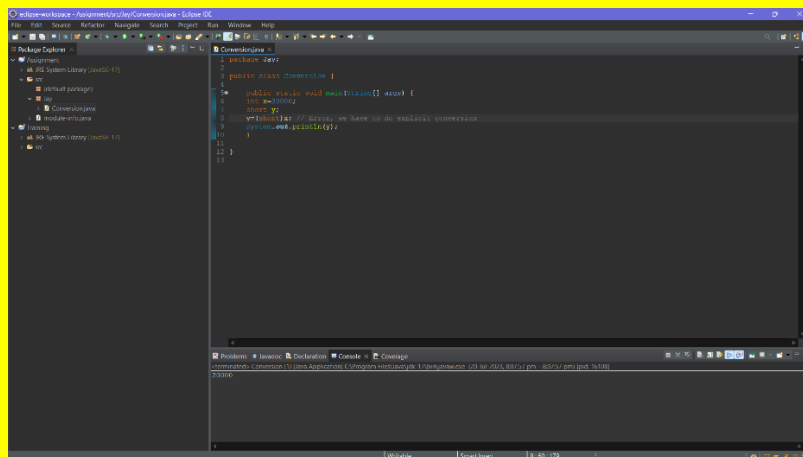
Int to char is an explicit type of type casting

26.Int to Byte:



Int to byte conversion is explicit type of casting

27.Int to Short:

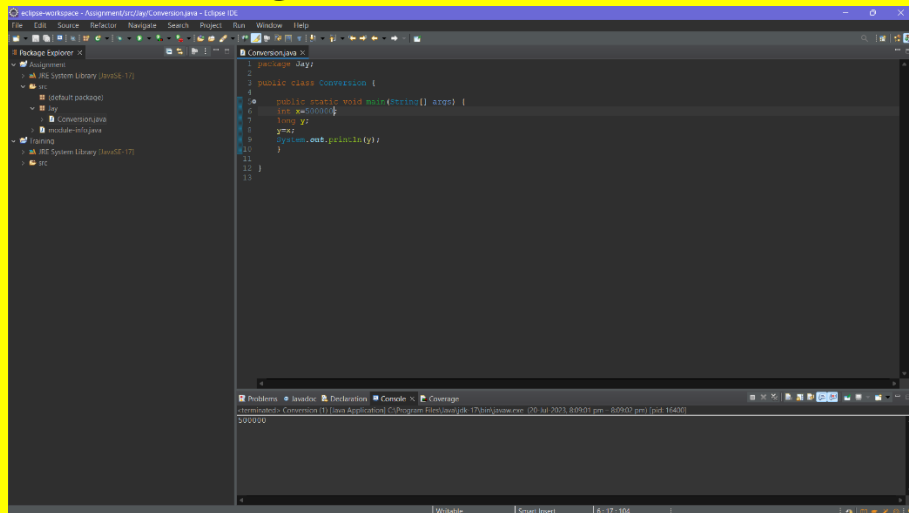


Int to short is an explicit type of type casting

28.Int to Int:

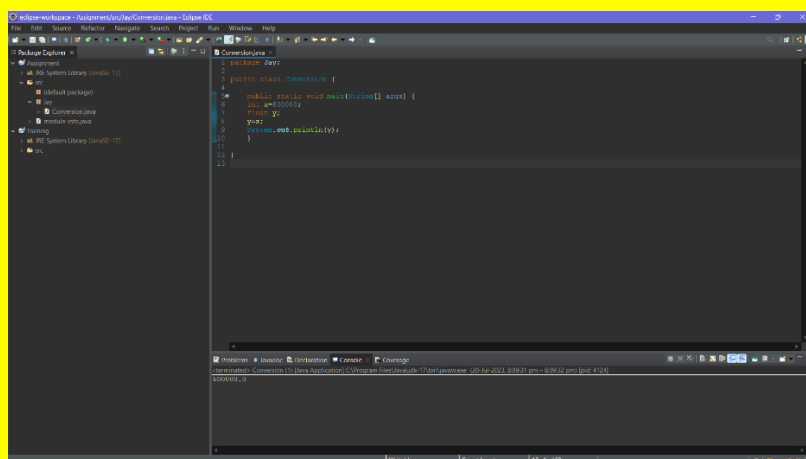
Int to int type of conversion is not possible as they both are of same type.

29.Int to Long:



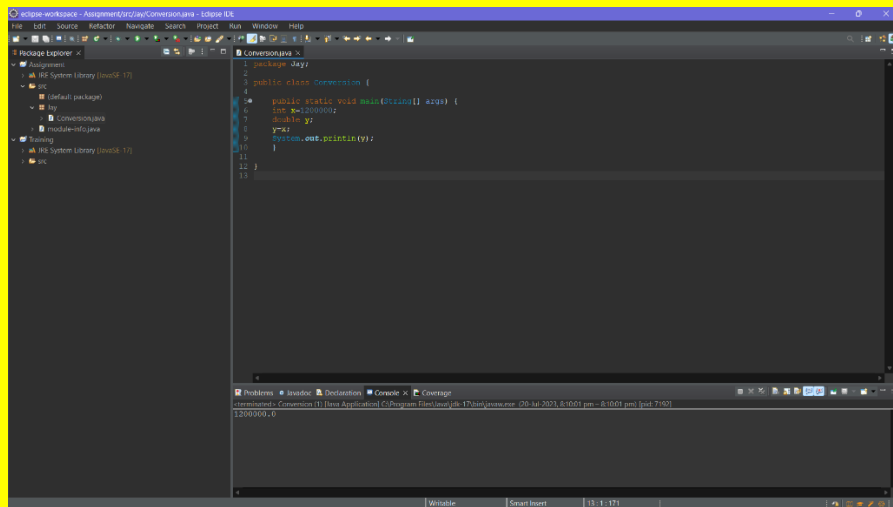
Int to long is an implicit type of type casting

30.Into to Float:



Int to float is an implicit type of type casting

31.Int to Double:



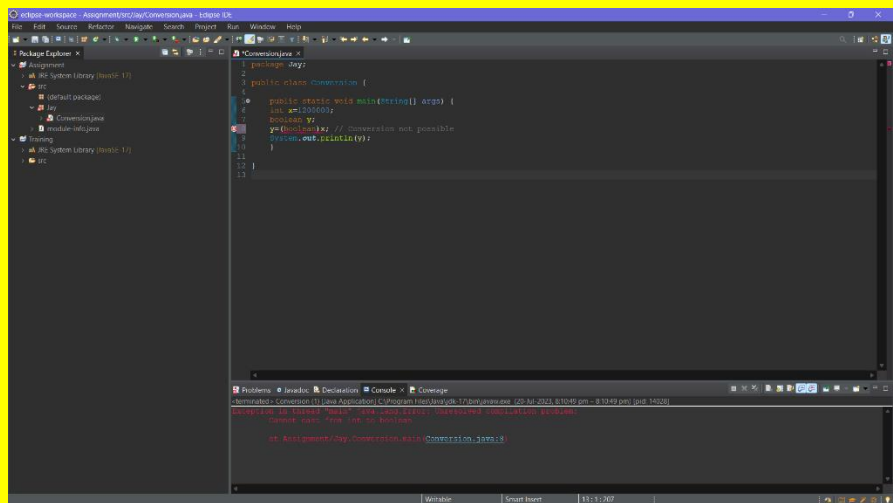
The screenshot shows an IDE window titled "eclipse-workspace - Assignment01\src\Conversion.java - Eclipse IDE". The Package Explorer on the left shows a project named "Assignment" with a package "src" containing "Conversion.java". The main editor displays the following code:

```
1 package day1;  
2  
3 public class Conversion {  
4  
5     public static void main(String[] args) {  
6         int x=1200000;  
7         double y;  
8         y=x;  
9         System.out.println(y);  
10    }  
11  
12 }  
13
```

The Console window at the bottom shows the output: "1200000.0".

Int to double conversion is a type of implicit type casting

32.Int to Boolean:



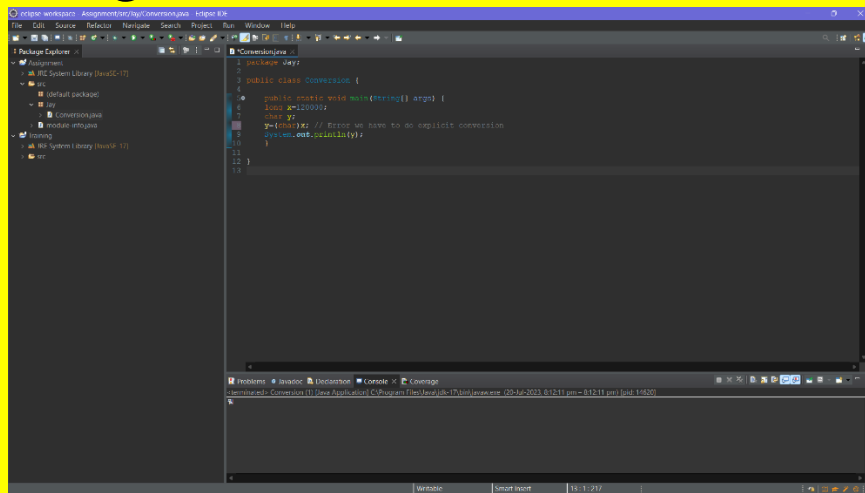
The screenshot shows the same IDE window as before, but the code in "Conversion.java" is different:

```
1 package day1;  
2  
3 public class Conversion {  
4  
5     public static void main(String[] args) {  
6         int x=1200000;  
7         boolean y;  
8         y=(boolean)x; // Conversion not possible  
9         System.out.println(y);  
10    }  
11  
12 }  
13
```

The Console window shows a red error message: "Conversion is limited 'main' - src\day1\src\Conversion.java:8:13: Conversion not possible: boolean".

Int to Boolean type of conversion is not possible

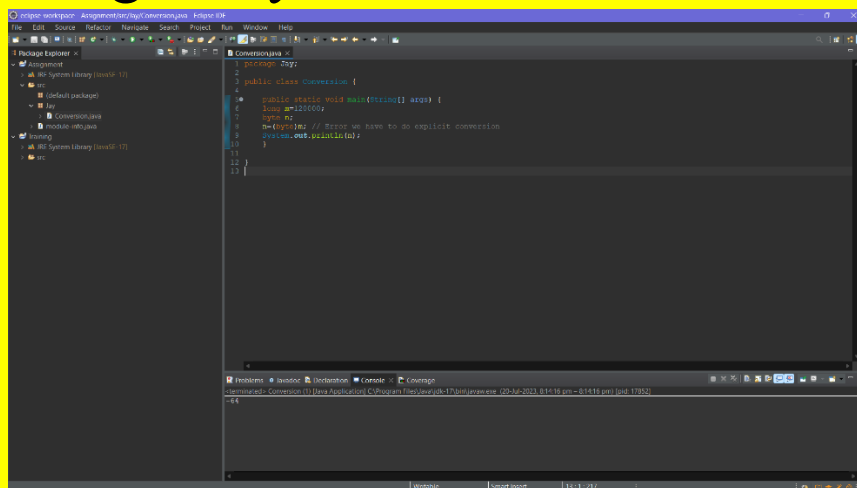
33.Long to Char:



```
1 package day2;  
2  
3 public class Conversion {  
4  
5     public static void main(String[] args) {  
6         long a=1230001;  
7         char c;  
8         c=(char)a; // Error we have to do explicit conversion  
9         System.out.println(c);  
10    }  
11  
12 }
```

Long to char is an explicit type casting

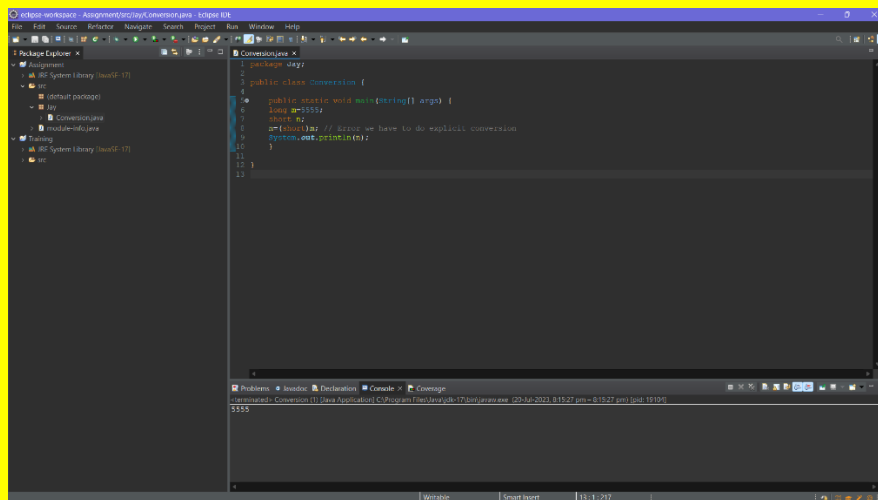
34.Long to Byte



```
1 package Day2;  
2  
3 public class Conversion {  
4  
5     public static void main(String[] args) {  
6         long a=1230001;  
7         byte b;  
8         b=(byte)a; // Error we have to do explicit conversion  
9         System.out.println(b);  
10    }  
11  
12 }
```

Long to byte is an explicit type casting

35.Long to Short:



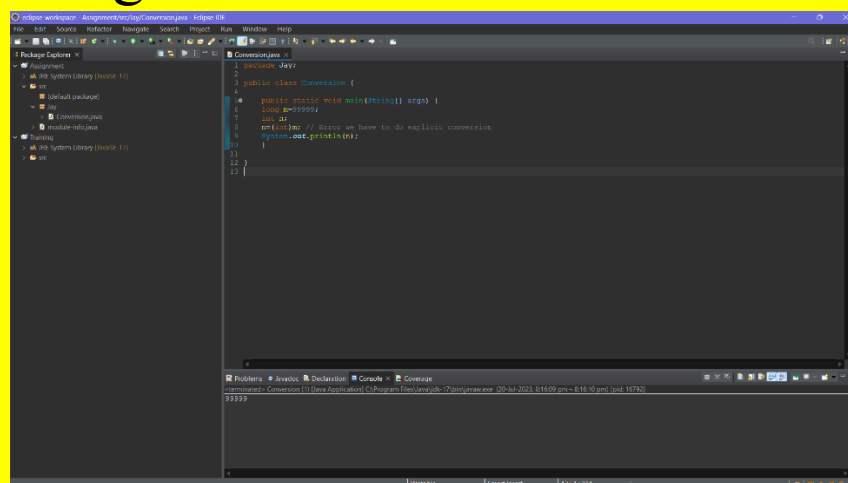
The screenshot shows an IDE with a project named 'Assignment' and a file named 'Conversion.java'. The code defines a public class 'Conversion' with a main method that takes a string argument, converts it to a long (5555), casts it to a short, and prints it. The console output shows '5555'.

```
1 public class Conversion {  
2  
3     public static void main(String[] args) {  
4         long a=5555;  
5         short b;  
6         // Error we have to do explicit conversion  
7         System.out.println(b);  
8     }  
9 }  
10  
11  
12  
13
```

Console Output: 5555

Long to short is an explicit type casting

36.Long to Int:



The screenshot shows an IDE with a project named 'Assignment' and a file named 'Conversion.java'. The code defines a public class 'Conversion' with a main method that takes a string argument, converts it to a long (55555), casts it to an int, and prints it. The console output shows '55555'.

```
1 package Jayz;  
2  
3 public class Conversion {  
4  
5     public static void main(String[] args) {  
6         long a=55555;  
7         int b;  
8         // Error we have to do explicit conversion  
9         System.out.println(b);  
10    }  
11 }  
12  
13
```

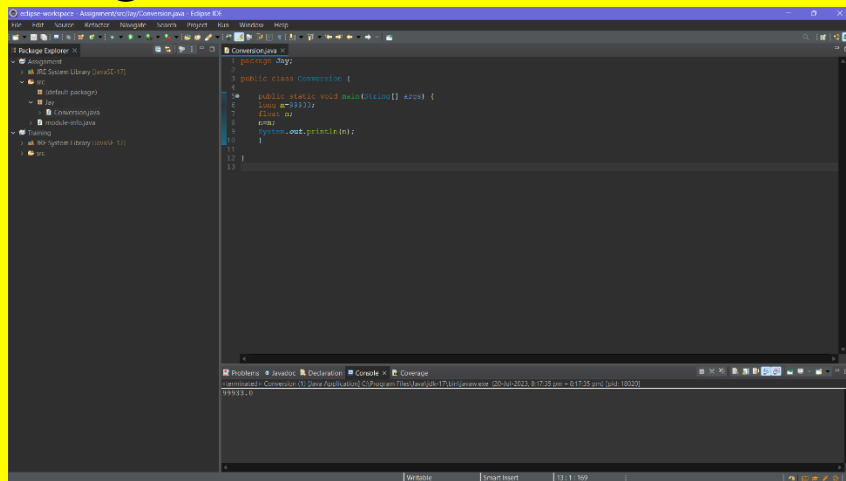
Console Output: 55555

Long to int is an explicit type casting

37.Long to Long:

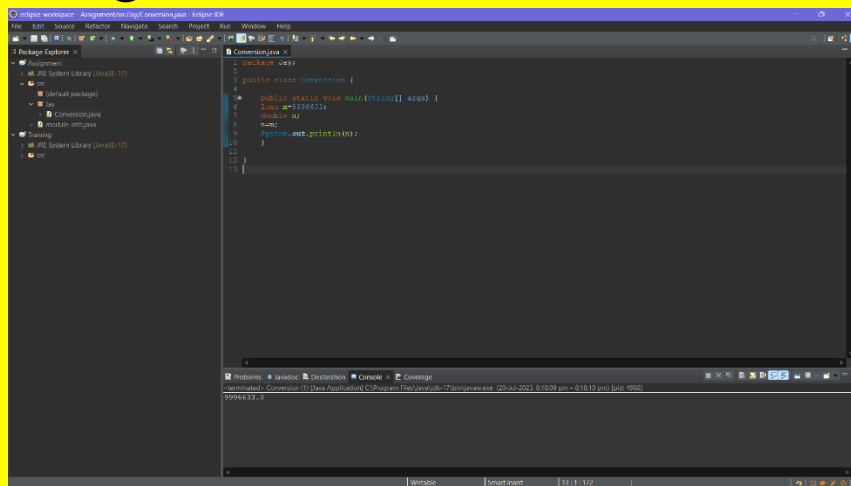
Long to long conversion is not required because they both are of same type.

38.Long to Float:



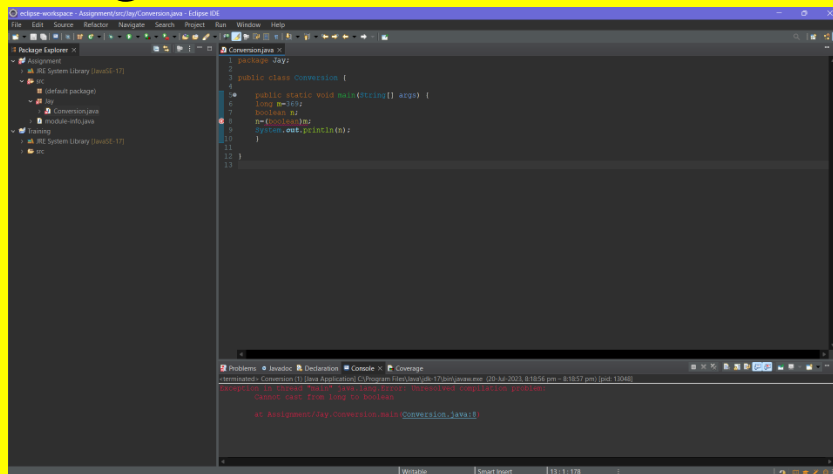
Long to float is an implicit type casting

39.Long to Double:



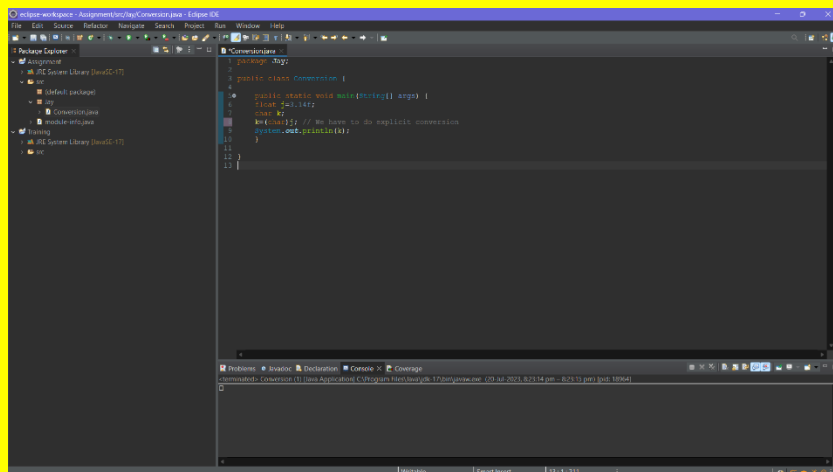
Long to double conversion is an implicit type casting

40.Long to Boolean:



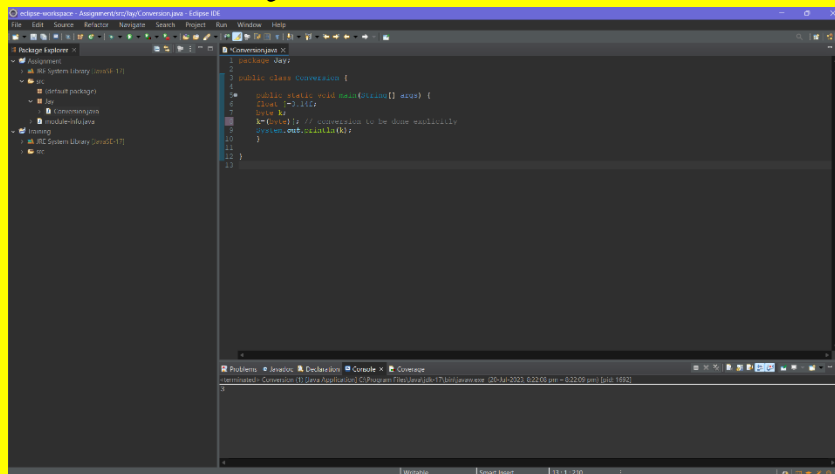
Long to boolean conversion is not possible

41.Float to Char:



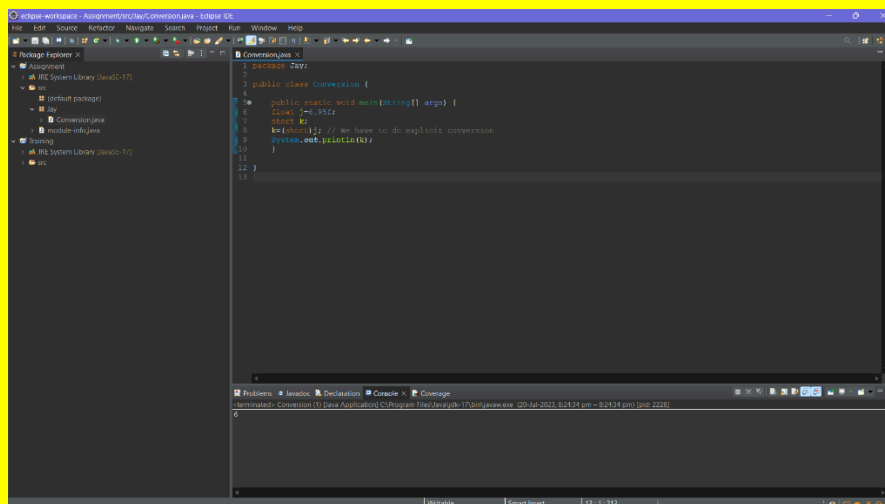
Float to char is an explicit type of type casting

42.Float to Byte:



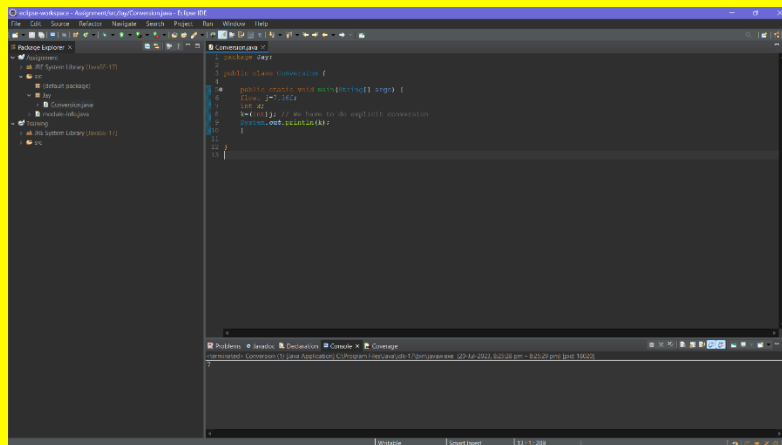
Float to byte is an explicit type of type casting

43.Float to Short:



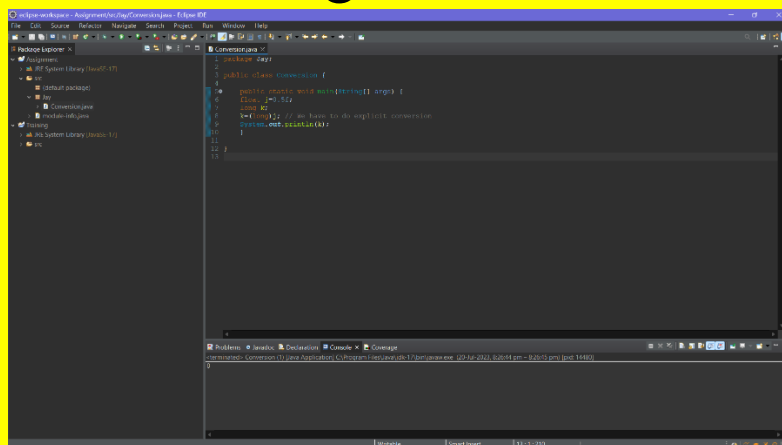
Float to short is an explicit type casting

44.Float to Int:



Float to int is an explicit type of type casting

45.Float to Long:

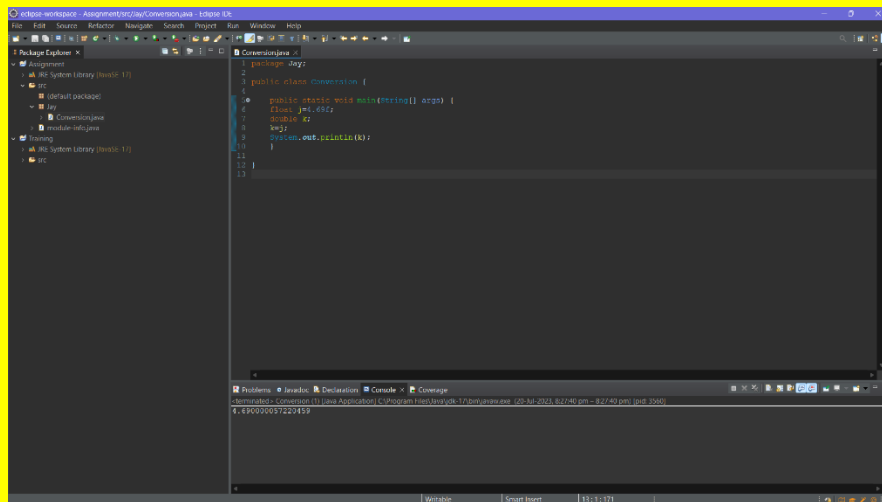


Float to long is an explicit type of type casting

46.Float to Float:

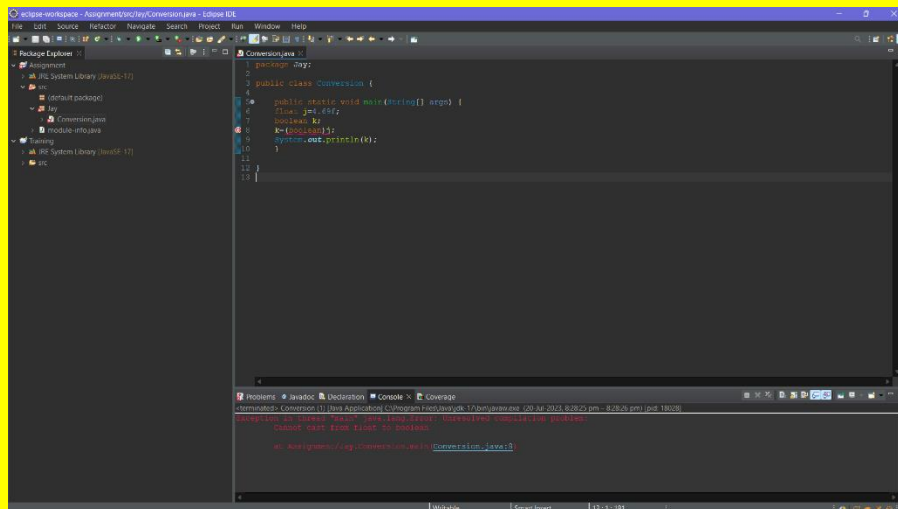
Float to float type of conversion is not required as they both are of same data type.

47.Float to Double:



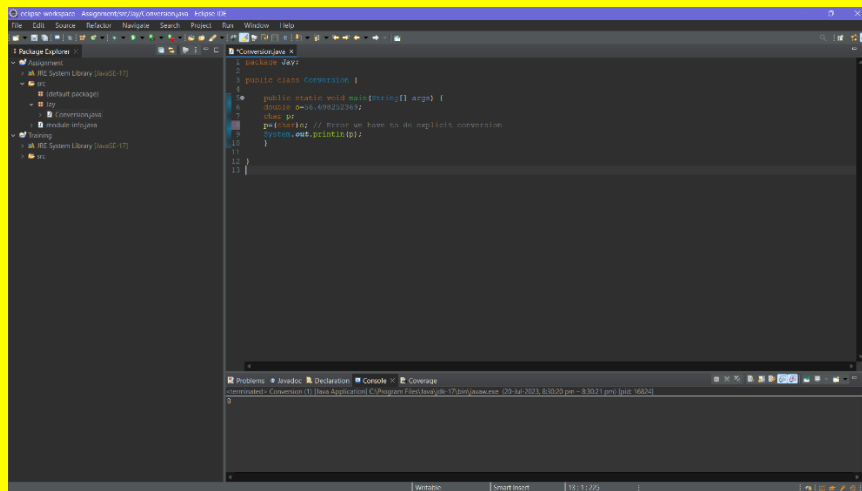
Float to double is an implicit type of type casting

48.Float to Boolean:



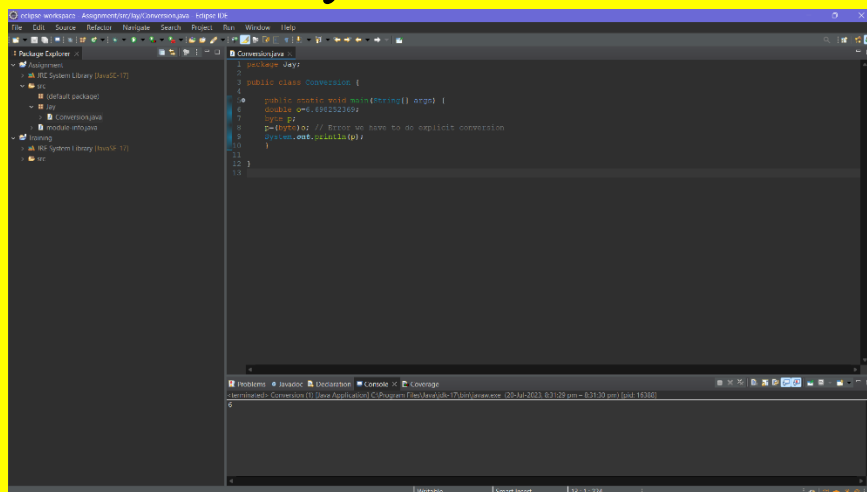
Float to Boolean type of conversion is not possible

49.Double to Char:



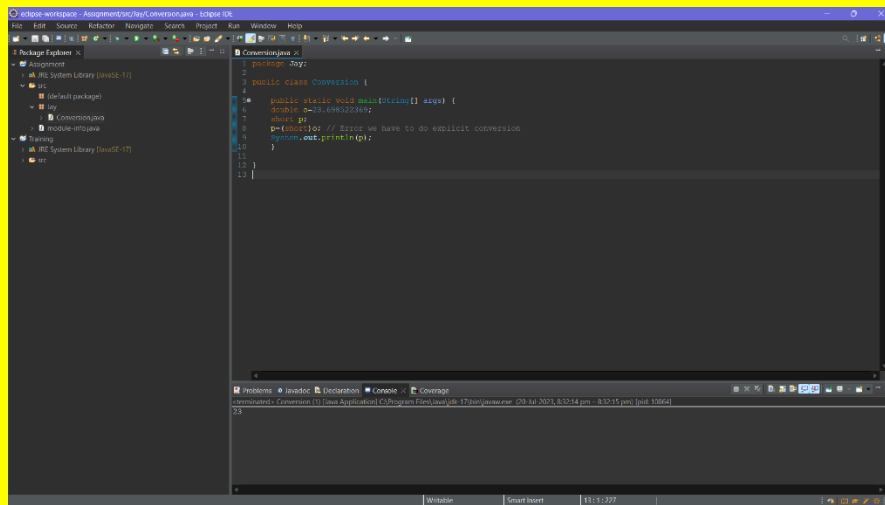
Double to char type of conversion is an explicit type of type casting

50.Double to Byte:



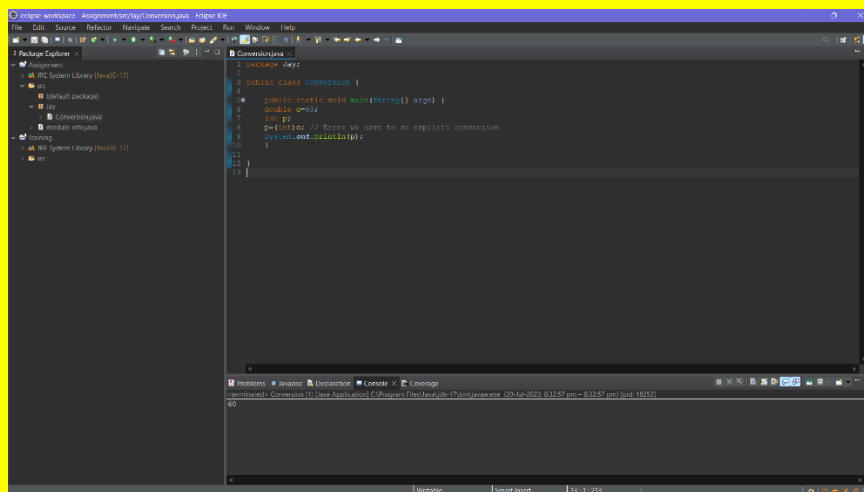
Double to byte type of conversion is an explicit type casting

51.Double to Short:



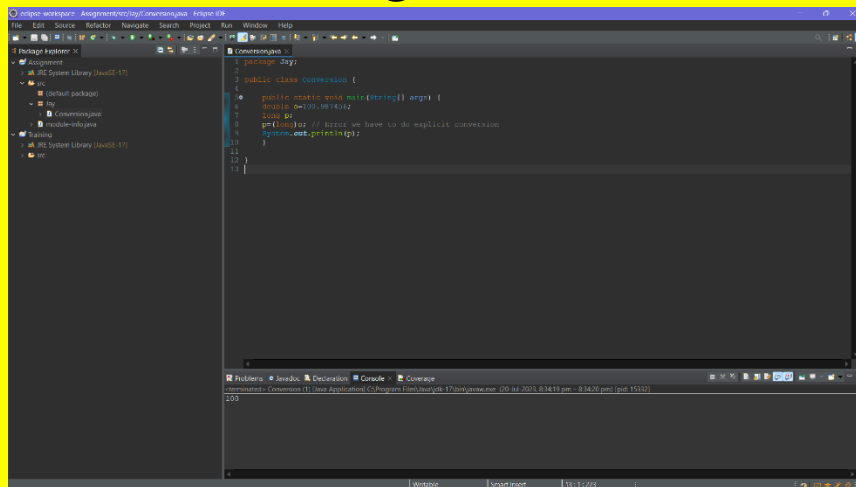
Double to short is an explicit type casting

52.Double to Int:



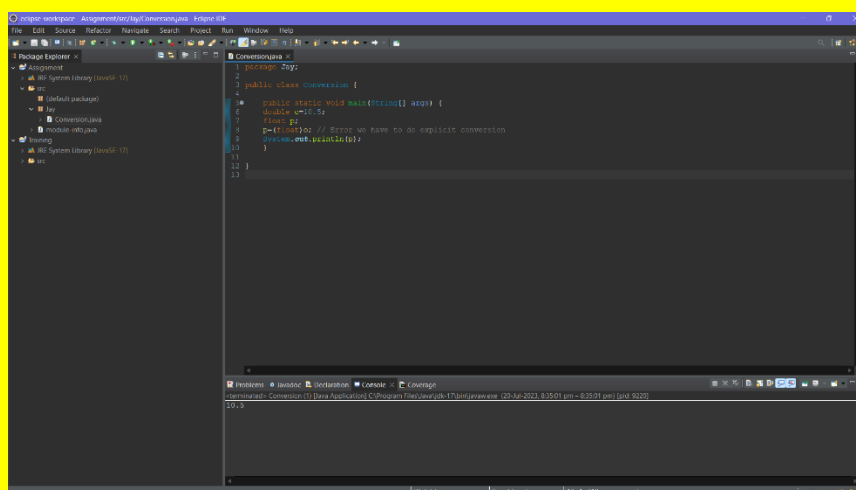
Double to int is an explicit type of type casting

53.Double to Long:



Double to long is an explicit type of type casting

54.Double to Float:

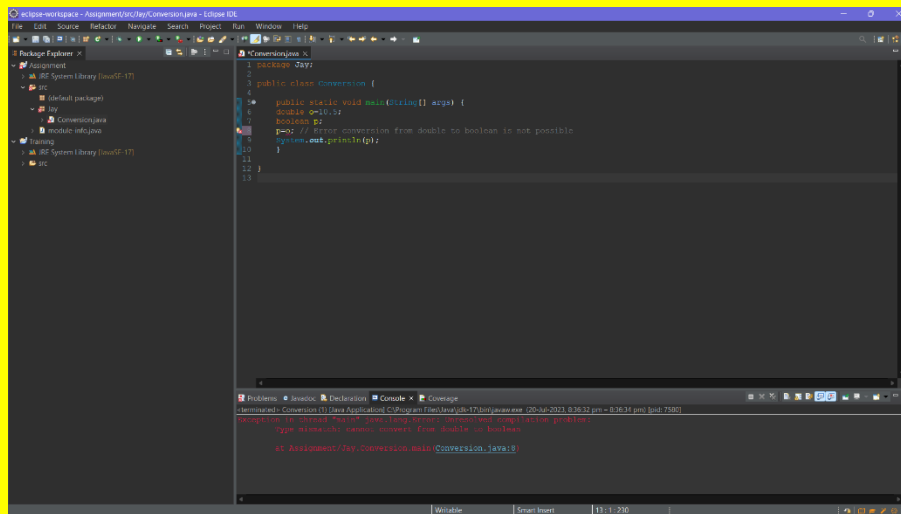


Double to float is an explicit type of type casting

55.Double to Double:

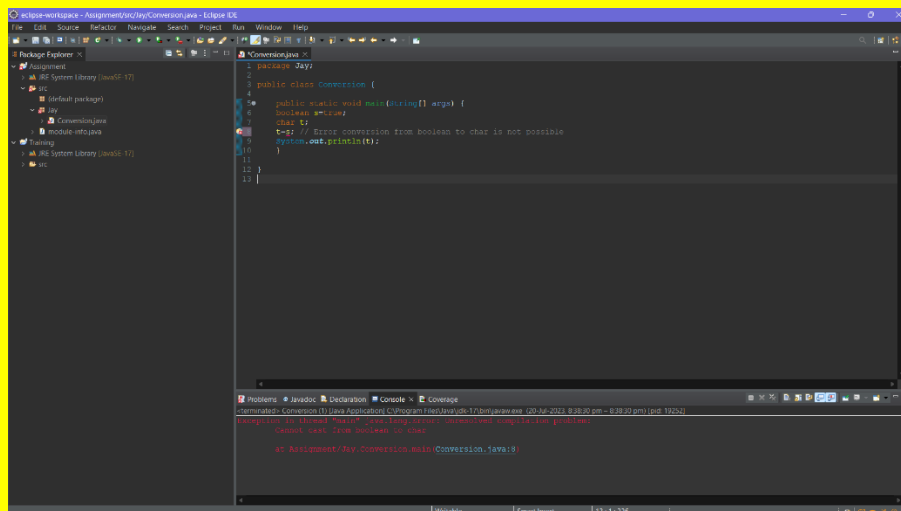
Double to double type of conversion is not required as they both are of same data type

56.Double to Boolean:



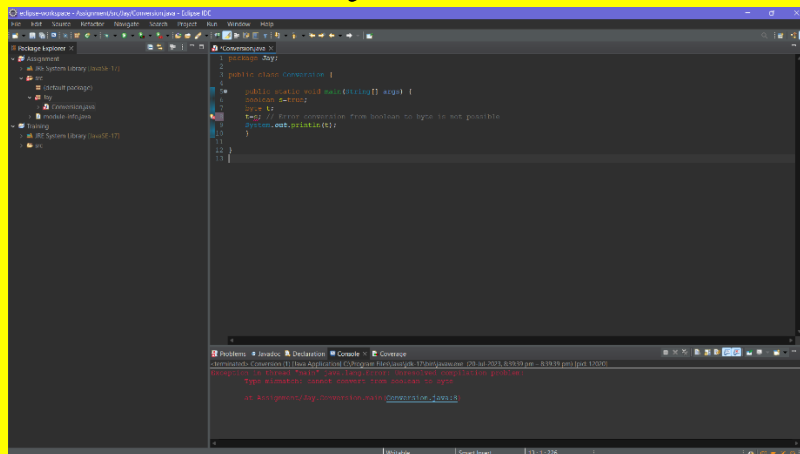
Double to boolean type of conversion is not possible

57.Boolean to Char:



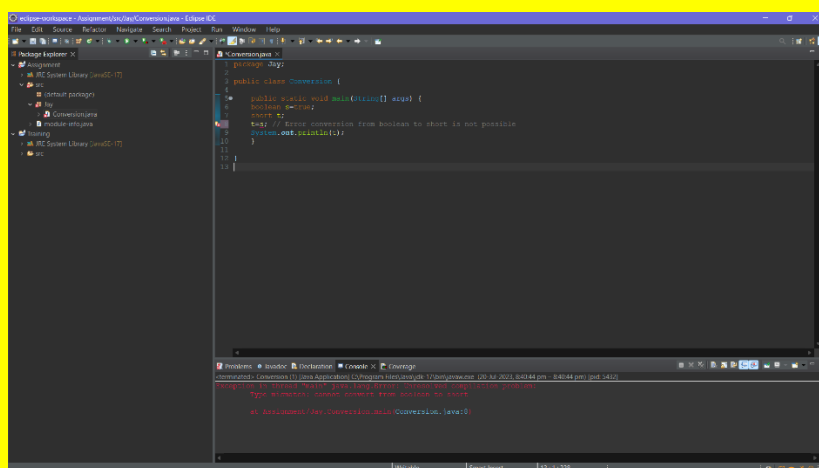
Boolean to char type conversion is not possible

58.Boolean to Byte:



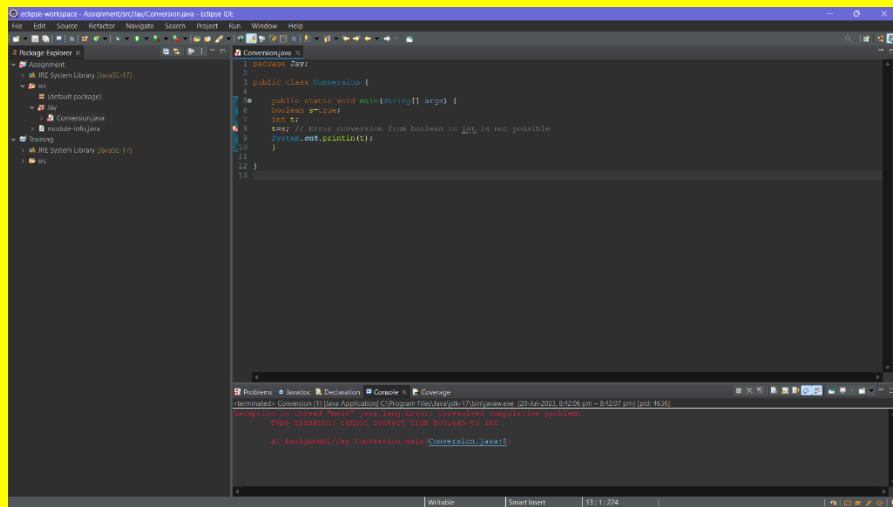
Boolean to byte type conversion is not possible

59.Boolean to Short:



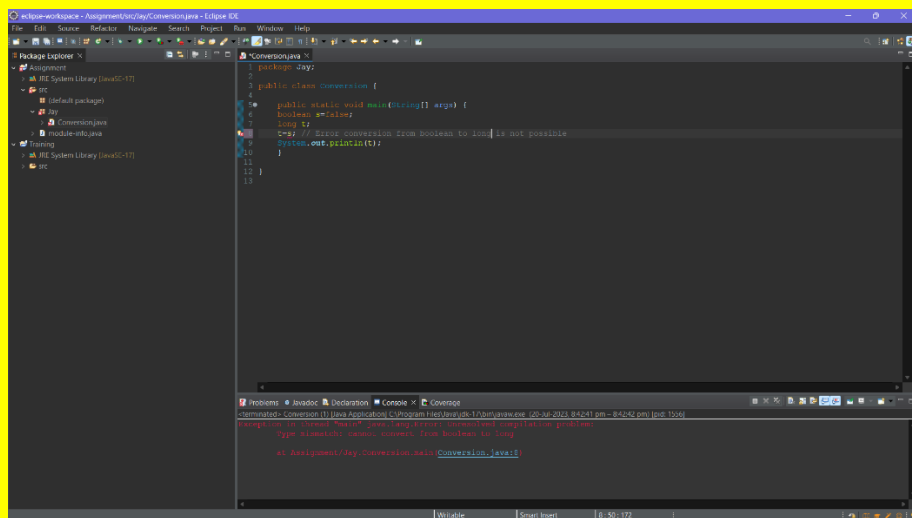
Boolean to short type conversion is not possible

60.Boolean to Int:



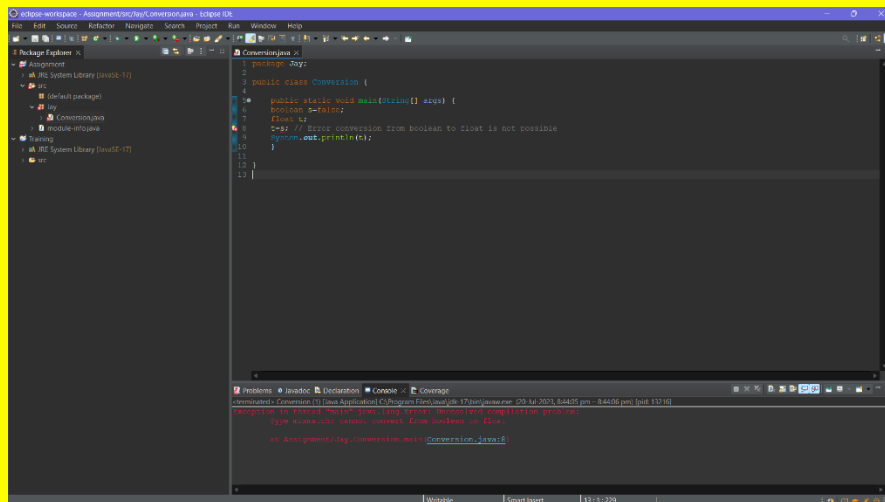
Boolean to int type conversion is not possible

61.Boolean to Long:



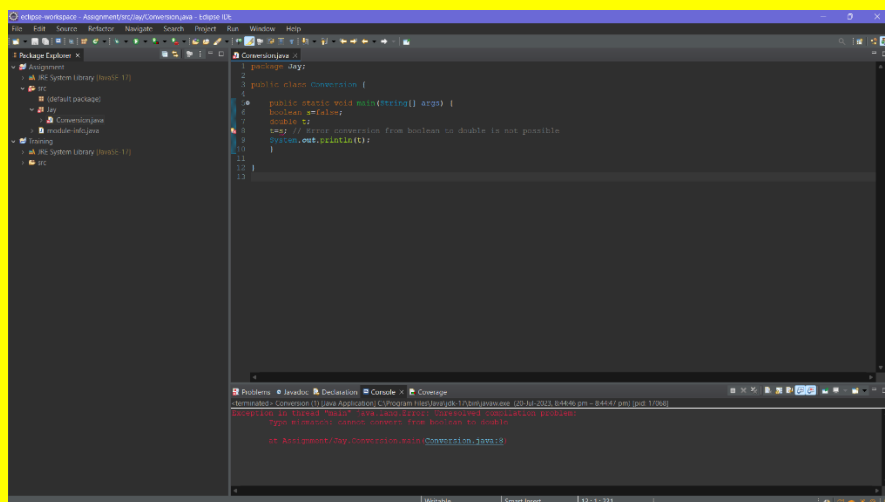
Boolean to long type conversion is not possible

62.Boolean to Float:



Boolean to float type conversion is not possible

63.Boolean to Double:



Boolean to double type conversion is not possible

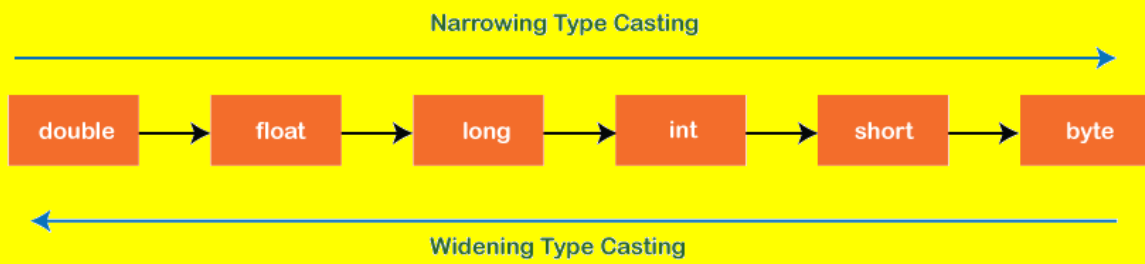
64.Boolean to Boolean:

Boolean to Boolean type of conversion is not required they both are of same type.

Table of Conversion

[illegible]

Type Casting Graph



Type Casting in Java