KODNEST ASSIGNMENT 4

Name : Yadhukrishna Mk

Email : yadhu8824@gmail.com

TYPE CASTING

The process of converting data of one type to another. Two types-

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

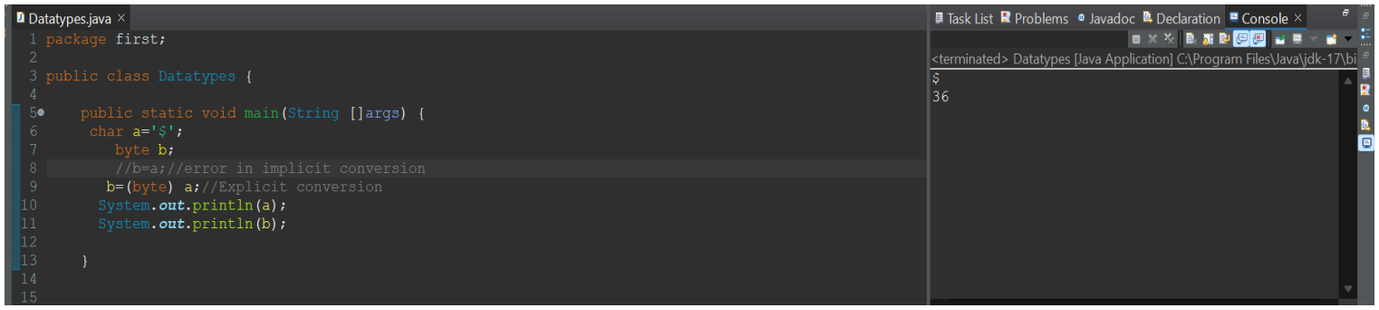
Implicit type casting: The process of converting the data of smaller data type to larger data type. (No data loss would occur)

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.

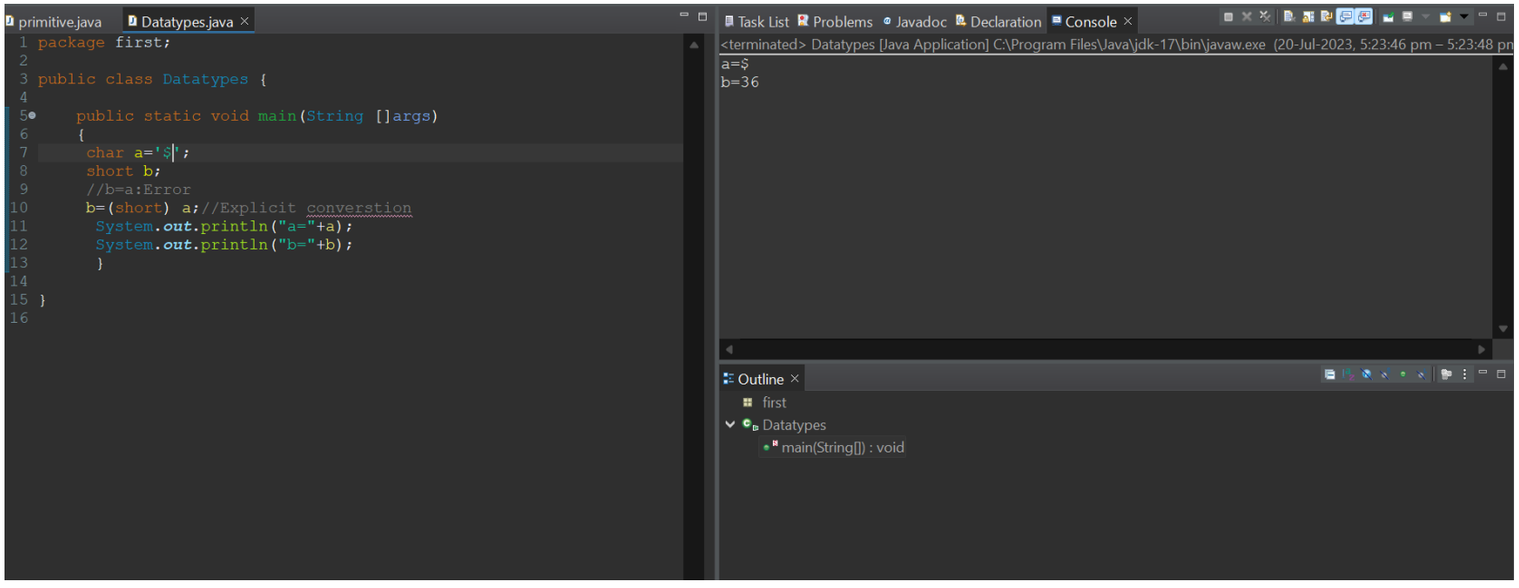
1. Char
2. Byte
3. Short
4. Int
5. Long
6. Float
7. Double
8. Boolean

Char to byte



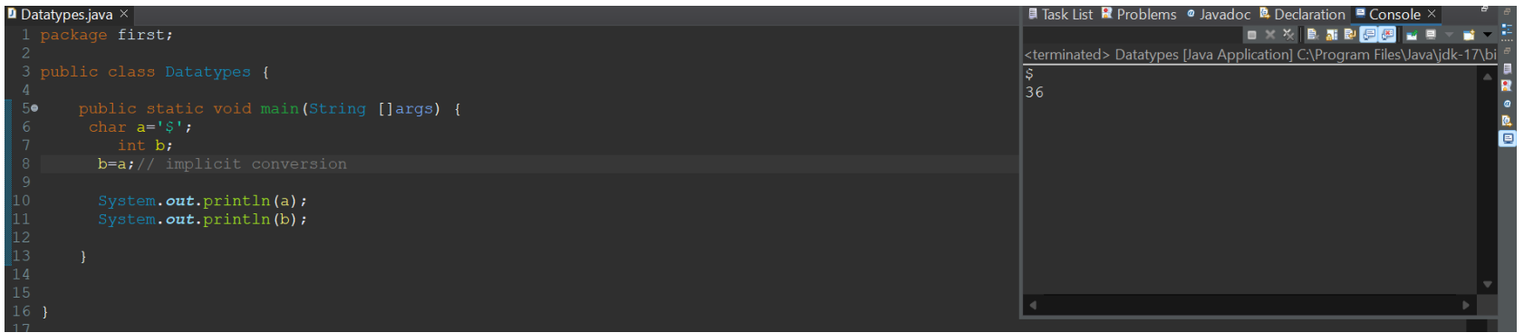
Note : Implicit cannot be done ,for char to byte explicit casting should be done.

Char to short

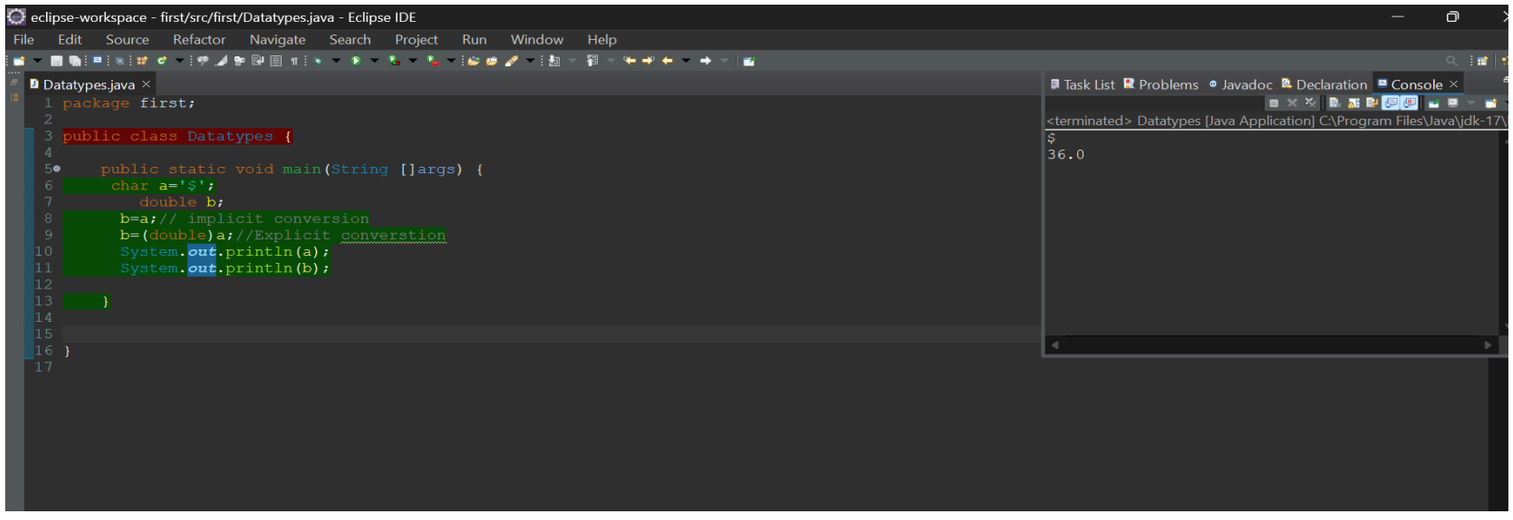


Note : Implicit casting cannot be done ,for char to short explicit casting should be done.

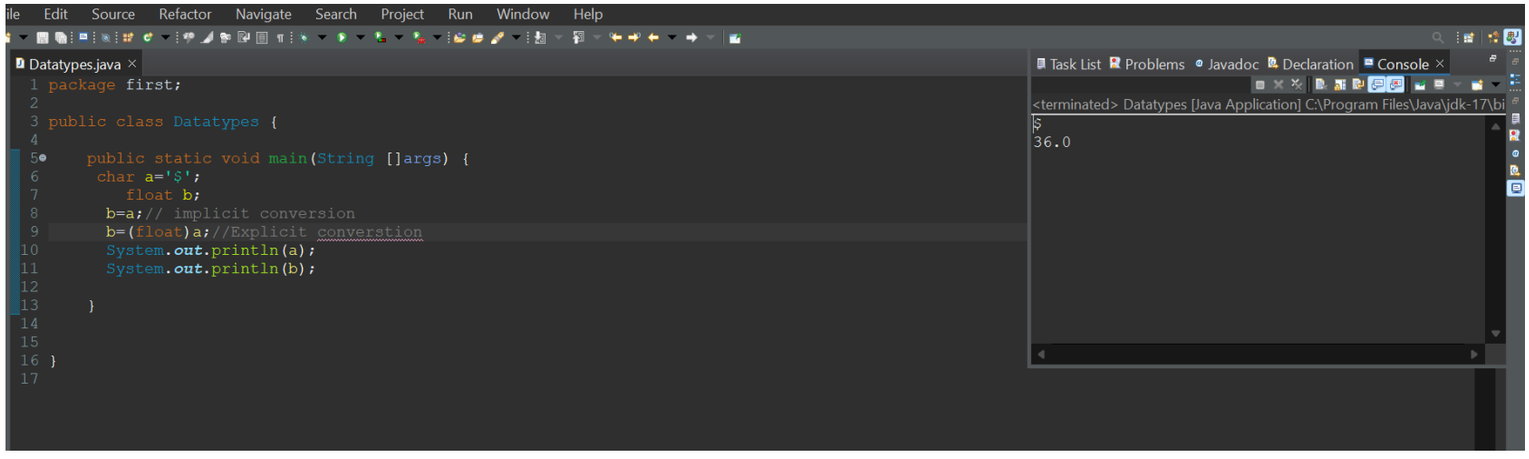
Char to int



Char to double



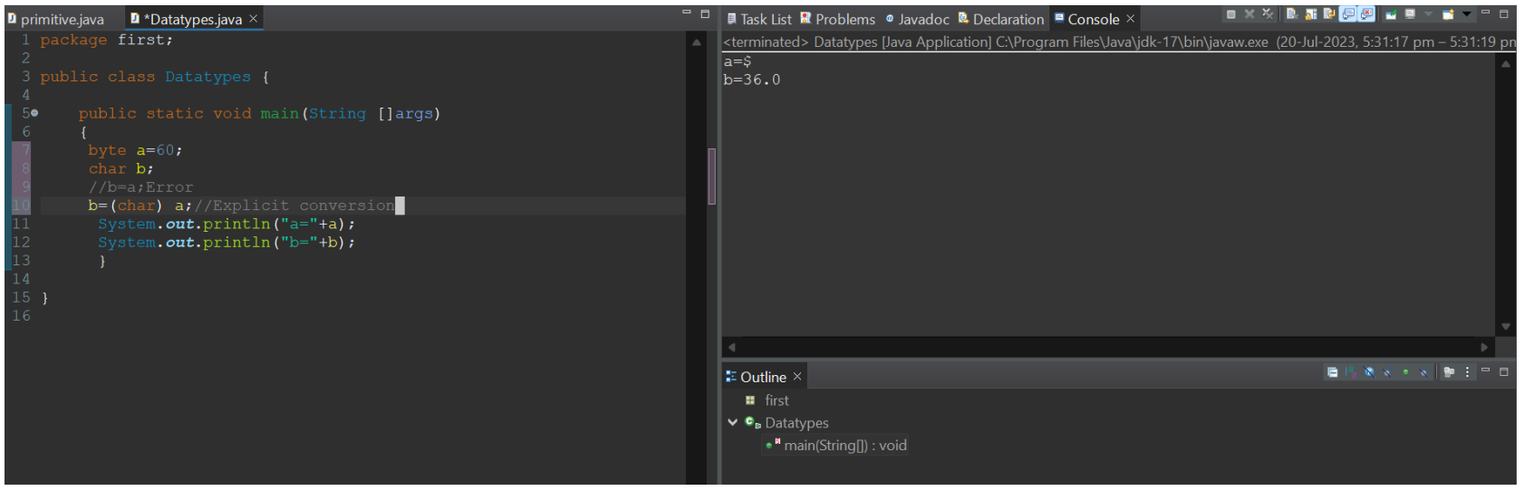
Char to float



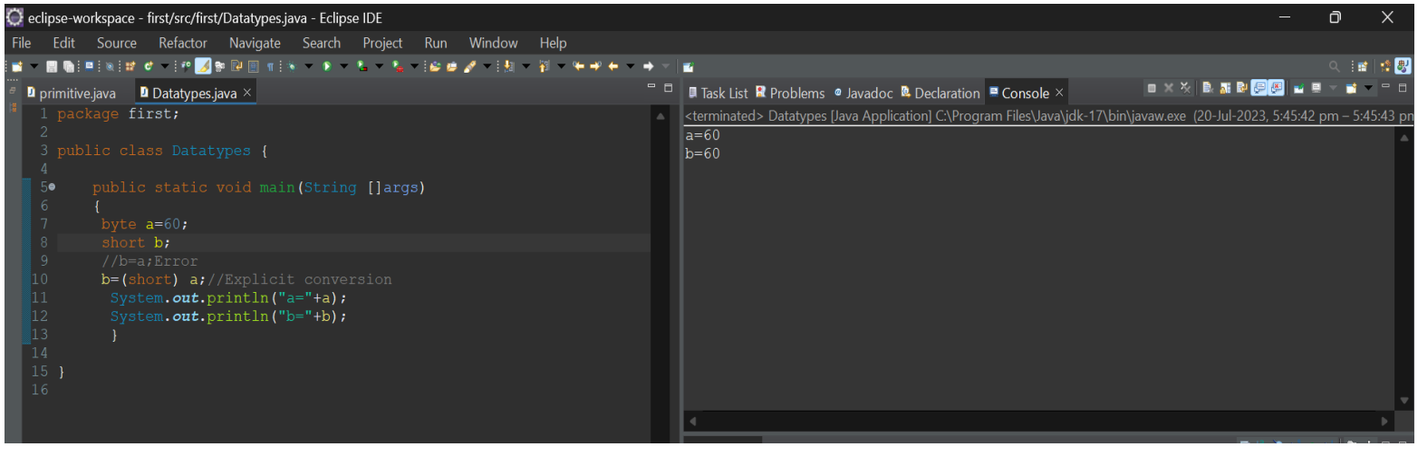
Char to Boolean

```
package first;

public class Datatypes {

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

    }


}
```

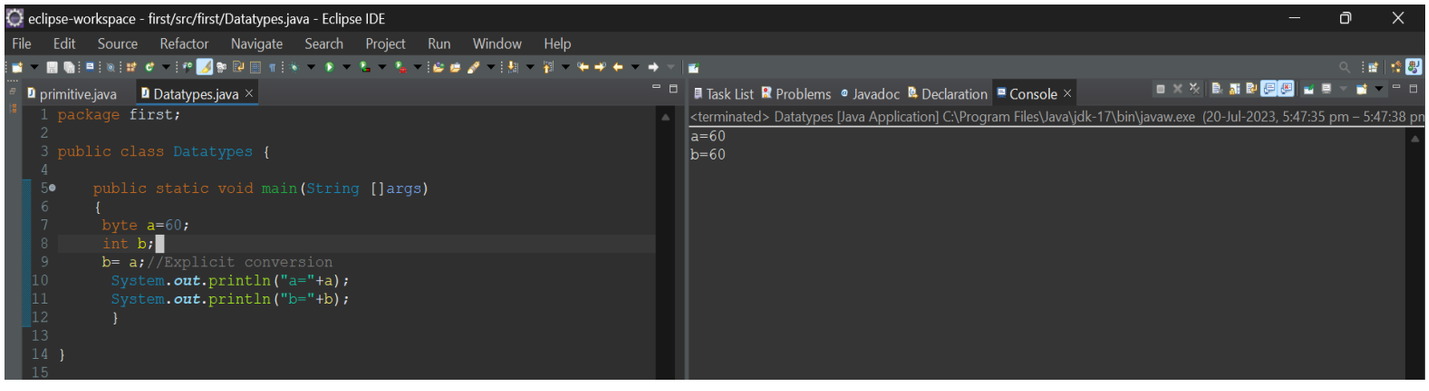
Byte to char



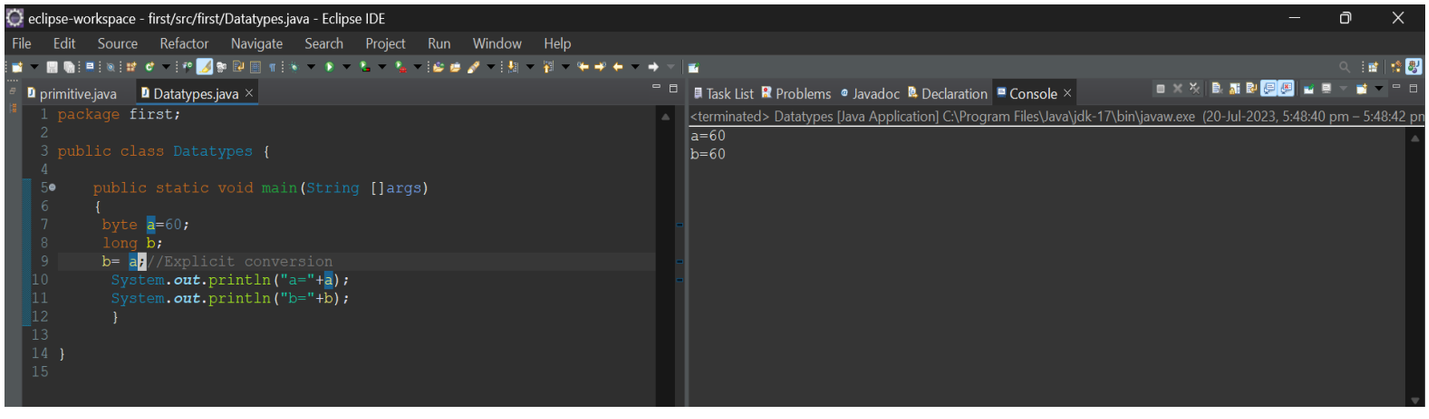
Byte to short



Byte to int



Byte to long



Byte to float

```java
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);

    }


}
```

Byte to double

```java
public class Datatypes {

    public static void main(String []args)
    {
     byte a=60;
     double b;
     b= a;//Explicit conversion
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

```
<terminated>
a=60
b=60.0
```

Byte to Boolean

Datatypes.java

```java
package first;

public class Datatypes {

    public static void main(String []args) {
     byte a=60
        boolean b;
      b=a;//Error in implicit conversion
      b=(boolean)a;//Error in explicit conversion
      System.out.println(a);
      System.out.println(b);

    }


}
```

Short to char

```java
package first;

public class Datatypes {

    public static void main(String []args)
    {
     short a=2311;
     char b;
     b= (char) a;//Explicit conversion
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

```
<terminated> Datat
a=2311
b=ৗ
```

Short to byte

```java
package first;

public class Datatypes {

    public static void main(String []args)
    {
     short a=2311;
     byte b;
     b= (byte) a;//Explicit conversion
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

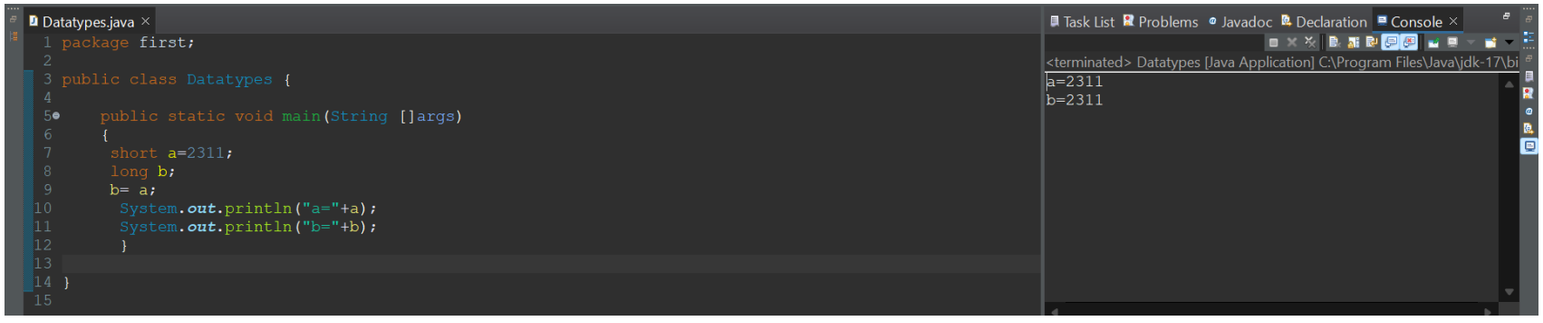
```
<terminated> Datat
a=2311
b=7
```

Short to int

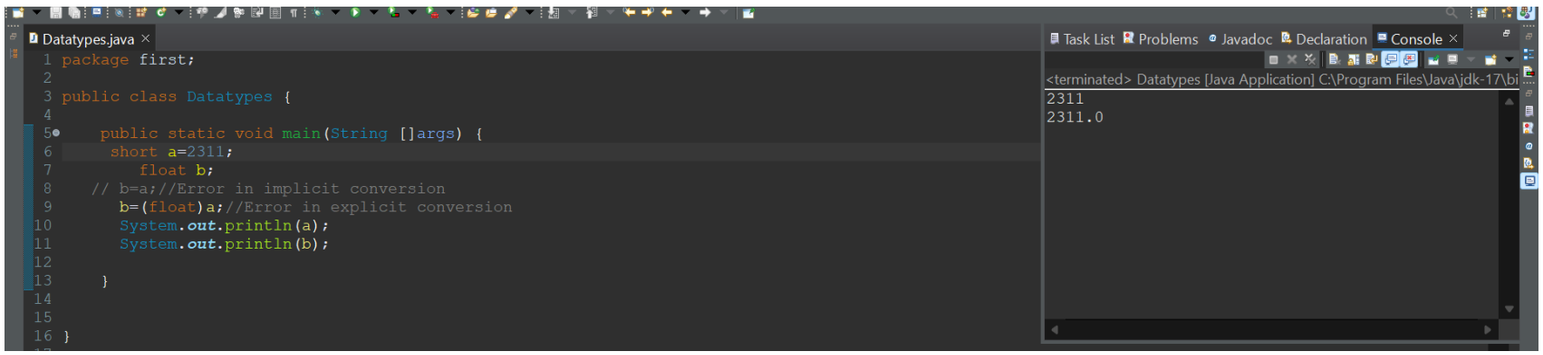
```java
1 package first;
2
3 public class Datatypes {
4
5     public static void main(String []args)
6     {
7      short a=2311;
8      int b;
9      b= a;
10      System.out.println("a="+a);
11      System.out.println("b="+b);
12      }
13
14 }
15
```

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=2311
b=2311
```

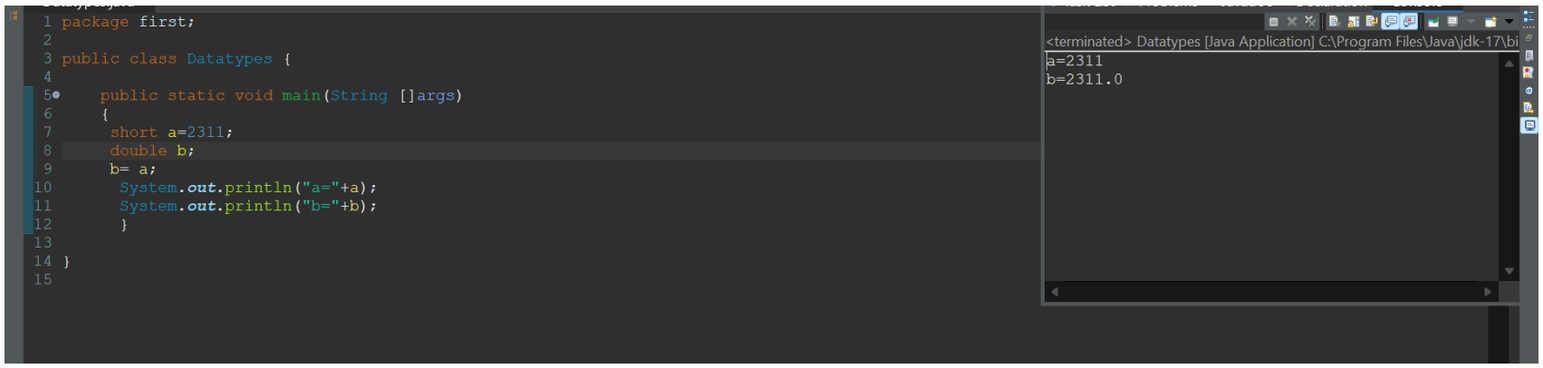
Short to long



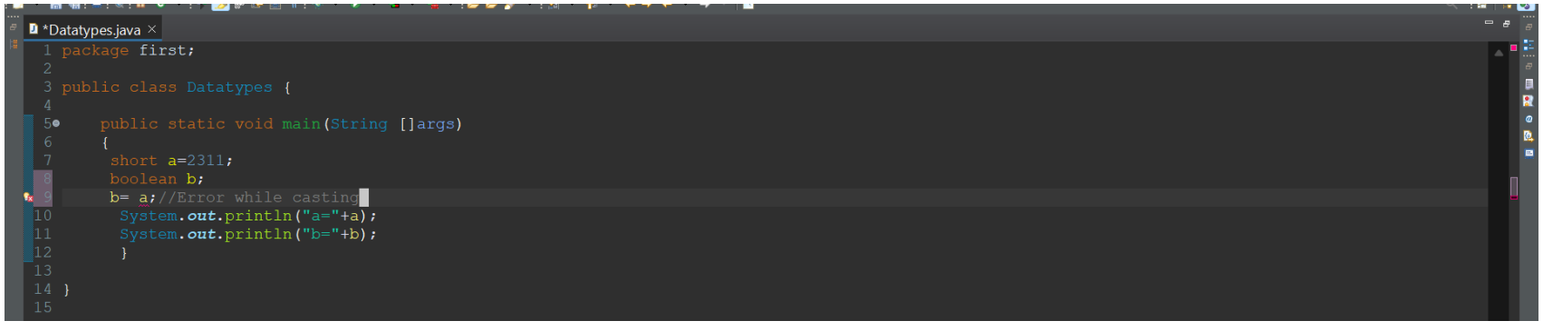
Short to float



Short to double



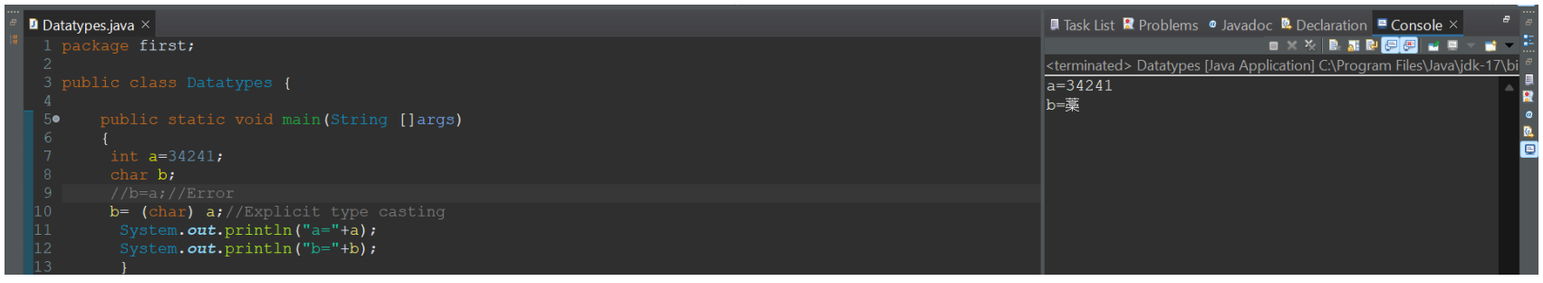
Short to Boolean



*Datatypes.java

```
1  package first;
2
3  public class Datatypes {
4
5      public static void main(String []args)
6      {
7       short a=2311;
8       boolean b;
9       b= a;//Error while casting
10       System.out.println("a="+a);
11       System.out.println("b="+b);
12       }
13
14 }
15
```

Int to char



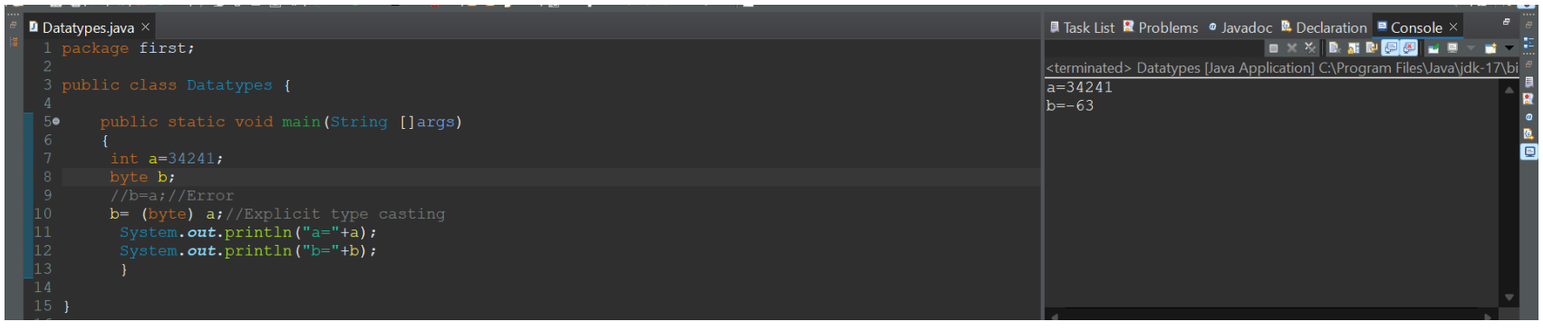
Datatypes.java

```
1  package first;
2
3  public class Datatypes {
4
5      public static void main(String []args)
6      {
7       int a=34241;
8       char b;
9       //b=a;//Error
10      b= (char) a;//Explicit type casting
11       System.out.println("a="+a);
12       System.out.println("b="+b);
13       }
```

Task List | Problems | Javadoc | Declaration | Console

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=34241
b=薁
```

Int to byte



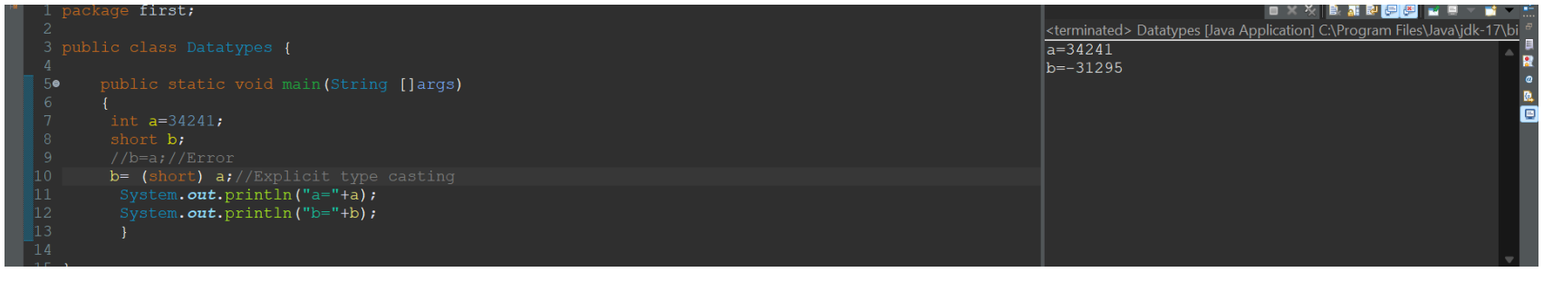
Datatypes.java

```
1  package first;
2
3  public class Datatypes {
4
5      public static void main(String []args)
6      {
7       int a=34241;
8       byte b;
9       //b=a;//Error
10      b= (byte) a;//Explicit type casting
11       System.out.println("a="+a);
12       System.out.println("b="+b);
13       }
14
15 }
```

Task List | Problems | Javadoc | Declaration | Console

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=34241
b=-63
```

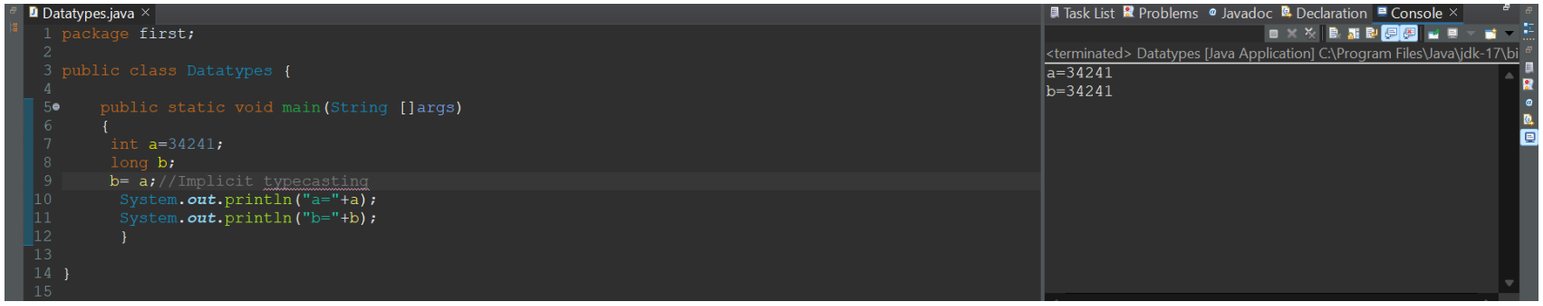
Int to short



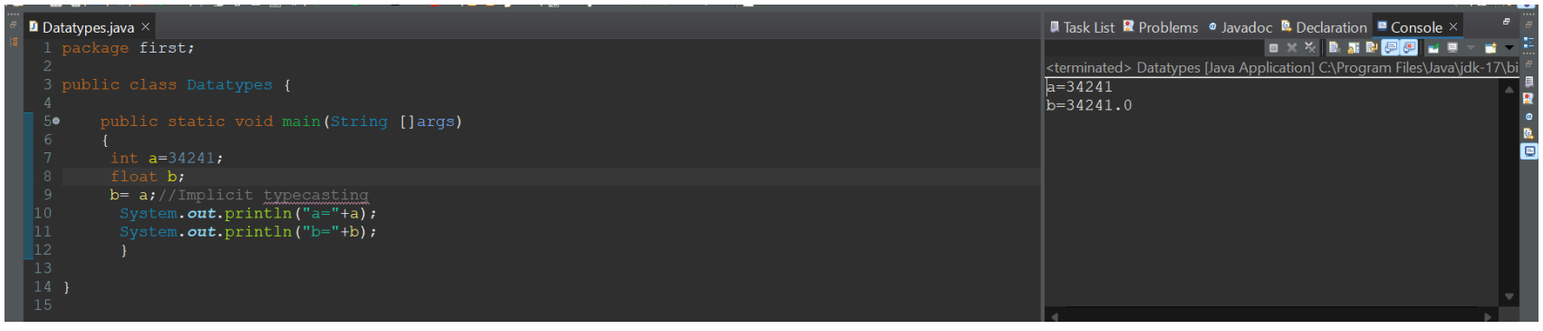
```
1  package first;
2
3  public class Datatypes {
4
5      public static void main(String []args)
6      {
7       int a=34241;
8       short b;
9       //b=a;//Error
10      b= (short) a;//Explicit type casting
11       System.out.println("a="+a);
12       System.out.println("b="+b);
13       }
14
```

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=34241
b=-31295
```

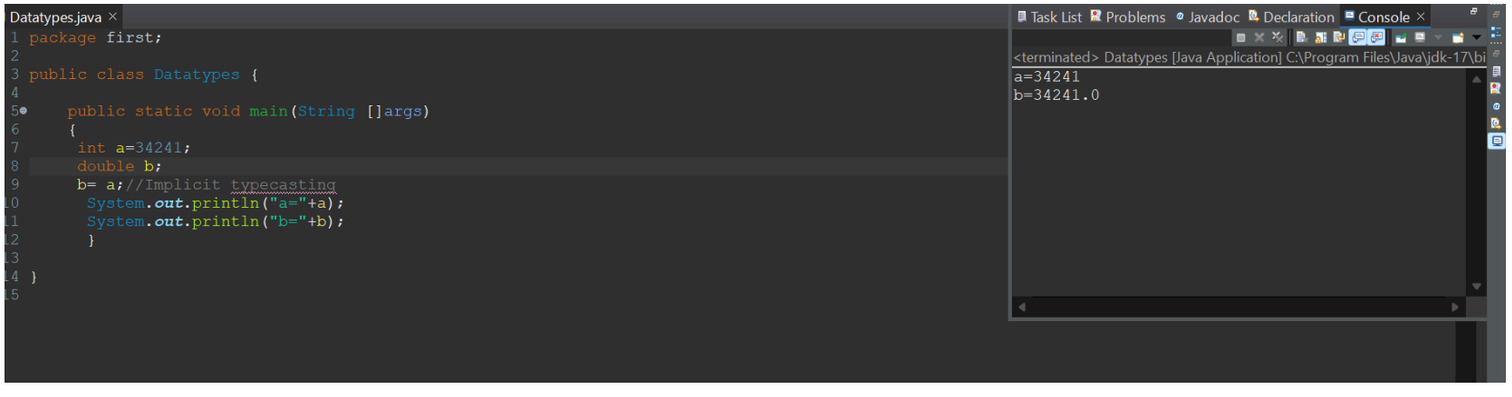
Int to long



Int to float



Int to double



Int to Boolean

```java
package first;

public class Datatypes {

    public static void main(String []args)
    {
     int a=34242;
     boolean b;
     b= a;//Error
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

Long to char

Datatypes.java

```java
package first;

public class Datatypes {

    public static void main(String []args)
    {
     long a=321424765;
     char b;
     //b=a;//Error
     b=(char) a;//Explicit convertion
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

Task List | Problems | Javadoc | Declaration | Console

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=321424765
b=趍
```

Long to byte

Datatypes.java

```java
package first;

public class Datatypes {

    public static void main(String []args)
    {
     long a=321424765;
     byte b;
     //b=a;//Error
     b=(byte) a;//Explicit convertion
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

Task List | Problems | Javadoc | Declaration | Console

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=321424765
b=125
```

Long to short

```java
package first;

public class Datatypes {

    public static void main(String []args)
    {
     long a=321424765;
     short b;
     //b=a;//Error
     b= (short) a;//Explicit convertion
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=321424765
b=-29315
```

Long to int

Datatypes.java

```java
package first;

public class Datatypes {

    public static void main(String []args)
    {
     long a=321424765;
     int b;
     //b=a;//Error
     b=  (int) a;//Explicit convertion
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

Task List | Problems | Javadoc | Declaration | Console

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=321424765
b=321424765
```

Long to float

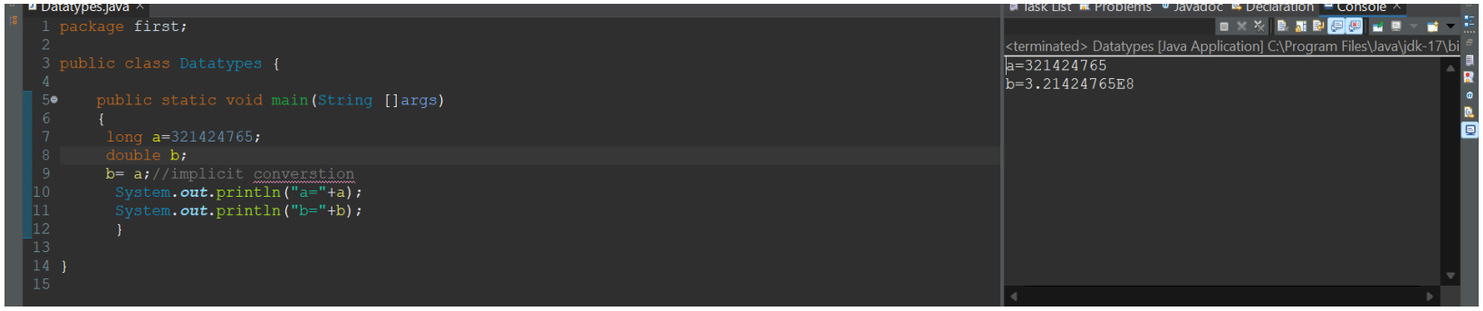
Datatypes.java

```java
package first;

public class Datatypes {

    public static void main(String []args)
    {
     long a=321424765;
     float b;
     b= a;//implicit converstion
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

Task List | Problems | Javadoc | Declaration | Console

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=321424765
b=3.21424768E8
```

Long to double



```
package first;

public class Datatypes {

    public static void main(String []args)
    {
     long a=321424765;
     double b;
     b= a;//implicit converstion
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
a=321424765
b=3.21424765E8
```

Long to Boolean

```
package first;

public class Datatypes {

    public static void main(String []args)
    {
     long a=321424765;
     boolean b;
     b= a;//Error
      System.out.println("a="+a);
      System.out.println("b="+b);
      }

}
```

Double to char

```
package first;

public class Datatypes {

    public static void main(String []args) {
     double a=123.312111313;
     char b;
     //b=a;Error
     b=(char) a;
      System.out.println(a);
      System.out.println(b);


     }
}
```

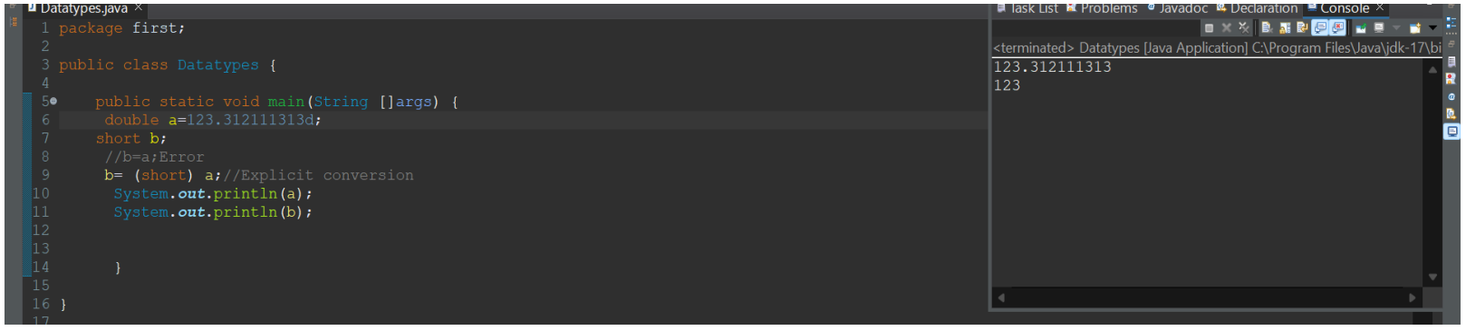
```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
123.312111313
{
```

Double to byte

```
package first;

public class Datatypes {

    public static void main(String []args) {
     double a=123.312111313;
     byte b;
     //b=a;Error
     b=(byte) a;//Explicit
```

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
123.312111313
123
```

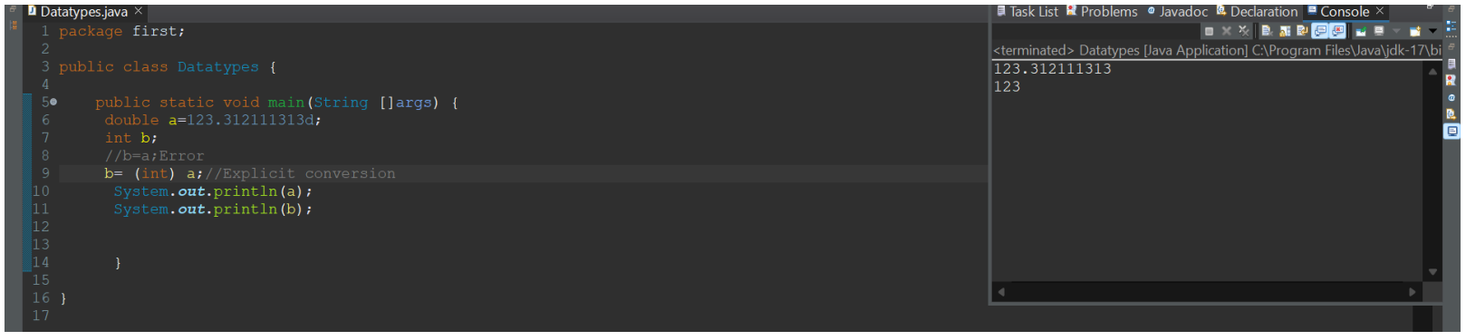
Double to short



```
Datatypes.java
1 package first;
2
3 public class Datatypes {
4
5●    public static void main(String []args) {
6      double a=123.312111313d;
7     short b;
8      //b=a;Error
9      b= (short) a;//Explicit conversion
10      System.out.println(a);
11      System.out.println(b);
12
13
14      }
15
16 }
17
```

```
Task List  Problems  Javadoc  Declaration  Console
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
123.312111313
123
```

Double to int



```
Datatypes.java
1 package first;
2
3 public class Datatypes {
4
5●    public static void main(String []args) {
6      double a=123.312111313d;
7      int b;
8      //b=a;Error
9      b= (int) a;//Explicit conversion
10      System.out.println(a);
11      System.out.println(b);
12
13
14      }
15
16 }
17
```

```
Task List  Problems  Javadoc  Declaration  Console
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
123.312111313
123
```

Double to long

```
1 package first;
2
3 public class Datatypes {
4
5●    public static void main(String []args) {
6      double a=123.312111313d;
7      long b;
8      //b=a;Error
9      b=  (long) a;//Explicit conversion
10      System.out.println(a);
11      System.out.println(b);
12
13
14      }
15
16 }
17
```

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
123.312111313
123
```

Double to float

```java
package first;

public class Datatypes {

    public static void main(String []args) {
     double a=123.312111313d;
     float b;
     //b=a;Error
     b=  (float) a;//Explicit conversion
      System.out.println(a);
      System.out.println(b);


      }

}
```

```
<terminated> Datatypes [Java Application] C:\Program Files\Java\jdk-17\bi
123.312111313
123.31211
```

Double to Boolean

```java
package first;

public class Datatypes {

    public static void main(String []args) {
     double a=123.312111313d;
     boolean b;
     //b=a;Error
     b=  (boolean)a//Error
      System.out.println(a);
      System.out.println(b);


      }

}
```

Boolean to char

```java
package first;

public class Datatypes {

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


      }
```

Boolean to char

```java
package first;

public class Datatypes {

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


     }

}
```

Boolean to short

```java
package first;

public class Datatypes {

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

    }


}
```

Boolean to int

```java
package first;

public class Datatypes {

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

    }


}
```

Boolean to long

```java
package first;

public class Datatypes {

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

    }


}
```

Boolean to float

```java
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);

    }


}
```

Boolean to double

```java
st/src/first/Datatypes.java
public class Datatypes {

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

    }


}
```

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