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TYPE CASTING IN JAVA

Research Assignment

by

B. AKSHITHA

Submitted to

Technology Training Head

PUNITH KUMAR SIR
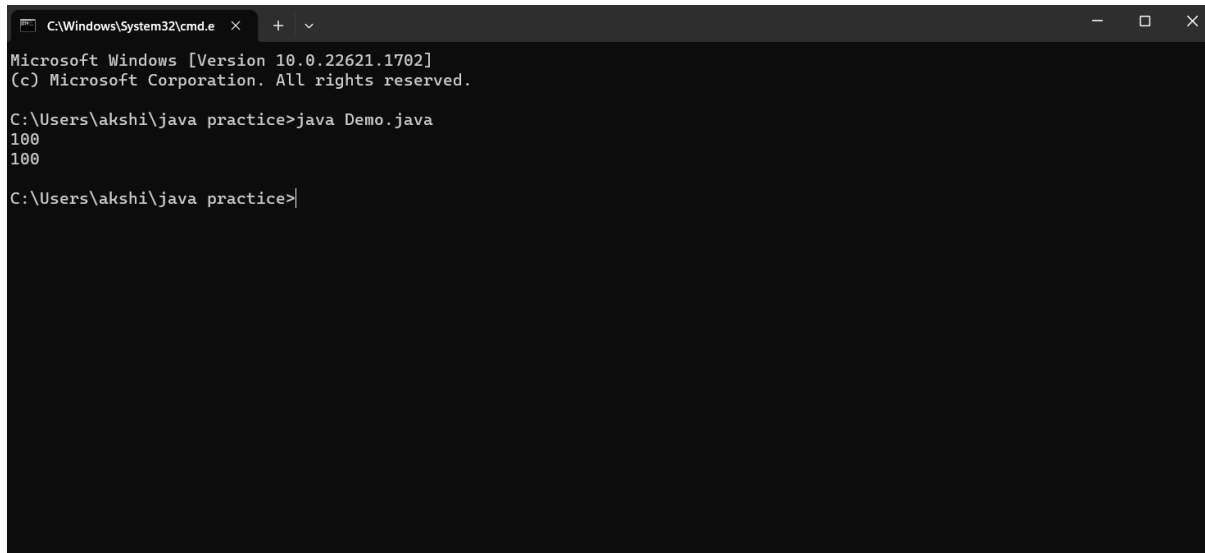
at

Kodnest Technologies Pvt.Ltd

Karnataka, Banglore

June 2023

Program 1

```java
class Demo {

public static void main(String args[]) {

    byte a = 100;

    // Casting byte to byte is not required

    byte b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
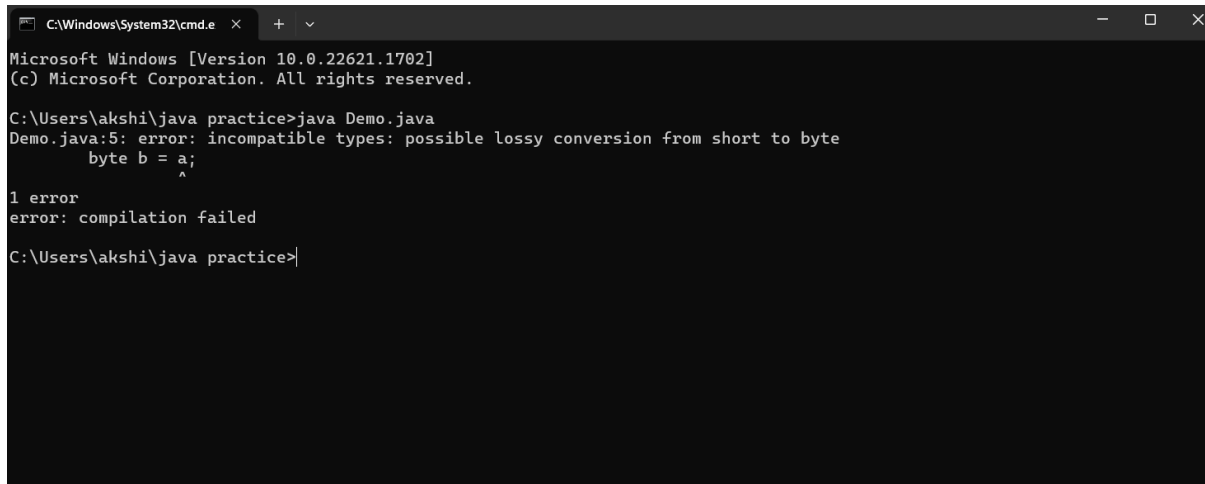

The output of the program is same as before.

Casting not required

Program 2

```java
class Demo {

public static void main(String args[]) {

    short a = 500;

    // Casting short to byte

    byte b = a;

    //byte b = (byte)a;

    System.out.println(a);
```

```
        System.out.println(b);

    }

}
```


Explicit type casting

Program 3

```
class Demo {

public static void main(String args[]) {

    int a = 300;

    // Casting int to byte

    byte b = a;

            //byte b = (byte)a;

    System.out.println(a);

    System.out.println(b);

    }

}
```
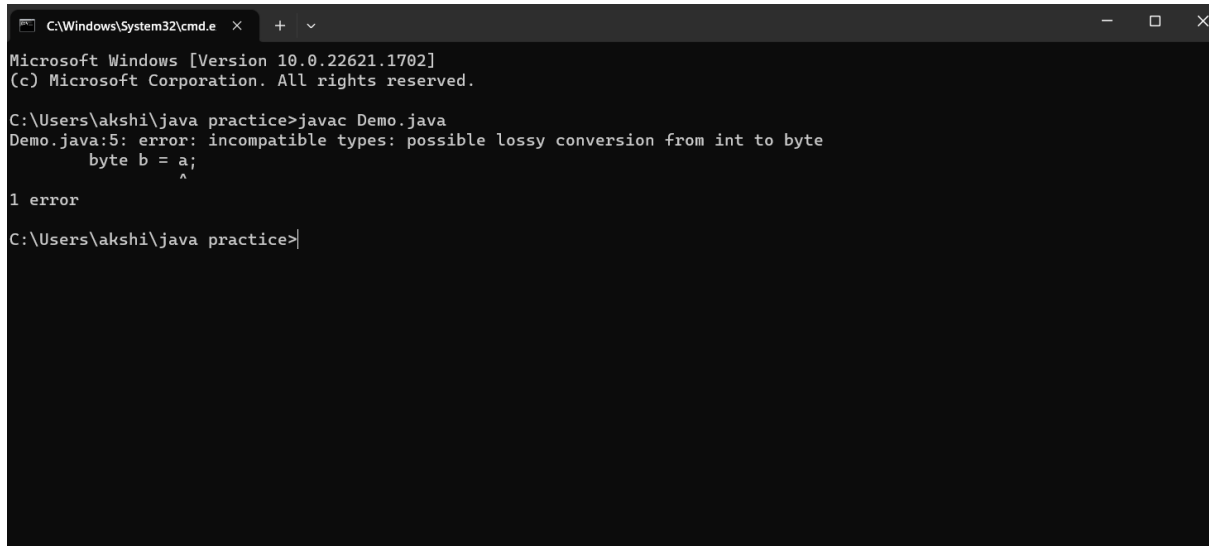
```
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Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from int to byte
        byte b = a;
                 ^
1 error

C:\Users\akshi\java practice>
```

Explicit type casting

Program 4

class Demo {

public static void main(String args[]) {

        long a = 123456789L;

        // Casting long to byte

        byte b = a;

            //byte b = (byte)a;

        System.out.println(a);

        System.out.println(b);

    }

}

```
C:\Windows\System32\cmd.e   ×    +   ∨                                        —    □    ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from long to byte
        byte b = a;
                 ^
1 error

C:\Users\akshi\java practice>
```
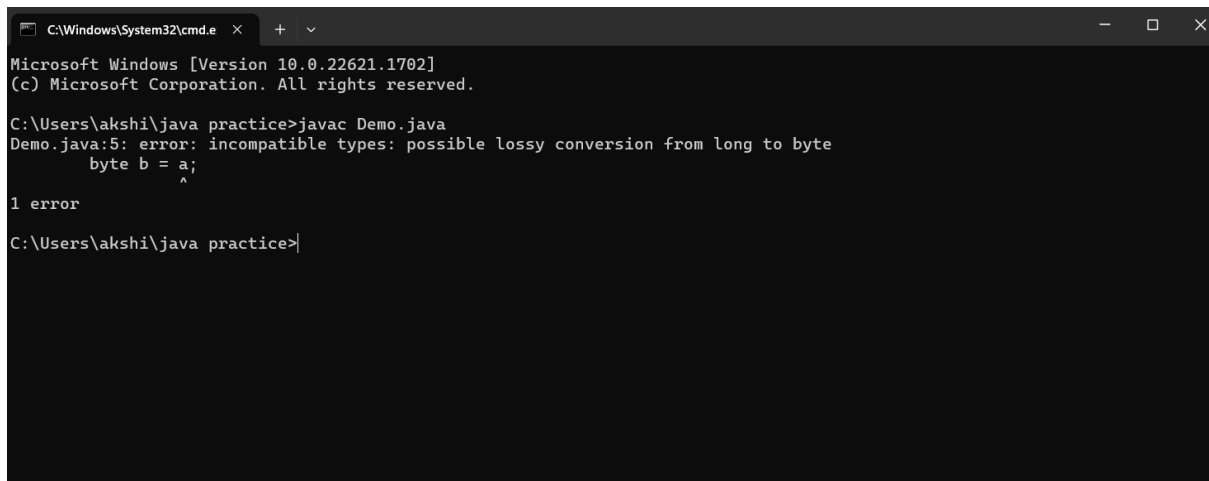
Explicit type casting

Program 5

```java
class Demo {

public static void main(String args[]) {

    float a = 123.45f;

    // Casting float to byte

    byte b = a;

        //byte b = (byte)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

```
C:\Windows\System32\cmd.e   ×   +   ∨                                                          —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from float to byte
        byte b = a;
                 ^
1 error

C:\Users\akshi\java practice>
```
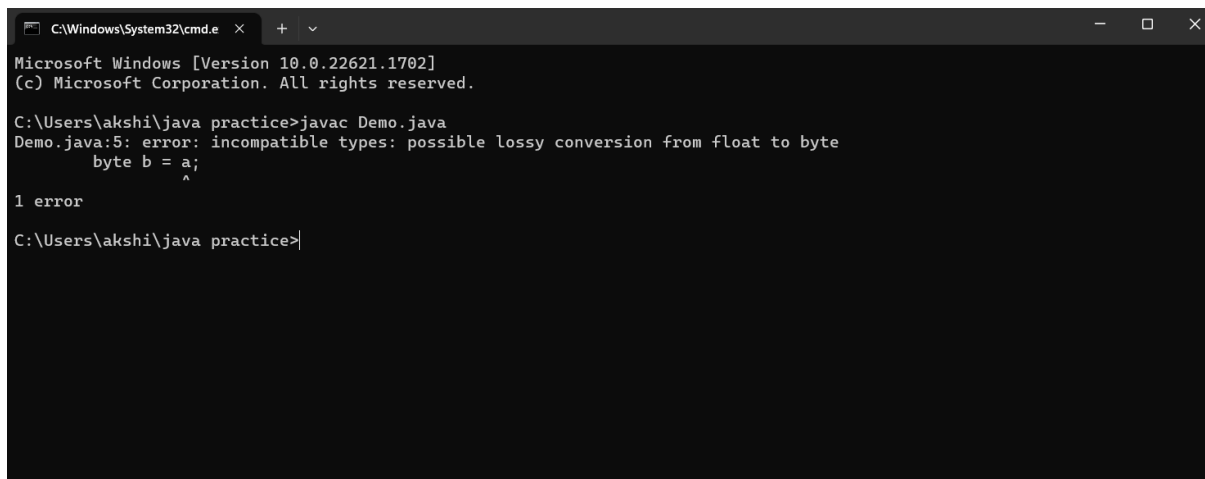
Explicit type casting
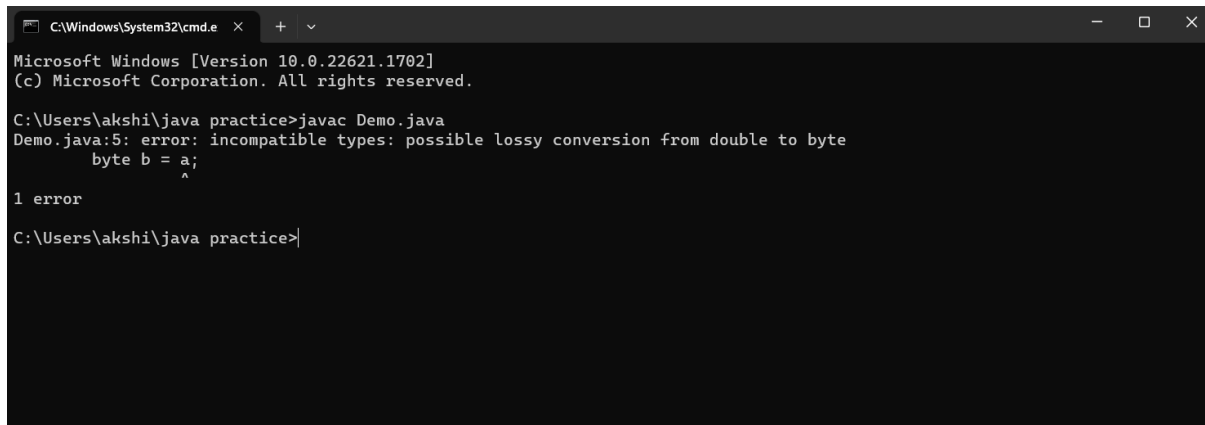
Program 6

```java
class Demo {

public static void main(String args[]) {

    double a = 123.45;

    // Casting double to byte

    byte b = a;

        //byte b = (byte)a;
```

```
        System.out.println(a);

        System.out.println(b);

    }

}
```

```
C:\Windows\System32\cmd.e    ×    +   ∨                                           —     □    ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from double to byte
        byte b = a;
                 ^
1 error

C:\Users\akshi\java practice>
```

Explicit type casting

Program 7

```
class Demo {

public static void main(String args[]) {

    char a ='A';

    // Casting char to byte

    byte b = a;

        //byte b = (byte)a;

    System.out.println(a);

    System.out.println(b);

    }

}
```

```
C:\Windows\System32\cmd.e ×    +  ˅                                         —    □    ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from char to byte
        byte b = a;
               ^
1 error

C:\Users\akshi\java practice>
```
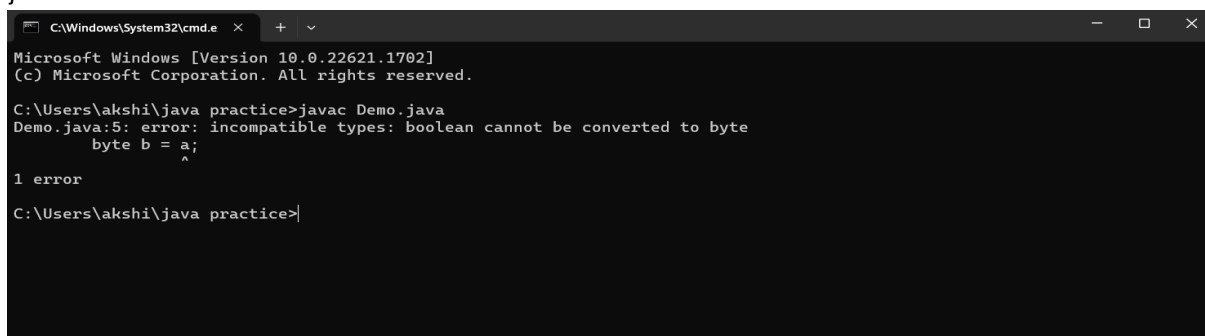
Explicit typecasting

Program 8

class Demo {

public static void main(String args[]) {

     boolean a = true;

     // Casting boolean to byte is incompatible

     byte b = a;

          //byte b = (byte)a;

     System.out.println(a);

     System.out.println(b);

   }

}

```
C:\Windows\System32\cmd.e ×    +  ˅                                         —    □    ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java
Demo.java:5: error: incompatible types: boolean cannot be converted to byte
        byte b = a;
               ^
1 error

C:\Users\akshi\java practice>
```

No typecasting

Program 9

class Demo {

public static void main(String args[]) {

7

```
    byte a = 100;

    // Casting byte to short

    short b = a;

    System.out.println(a);

    System.out.println(b);

    }

}
```
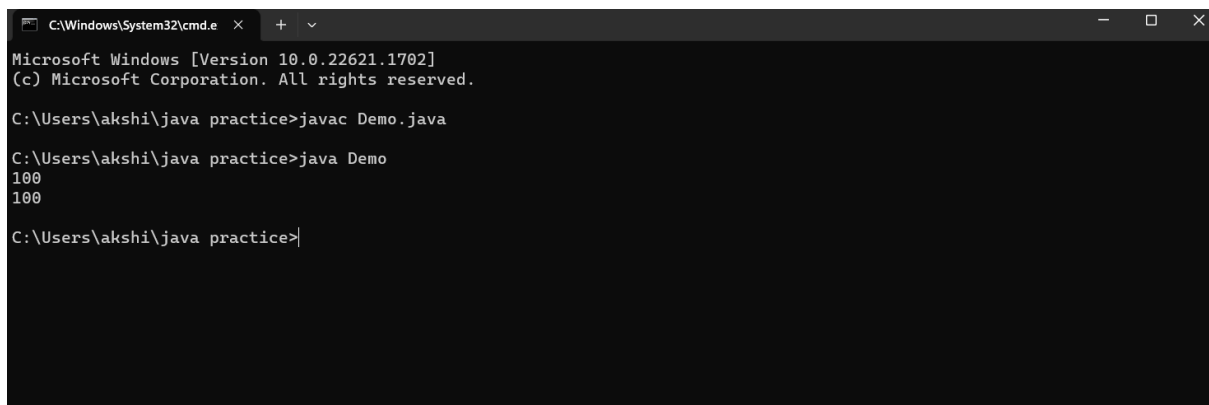


```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java

C:\Users\akshi\java practice>java Demo
100
100

C:\Users\akshi\java practice>
```

Implicit type casting

Program 10

```
class Demo {

public static void main(String args[]) {

    short a = 150;

    // Casting short to short not required

    short b = a;

    System.out.println(a);

    System.out.println(b);

    }

}
```
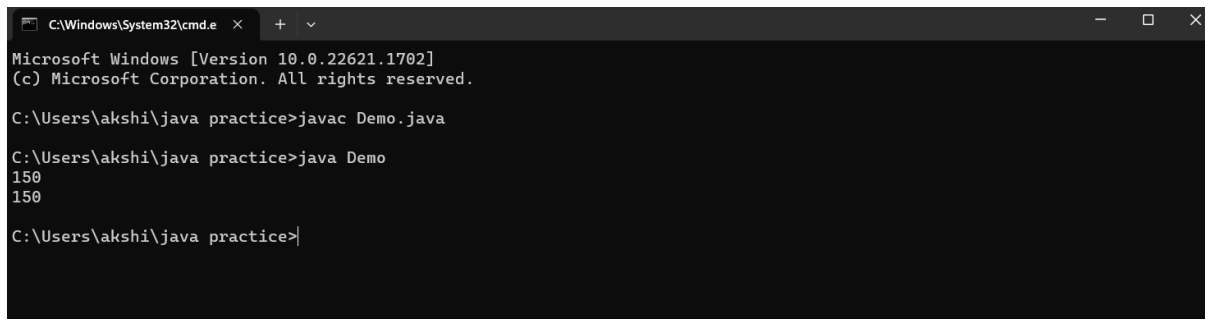
```
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Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java

C:\Users\akshi\java practice>java Demo
150
150

C:\Users\akshi\java practice>
```
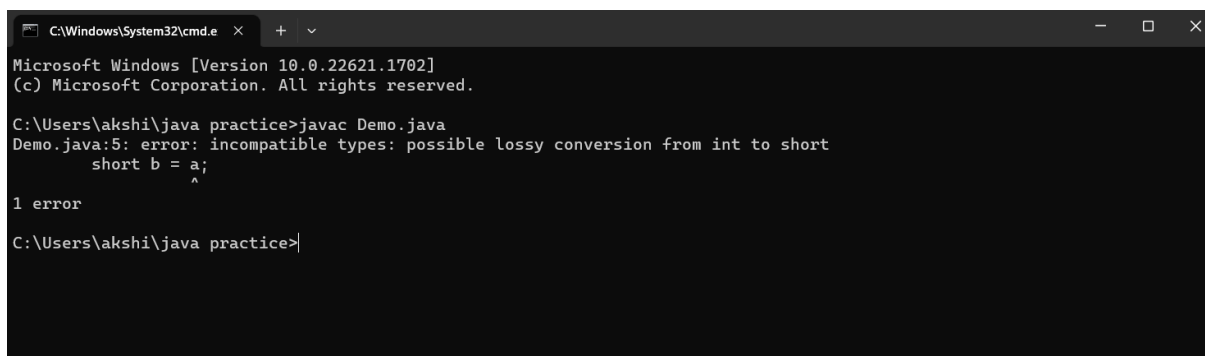
<u>Casting not required</u>

<u>Program 11</u>

class Demo {

public static void main(String args[]) {

    int a = 150;

    // Casting int to short not possible

    short b = a;

    //short b = (short)a;

    System.out.println(a);

    System.out.println(b);

  }

}

```
C:\Windows\System32\cmd.e   ×   +  ∨                                         —   □   ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from int to short
        short b = a;
                  ^
1 error

C:\Users\akshi\java practice>
```

<u>Explicit typecasting</u>

<u>Program 12</u>

class Demo {

public static void main(String args[]) {

```
        long a = 1000000L;

        // Casting long to short not possible

        short b = a;

            //short b = (short)a;

        System.out.println(a);

        System.out.println(b);

    }

}
```
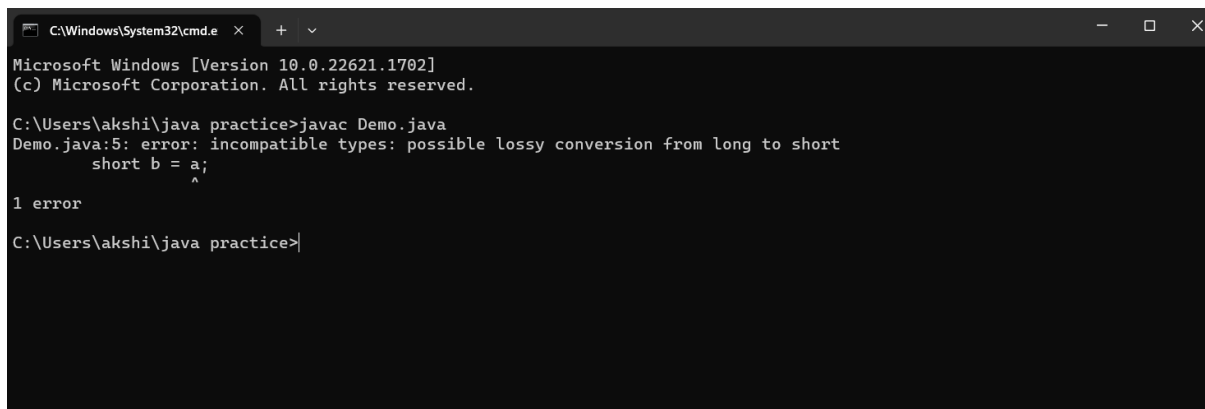
```
C:\Windows\System32\cmd.e  ×    +   ∨                                                                —   ☐   ✕

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>javac Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from long to short
        short b = a;
                  ^
1 error

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 13

```
class Demo {

public static void main(String args[]) {

        float a = 123.45f;

        // Casting float to short not possible

        short b = a;

            //short b = (short)a;

        System.out.println(a);

        System.out.println(b);

    }

}
```

```
C:\Windows\System32\cmd.e  ×  +  ∨                                                    —  □  ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from float to short
        short b = a;
                  ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 14

class Demo {

public static void main(String args[]) {

        double a = 123.45;

        // Casting double to short

        short b = a;

            //short b = (short)a;

        System.out.println(a);

        System.out.println(b);

    }

}

```
C:\Windows\System32\cmd.e  ×  +  ∨                                                    —  □  ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from double to short
        short b = a;
                  ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 15

class Demo {

public static void main(String args[]) {

11

```
        char a = 'A';

        // Casting char to short not possible

        short b = a;

            //short b = (short)a;

        System.out.println(a);

        System.out.println(b);

    }

}
```

```
C:\Windows\System32\cmd.e   ×   +   ∨                                        —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from char to short
        short b = a;
                  ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 16

```
class Demo {

public static void main(String args[]) {

        boolean a = false;

        // Casting boolean to short is incompatible

        short b = a;

        System.out.println(a);

        System.out.println(b);

    }

}
```
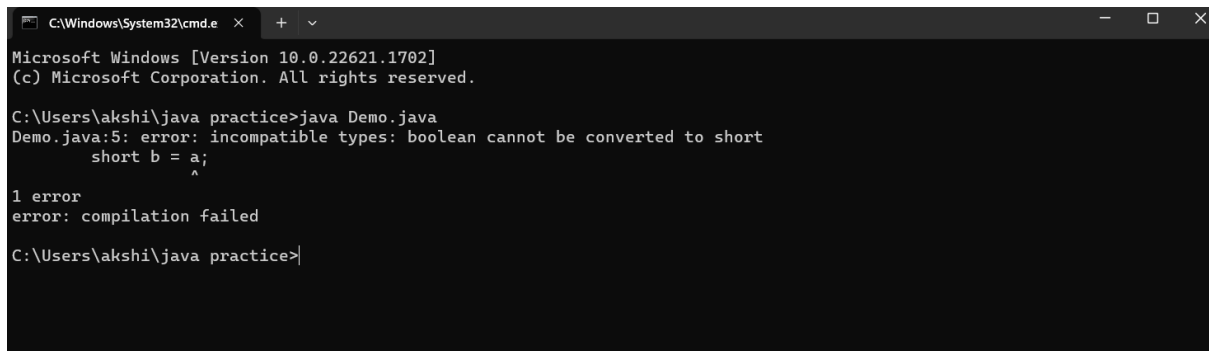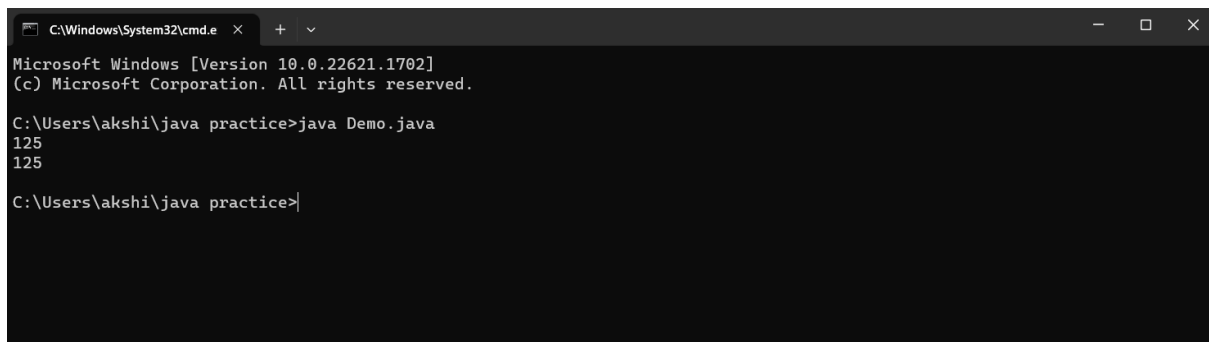
```
C:\Windows\System32\cmd.e  ×   +  ∨                                                     —   □   ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: boolean cannot be converted to short
        short b = a;
                  ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

No typecasting

Program 17

class Demo {

public static void main(String args[]) {

    byte a = 125;

    // Casting byte to int

    int b = a;

    System.out.println(a);

    System.out.println(b);

  }

}

```
C:\Windows\System32\cmd.e  ×   +  ∨                                                     —   □   ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
125
125

C:\Users\akshi\java practice>
```
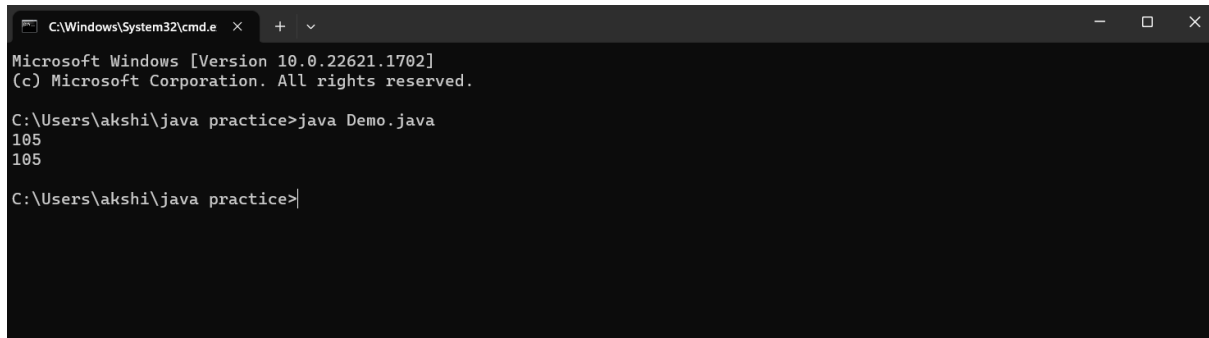
Implicit typecasting

Program 18

class Demo {

public static void main(String args[]) {

    short a = 105;

```
    // Casting short to int

    int b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
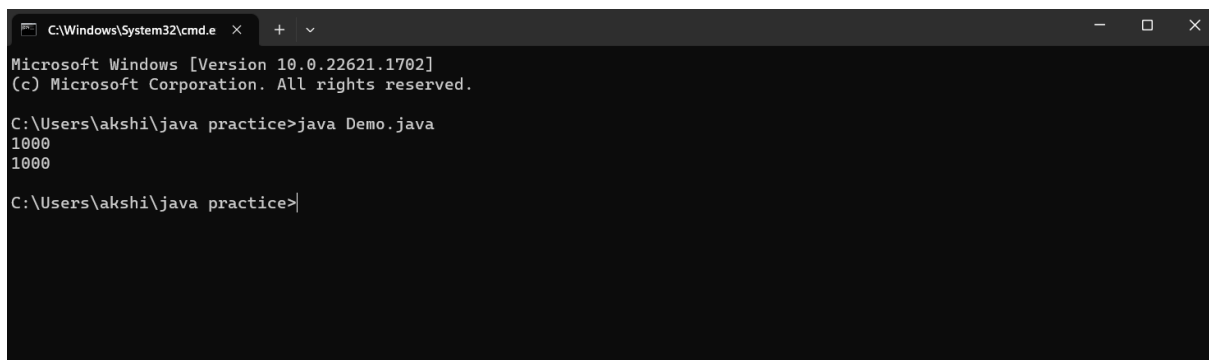
```
C:\Windows\System32\cmd.e   ×   +   ⌄                                              —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
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C:\Users\akshi\java practice>java Demo.java
105
105

C:\Users\akshi\java practice>
```

Implicit typecasting

Program 19

```
class Demo {

public static void main(String args[]) {

    int a = 1000;

    // Casting int to int not required

    int b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
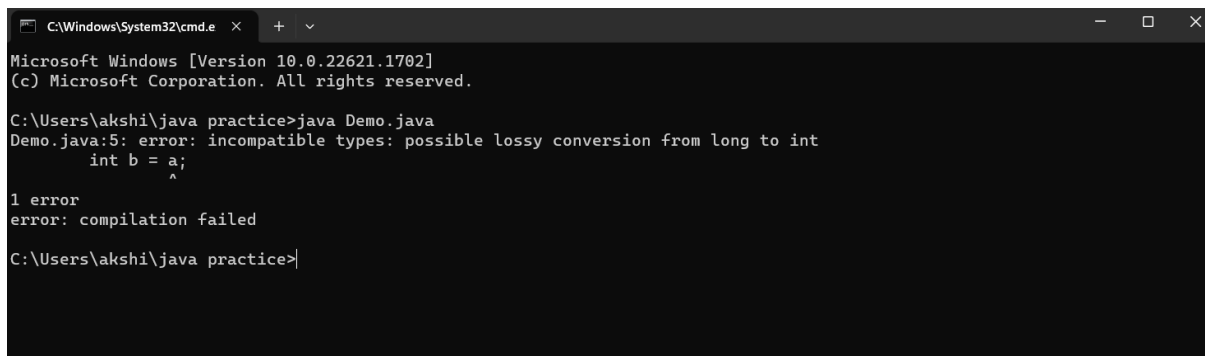
```
C:\Windows\System32\cmd.e   ×   +   ⌄                                              —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
1000
1000

C:\Users\akshi\java practice>
```

14

Casting not required

Program 20

```
class Demo {

public static void main(String args[]) {

    long a = 1000365479l;

    // Casting long to int

    int b = a;

        //int b = (int)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

```
C:\Windows\System32\cmd.e  X  +  v                                                    —  □  ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from long to int
        int b = a;
                ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```
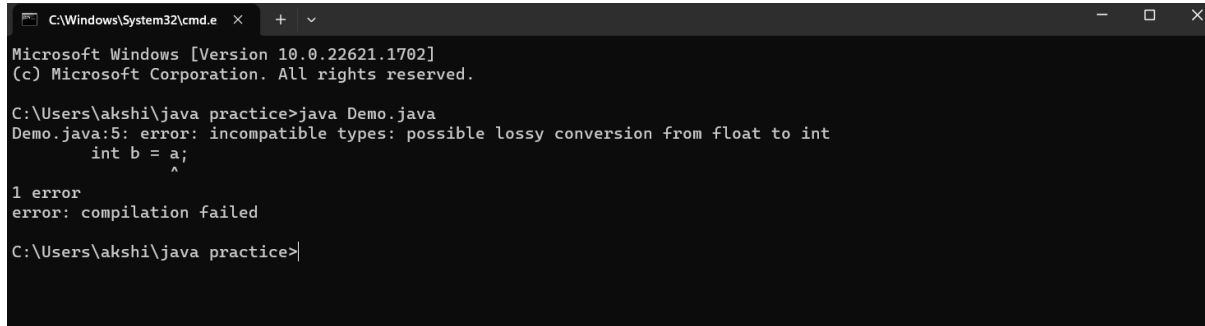
Explicit typecasting

Program 21

```
class Demo {

public static void main(String args[]) {

    float a = 73.829f;

    // Casting float to int

    int b = a;

        //int b = (int)a;

    System.out.println(a);

    System.out.println(b);
```
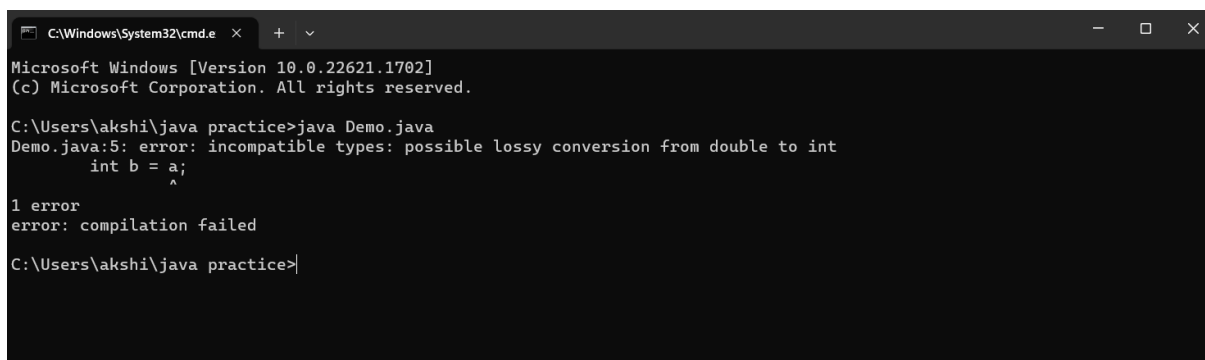
```
    }

}
```

```
C:\Windows\System32\cmd.e  ×   +  ∨                                                          —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from float to int
        int b = a;
                ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 22

```
class Demo {

public static void main(String args[]) {

    double a = 73.829;

    // Casting double to int

    int b = a;

        //int b = (int)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

```
C:\Windows\System32\cmd.e  ×   +  ∨                                                          —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from double to int
        int b = a;
                ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 23

16

```java
class Demo {

public static void main(String args[]) {

    char a = 'A';

    // Casting char to int

    int b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
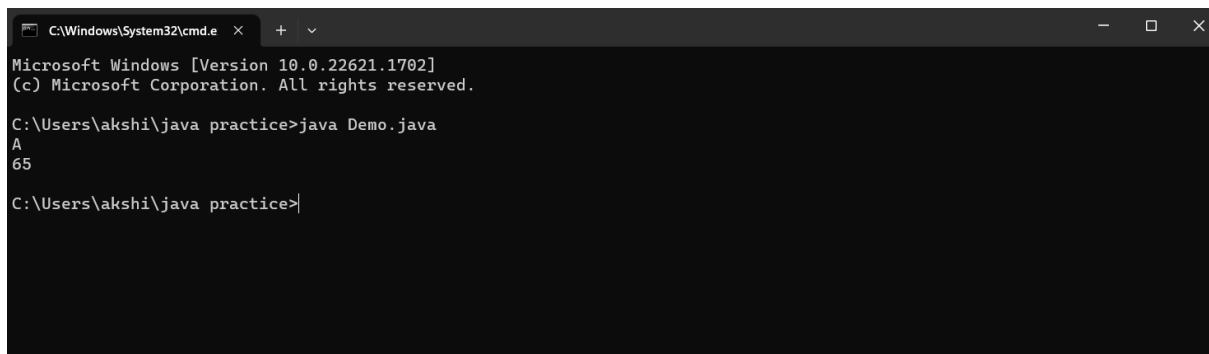
```
C:\Windows\System32\cmd.e  ×   + ∨                                          —  □  ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
A
65

C:\Users\akshi\java practice>
```

Implicit type casting

Program 24

```java
class Demo {

public static void main(String args[]) {

    boolean a = true;

    // Casting boolean to int

    int b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
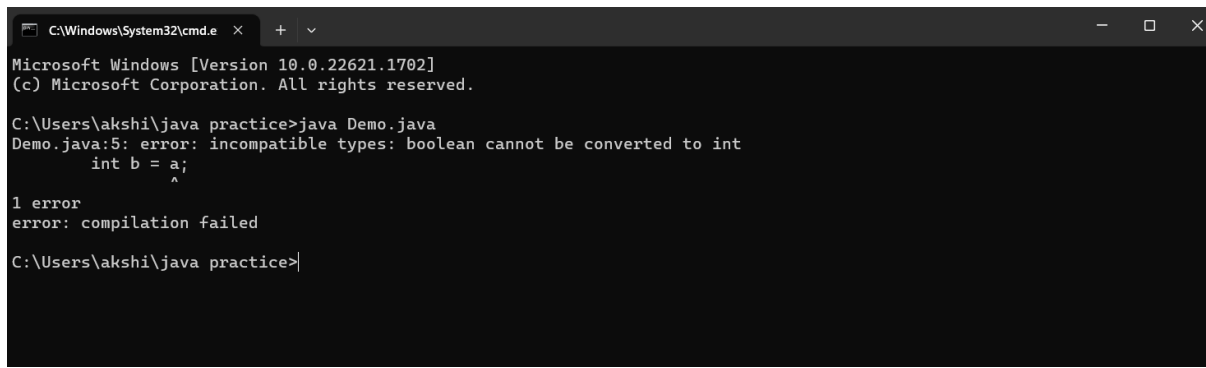
```
C:\Windows\System32\cmd.e  ×   +   ∨                                    —   ☐   ✕
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: boolean cannot be converted to int
        int b = a;
                ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```
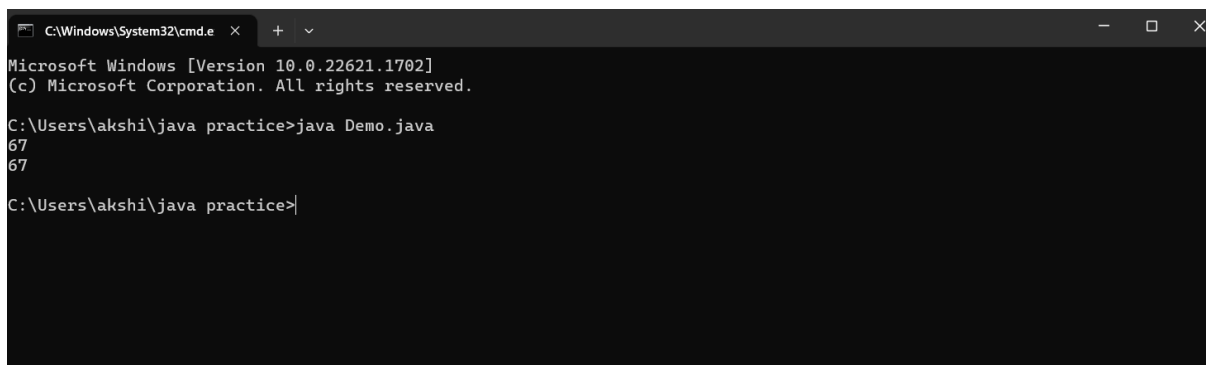
No typecasting

Program 25

class Demo {

public static void main(String args[]) {

    byte a = 67;

    // Casting byte to long

    long b = a;

    System.out.println(a);

    System.out.println(b);

  }

}

```
C:\Windows\System32\cmd.e  ×   +   ∨                                    —   ☐   ✕
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
67
67

C:\Users\akshi\java practice>
```

Implicit type casting

Program 26

class Demo {

public static void main(String args[]) {

```
short a = 6778;

// Casting short to long

long b = a;

System.out.println(a);

System.out.println(b);

    }

}
```

```
C:\Windows\System32\cmd.e  ×   +   ∨                                      —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
6778
6778

C:\Users\akshi\java practice>
```

Implicit type casting

Program 27

```
class Demo {

public static void main(String args[]) {

    int a = 5000;

    // Casting int to long

    long b = a;

    System.out.println(a);

    System.out.println(b);

    }

}
```
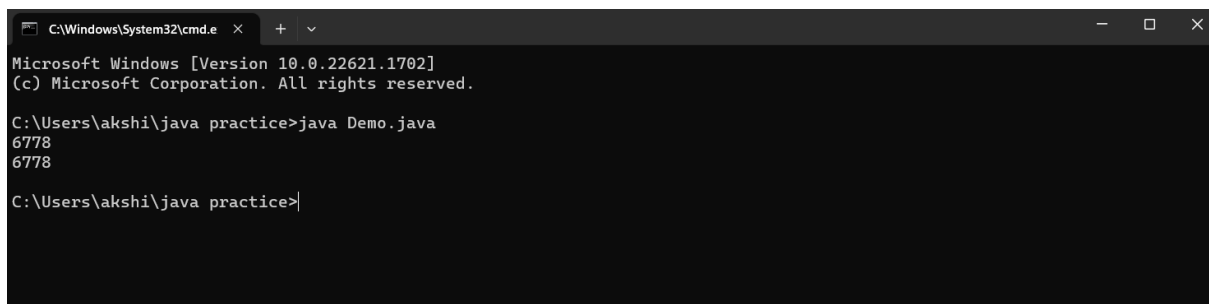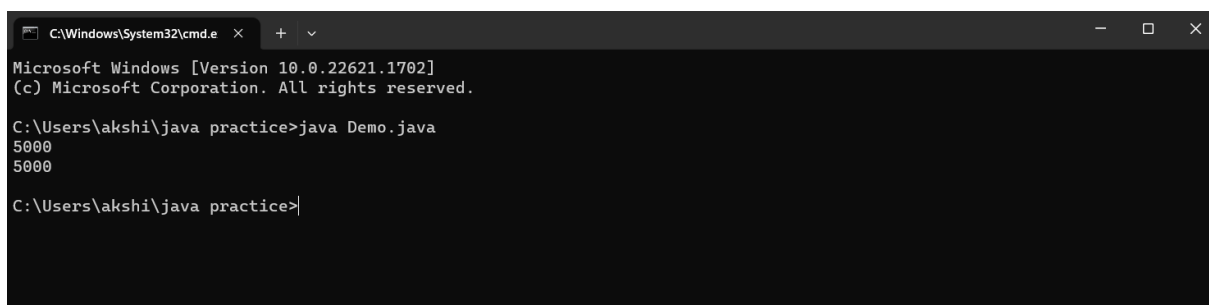
```
C:\Windows\System32\cmd.e  ×   +   ∨                                      —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
5000
5000

C:\Users\akshi\java practice>
```
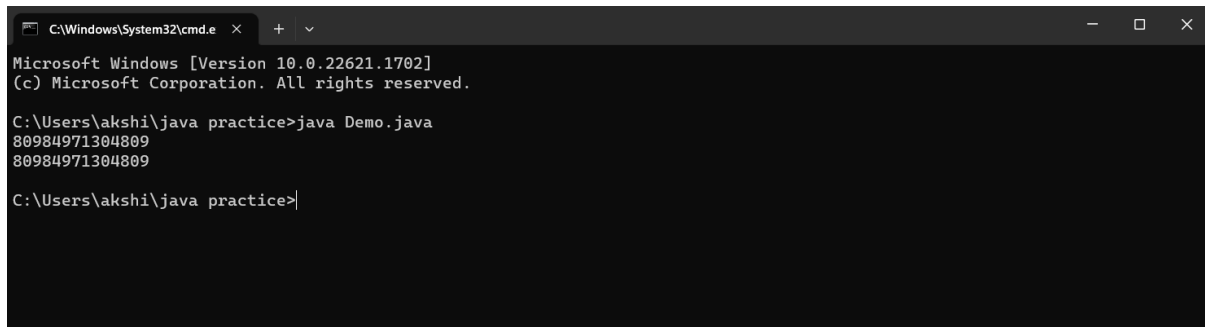
Implicit type casting

Program 28

```
class Demo {

public static void main(String args[]) {

    long a = 80984971304809l;

    // Casting long to long not required

    long b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```



```
Microsoft Windows [Version 10.0.22621.1702]
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C:\Users\akshi\java practice>java Demo.java
80984971304809
80984971304809

C:\Users\akshi\java practice>
```

Casting not required

Program 29

```
class Demo {

public static void main(String args[]) {

    float a = 4.0827783f;

    // Casting float to long

    long b = a;

        //long b = (long)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

```
C:\Windows\System32\cmd.e  ×   +  ∨                                     —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from float to long
        long b = a;
               ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```
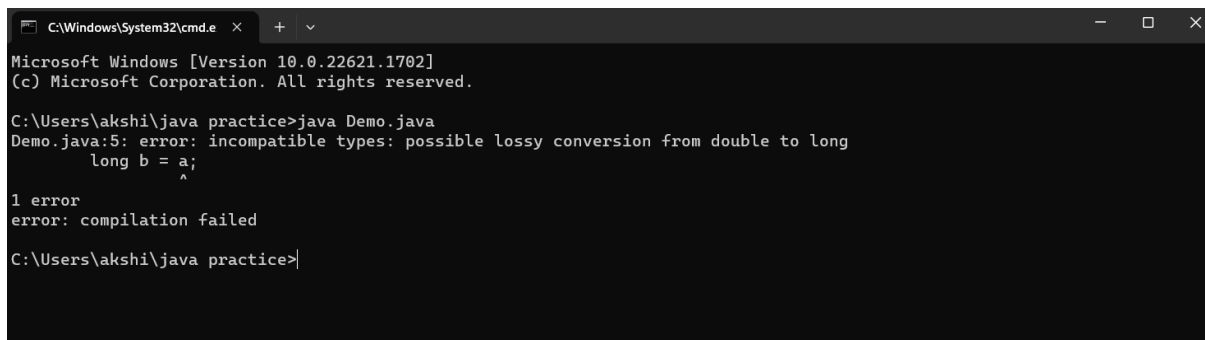
Explicit typecasting

Program 30

class Demo {

public static void main(String args[]) {

    double a = 48.0827783;

    // Casting double to long

    long b = a;

      //long b = (long)a;

    System.out.println(a);

    System.out.println(b);

  }

}

```
C:\Windows\System32\cmd.e  ×   +  ∨                                     —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from double to long
        long b = a;
               ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 31

class Demo {

public static void main(String args[]) {

    char a = 'p';

21

// Casting char to long
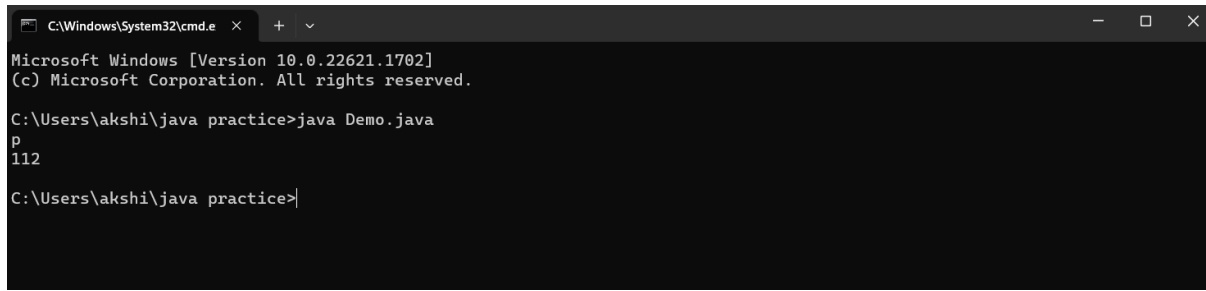
long b = a;

System.out.println(a);

System.out.println(b);

}

}

```
C:\Windows\System32\cmd.e  ×   +  ∨                                        —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
p
112

C:\Users\akshi\java practice>
```

Implicit type casting

Program 32

class Demo {

public static void main(String args[]) {
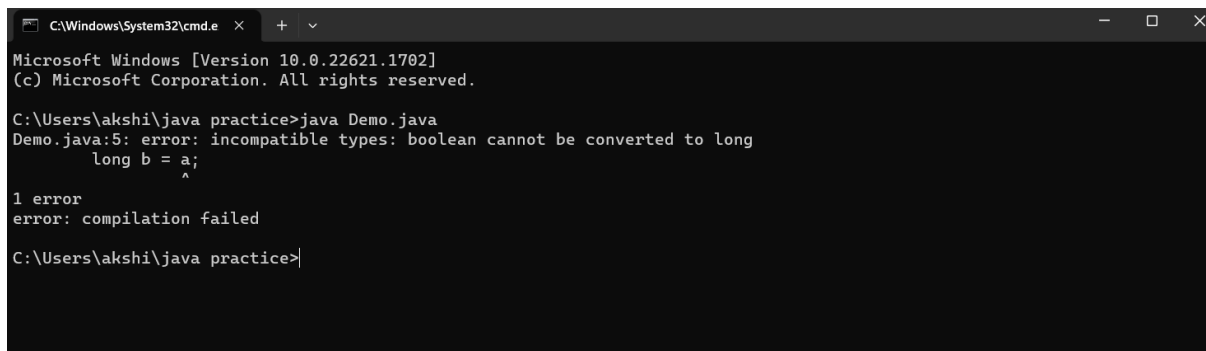
boolean a = true;

// Casting boolean to long not possible

long b = a;

System.out.println(a);

System.out.println(b);

}

}

```
C:\Windows\System32\cmd.e  ×   +  ∨                                        —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: boolean cannot be converted to long
       long b = a;
                ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```
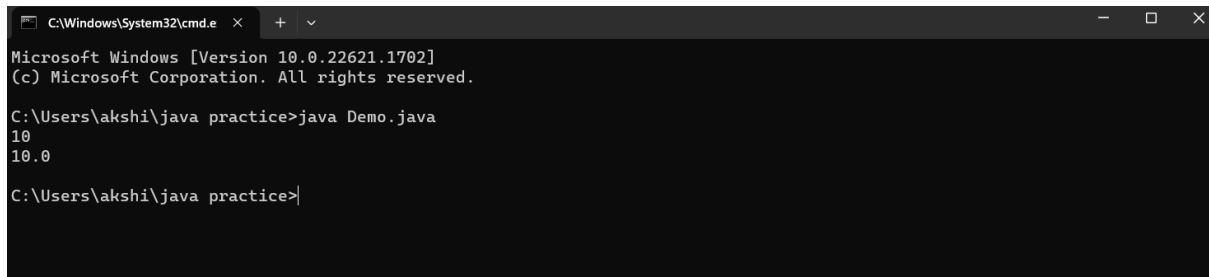
Explicit typecasting

Program 33

```
class Demo {

public static void main(String args[]) {

    byte a = 10;

    // Casting byte to float

    float b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
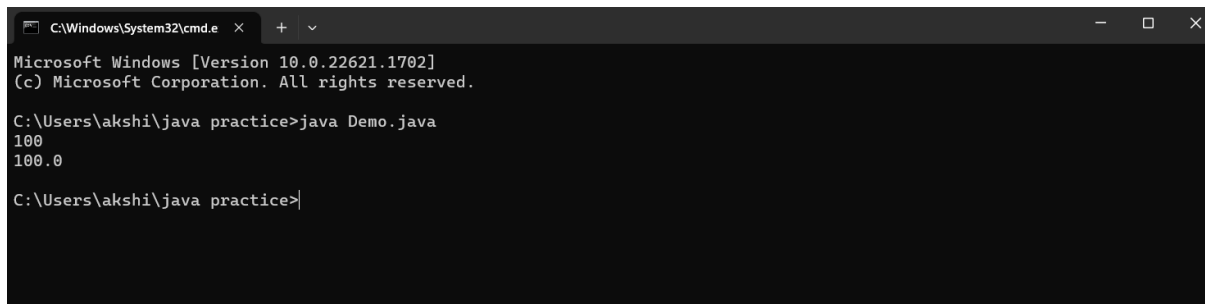


```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
10
10.0

C:\Users\akshi\java practice>
```

Implicit type casting

Program 34

```
class Demo {

public static void main(String args[]) {

    short a = 100;

    // Casting short to float

    float b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

```
C:\Windows\System32\cmd.e  ×    +   ∨                                   —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
100
100.0

C:\Users\akshi\java practice>
```
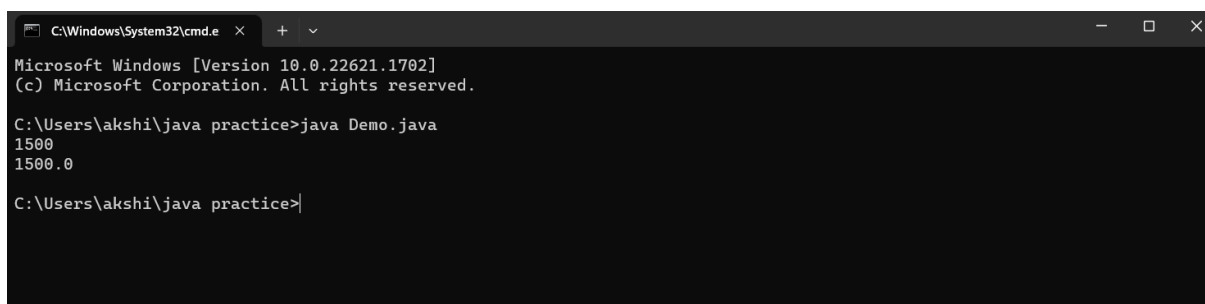
Implicit typecasting

Program 35

class Demo {

public static void main(String args[]) {

    int a = 1500;

    // Casting int to float

    float b = a;

    System.out.println(a);

    System.out.println(b);

  }

}

```
C:\Windows\System32\cmd.e  ×    +   ∨                                   —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
1500
1500.0

C:\Users\akshi\java practice>
```
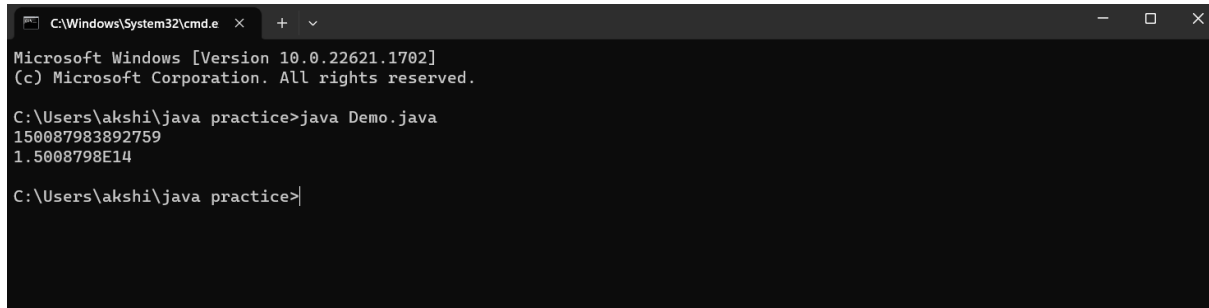
Implicit typecasting

Program 36

class Demo {

public static void main(String args[]) {

    long a = 150087983892759l;

    // Casting long to float

24

```
    float b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
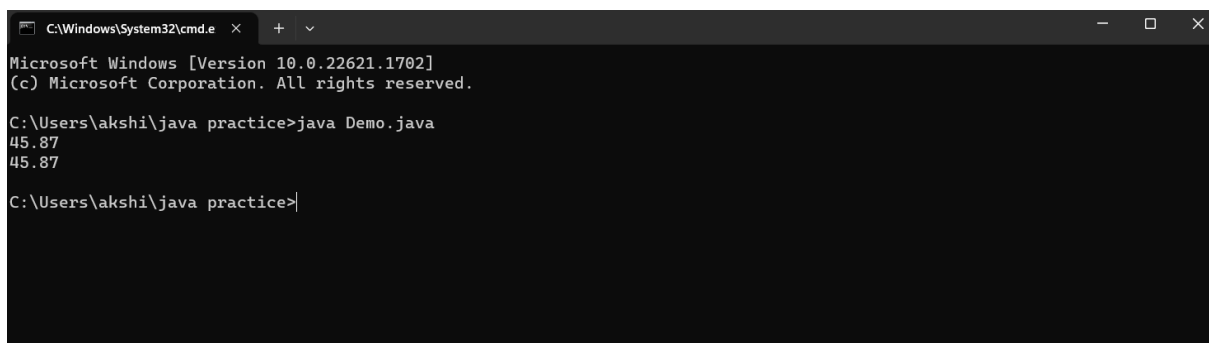
```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
150087983892759
1.5008798E14

C:\Users\akshi\java practice>
```

Implicit typecasting

Program 37

```
class Demo {

public static void main(String args[]) {

    float a = 45.87f;

    // Casting float to float not required

    float b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
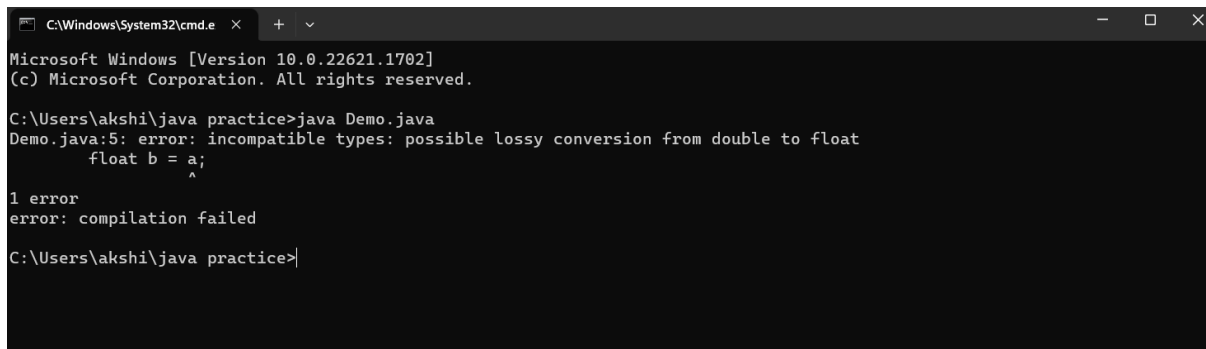
```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
45.87
45.87

C:\Users\akshi\java practice>
```

Casting not required

Program 38

```java
class Demo {

public static void main(String args[]) {

    double a = 45.87774;

    // Casting double to float

    float b = a;

        //float b = (float)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
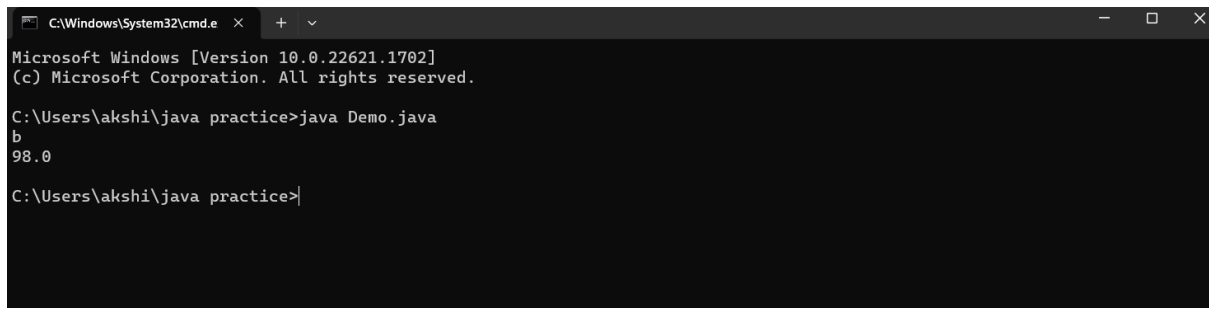
```
C:\Windows\System32\cmd.e  ×  +  ∨                                                    —  □  ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from double to float
        float b = a;
                  ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 39

```java
class Demo {

public static void main(String args[]) {

    char a = 'b';

    // Casting char to float

    float b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

```
C:\Windows\System32\cmd.e   ×   +  ∨                                          —    □    ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
b
98.0

C:\Users\akshi\java practice>
```

Implicit typecasting

Program 40

class Demo {

public static void main(String args[]) {

    boolean a = true;

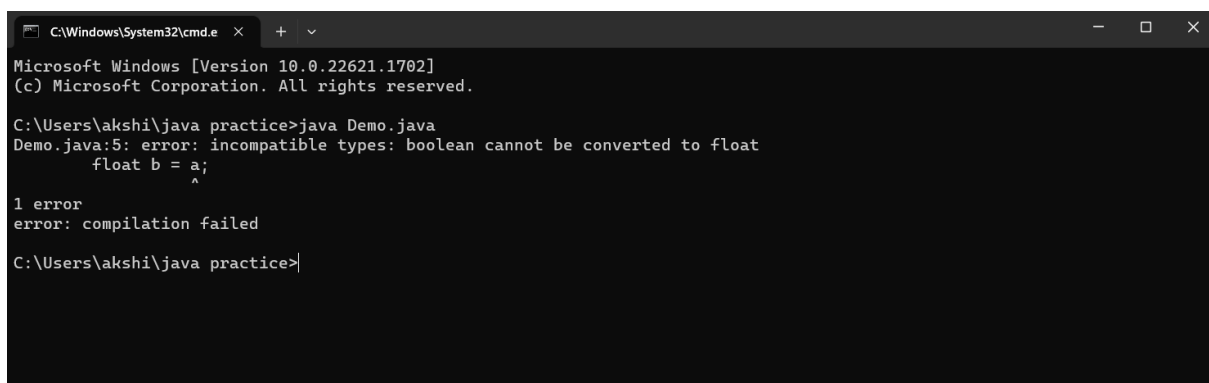   // Casting boolean to float is incompatible

    float b = a;

       //float b = (float)a;

    System.out.println(a);

    System.out.println(b);

  }

}

```
C:\Windows\System32\cmd.e   ×   +  ∨                                          —    □    ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: boolean cannot be converted to float
        float b = a;
                  ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

No typecasting

Program 41

class Demo {

public static void main(String args[]) {
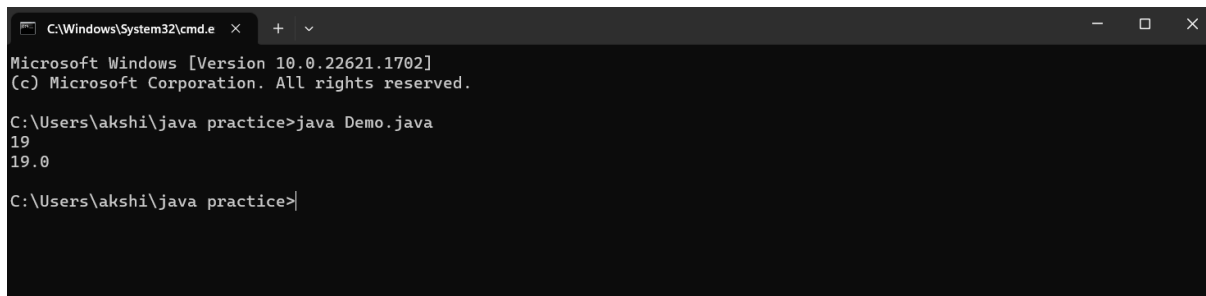
27

```
    byte a = 19;

     // Casting byte to double

     double b = a;

     System.out.println(a);

     System.out.println(b);

   }

}
```

```
C:\Windows\System32\cmd.e  ×    +   ∨                                                          —    □    ✕
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
19
19.0

C:\Users\akshi\java practice>
```

Implicit typecasting

Program 42

```
class Demo {

public static void main(String args[]) {

    short a = 1967;

     // Casting short to double

     double b = a;

     System.out.println(a);

     System.out.println(b);

   }

}
```
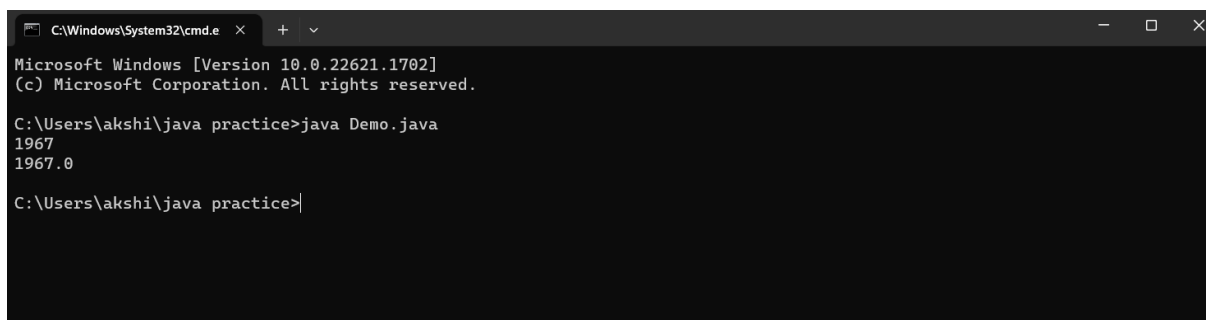
```
C:\Windows\System32\cmd.e  ×    +   ∨                                                          —    □    ✕
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
1967
1967.0

C:\Users\akshi\java practice>
```
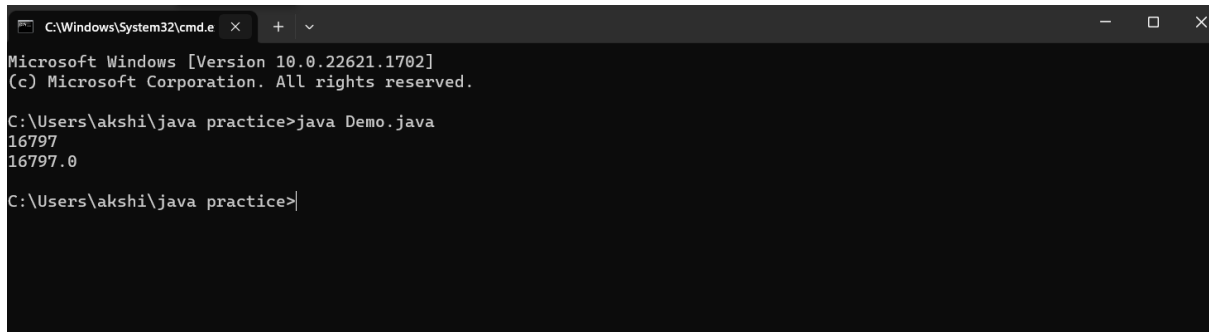
Implicit typecasting

Program 43

```
class Demo {

public static void main(String args[]) {

     int a = 16797;

    // Casting int to double

    double b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

```
C:\Windows\System32\cmd.e  ×    +  ⌄                                                    —    □    ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
16797
16797.0

C:\Users\akshi\java practice>
```
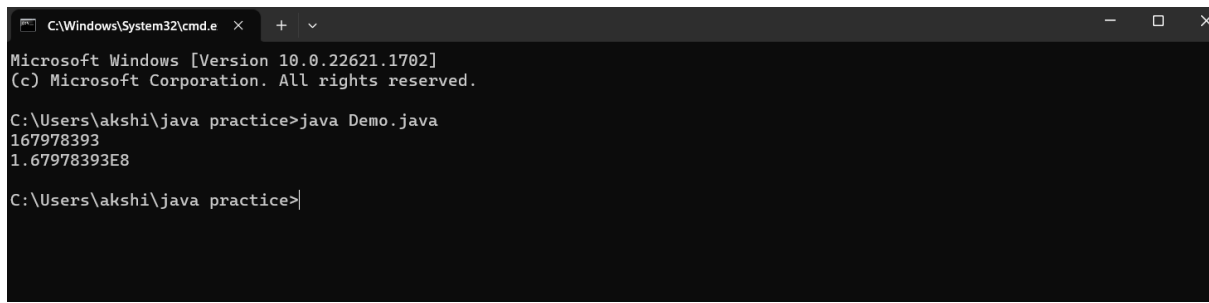
Implicit typecasting

Program 44

```
class Demo {

public static void main(String args[]) {

    long a = 167978393l;

    // Casting long to double

    double b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

29

```
C:\Windows\System32\cmd.e  ×    +  ∨                                                    —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
167978393
1.67978393E8

C:\Users\akshi\java practice>
```
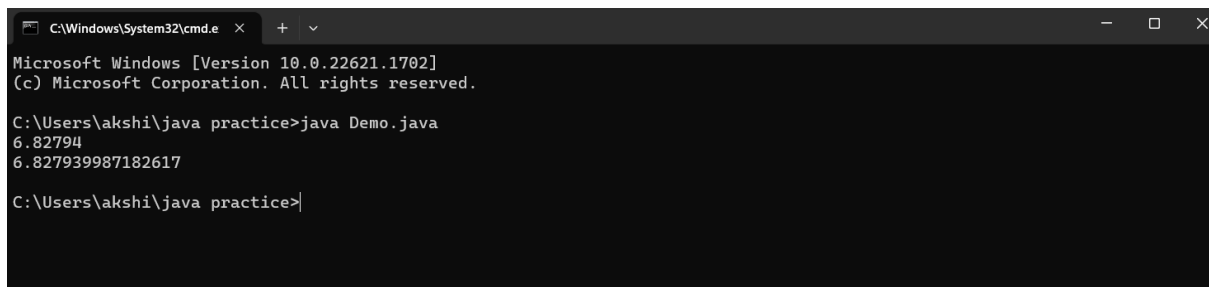
Implicit typecasting

Program 45

```
class Demo {

public static void main(String args[]) {

     float a = 6.82794f;

     // Casting float to double

     double b = a;

     System.out.println(a);

     System.out.println(b);

   }

}
```

```
C:\Windows\System32\cmd.e  ×    +  ∨                                                    —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
6.82794
6.827939987182617

C:\Users\akshi\java practice>
```
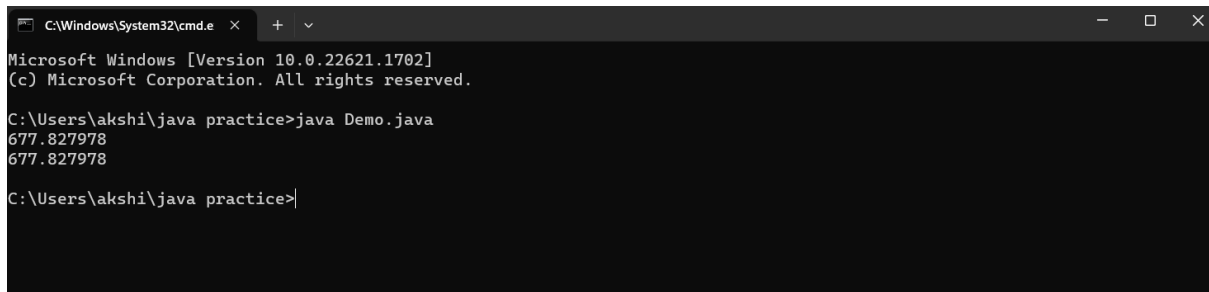
Implicit typecasting

Program 46

```
class Demo {

public static void main(String args[]) {

     double a = 677.827978;

     // Casting double to double not required

     double b = a;
```

```
System.out.println(a);

System.out.println(b);

    }

}
```

```
C:\Windows\System32\cmd.e   ×   +   ∨                                    —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
677.827978
677.827978

C:\Users\akshi\java practice>
```

Casting not required

Program 47

```
class Demo {

public static void main(String args[]) {

    char a = 'G';

    // Casting char to double

    double b = a;

    System.out.println(a);

    System.out.println(b);

    }

}
```
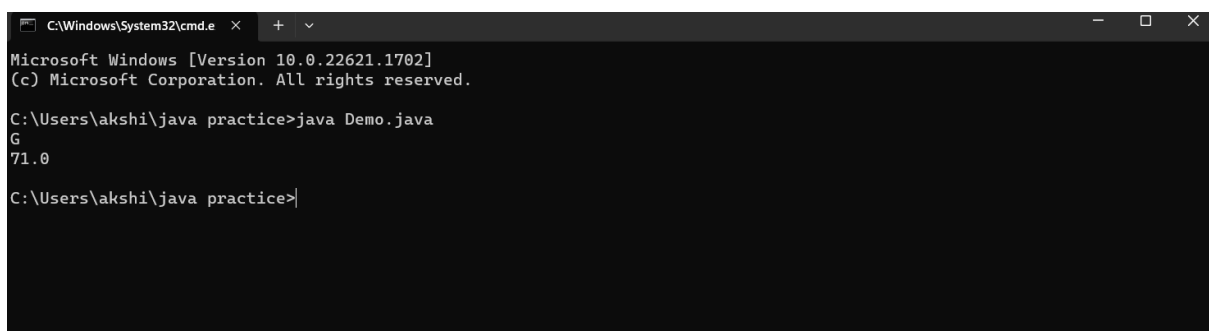
```
C:\Windows\System32\cmd.e   ×   +   ∨                                    —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
G
71.0

C:\Users\akshi\java practice>
```
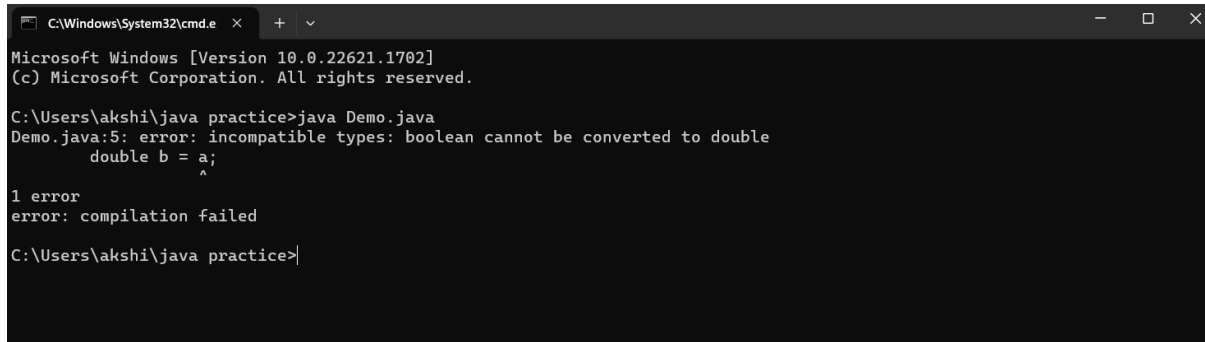
Implicit typecasting

Program 48

```java
class Demo {

public static void main(String args[]) {

    boolean a = false;

    // Casting boolean to double is incompatible

    double b = a;

        //double b = (double)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

```
C:\Windows\System32\cmd.e  ×    +  ∨                                                        —    □    ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: boolean cannot be converted to double
        double b = a;
                   ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

No typecasting

Program 49

```java
class Demo {

public static void main(String args[]) {

    byte a = 56;

    // Casting byte to char

    char b = a;

        //char b = (char)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

32

```
C:\Windows\System32\cmd.e  ×   +  ∨                                           —    □    ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from byte to char
        char b = a;
                 ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```
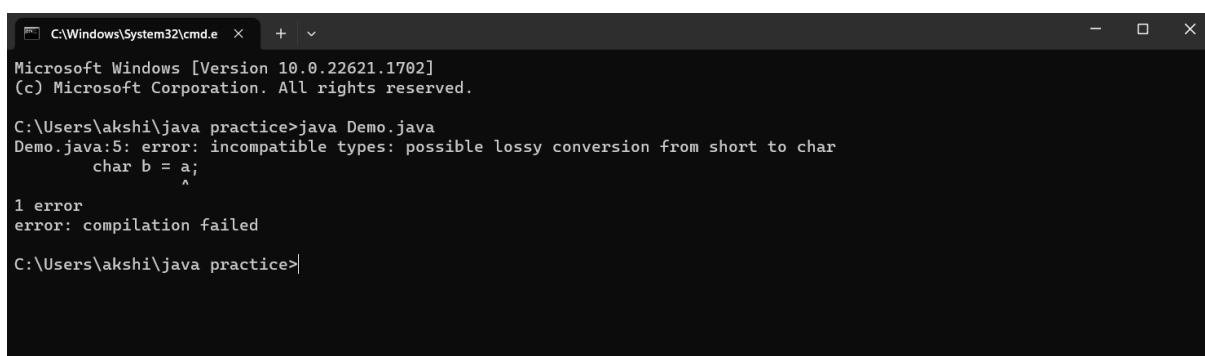
Explicit typecasting

Program 50

class Demo {

public static void main(String args[]) {

    short a = 56;

    // Casting short to char

    char b = a;

        //char b = (char)a;

    System.out.println(a);

    System.out.println(b);

  }

}

```
C:\Windows\System32\cmd.e  ×   +  ∨                                           —    □    ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from short to char
        char b = a;
                 ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 51

class Demo {

public static void main(String args[]) {

```
    int a = 5496;

    // Casting int to char

    char b = a;

        //char b = (char)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```



```
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from int to char
        char b = a;
                 ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 52

```
class Demo {

public static void main(String args[]) {

    long a = 5496363l;

    // Casting long to char

    char b = a;

        //char b = (char)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

Explicit typecasting

Program 53

class Demo {

public static void main(String args[]) {

    float a = 7.8337f;

    // Casting float to char

    char b = a;

      //char b = (char)a;

    System.out.println(a);

    System.out.println(b);

  }

}

Explicit typecasting

Program 54

class Demo {

public static void main(String args[]) {

```
    double a = 77.8337;

    // Casting double to char

    char b = a;

        //char b = (char)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
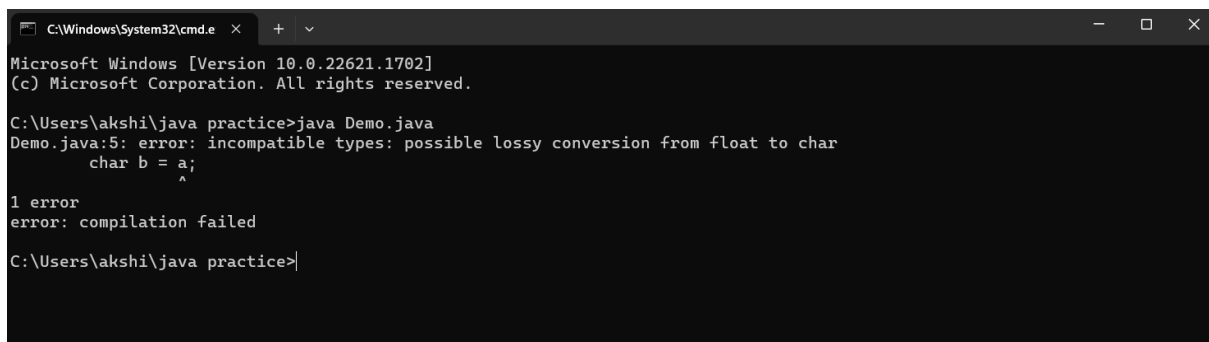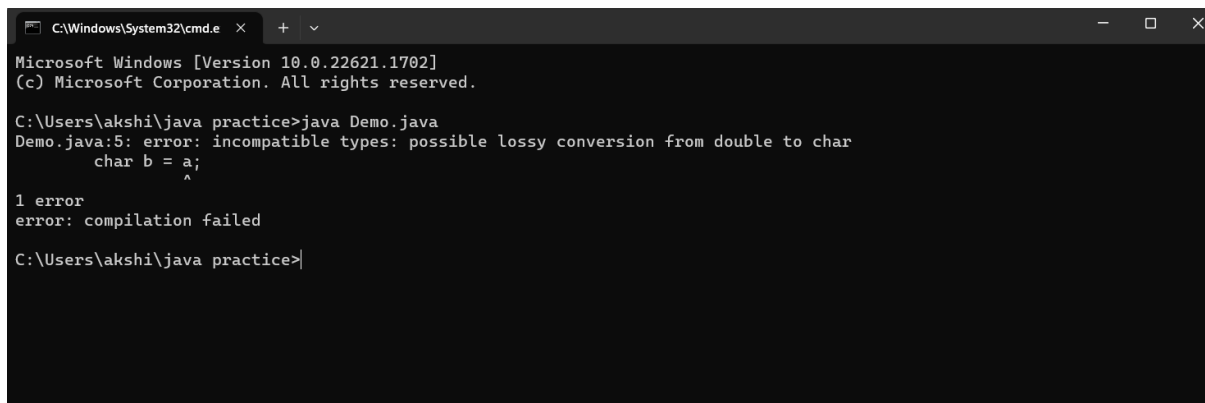
```
C:\Windows\System32\cmd.e   ×   +  ∨                                              —  □  ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: possible lossy conversion from double to char
        char b = a;
                 ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

Explicit typecasting

Program 55

```
class Demo {

public static void main(String args[]) {

    char a = 'Y';

    // Casting char to char is not required

    char b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
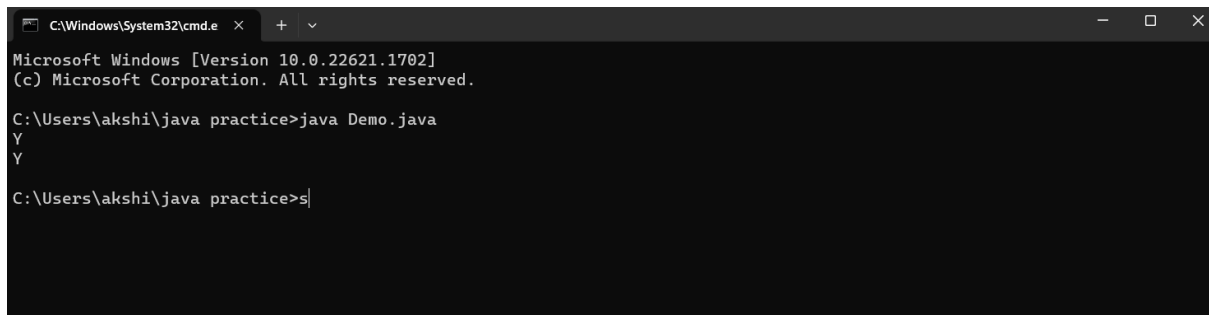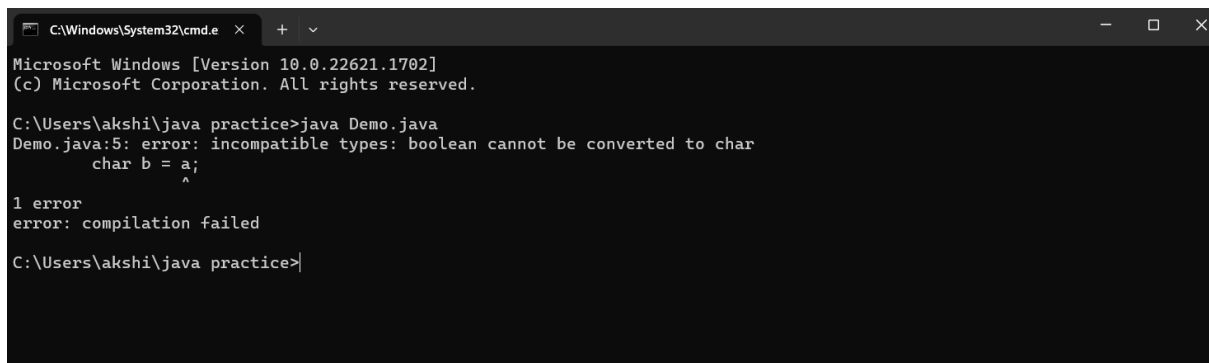
36

```
C:\Windows\System32\cmd.e  ×   +  ∨                                                          —   □   ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Y
Y

C:\Users\akshi\java practice>s
```

Casting not required

Program 56

```
class Demo {

public static void main(String args[]) {

    boolean a = false;

    // Casting boolean to char is incompatible

    char b = a;

        //char b = (char)a;

    System.out.println(a);

    System.out.println(b);

  }

}
```

```
C:\Windows\System32\cmd.e  ×   +  ∨                                                          —   □   ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: boolean cannot be converted to char
        char b = a;
                 ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

No typecasting

Program 57

```
class Demo {

public static void main(String args[]) {
```

37

```
        byte a = 19;

        // Casting byte to boolean

        boolean b = a;

        System.out.println(a);

        System.out.println(b);

    }

}
```
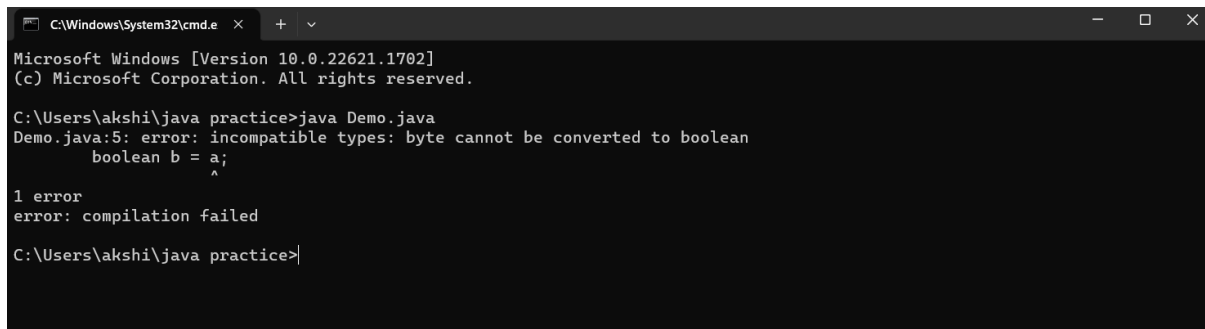

No typecasting

Program 58

```
class Demo {

public static void main(String args[]) {

        short a = 765;

        // Casting short to boolean

        boolean b = a;

        System.out.println(a);

        System.out.println(b);

    }

}
```

No typecasting

Program 59

```
class Demo {

public static void main(String args[]) {

    int a = 28376;

    // Casting int to boolean

    boolean b = a;

    System.out.println(a);

    System.out.println(b);

  }

}
```
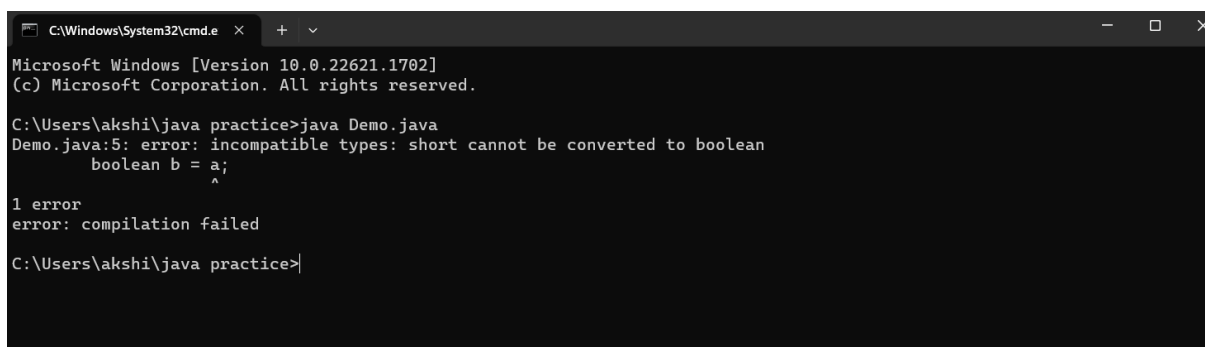
```
C:\Windows\System32\cmd.e  ×    +   ˅                                                    —    □    ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: int cannot be converted to boolean
        boolean b = a;
                    ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```
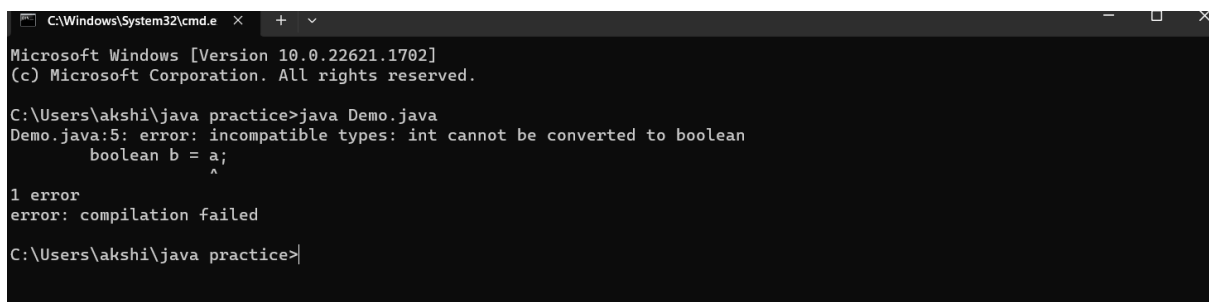
No typecasting

Program 60

```
class Demo {

public static void main(String args[]) {

    long a = 283716266l;

    // Casting long to boolean

    boolean b = a;

    System.out.println(a);

    System.out.println(b);

  }
```

}

```
C:\Windows\System32\cmd.e   ×   +  ∨                                              —    □    ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: long cannot be converted to boolean
        boolean b = a;
                    ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

No typecasting

Program 61

class Demo {

public static void main(String args[]) {

     float a = 5.83f;

     // Casting float to boolean

     boolean b = a;

     System.out.println(a);

     System.out.println(b);

  }

}

```
C:\Windows\System32\cmd.e   ×   +  ∨                                              —    □    ×

Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: float cannot be converted to boolean
        boolean b = a;
                    ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

No typecasting

Program 62

class Demo {

public static void main(String args[]) {
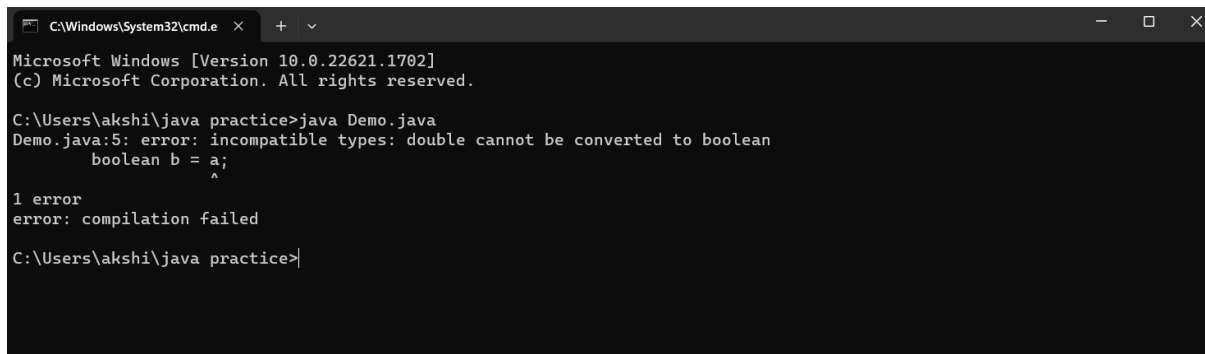
```
double a = 578.8586;

// Casting double to boolean

boolean b = a;

System.out.println(a);

System.out.println(b);

    }

}
```

```
C:\Windows\System32\cmd.e   ×   +  ∨                                        —   □   ×
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: double cannot be converted to boolean
        boolean b = a;
                    ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

No typecasting

Program 63

```
class Demo {

public static void main(String args[]) {

    char a = 'k';

        // Casting char to boolean

     boolean b = a;

    System.out.println(a);

    System.out.println(b);

    }

}
```
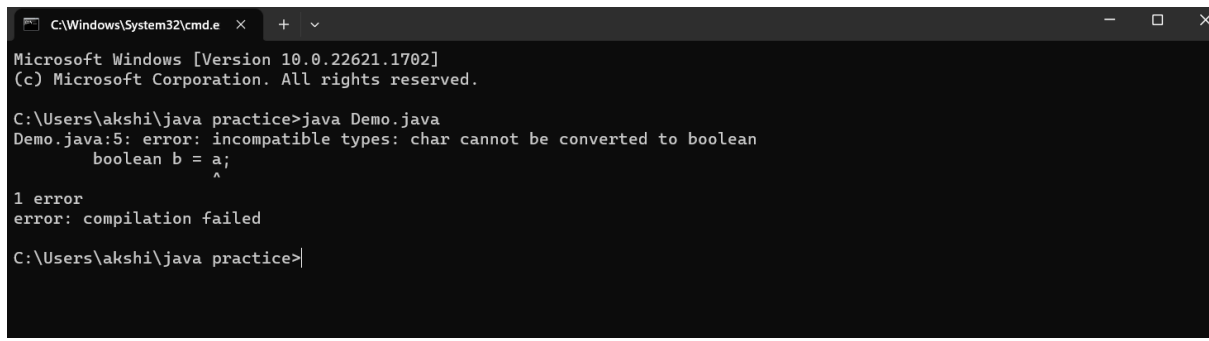
```
C:\Windows\System32\cmd.e  ×   +  ∨                                       —   □   ✕
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
Demo.java:5: error: incompatible types: char cannot be converted to boolean
        boolean b = a;
                    ^
1 error
error: compilation failed

C:\Users\akshi\java practice>
```

No typecasting

Program 64

class Demo {

public static void main(String args[]) {

        boolean a = true;

        // Casting boolean to boolean is not required

        boolean b = a;

        System.out.println(a);

        System.out.println(b);

    }

}

```
C:\Windows\System32\cmd.e  ×   +  ∨                                       —   □   ✕
Microsoft Windows [Version 10.0.22621.1702]
(c) Microsoft Corporation. All rights reserved.

C:\Users\akshi\java practice>java Demo.java
true
true

C:\Users\akshi\java practice>
```
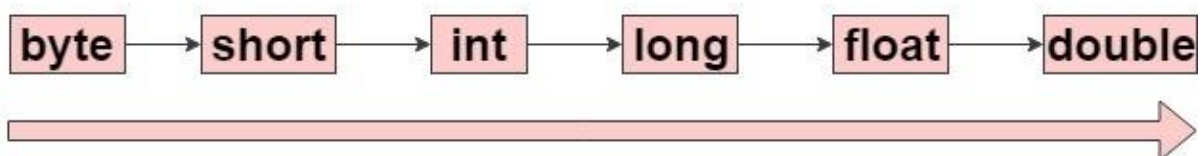
Casting not required

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	byte	short	int	long	float	double	char	boolean
byte	-	✖	✖	✖	✖	✖	✖	✖
short	✓	-	✖	✖	✖	✖	✖	✖
int	✓	✓	-	✖	✖	✖	✖	✖
long	✓	✓	✓	-	✖	✖	✖	✖
float	✓	✓	✓	✓	-	✖	✖	✖
double	✓	✓	✓	✓	✓	-	✖	✖
char	✖	✖	✖	✖	✖	✖	-	✖
boolean	✖	✖	✖	✖	✖	✖	✖	-

Source data type (columns) / **Destination data type** (rows)

— Data assignment possible but no automatic conversion happens

✖ not compatiable because source data type is higher than destination data type

✓ Compatiable because source data type is lower than destination data type

Automatic Type Conversion (Widening - implicit)

byte → short → int → long → float → double

Narrowing (explicit)

byte ← short ← int ← long ← float ← double