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IT Engineer

To work in a challenging and dynamic environment and to keep adding value to the organization that I represent and serve, while also concurrently upgrading my skills and knowledge

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Assignment 4

TYPE CASTING

The process of converting data of one type to another.

Two types-

1. **Implicit type casting**
2. **Explicit type casting**

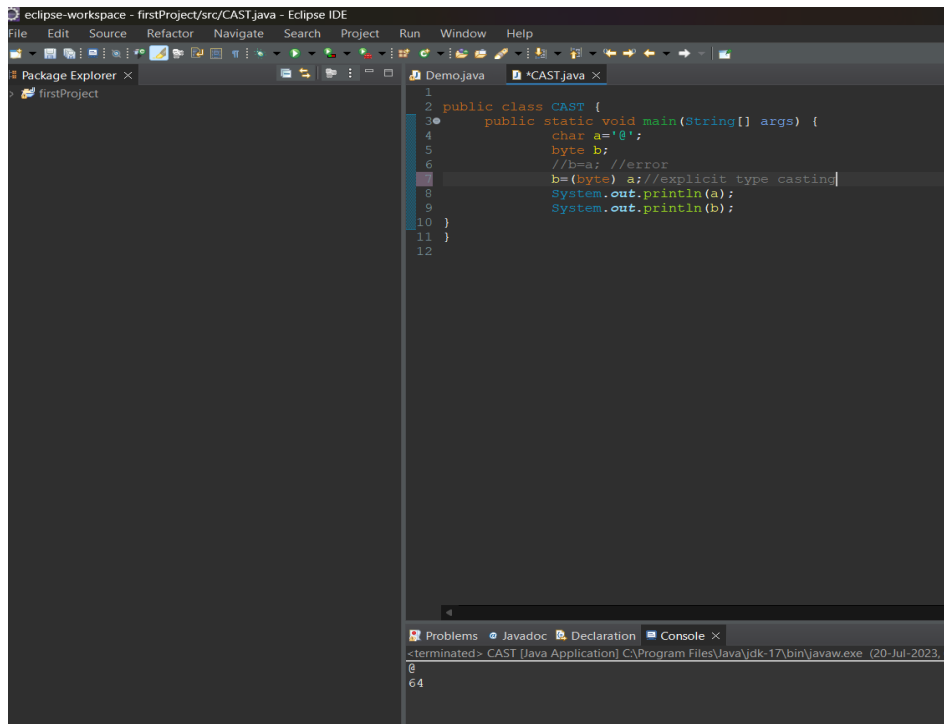
Implicit type casting: The process of converting the data of smaller data type to larger data type. (No data loss would occur)

Explicit type casting: The process of converting the data of larger data type to smaller data type. (You may loss data)

We have the following data types.

1. Char
2. Byte
3. Short
4. Int
5. Long
6. Float
7. Double
8. Boolean

Char to byte

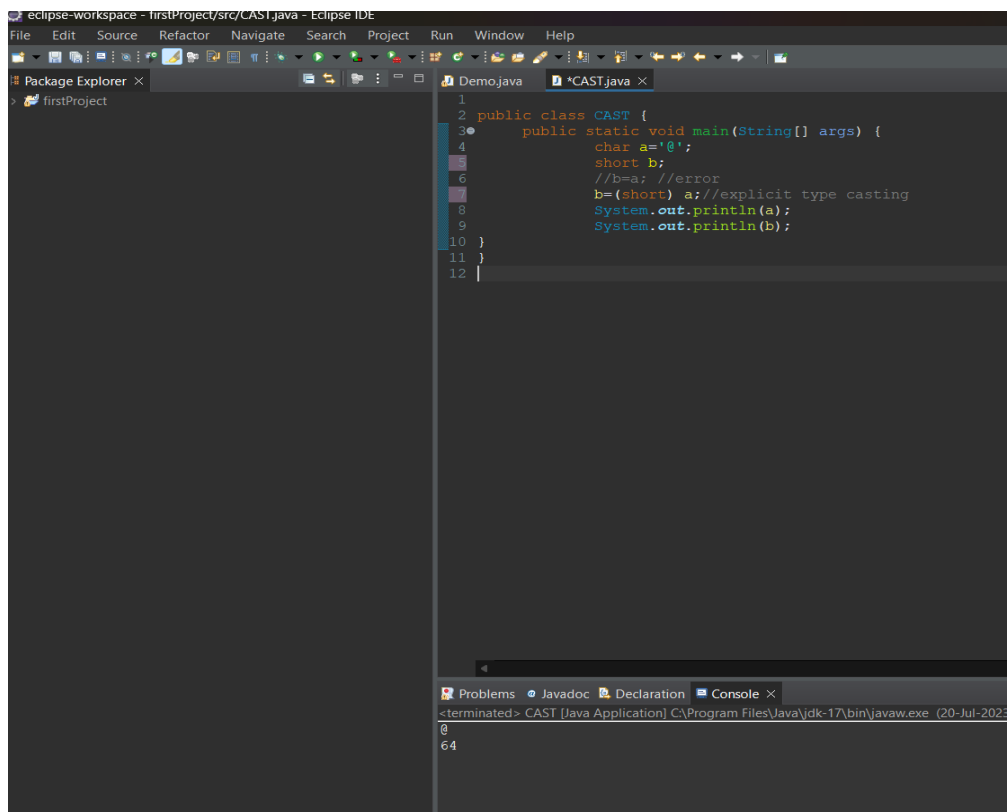


```
1 public class CAST {
2     public static void main(String[] args) {
3         char a='@';
4         byte b;
5         //b=a; //error
6         b=(byte) a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The screenshot shows the Eclipse IDE with a Java file named CAST.java. The code defines a class CAST with a main method. It declares a char variable 'a' with the value '@' and a byte variable 'b'. Line 6 shows an attempt to assign 'a' to 'b' without explicit casting, which is highlighted with a red squiggly line indicating an error. Line 7 shows the same assignment with explicit casting: b=(byte) a. The console output shows the character '@' and the byte value 64.

Error because for char to byte explicit casting should be done.

Char to short

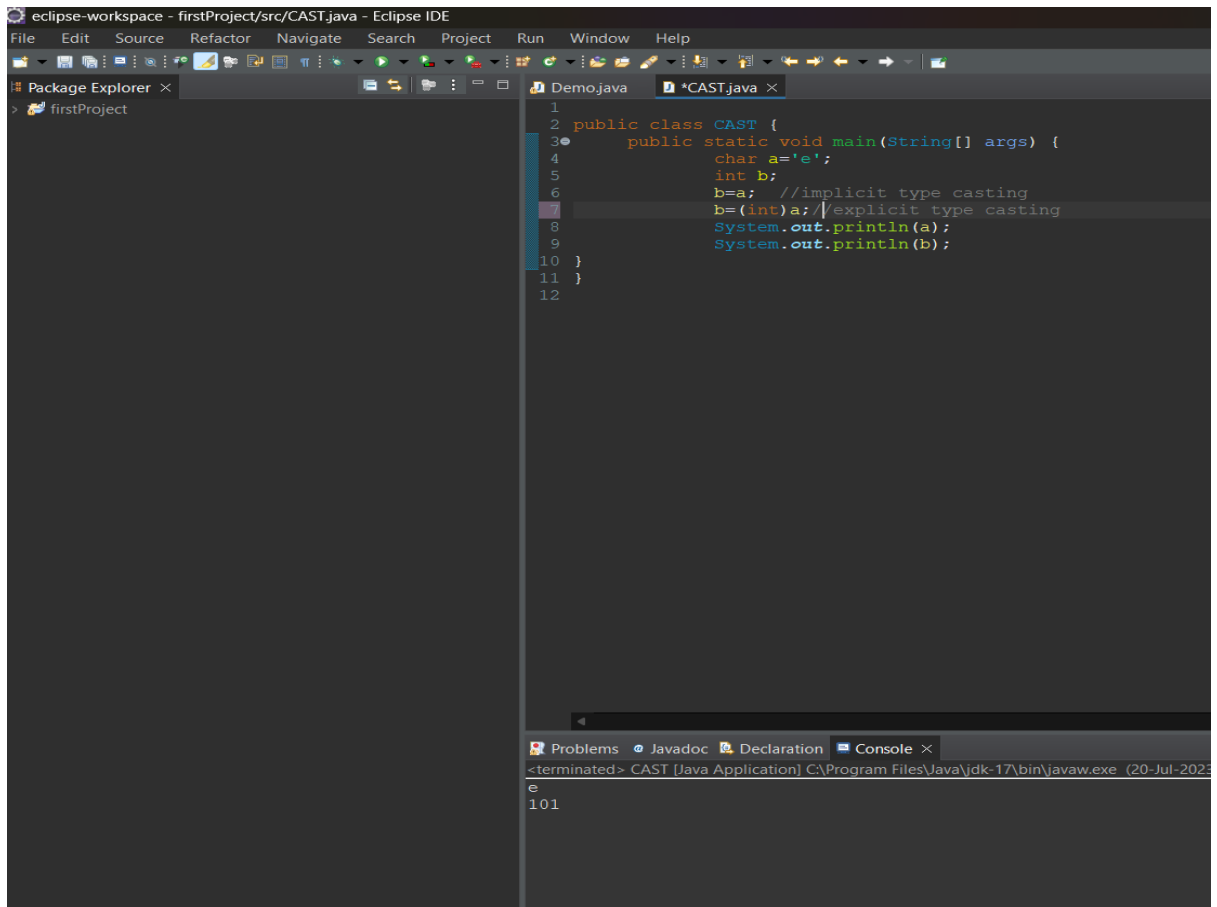


```
1 public class CAST {
2     public static void main(String[] args) {
3         char a='@';
4         short b;
5         //b=a; //error
6         b=(short) a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The screenshot shows the Eclipse IDE with a Java file named CAST.java. The code defines a class CAST with a main method. It declares a char variable 'a' with the value '@' and a short variable 'b'. Line 5 shows an attempt to assign 'a' to 'b' without explicit casting, which is highlighted with a red squiggly line indicating an error. Line 6 shows the same assignment with explicit casting: b=(short) a. The console output shows the character '@' and the short value 64.

Error because for char to short explicit casting should be done.

Char to int



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

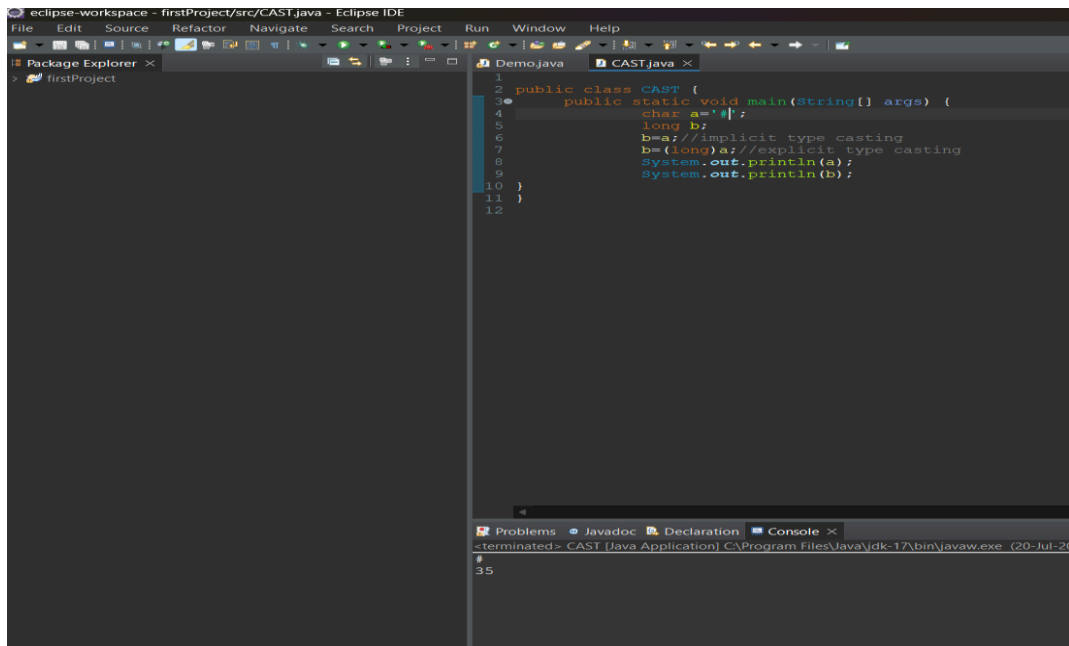
```
1 public class CAST {
2     public static void main(String[] args) {
3         char a='e';
4         int b;
5         b=a; //implicit type casting
6         b=(int)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console output at the bottom shows the program execution:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023)
e
101
```

No error

Char to long



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

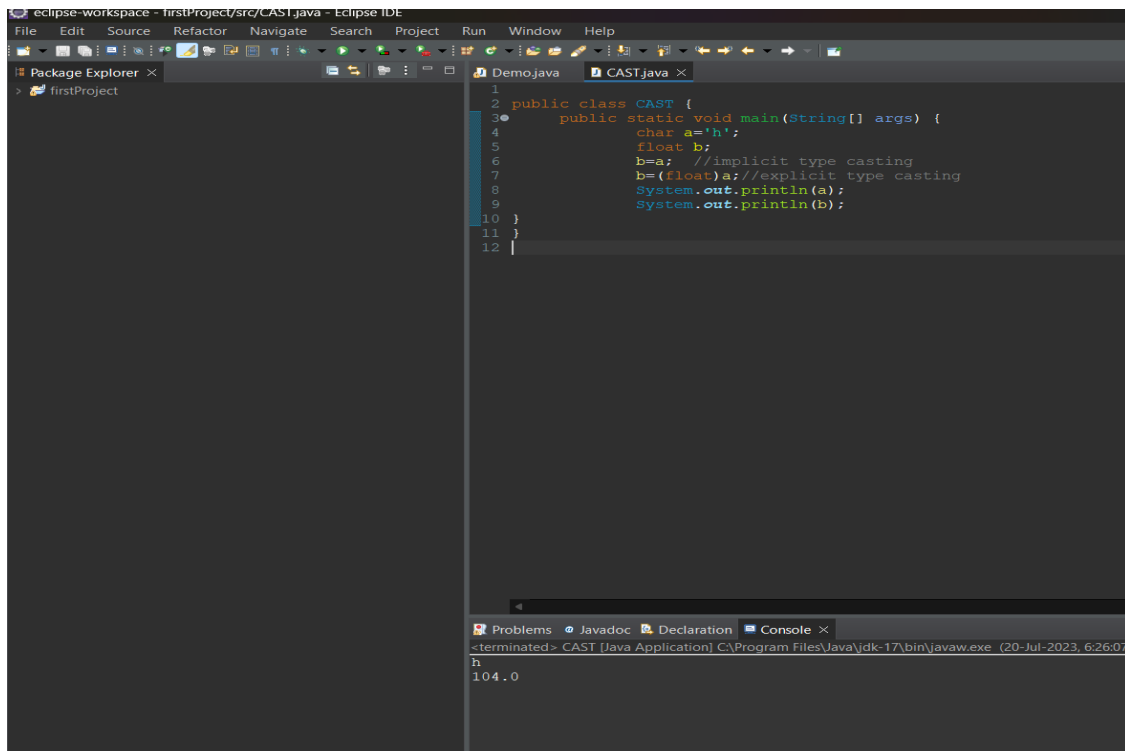
```
1 public class CAST {
2     public static void main(String[] args) {
3         char a='e';
4         long b;
5         b=a; //implicit type casting
6         b=(long)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console output at the bottom shows the program execution:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023)
e
35
```

No error

Char to float



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

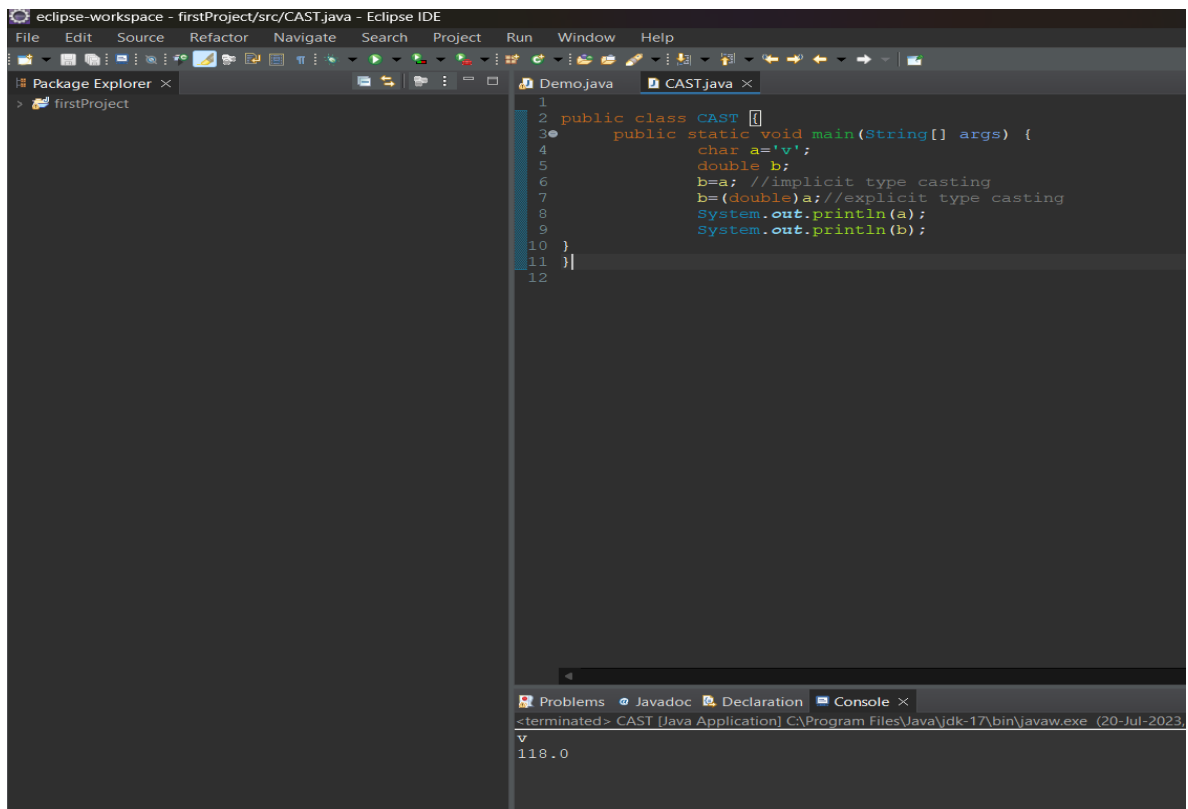
```
1 public class CAST {
2     public static void main(String[] args) {
3         char a='h';
4         float b;
5         b=a; //implicit type casting
6         b=(float)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The Console window at the bottom shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 6:26:07)
h
104.0
```

No error

Char to double



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

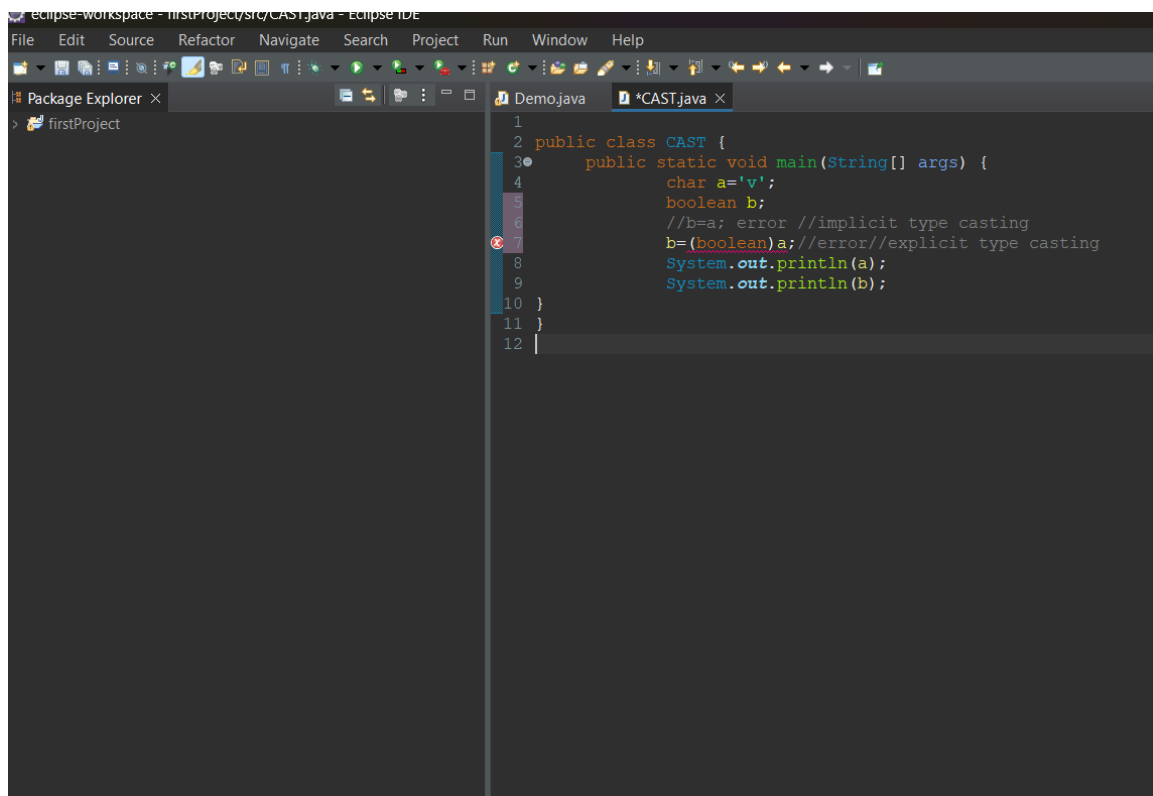
```
1 public class CAST {
2     public static void main(String[] args) {
3         char a='v';
4         double b;
5         b=a; //implicit type casting
6         b=(double)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The Console window at the bottom shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 6:26:07)
v
118.0
```

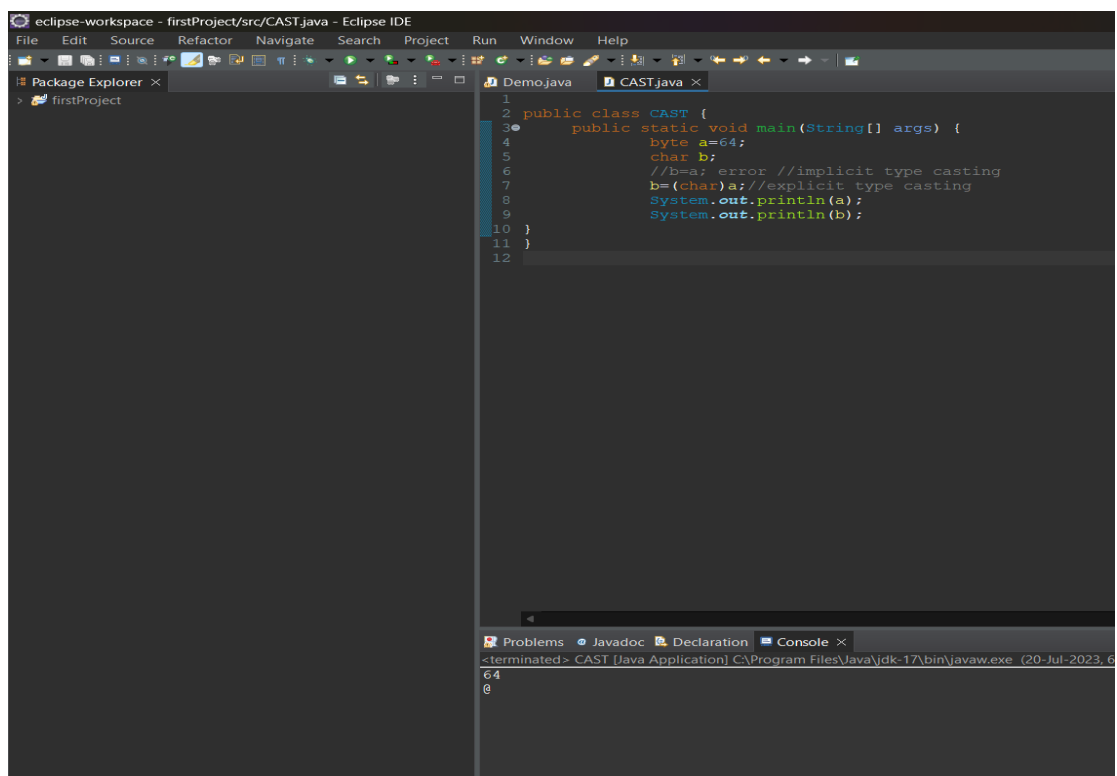
No error

Char to Boolean



Error because for char to boolean explicit casting should be done.

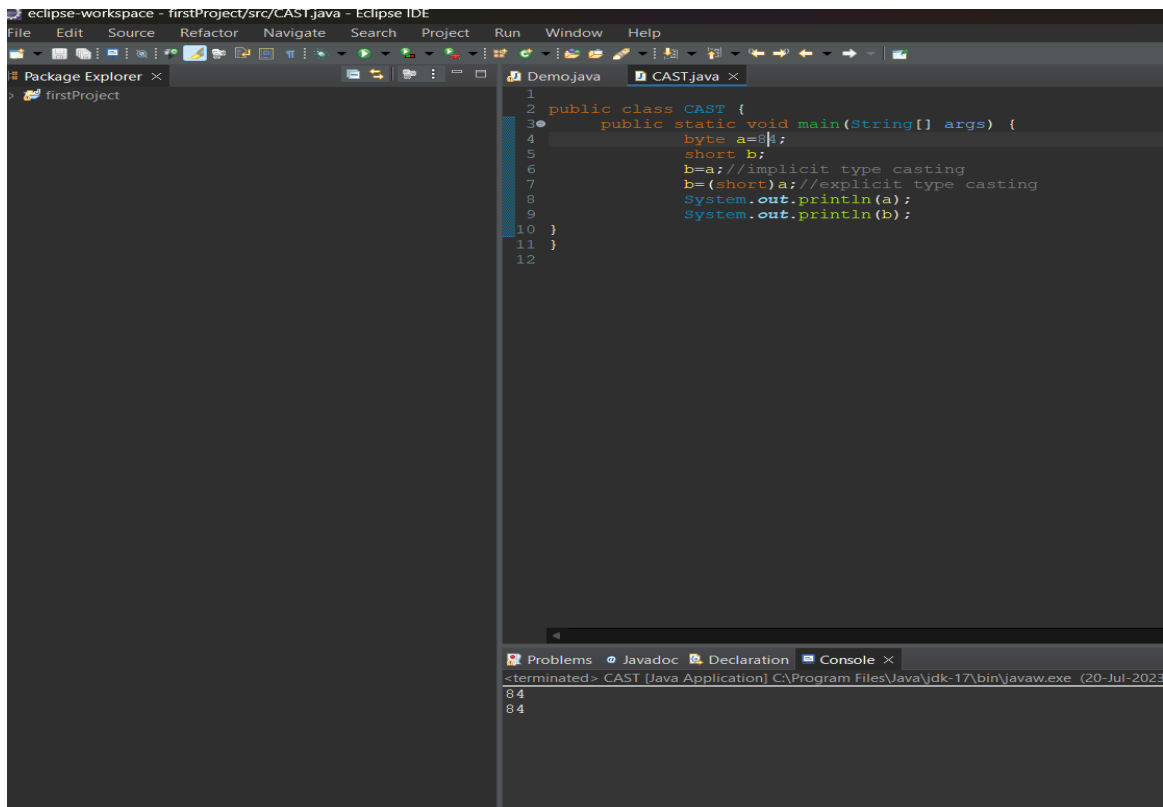
Byte to char



Error

because for byte to char explicit casting should be done.

Byte to short



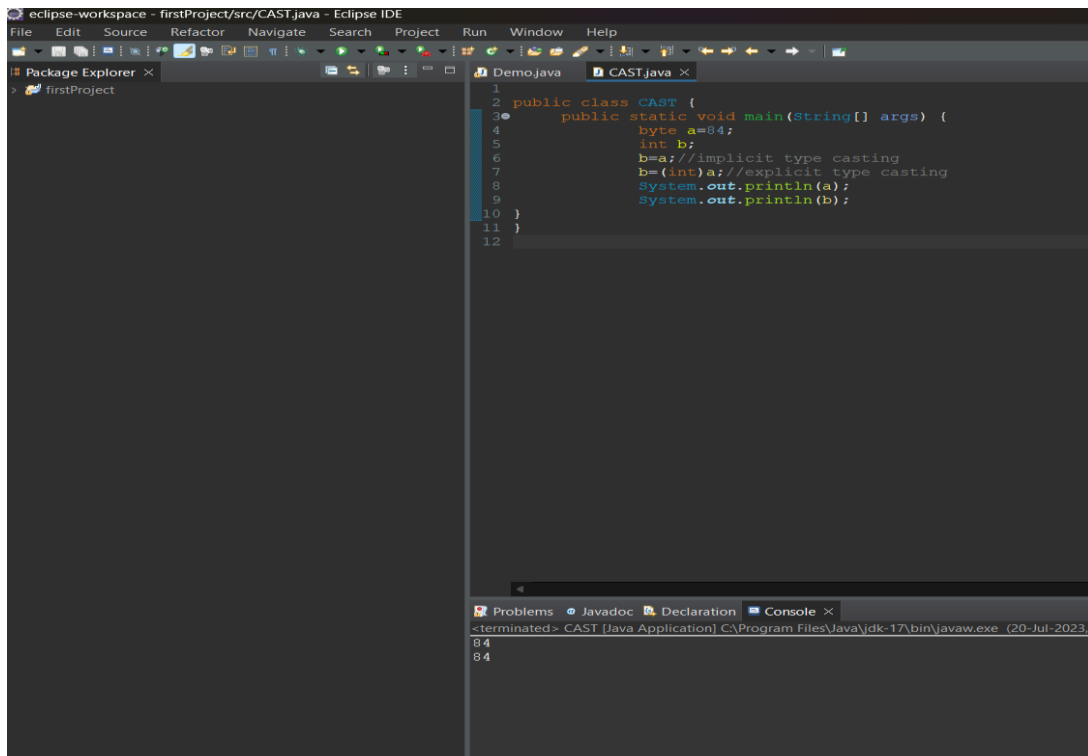
```
1
2 public class CAST {
3     public static void main(String[] args) {
4         byte a=84;
5         short b;
6         b=a;//implicit type casting
7         b=(short)a;//explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12 }
```

Problems Javadoc Declaration Console

-terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023...
84
84

No error

Byte to int



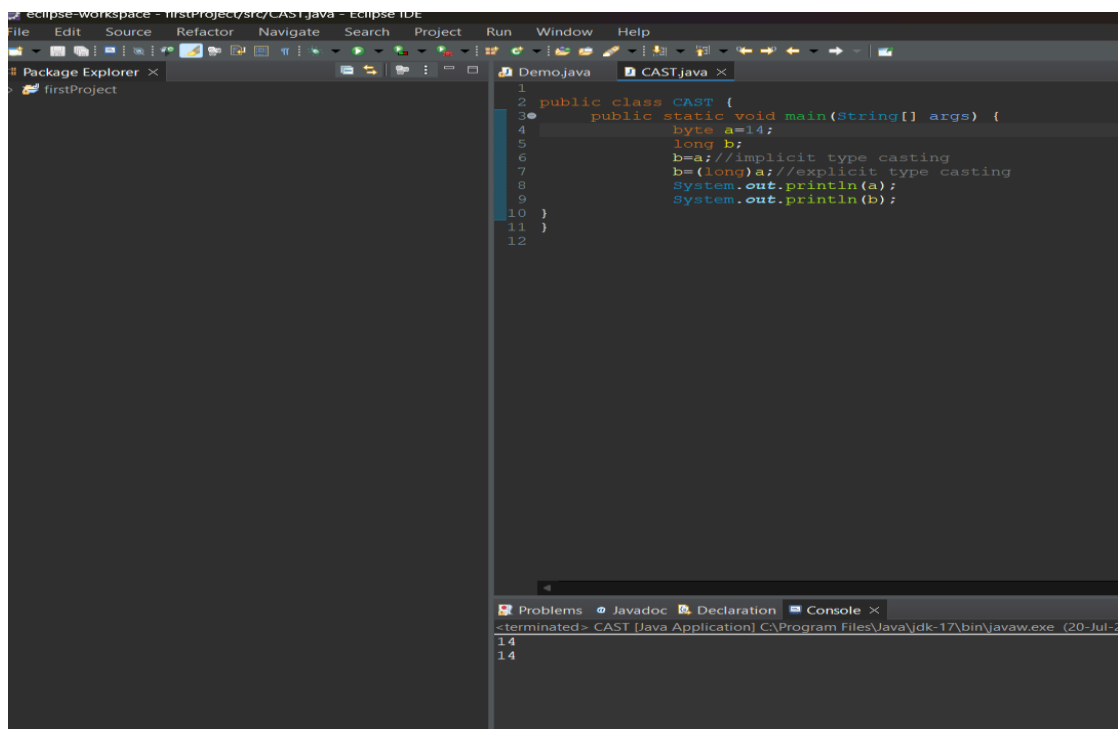
```
1
2 public class CAST {
3     public static void main(String[] args) {
4         byte a=84;
5         int b;
6         b=a;//implicit type casting
7         b=(int)a;//explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12 }
```

Problems Javadoc Declaration Console

-terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023...
84
84

No error

Byte to long



```
1 public class CAST {
2     public static void main(String[] args) {
3         byte a=14;
4         long b;
5         b=a; //implicit type casting
6         b=(long)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

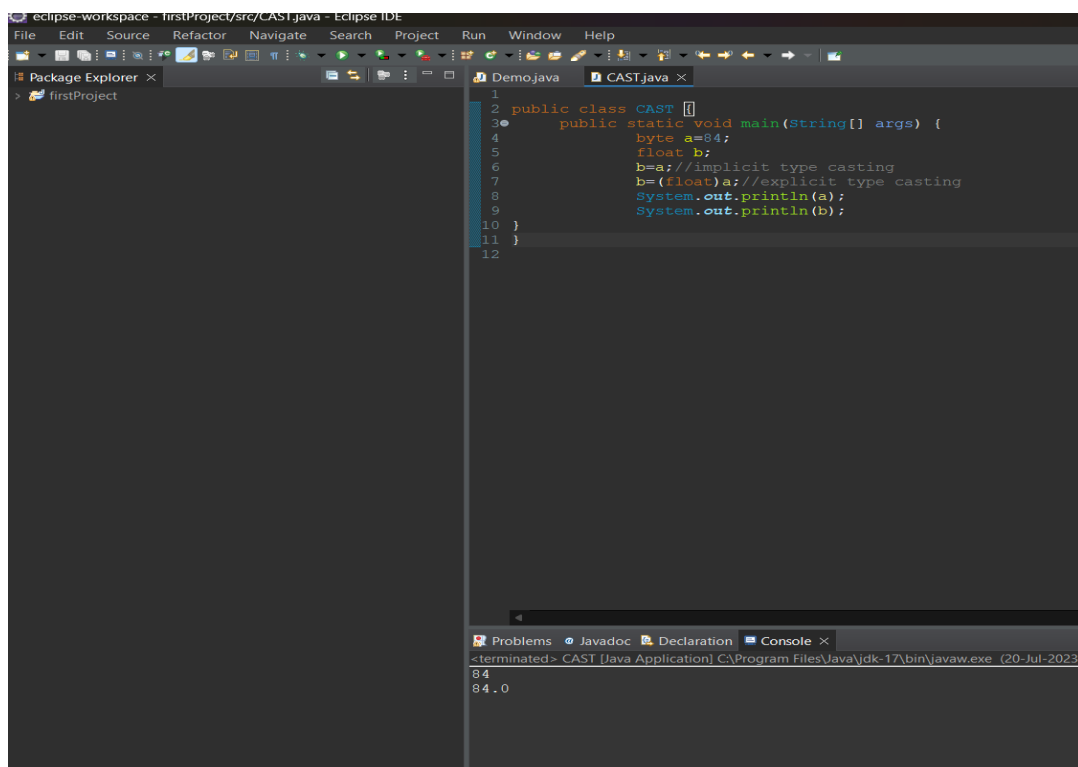
Problems Javadoc Declaration Console

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023)

14
14

No error

Byte to float



```
1 public class CAST {
2     public static void main(String[] args) {
3         byte a=84;
4         float b;
5         b=a; //implicit type casting
6         b=(float)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

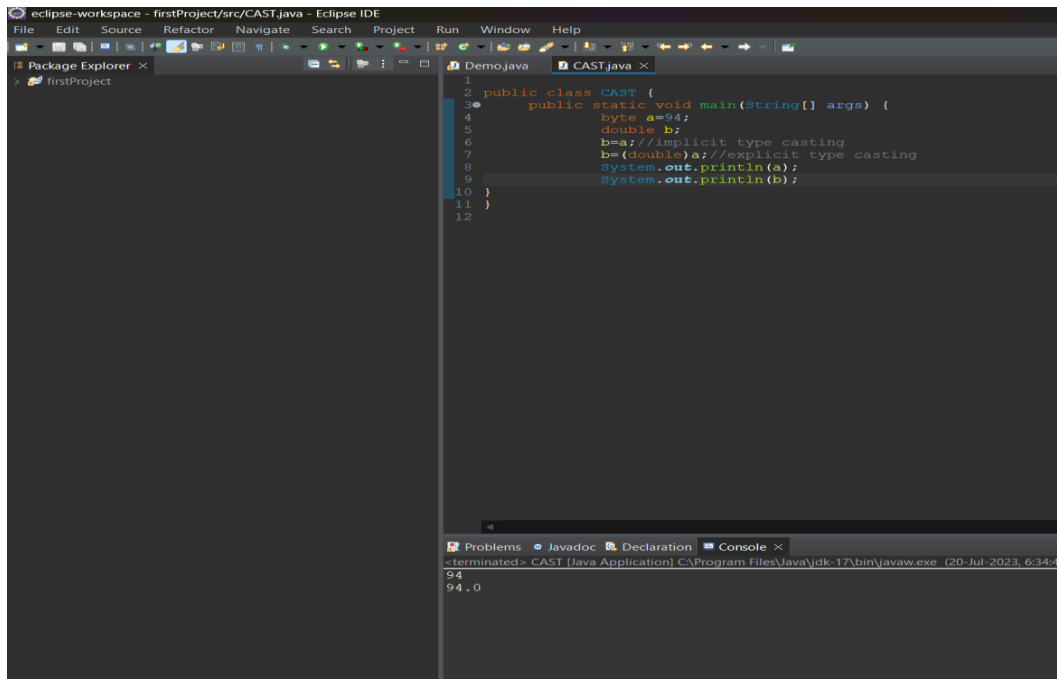
Problems Javadoc Declaration Console

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023)

84
84.0

No error

Byte to double



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

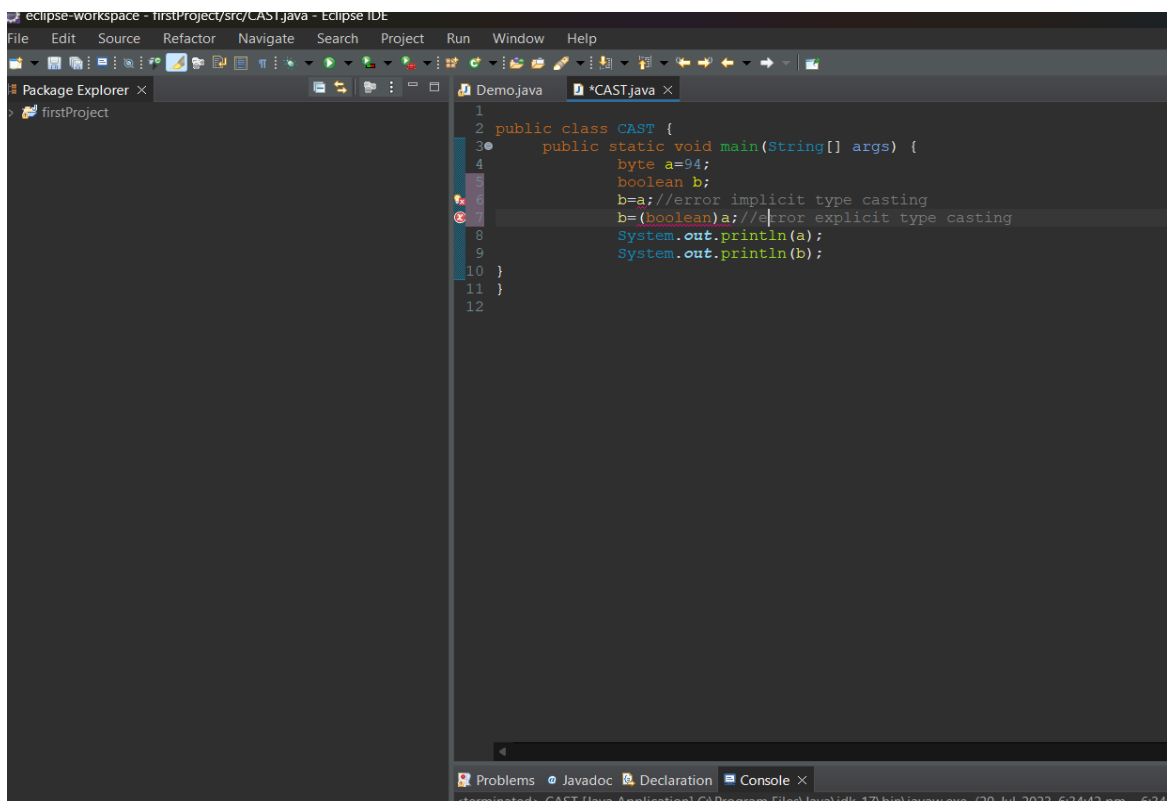
```
1
2 public class CAST {
3     public static void main(String[] args) {
4         byte a=94;
5         double b;
6         b=a;//implicit type casting
7         b=(double)a;//explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

The Console window at the bottom shows the output of the program:

```
terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 6:34:4
94
94.0
```

No error

Byte to Boolean



The screenshot shows the Eclipse IDE with the same project 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

```
1
2 public class CAST {
3     public static void main(String[] args) {
4         byte a=94;
5         boolean b;
6         b=a;//error implicit type casting
7         b=(boolean)a;//error explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

The Console window at the bottom shows the output of the program:

```
terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 6:34:42 am) 6:34
```

Error in both conversion

Short to char

The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

```
1 public class CAST {
2     public static void main(String[] args) {
3         short a=29994;
4         char b;
5         // b=a;//error implicit type casting
6         b=(char)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 |
```

The console at the bottom shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023)
29994
用
```

Error because for short to char explicit casting should be done.

Short to byte

The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

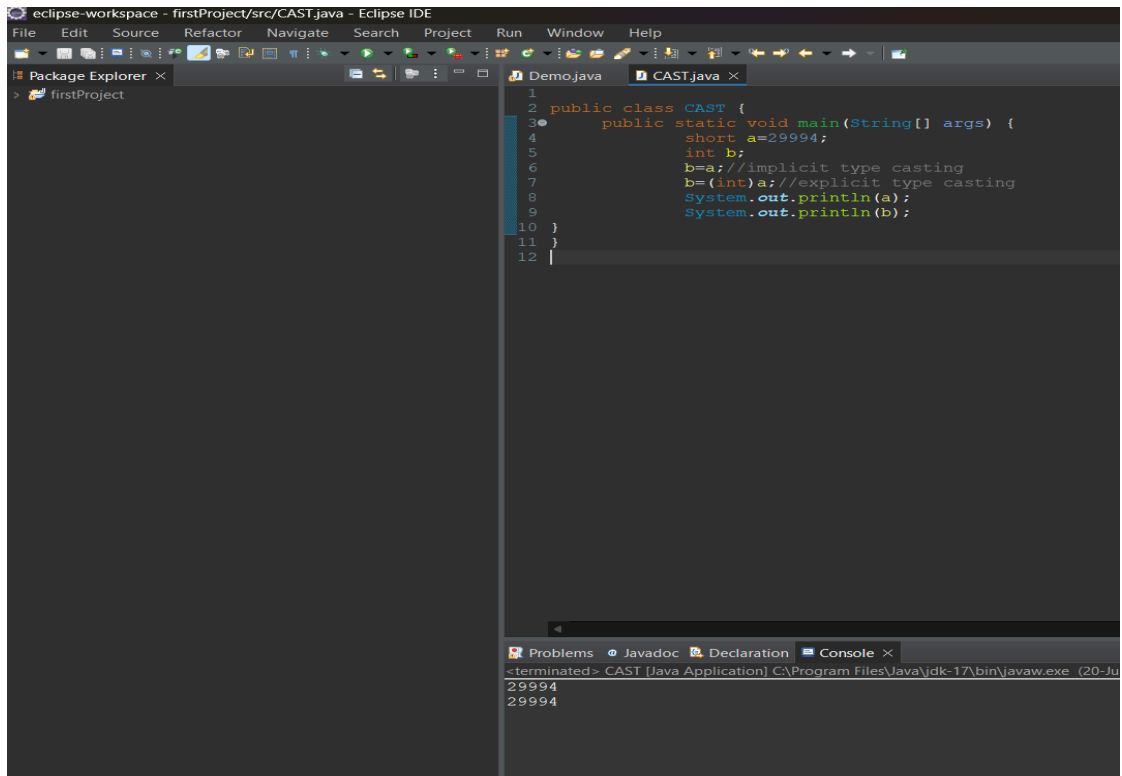
```
1 public class CAST {
2     public static void main(String[] args) {
3         short a=16994;
4         byte b;
5         // b=a;//error implicit type casting
6         b=(byte)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 |
```

The console at the bottom shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023)
16994
98
```

Error because for short to byte explicit casting should be done.

Short to int

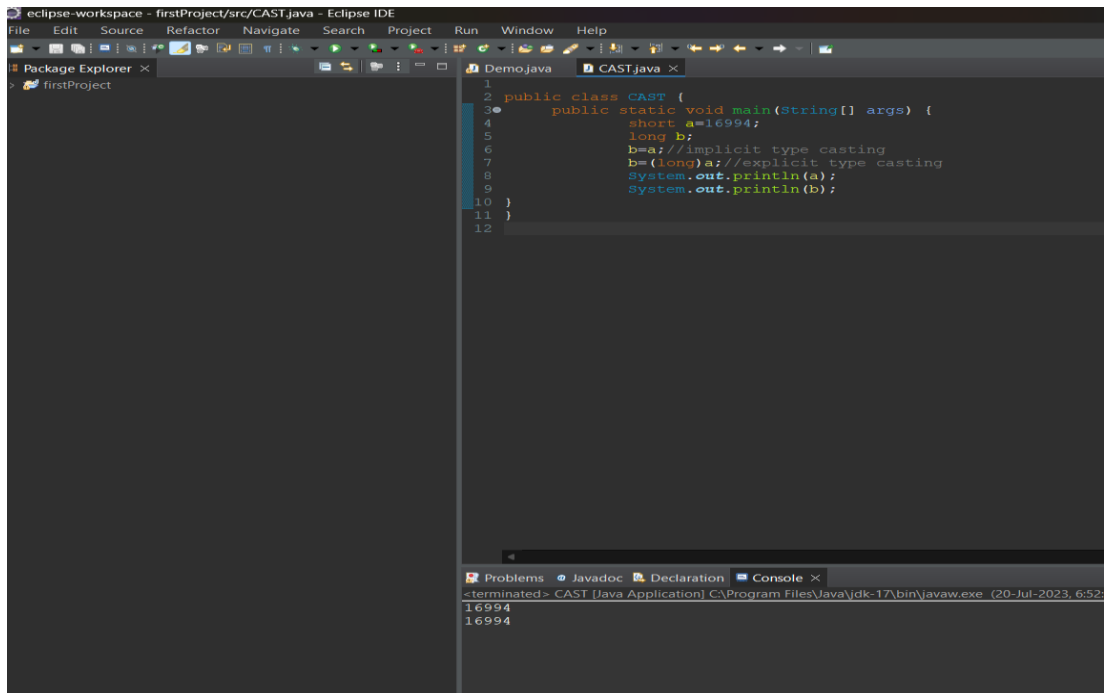


```
eclipse-workspace - firstProject/src/CAST.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer x DemoJava CAST.java x
> firstProject
1
2 public class CAST {
3     public static void main(String[] args) {
4         short a=29994;
5         int b;
6         b=a;//implicit type casting
7         b=(int)a;//explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12

Problems Javadoc Declaration Console x
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Ju
29994
29994
```

No error

Short to long

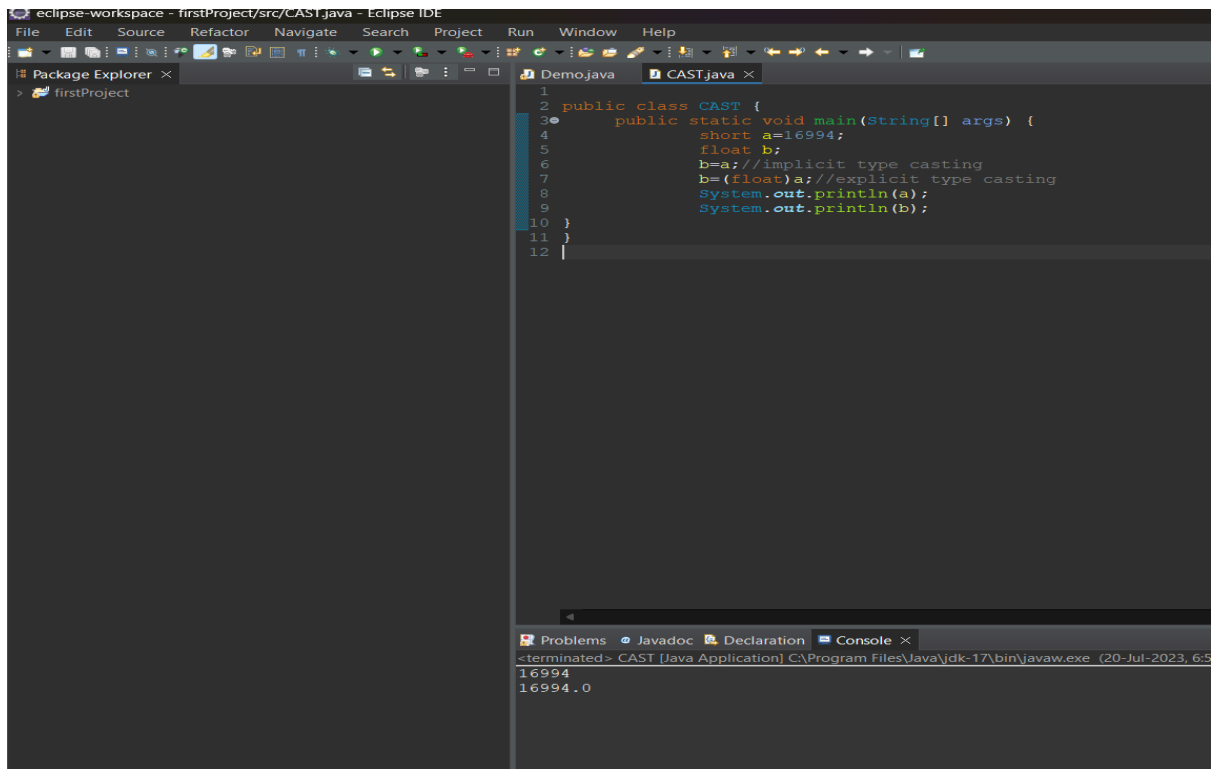


```
eclipse-workspace - firstProject/src/CAST.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer x DemoJava CAST.java x
> firstProject
1
2 public class CAST {
3     public static void main(String[] args) {
4         short a=16994;
5         long b;
6         b=a;//implicit type casting
7         b=(long)a;//explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12

Problems Javadoc Declaration Console x
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 6:52
16994
16994
```

No error

Short to float



```
1
2 public class CAST {
3     public static void main(String[] args) {
4         short a=16994;
5         float b;
6         b=a;//implicit type casting
7         b=(float)a;//explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

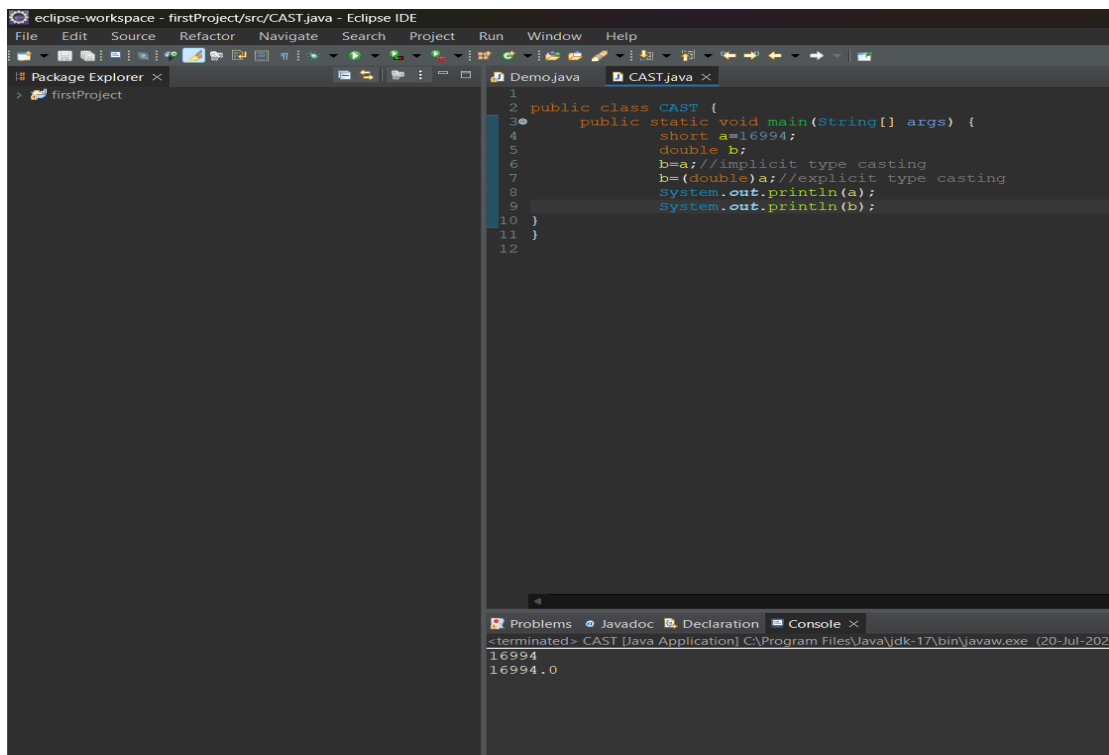
Problems Javadoc Declaration Console

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 6:5

16994
16994.0

No error

Short to double



```
1
2 public class CAST {
3     public static void main(String[] args) {
4         short a=16994;
5         double b;
6         b=a;//implicit type casting
7         b=(double)a;//explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

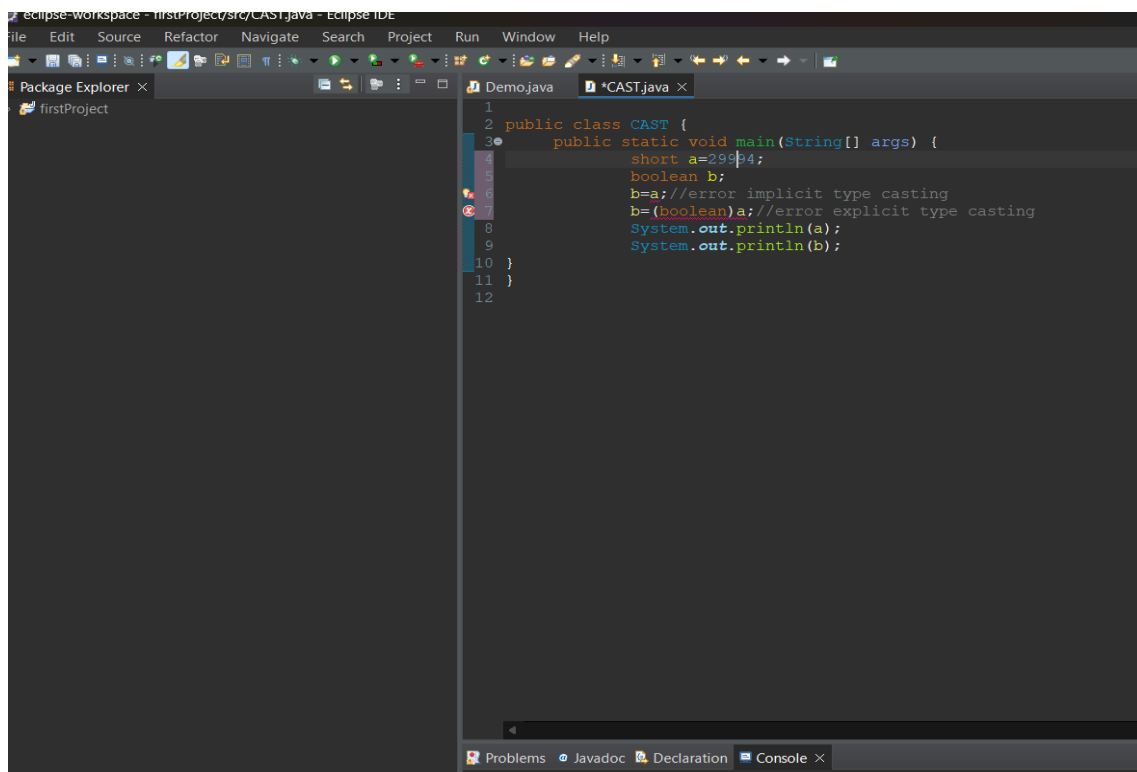
Problems Javadoc Declaration Console

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023

16994
16994.0

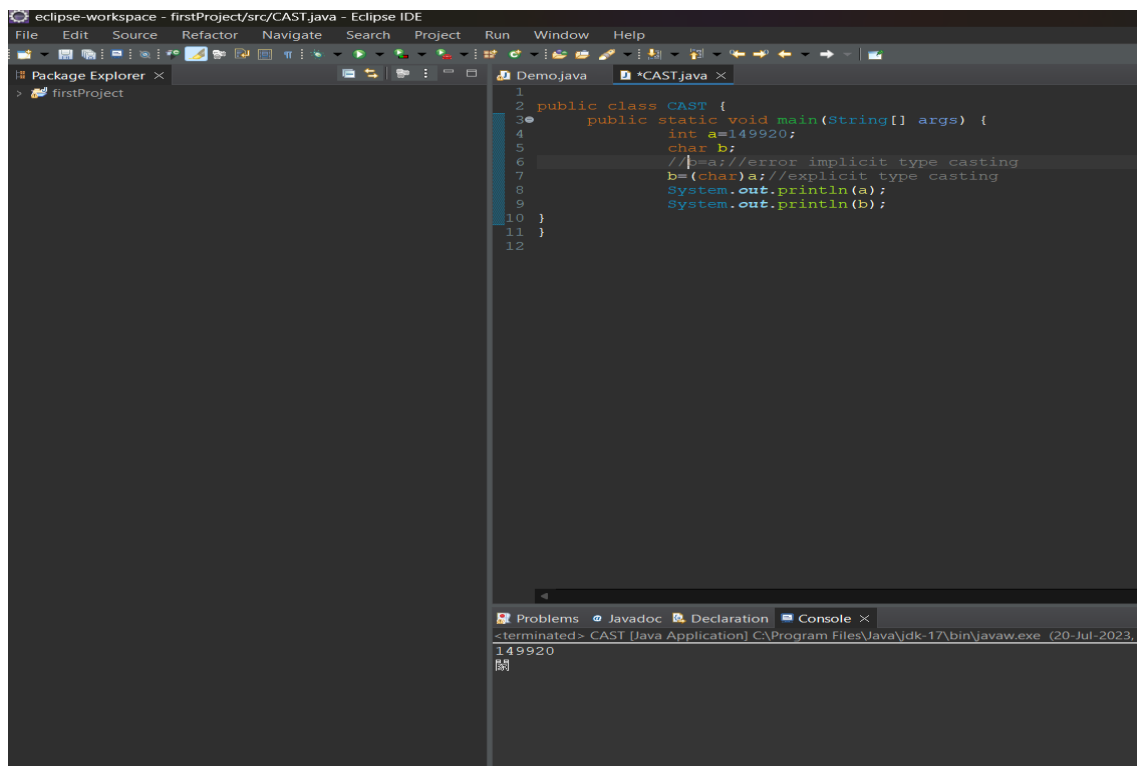
No error

Short to Boolean



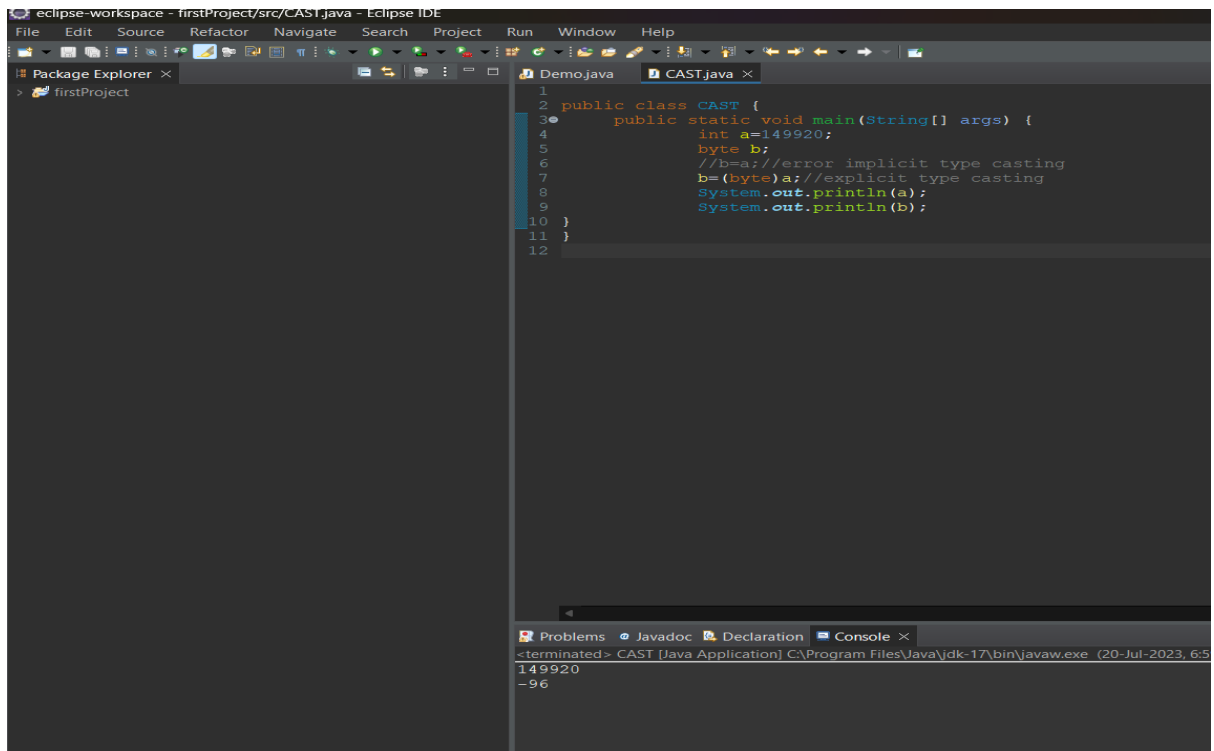
Error in both conversion

Int to char



Error because for int to char explicit casting should be done.

Int to byte



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

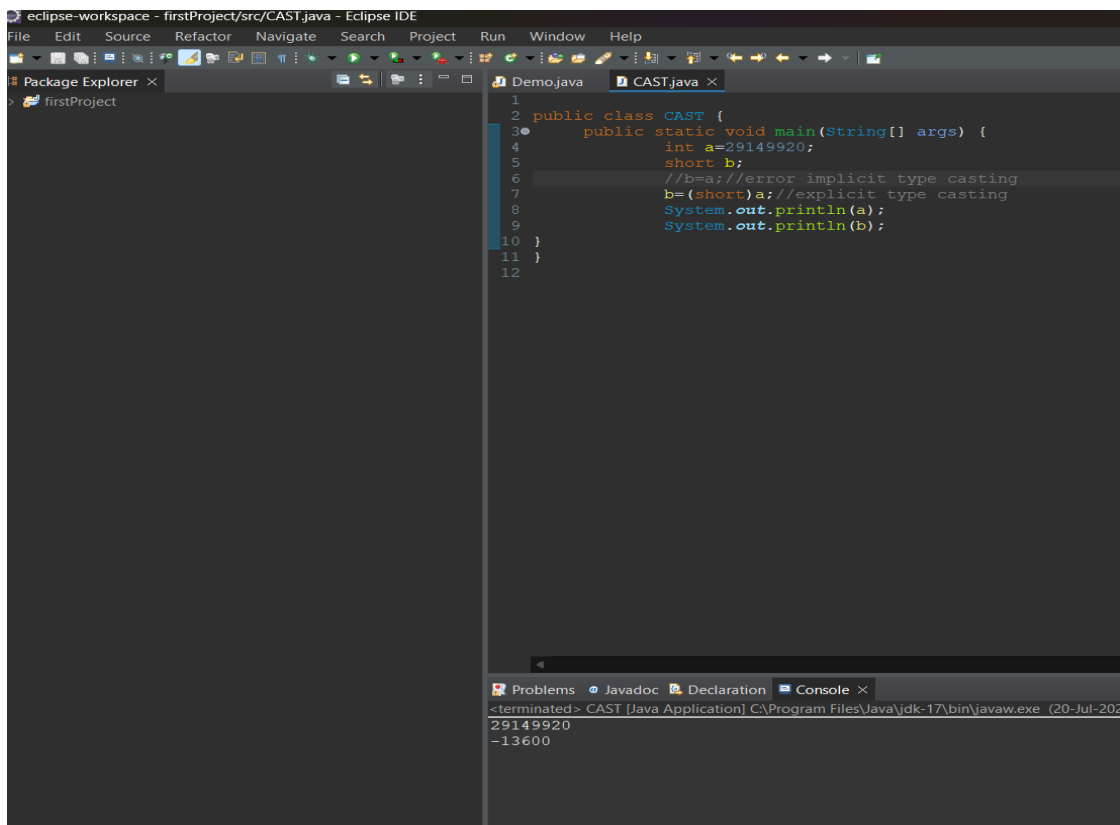
```
1 public class CAST {
2     public static void main(String[] args) {
3         int a=149920;
4         byte b;
5         //b=a;//error implicit type casting
6         b=(byte)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console output at the bottom shows the program terminated successfully, printing the values 149920 and -96.

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 6:5
149920
-96
```

Error because for int to byte explicit casting should be done.

Int to short



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

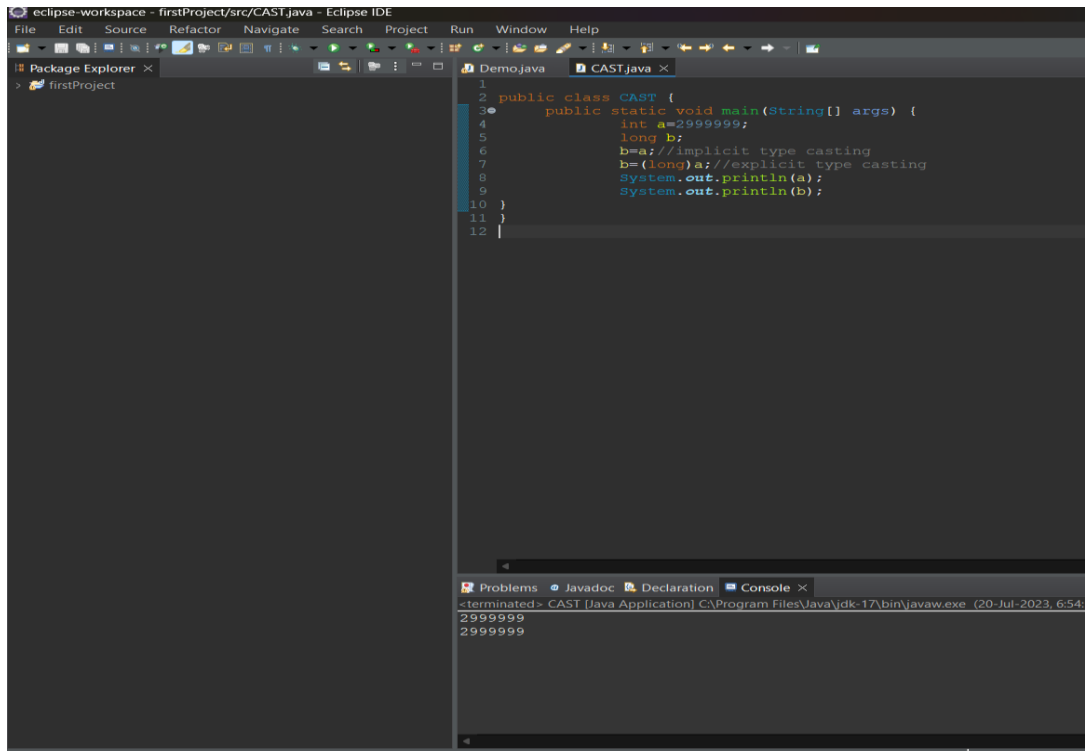
```
1 public class CAST {
2     public static void main(String[] args) {
3         int a=29149920;
4         short b;
5         //b=a;//error implicit type casting
6         b=(short)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console output at the bottom shows the program terminated successfully, printing the values 29149920 and -13600.

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-202
29149920
-13600
```

Error because for int to short explicit casting should be done.

Int to long



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

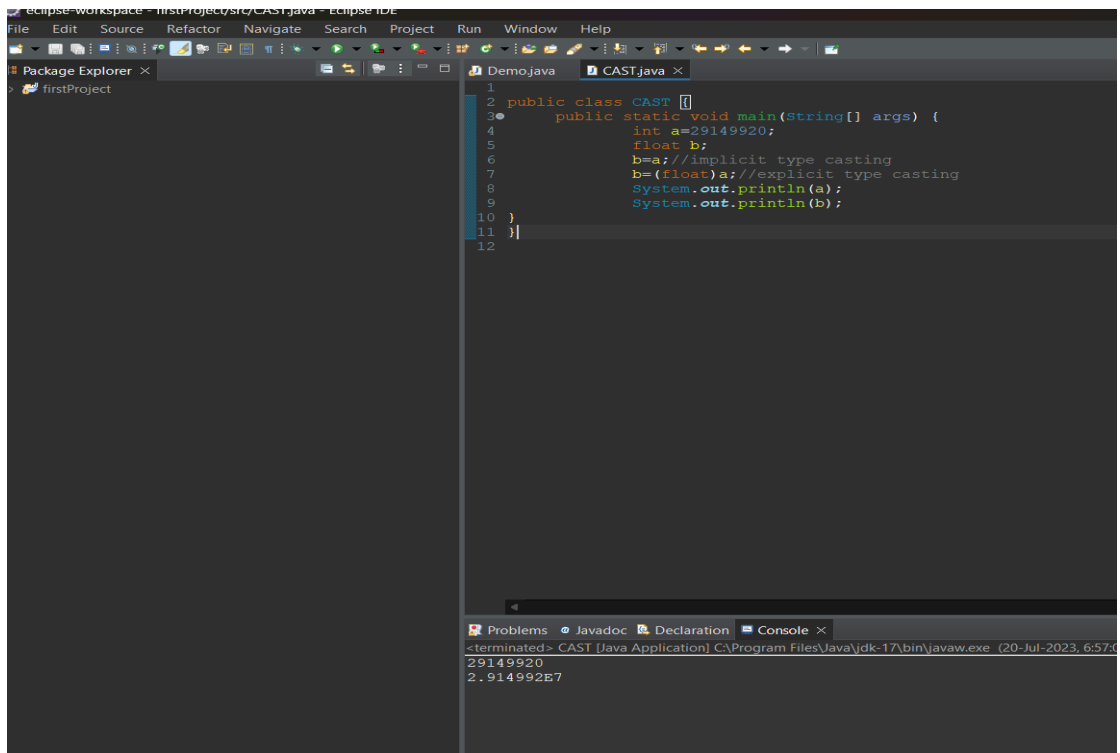
```
1 public class CAST {
2     public static void main(String[] args) {
3         int a=29999999;
4         long b;
5         b=a;//implicit type casting
6         b=(long)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The Console window at the bottom shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 6:54:
29999999
29999999
```

No error

Int to float



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

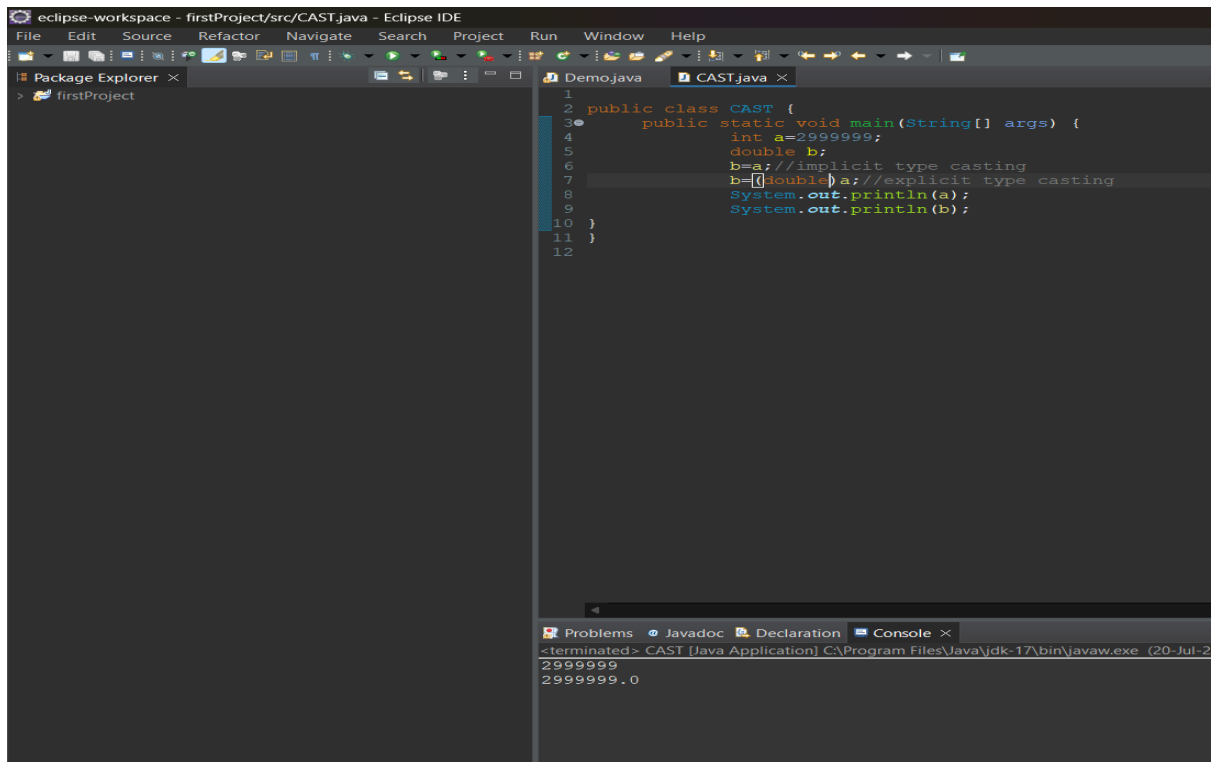
```
1 public class CAST {
2     public static void main(String[] args) {
3         int a=29149920;
4         float b;
5         b=a;//implicit type casting
6         b=(float)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The Console window at the bottom shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 6:57:0
29149920
2.914992E7
```

No error

Int to double



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

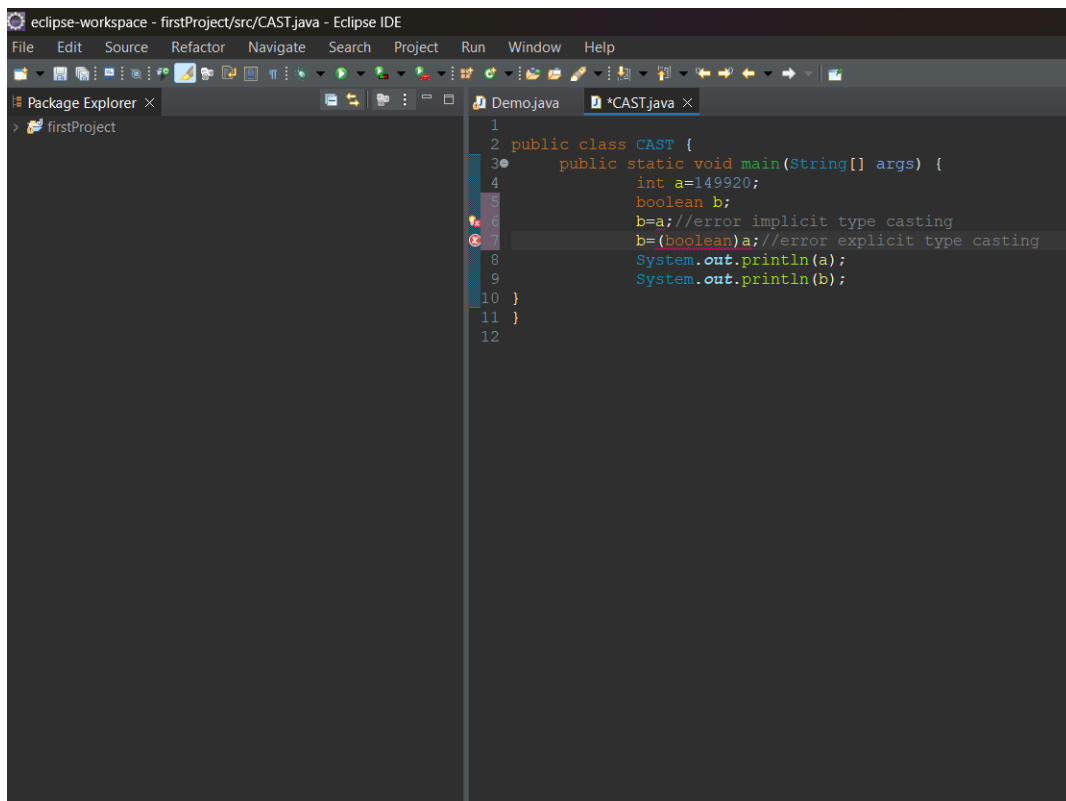
```
1
2 public class CAST {
3     public static void main(String[] args) {
4         int a=2999999;
5         double b;
6         b=a;//implicit type casting
7         b=(double)a;//explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

The Console window at the bottom shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2
2999999
2999999.0
```

No error

Int to Boolean



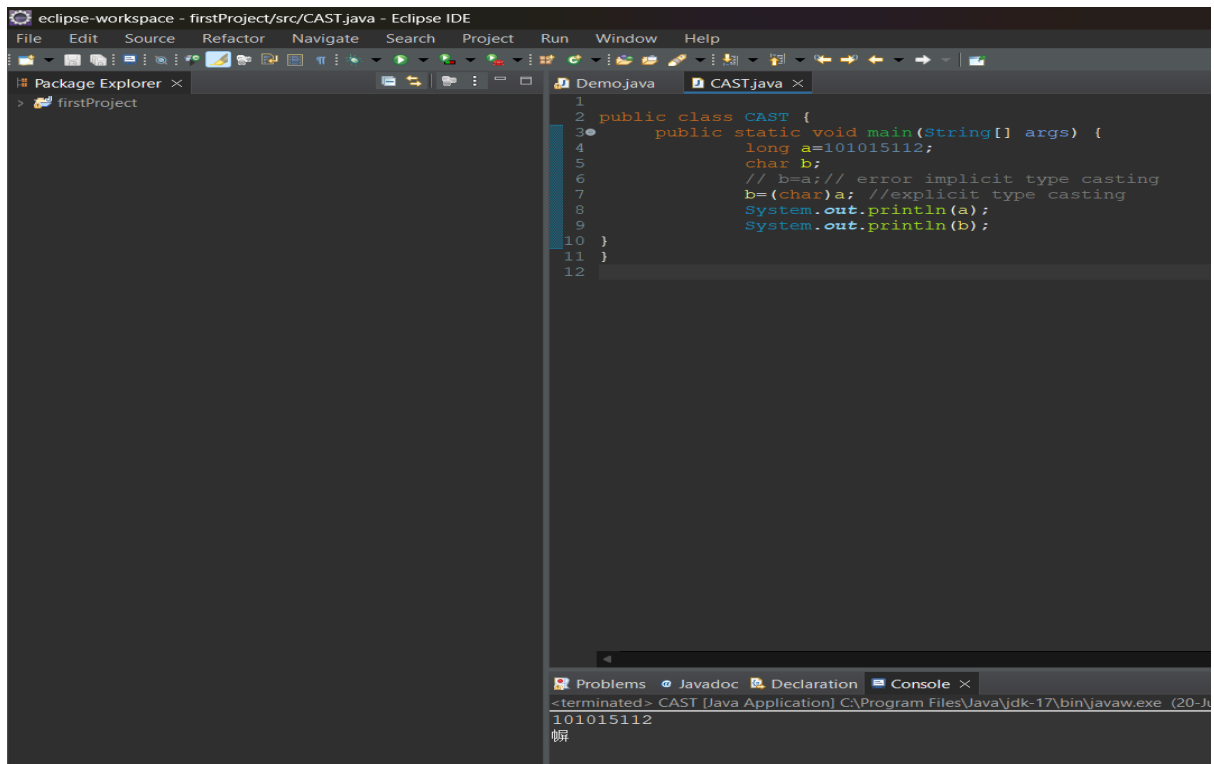
The screenshot shows the Eclipse IDE with the same project 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

```
1
2 public class CAST {
3     public static void main(String[] args) {
4         int a=149920;
5         boolean b;
6         b=a;//error implicit type casting
7         b=(boolean)a;//error explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

The code has two compilation errors highlighted with red squiggly lines: 'error implicit type casting' on line 6 and 'error explicit type casting' on line 7.

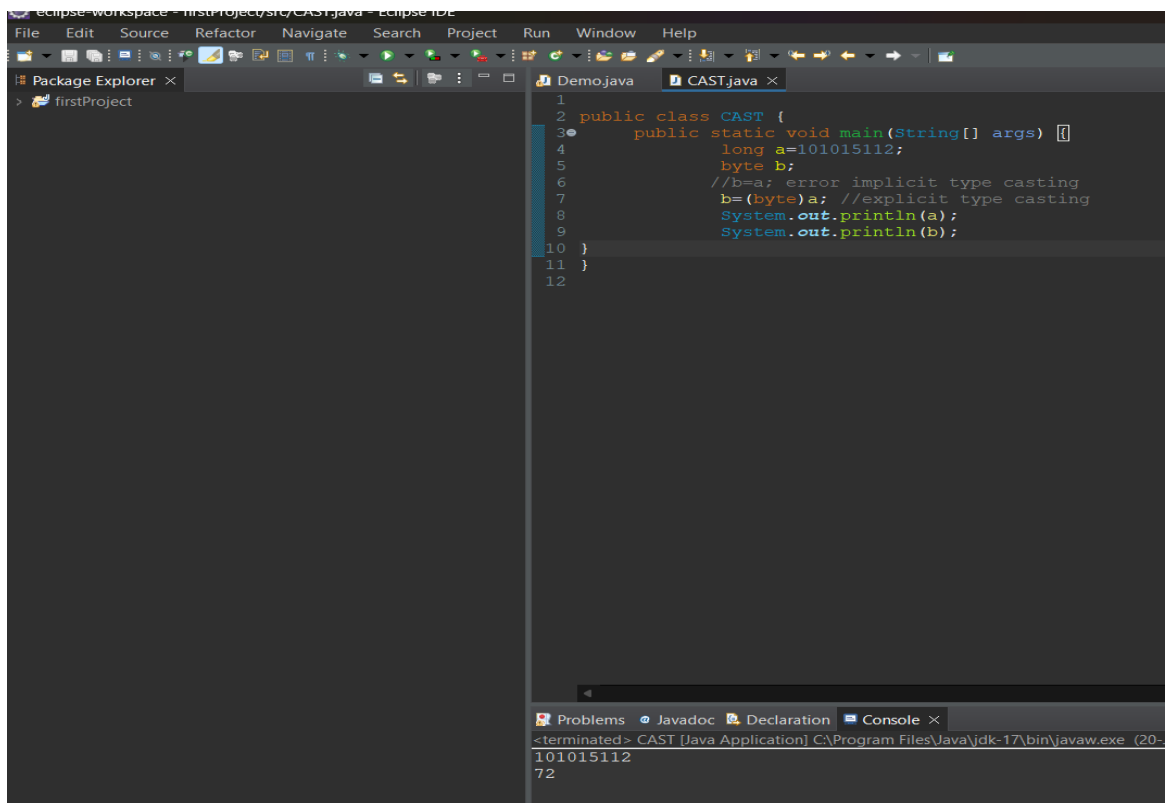
Error in both conversions.

Long to char



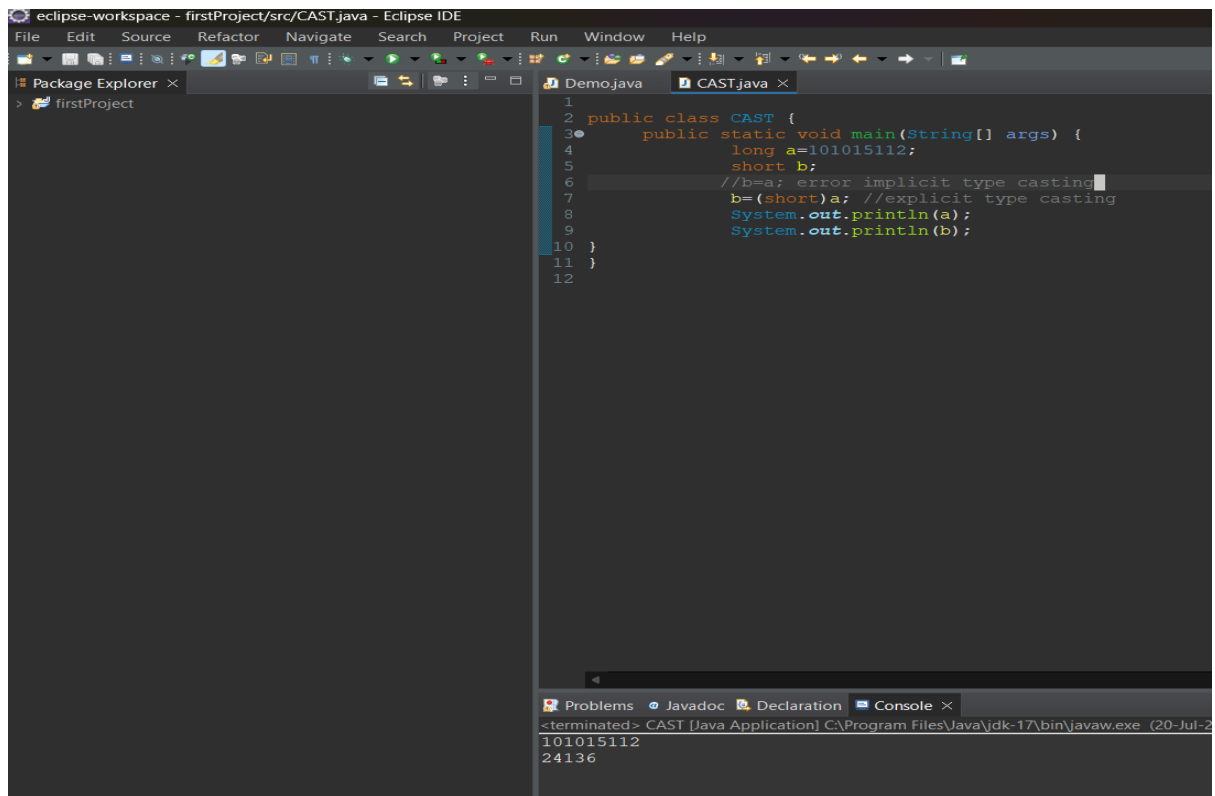
Error because for long to char explicit casting should be done.

Long to byte



Error because for long to byte explicit casting should be done.

Long to short



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

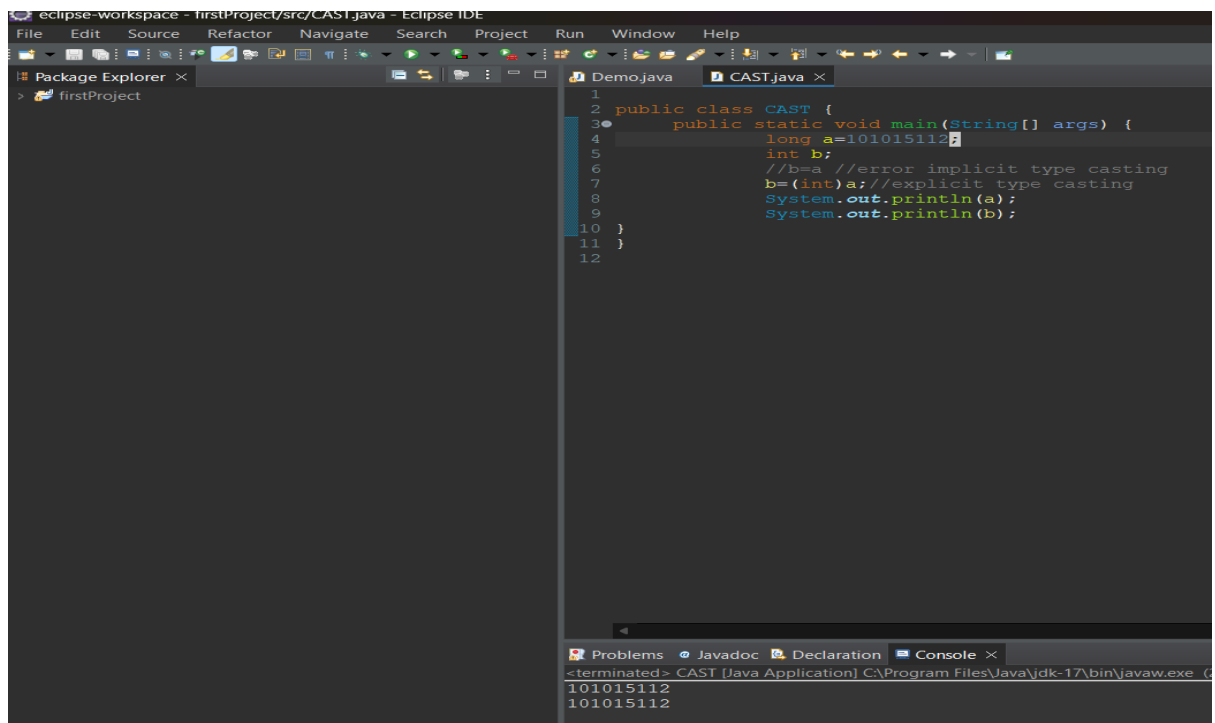
```
1 public class CAST {
2     public static void main(String[] args) {
3         long a=101015112;
4         short b;
5         //b=a; error implicit type casting
6         b=(short)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console output at the bottom shows the program execution results:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2
101015112
24136
```

Error because for long to short explicit casting should be done.

Long to int



The screenshot shows the Eclipse IDE with the same project 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

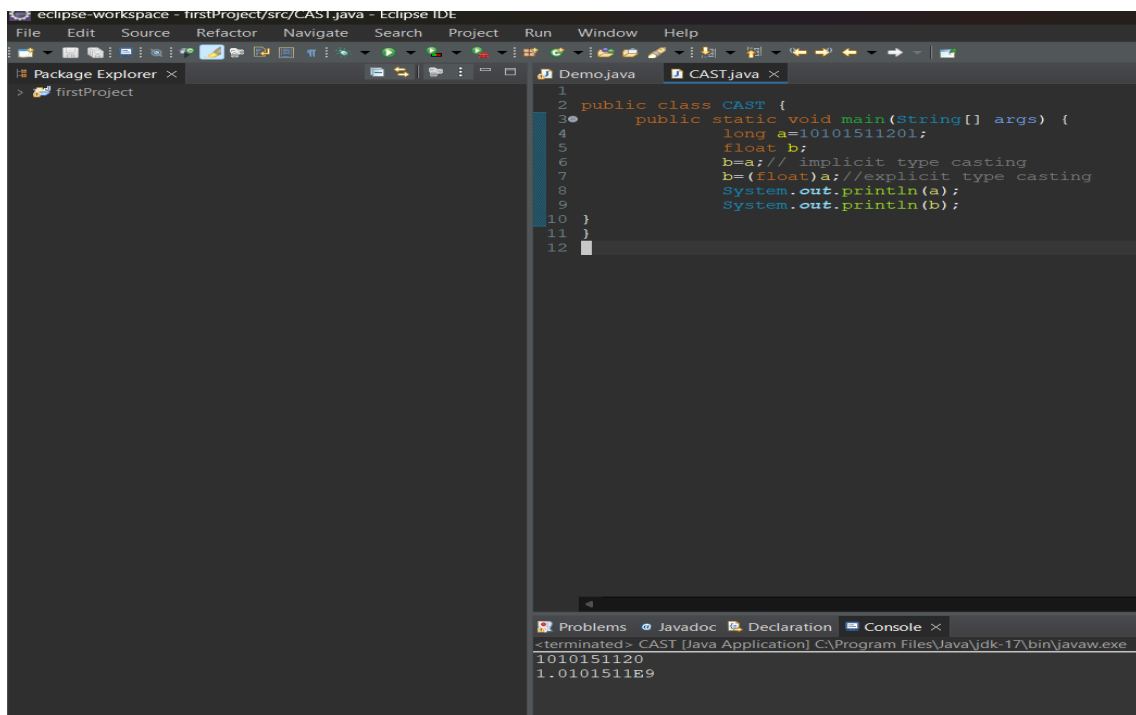
```
1 public class CAST {
2     public static void main(String[] args) {
3         long a=101015112;
4         int b;
5         //b=a //error implicit type casting
6         b=(int)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console output at the bottom shows the program execution results:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (
101015112
101015112
```

Error because for long to int explicit casting should be done.

Long to float



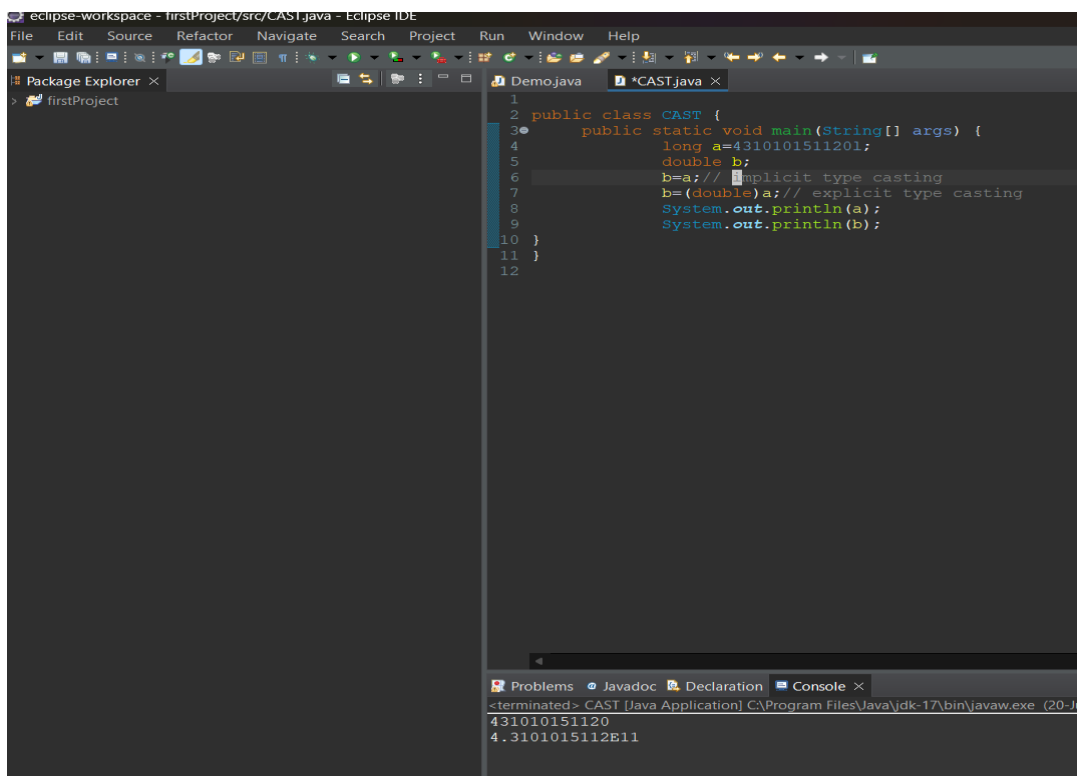
```
eclipse-workspace - firstProject/src/CAST.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer x Demo.java CAST.java x
> firstProject

1
2 public class CAST {
3     public static void main(String[] args) {
4         long a=1010151120L;
5         float b;
6         b=a; // implicit type casting
7         b=(float)a; // explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12

Problems Javadoc Declaration Console x
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (
1010151120
1.0101511E9
```

No error in both conversions.

Long to double



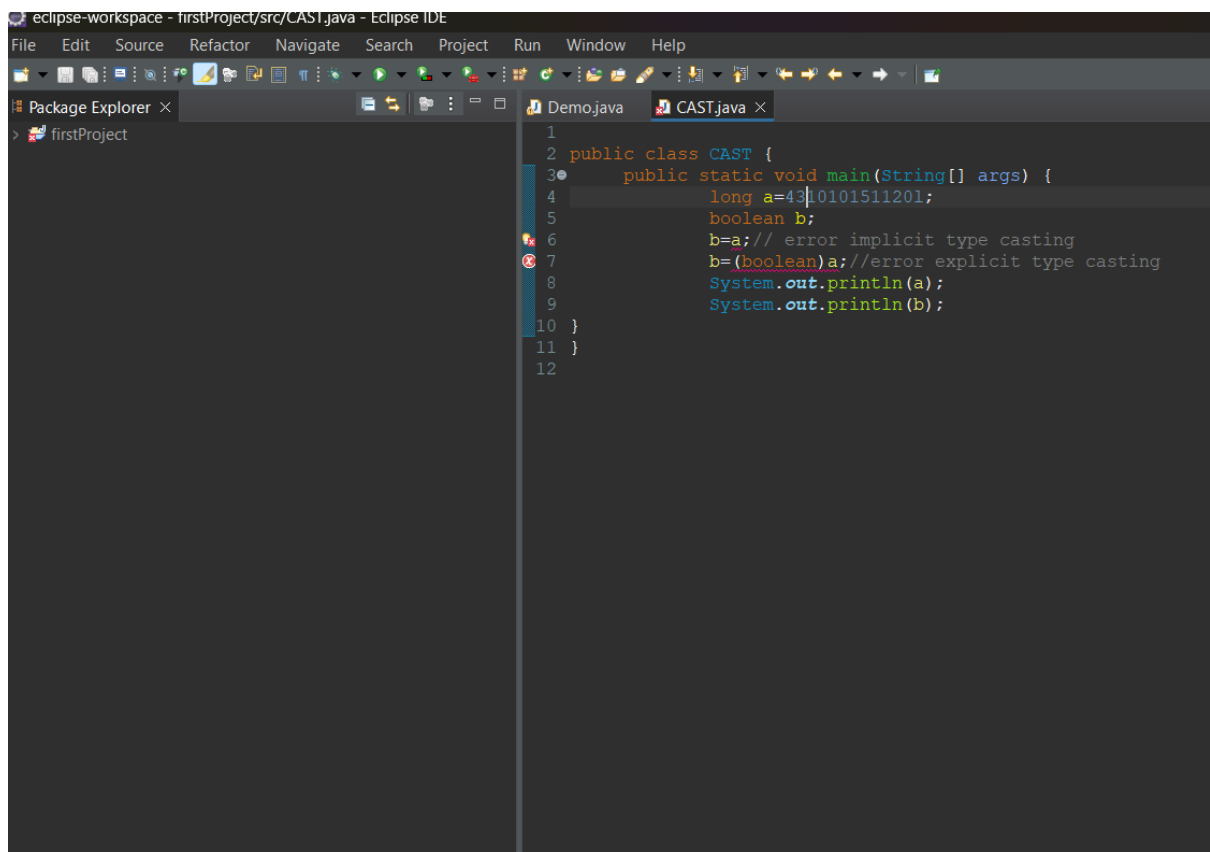
```
eclipse-workspace - firstProject/src/CAST.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help
Package Explorer x Demo.java *CAST.java x
> firstProject

1
2 public class CAST {
3     public static void main(String[] args) {
4         long a=431010151120L;
5         double b;
6         b=a; // implicit type casting
7         b=(double)a; // explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12

Problems Javadoc Declaration Console x
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-J
431010151120
4.3101015112E11
```

No error in both conversions.

Long to Boolean



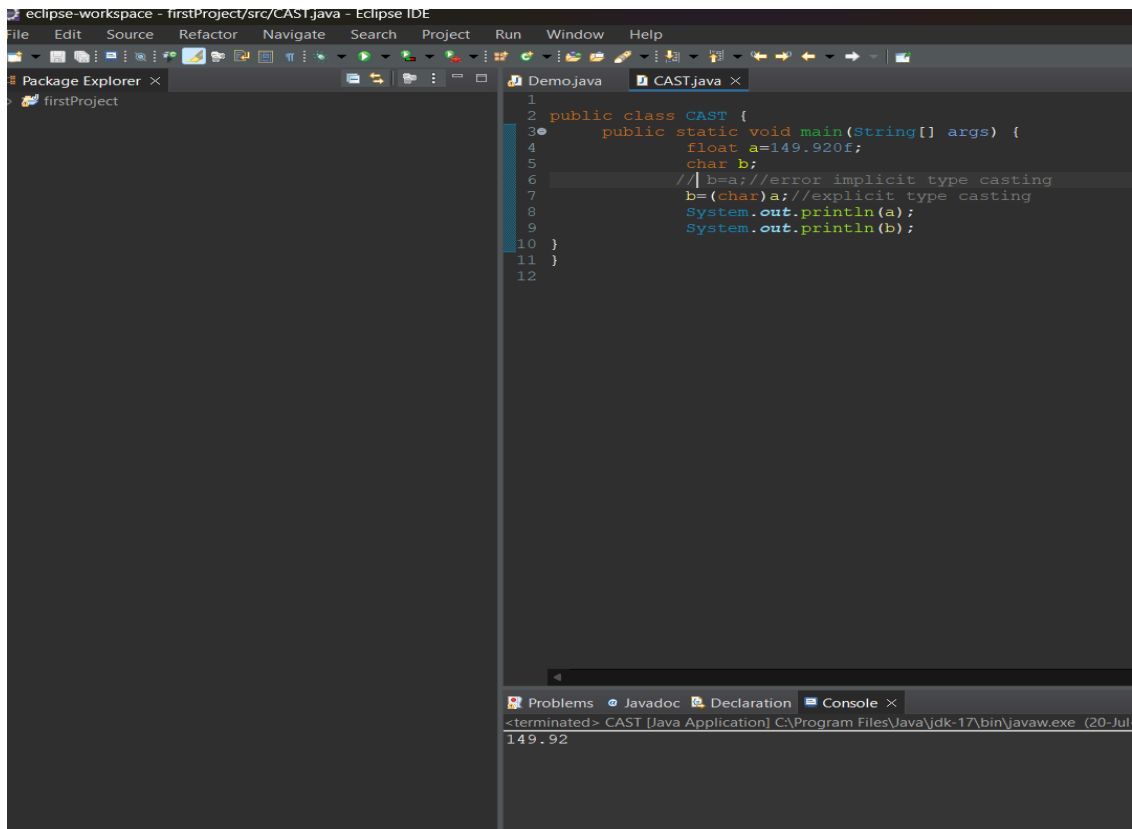
The screenshot shows the Eclipse IDE interface. The Package Explorer on the left shows a project named 'firstProject'. The main editor window displays the file 'CAST.java' with the following code:

```
1
2 public class CAST {
3     public static void main(String[] args) {
4         long a=4310101511201;
5         boolean b;
6         b=a; // error implicit type casting
7         b=(boolean)a; //error explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

Line 6 has a red squiggly line under 'a' with an error icon. Line 7 has a red squiggly line under '(boolean)a' with an error icon. The error messages are 'error implicit type casting' and 'error explicit type casting' respectively.

Error in both conversions.

Float to char



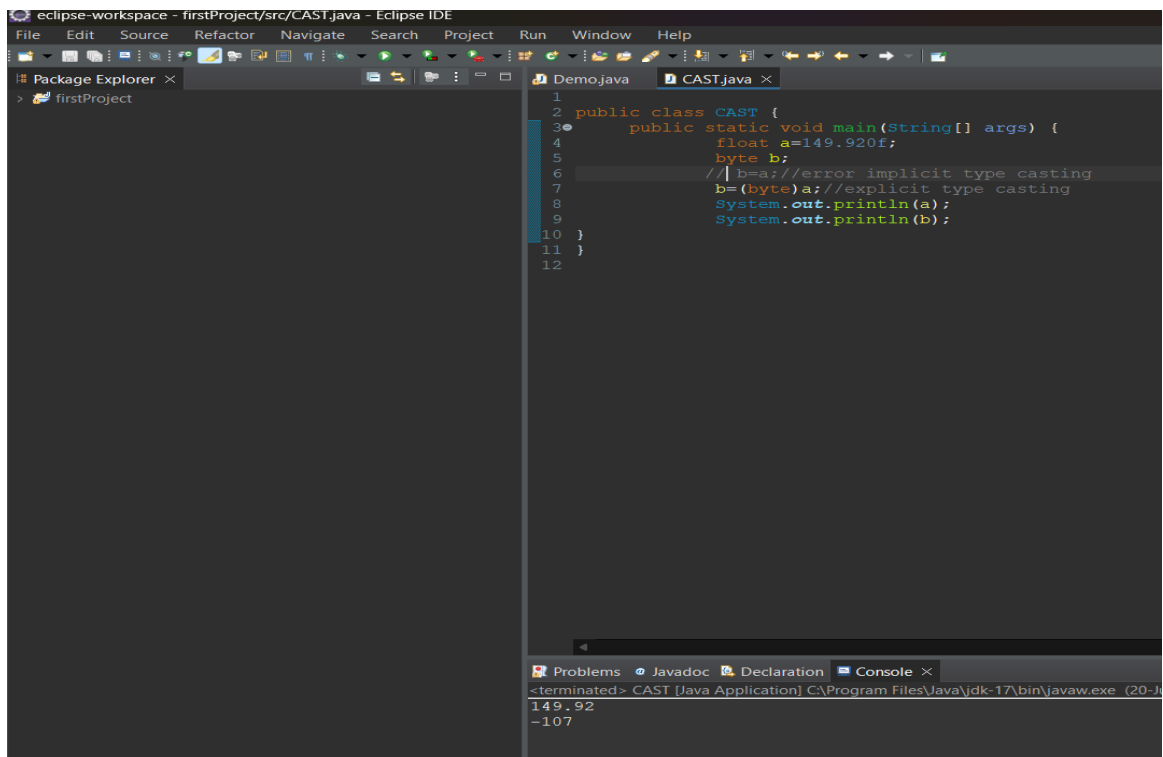
```
1 public class CAST {
2     public static void main(String[] args) {
3         float a=149.920f;
4         char b;
5         //b=a;//error implicit type casting
6         b=(char)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

Problems Javadoc Declaration Console ×

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023) 149.92

Error because for float to char explicit casting should be done.

Float to byte



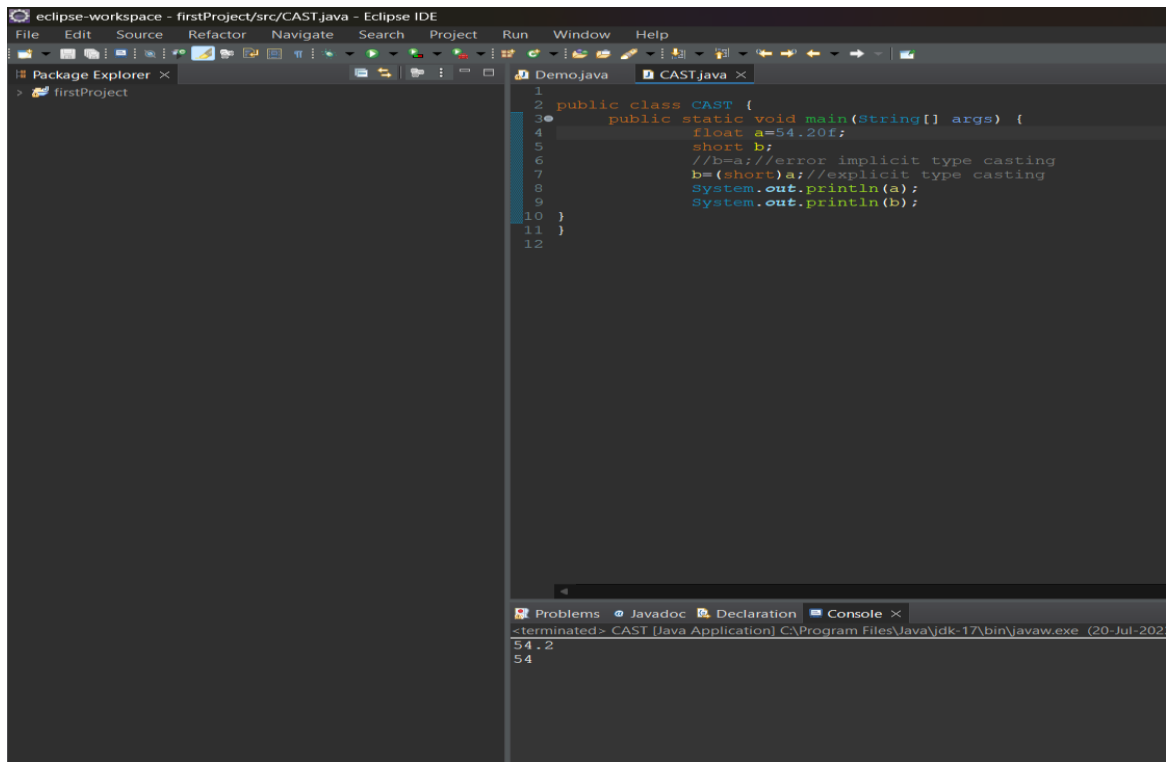
```
1 public class CAST {
2     public static void main(String[] args) {
3         float a=149.920f;
4         byte b;
5         //b=a;//error implicit type casting
6         b=(byte)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

Problems Javadoc Declaration Console ×

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023) 149.92 -107

Error because for float to byte explicit casting should be done.

Float to short



The screenshot shows the Eclipse IDE with a Java file named `CAST.java`. The code defines a class `CAST` with a `main` method. It declares a `float a=54.20f;` and a `short b;`. It then attempts to assign `a` to `b` using `b=a;`, which is commented as `//b=a;//error implicit type casting`. This is followed by `b=(short)a;`, commented as `//explicit type casting`. The program prints `a` and `b` using `System.out.println`. The console output shows `54.2` for `a` and `54` for `b`. The `Problems` tab at the bottom shows a red error icon for the line `b=a;`, indicating an implicit type casting error.

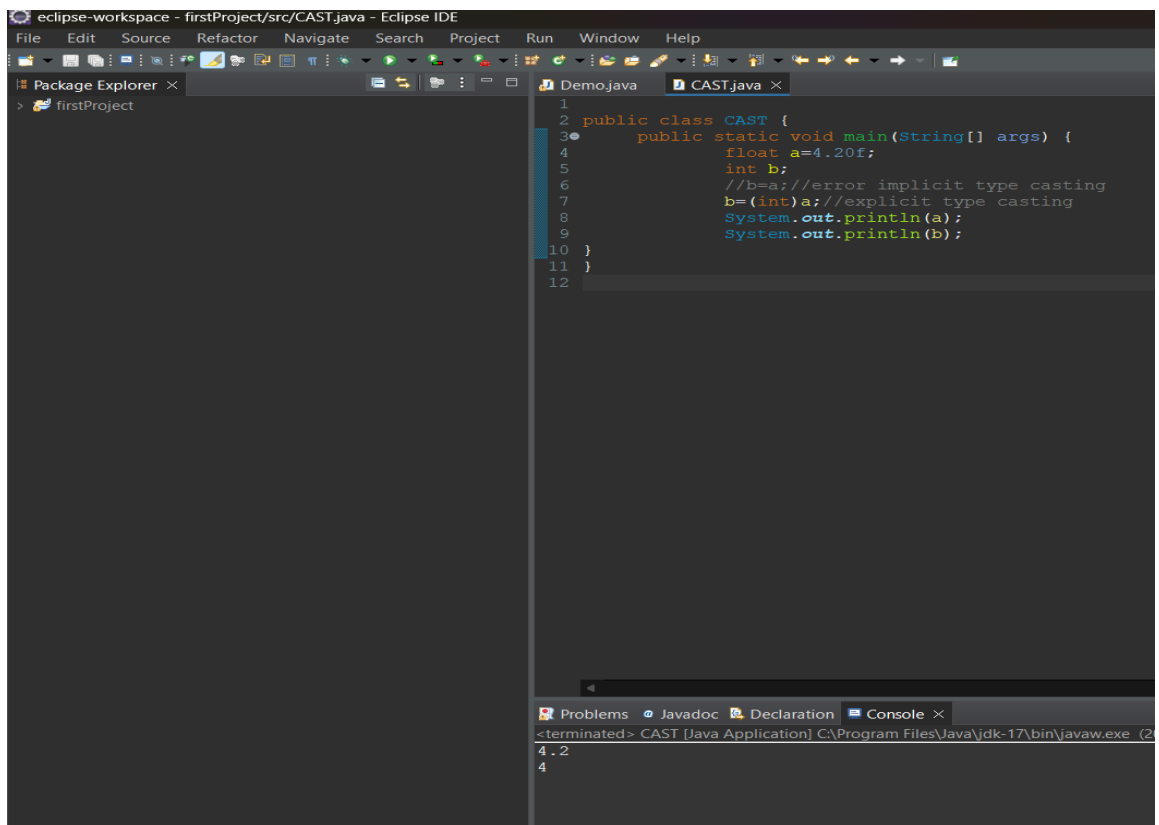
```
1 public class CAST {
2     public static void main(String[] args) {
3         float a=54.20f;
4         short b;
5         //b=a;//error implicit type casting
6         b=(short)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

Console Output:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2022)
54.2
54
```

Error because for float to short explicit casting should be done.

Float to int



The screenshot shows the Eclipse IDE with a Java file named `CAST.java`. The code defines a class `CAST` with a `main` method. It declares a `float a=4.20f;` and an `int b;`. It then attempts to assign `a` to `b` using `b=a;`, which is commented as `//b=a;//error implicit type casting`. This is followed by `b=(int)a;`, commented as `//explicit type casting`. The program prints `a` and `b` using `System.out.println`. The console output shows `4.2` for `a` and `4` for `b`. The `Problems` tab at the bottom shows a red error icon for the line `b=a;`, indicating an implicit type casting error.

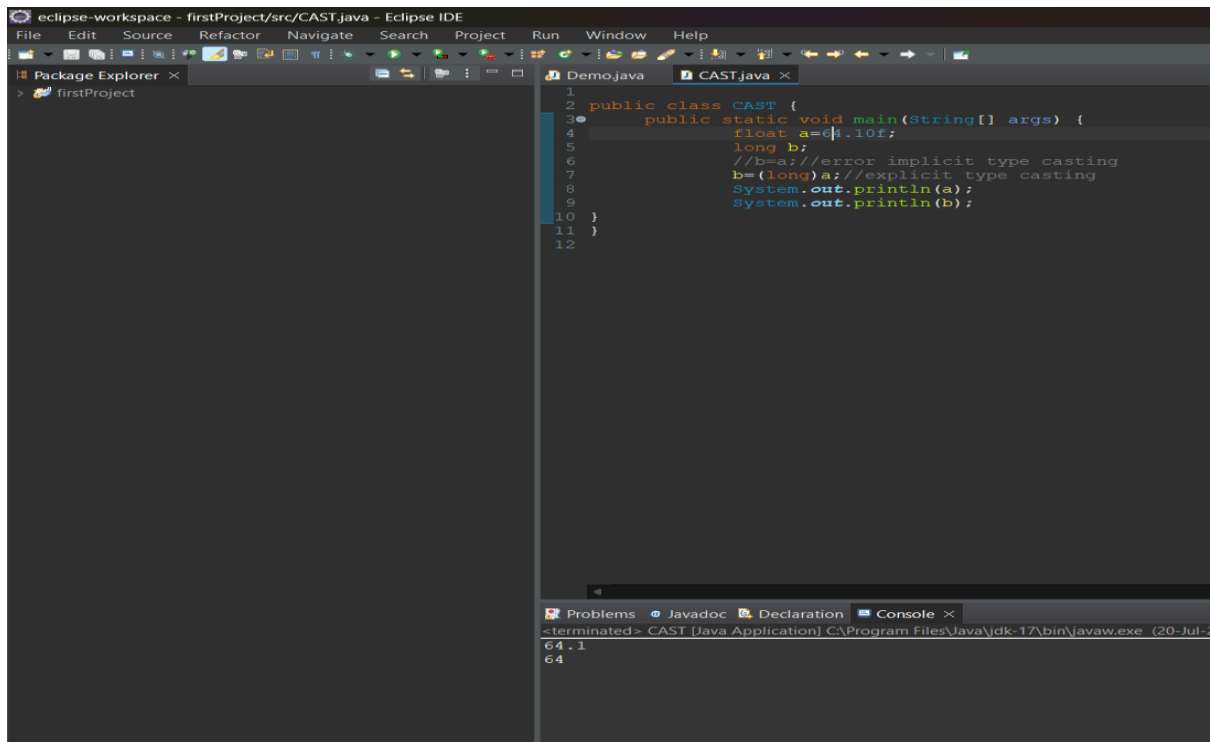
```
1 public class CAST {
2     public static void main(String[] args) {
3         float a=4.20f;
4         int b;
5         //b=a;//error implicit type casting
6         b=(int)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

Console Output:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2022)
4.2
4
```

Error because for float to int explicit casting should be done.

Float to long



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The main editor displays the file 'CAST.java' with the following code:

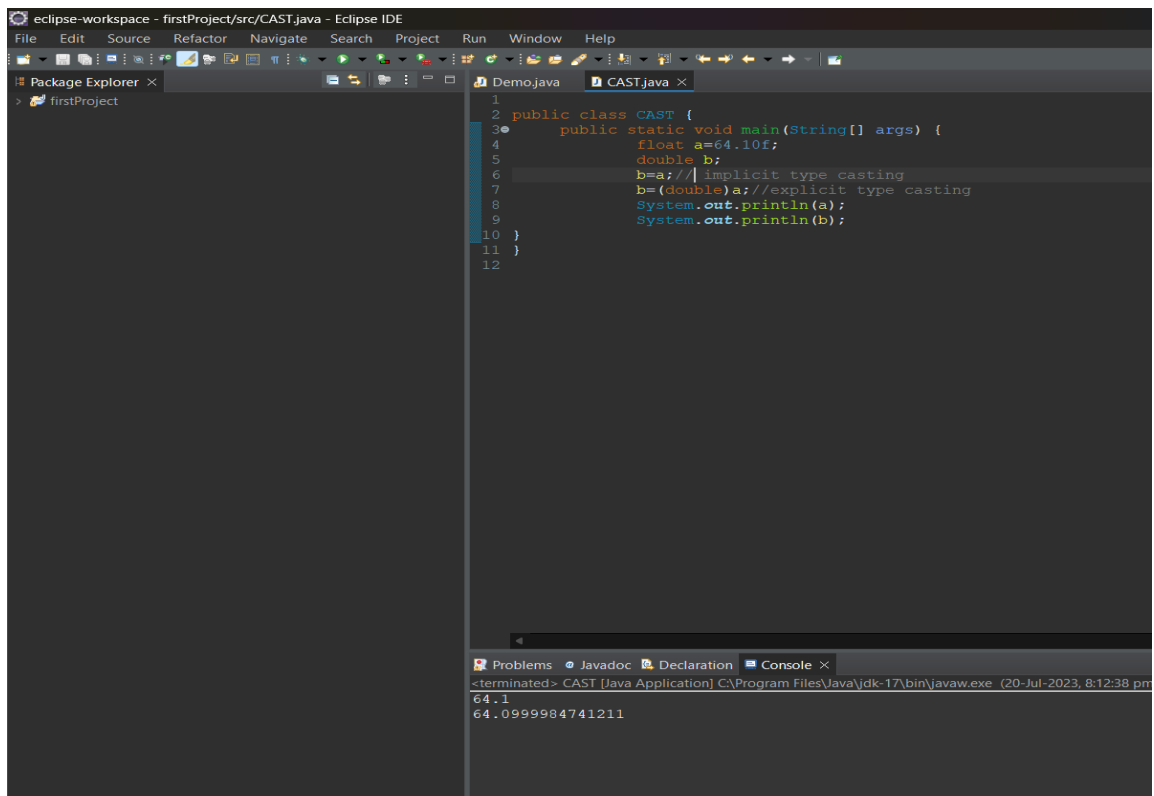
```
1 public class CAST {
2     public static void main(String[] args) {
3         float a=64.10f;
4         long b;
5         //b=a;//error implicit type casting
6         b=(long)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console output at the bottom shows the program execution results:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 8:12:38 pm)
64.1
64
```

Error because for float to long explicit casting should be done.

Float to double



The screenshot shows the Eclipse IDE with the same project 'firstProject'. The main editor displays the file 'CAST.java' with the following code:

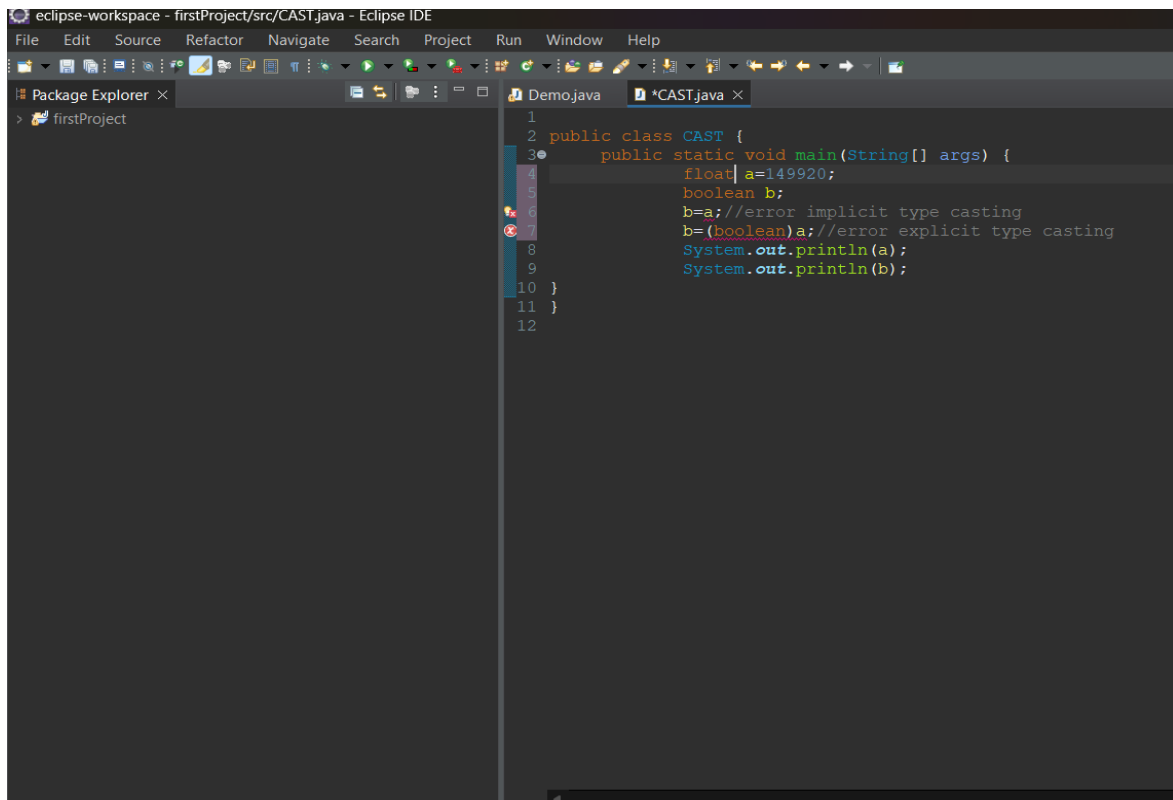
```
1 public class CAST {
2     public static void main(String[] args) {
3         float a=64.10f;
4         double b;
5         b=a;//implicit type casting
6         b=(double)a;//explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console output at the bottom shows the program execution results:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 8:12:38 pm)
64.1
64.09999984741211
```

No error in both conversions.

Float to Boolean

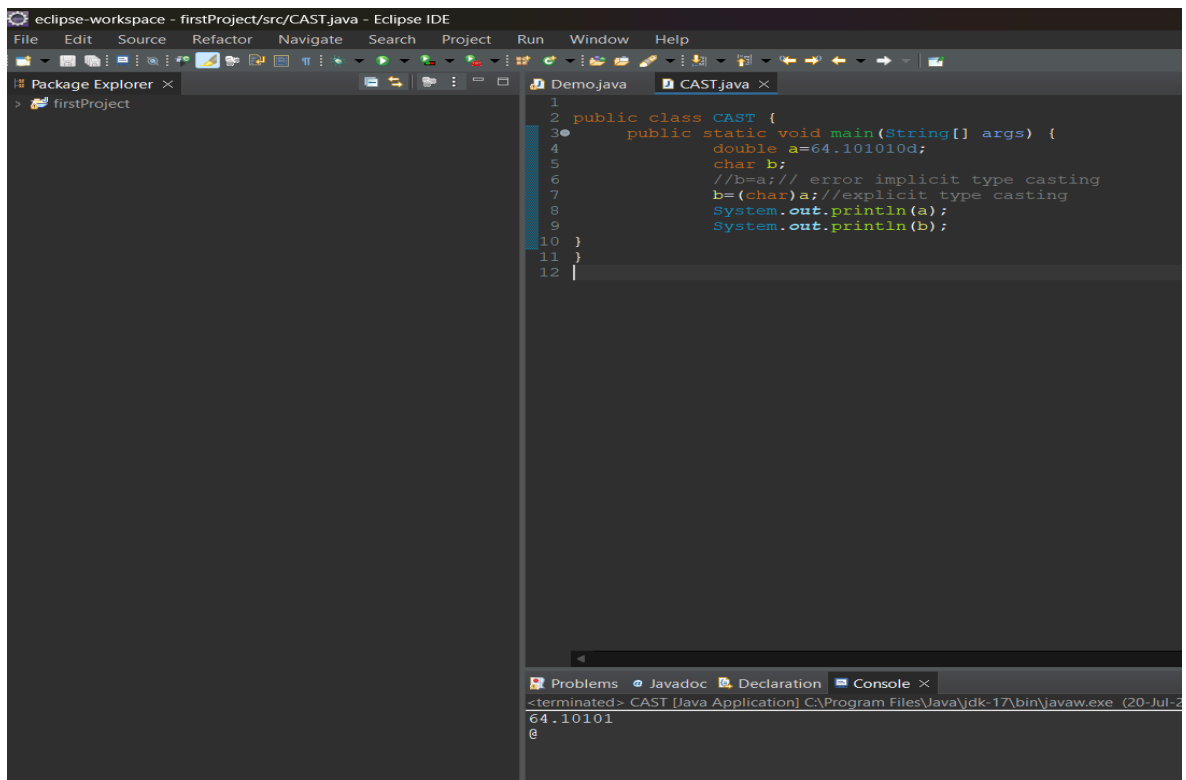


The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

```
1
2 public class CAST {
3     public static void main(String[] args) {
4         float a=149920;
5         boolean b;
6         b=a;//error implicit type casting
7         b=(boolean)a;//error explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

Error in both conversions.

Double to char



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

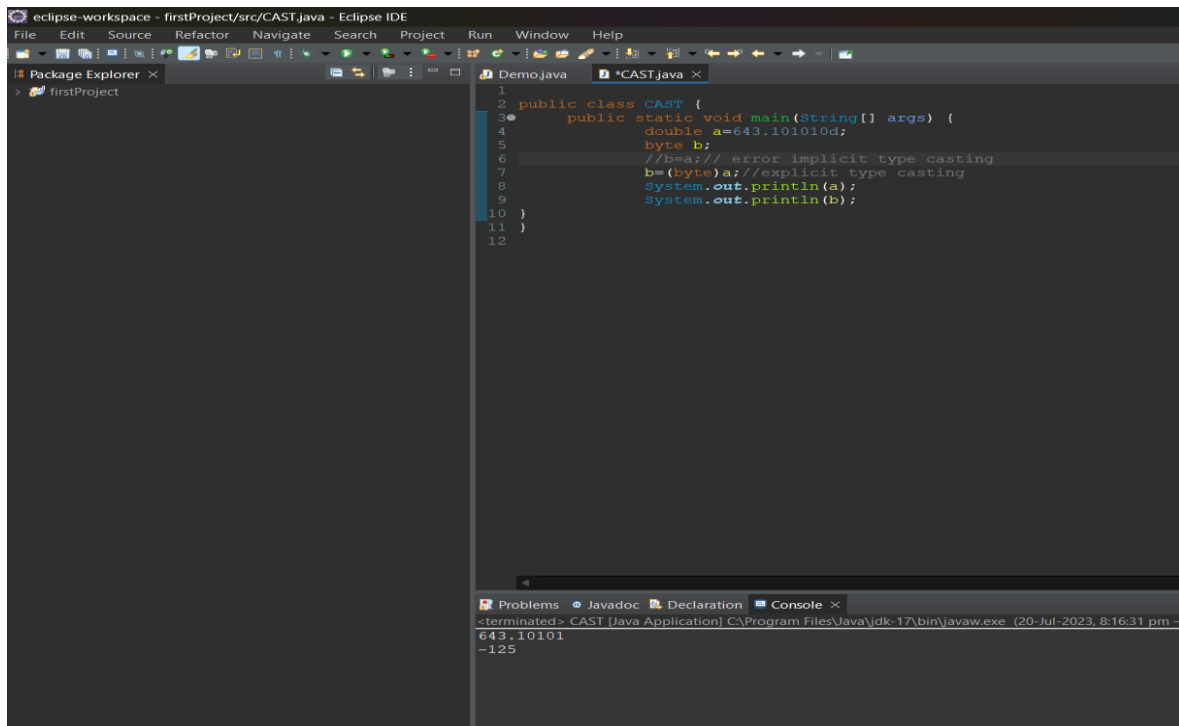
```
1
2 public class CAST {
3     public static void main(String[] args) {
4         double a=64.101010d;
5         char b;
6         //b=a;// error implicit type casting
7         b=(char)a;//explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

At the bottom of the IDE, the Console window shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2
64.10101
@
```

Error because for double to char explicit casting should be done.

Double to byte



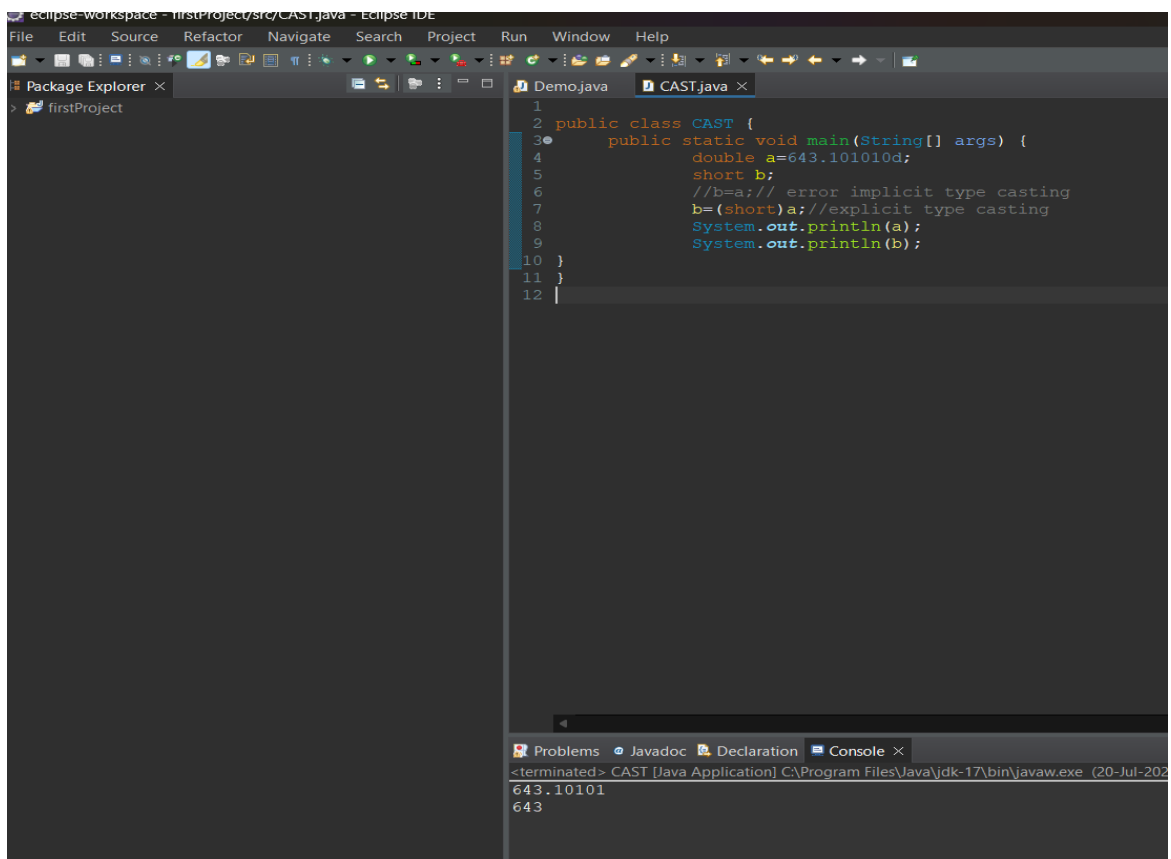
```
1 public class CAST {
2     public static void main(String[] args) {
3         double a=643.101010d;
4         byte b;
5         //b=a; // error implicit type casting
6         b=(byte)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

Problems Javadoc Declaration Console

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 8:16:31 pm - 643.10101 -125

Error because for double to byte explicit casting should be done.

Double to short



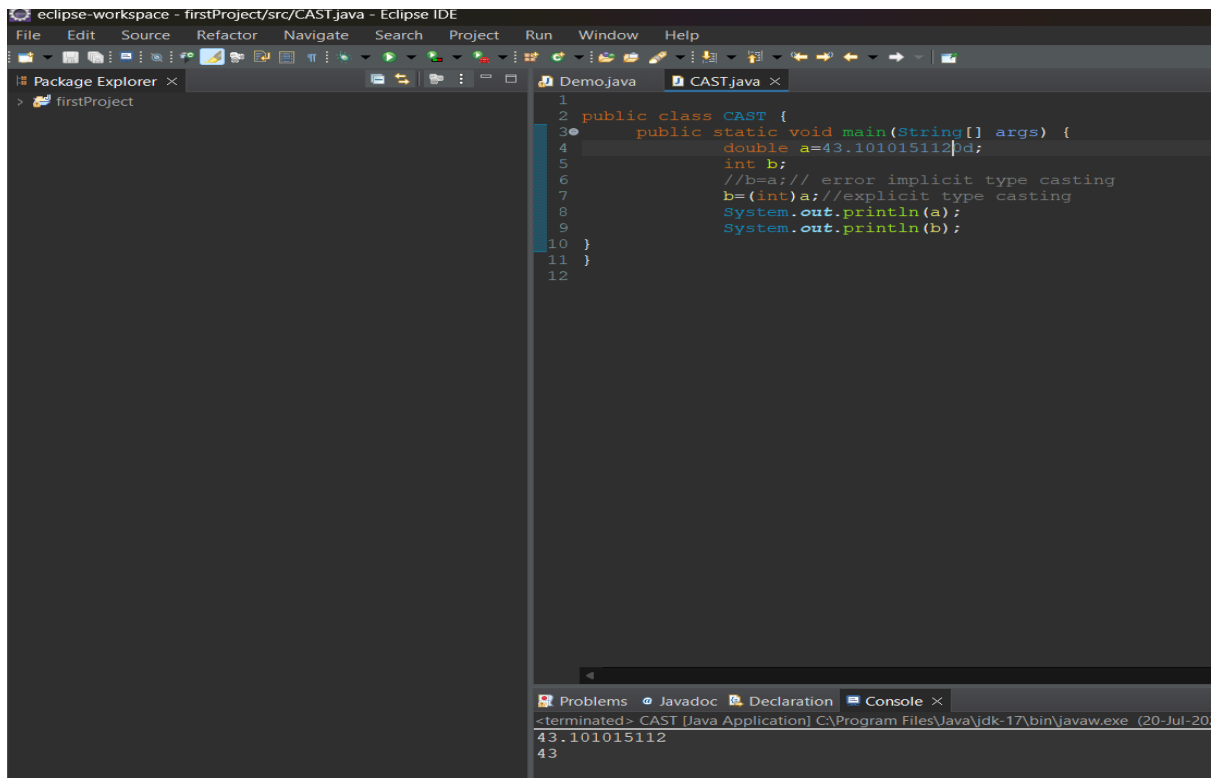
```
1 public class CAST {
2     public static void main(String[] args) {
3         double a=643.101010d;
4         short b;
5         //b=a; // error implicit type casting
6         b=(short)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

Problems Javadoc Declaration Console

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023, 8:16:31 pm - 643.10101 643

Error because for double to short explicit casting should be done.

Double to int



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

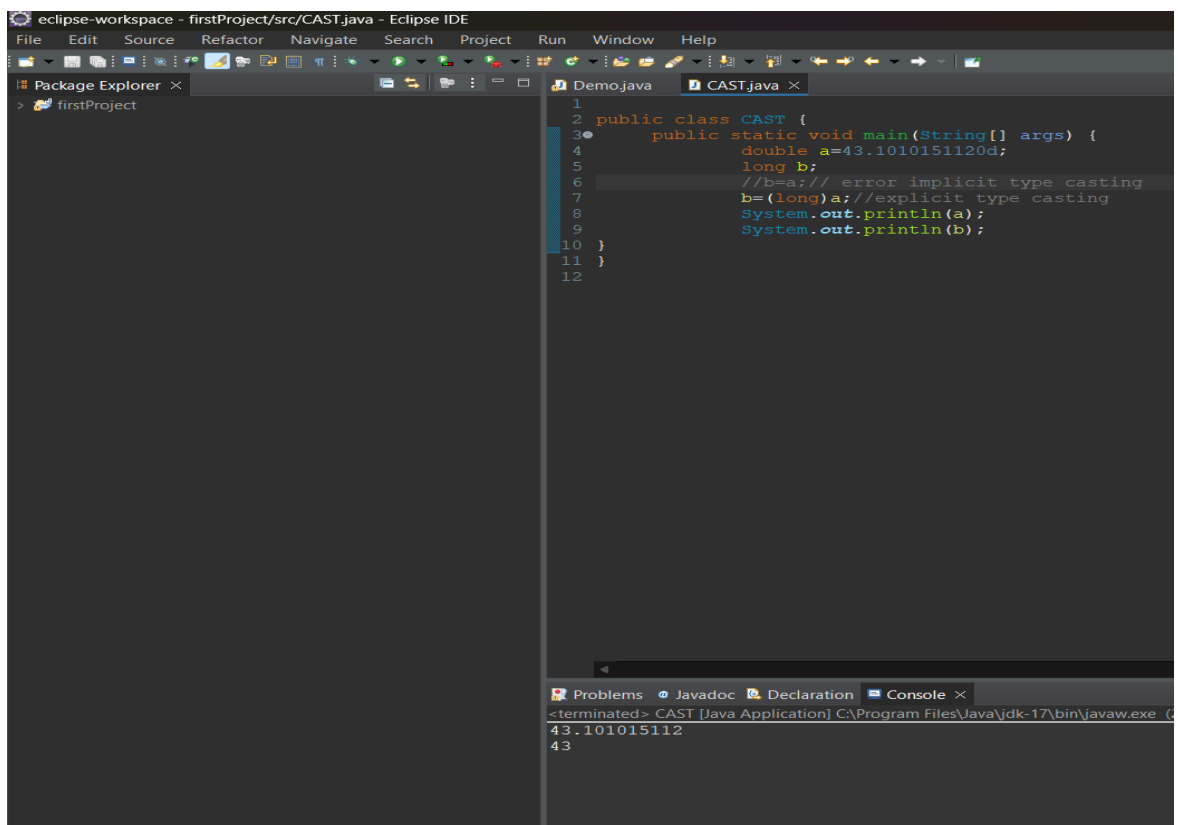
```
1 public class CAST {
2     public static void main(String[] args) {
3         double a=43.101015112d;
4         int b;
5         //b=a; // error implicit type casting
6         b=(int)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console at the bottom shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-20
43.101015112
43
```

Error because for double to int explicit casting should be done.

Double to long



The screenshot shows the Eclipse IDE with a project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays the file 'CAST.java' with the following code:

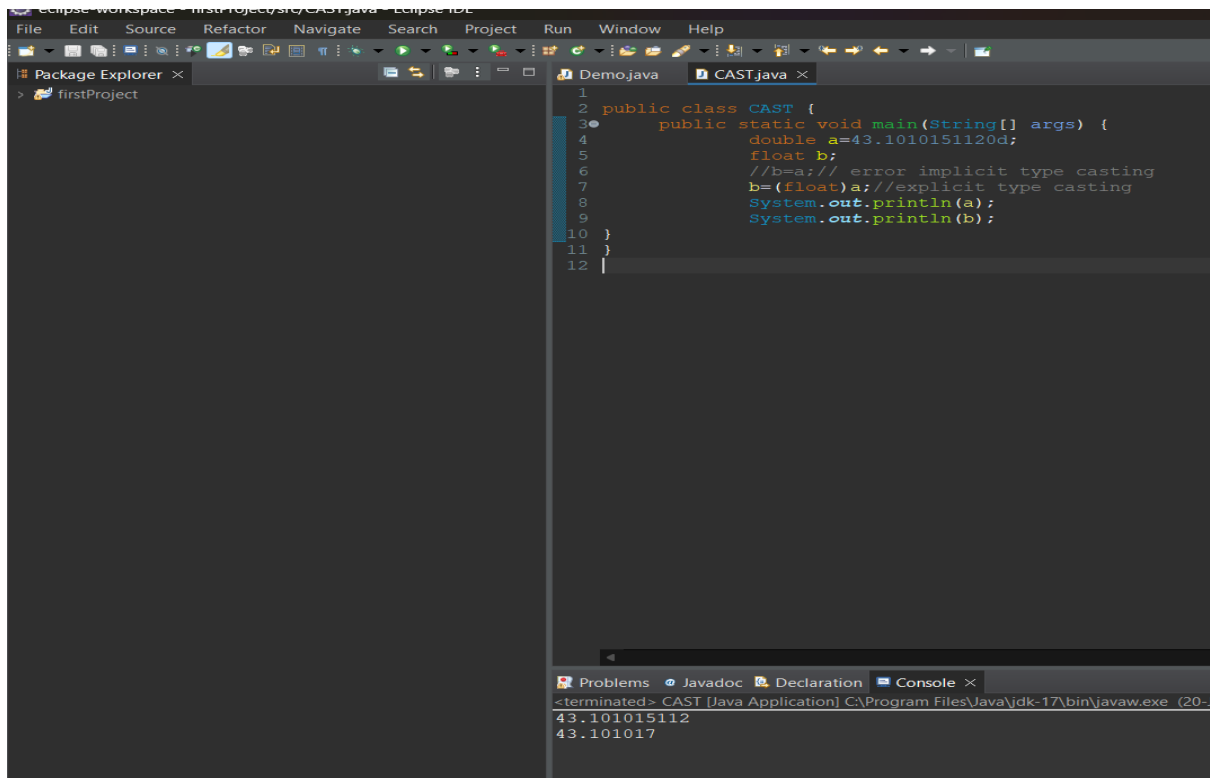
```
1 public class CAST {
2     public static void main(String[] args) {
3         double a=43.1010151120d;
4         long b;
5         //b=a; // error implicit type casting
6         b=(long)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

The console at the bottom shows the output of the program:

```
<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-20
43.101015112
43
```

Error because for double to long explicit casting should be done.

Double to float



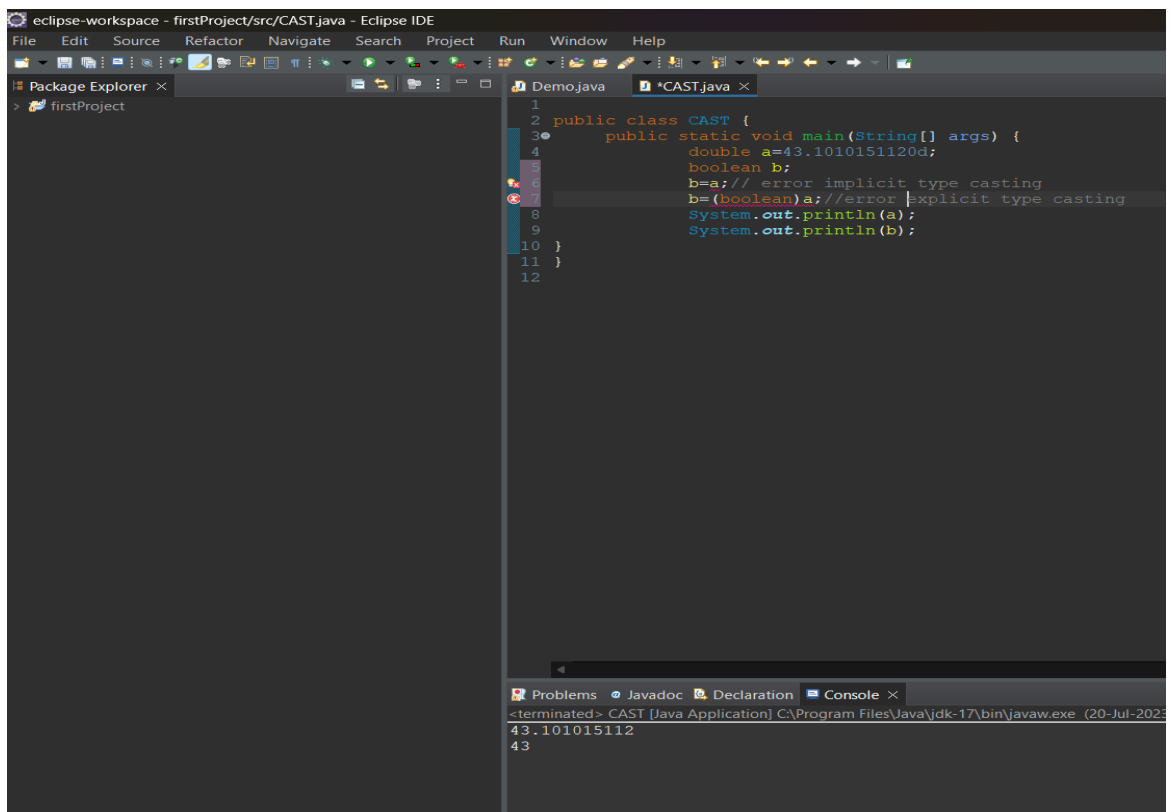
```
1 public class CAST {
2     public static void main(String[] args) {
3         double a=43.1010151120d;
4         float b;
5         //b=a; // error implicit type casting
6         b=(float)a; //explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

Problems Javadoc Declaration Console

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-
43.101015112
43.101017

Error because for double to float explicit casting should be done.

Double to Boolean



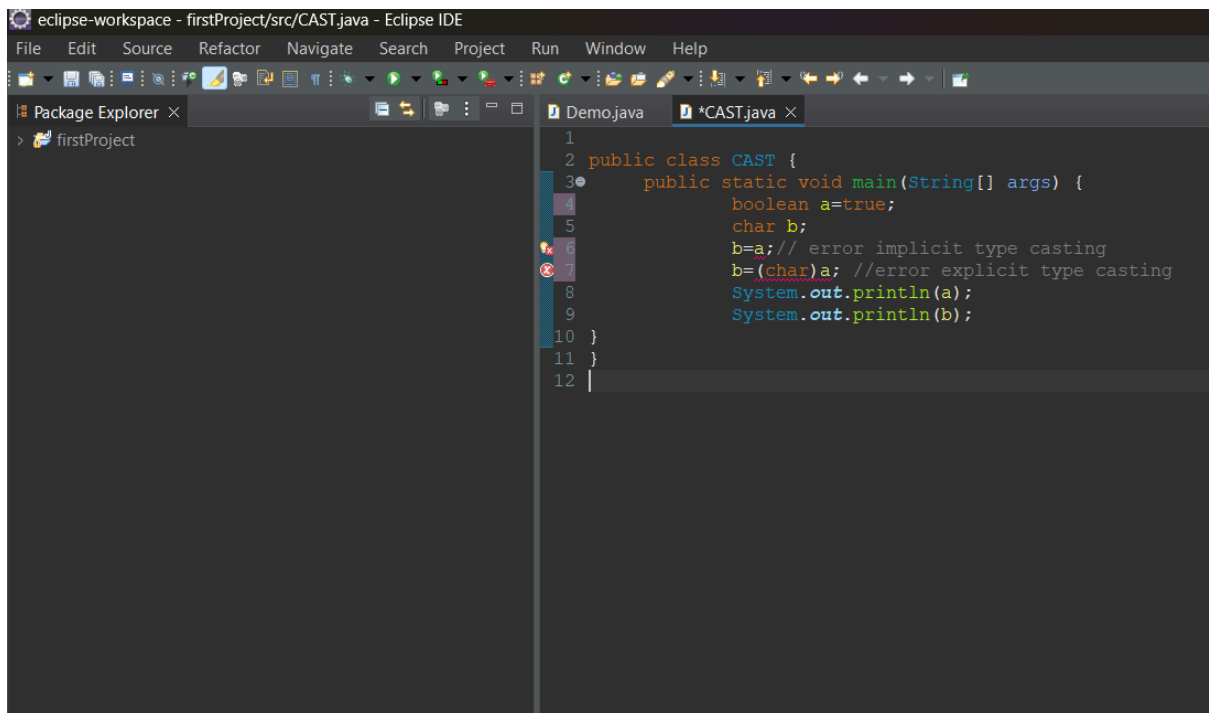
```
1 public class CAST {
2     public static void main(String[] args) {
3         double a=43.1010151120d;
4         boolean b;
5         b=a; // error implicit type casting
6         b=(boolean)a; //error explicit type casting
7         System.out.println(a);
8         System.out.println(b);
9     }
10 }
11 }
12 }
```

Problems Javadoc Declaration Console

<terminated> CAST [Java Application] C:\Program Files\Java\jdk-17\bin\javaw.exe (20-Jul-2023
43.101015112
43

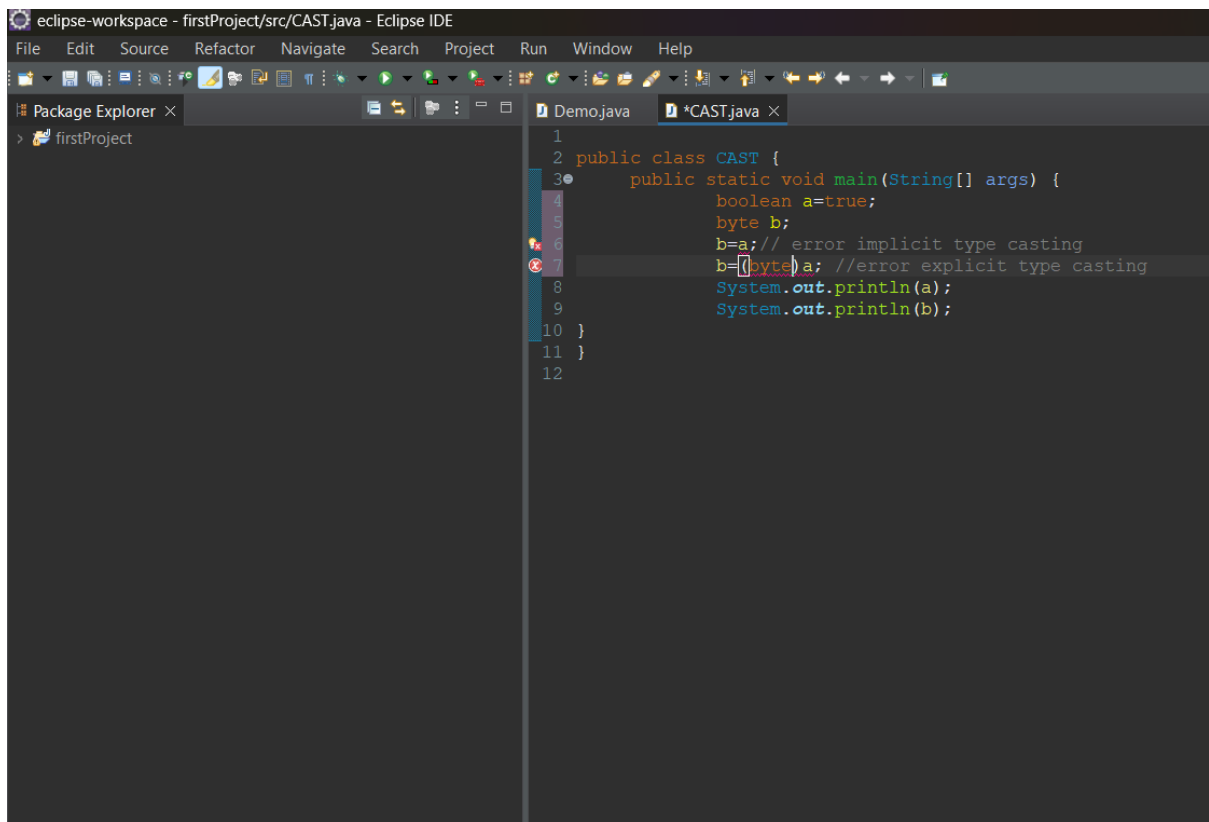
Error because for double to boolean explicit casting should be done.

Boolean to char



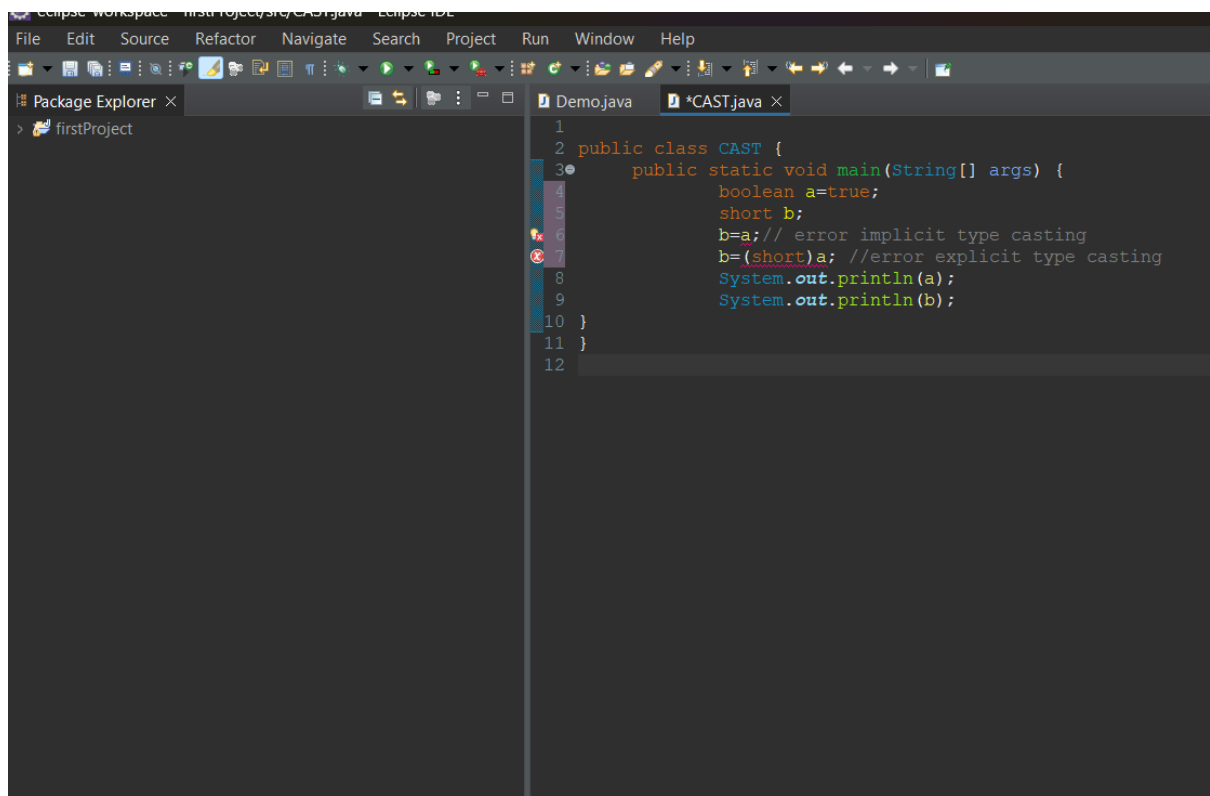
Error in both conversions.

Boolean to byte



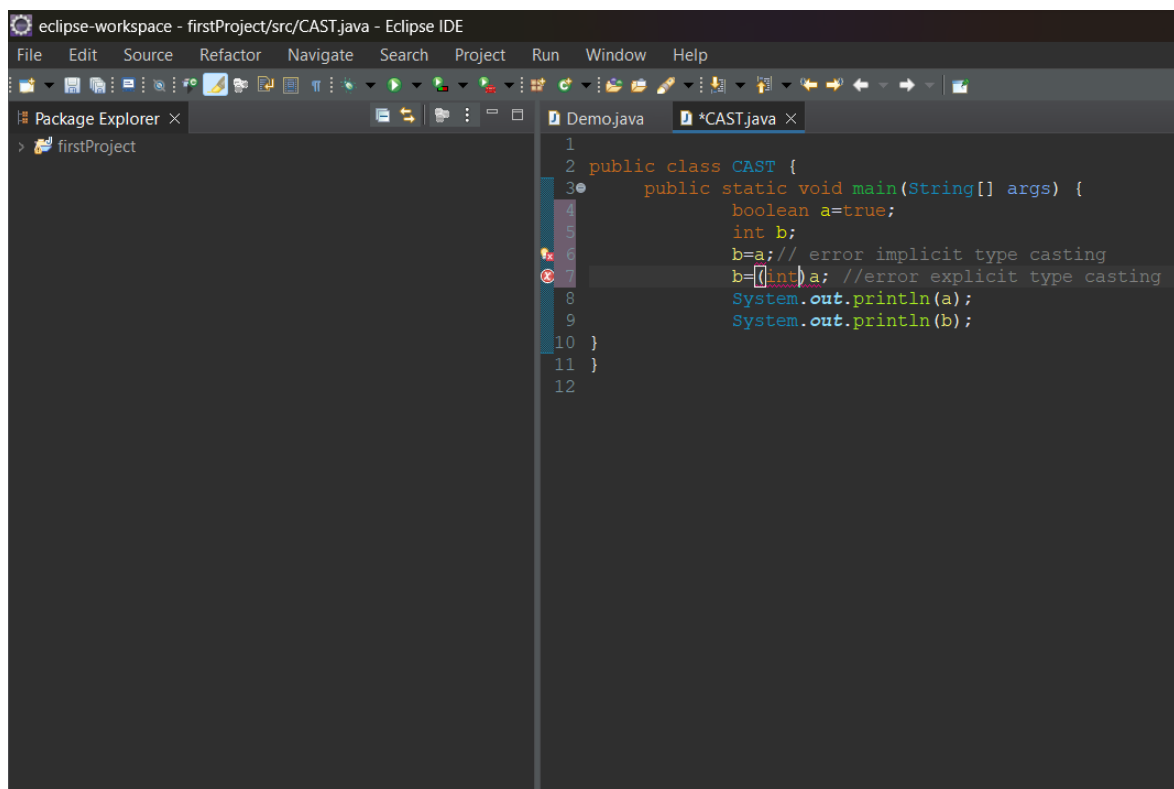
Error in both conversions.

Boolean to short



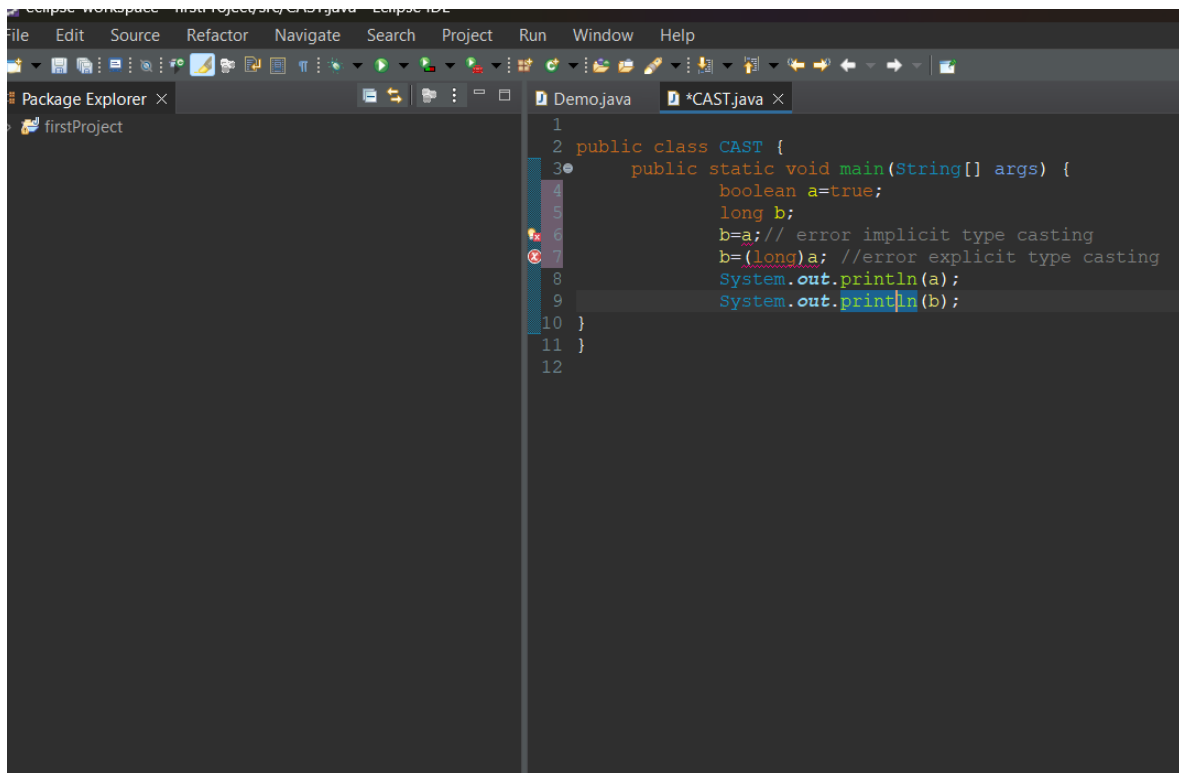
Error in both conversions.

Boolean to int



Error in both conversions.

Boolean to long



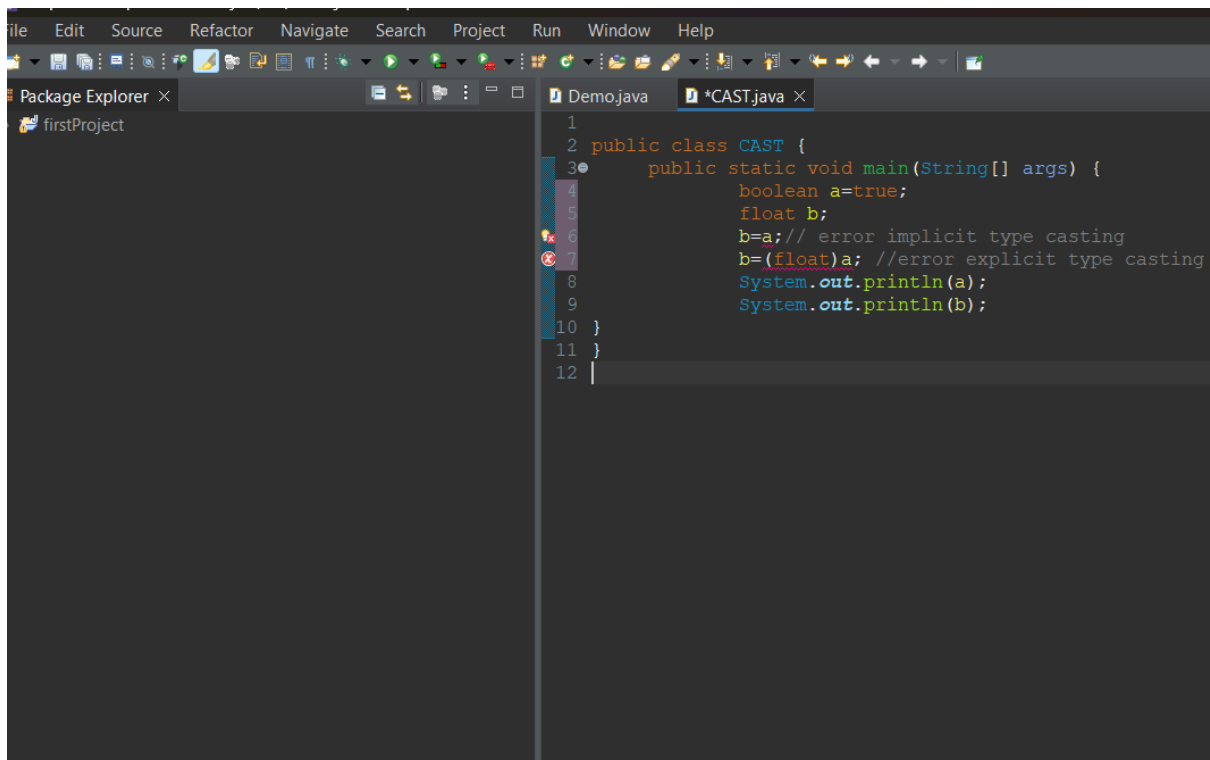
The screenshot shows the Eclipse IDE with a Java project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays a file named 'Demo.java' with the following code:

```
1
2 public class CAST {
3     public static void main(String[] args) {
4         boolean a=true;
5         long b;
6         b=a; // error implicit type casting
7         b=(long)a; //error explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

Line 6 has a red squiggly line and a red 'x' icon, indicating an error. Line 7 also has a red squiggly line and a red 'x' icon, indicating an error. The error messages are 'error implicit type casting' and 'error explicit type casting' respectively.

Error in both conversions.

Boolean to float



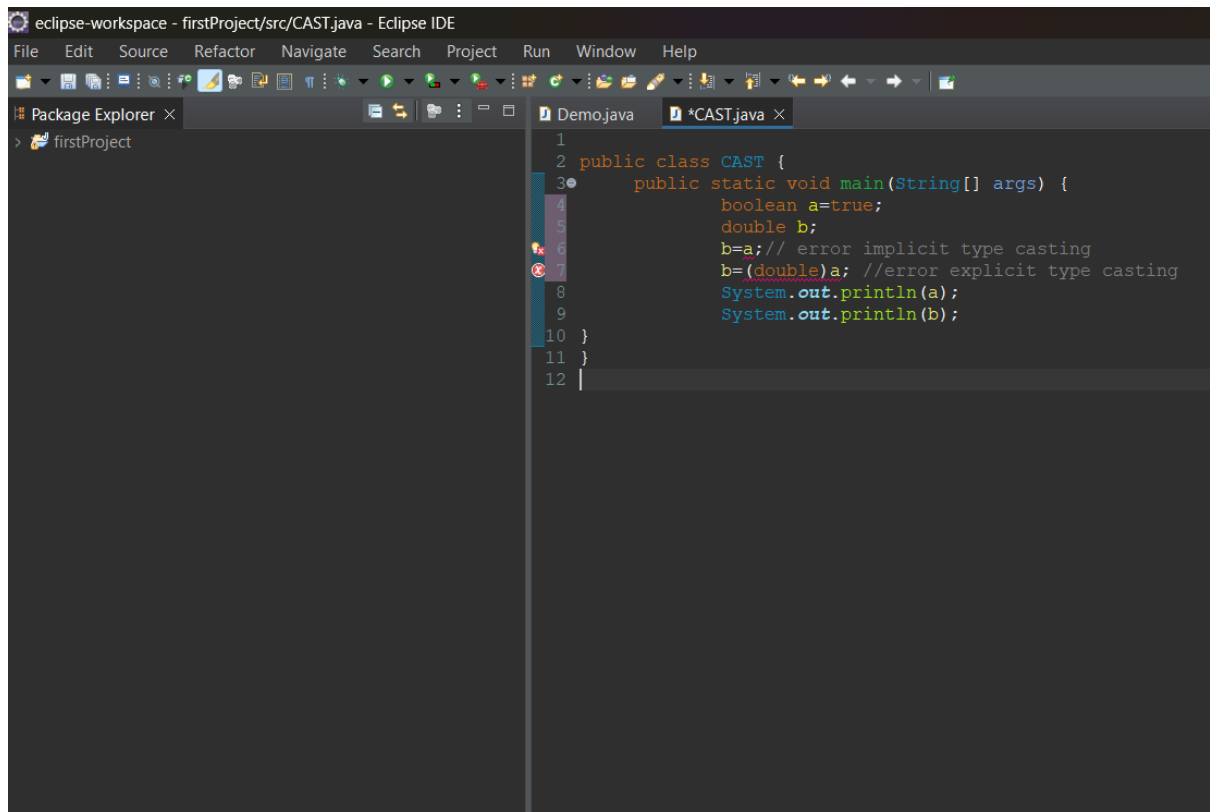
The screenshot shows the Eclipse IDE with a Java project named 'firstProject'. The Package Explorer on the left shows the project structure. The main editor displays a file named 'Demo.java' with the following code:

```
1
2 public class CAST {
3     public static void main(String[] args) {
4         boolean a=true;
5         float b;
6         b=a; // error implicit type casting
7         b=(float)a; //error explicit type casting
8         System.out.println(a);
9         System.out.println(b);
10    }
11 }
12
```

Line 6 has a red squiggly line and a red 'x' icon, indicating an error. Line 7 also has a red squiggly line and a red 'x' icon, indicating an error. The error messages are 'error implicit type casting' and 'error explicit type casting' respectively.

Error in both conversions.

Boolean to double



Error in both conversions.

Type casting table

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

