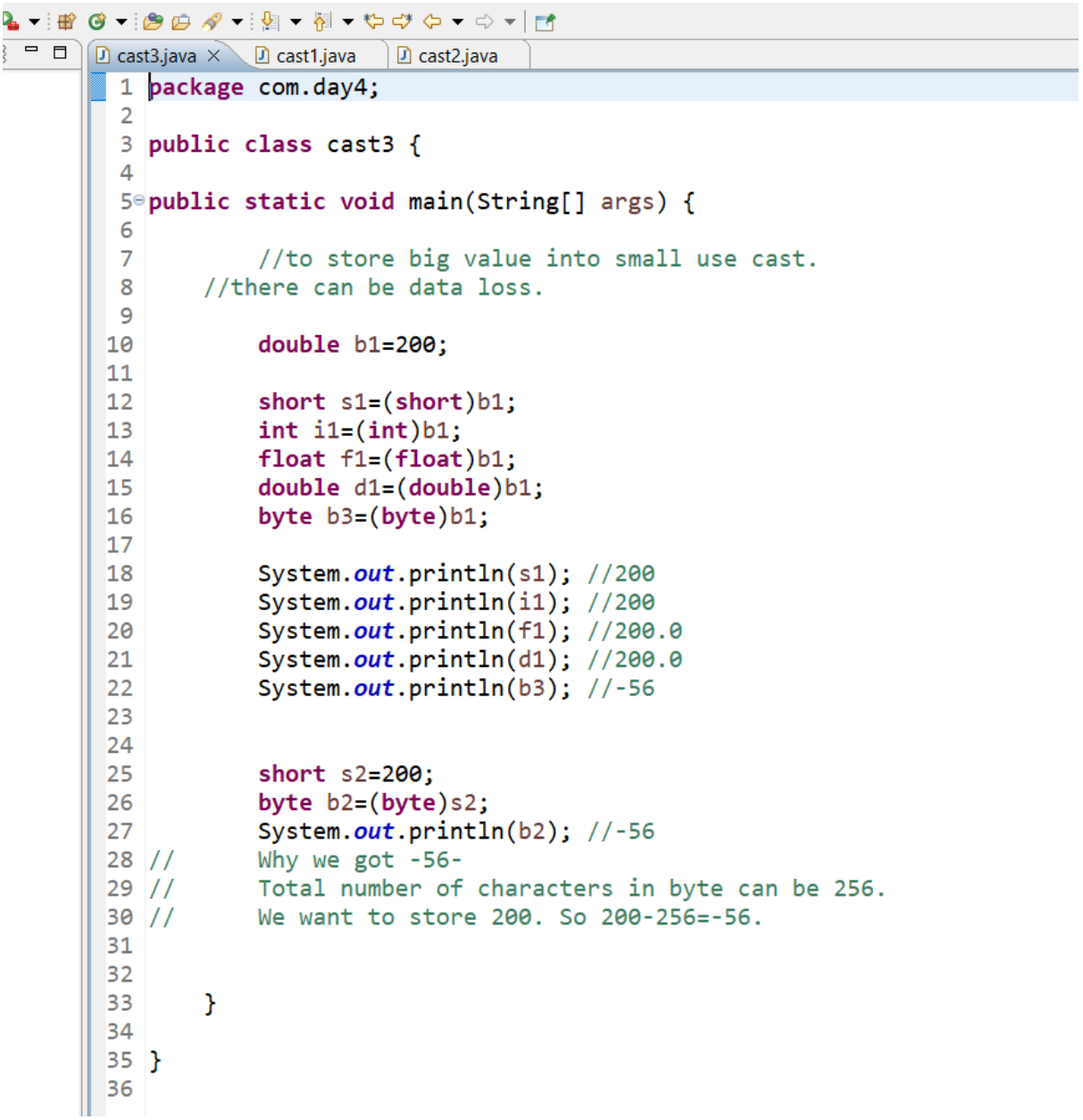
Type casting-

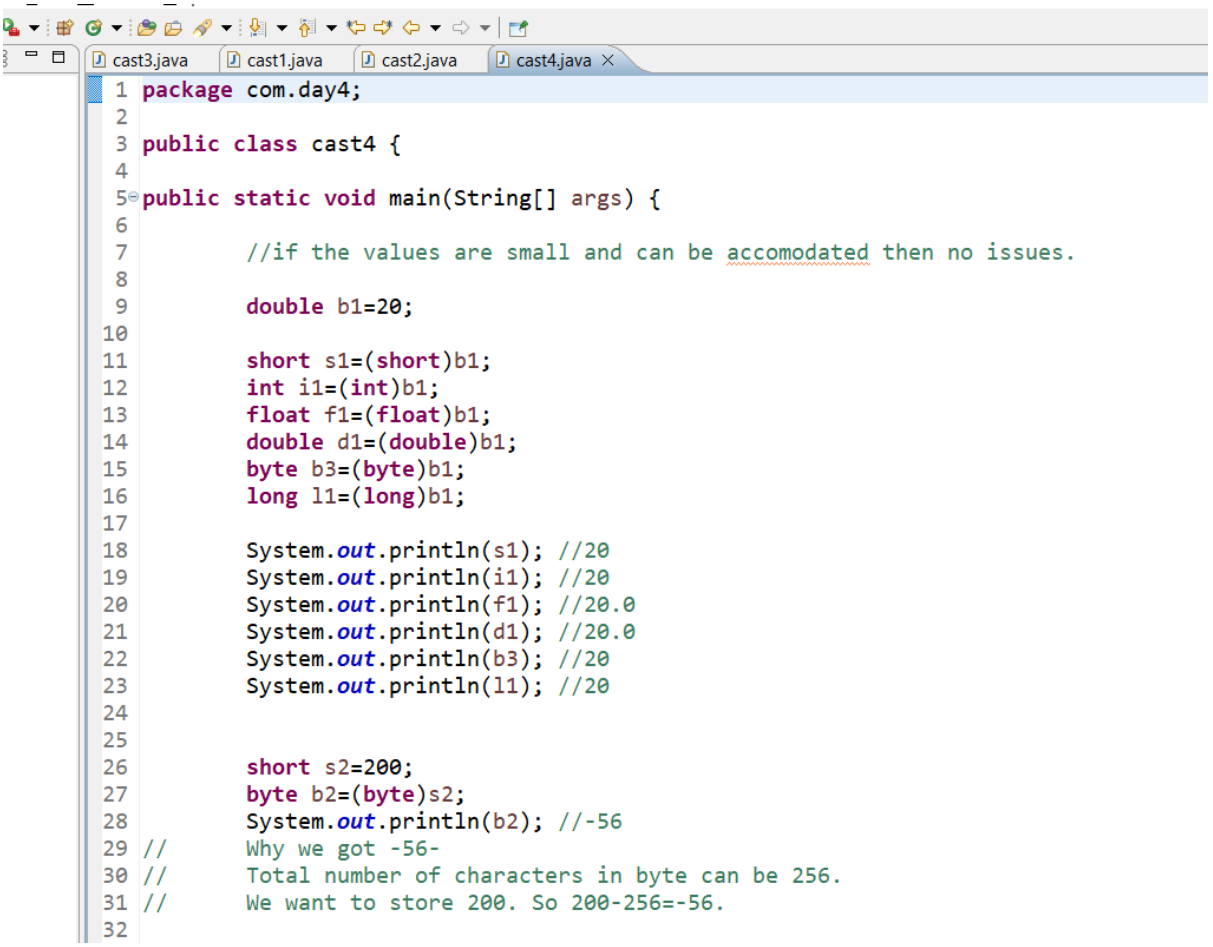
incredecre26.java | cast1.java

```java
package com.day4;

public class cast1 {

    public static void main(String[] args) {

        //small value can be stored in big one by default.

        byte b1=10;

        short s1=b1;
        int i1=b1;
        float f1=b1;
        double d1=b1;

        System.out.println(s1); //10
        System.out.println(i1); //10
        System.out.println(f1); //10.0
        System.out.println(d1); //10.0

    }}

```

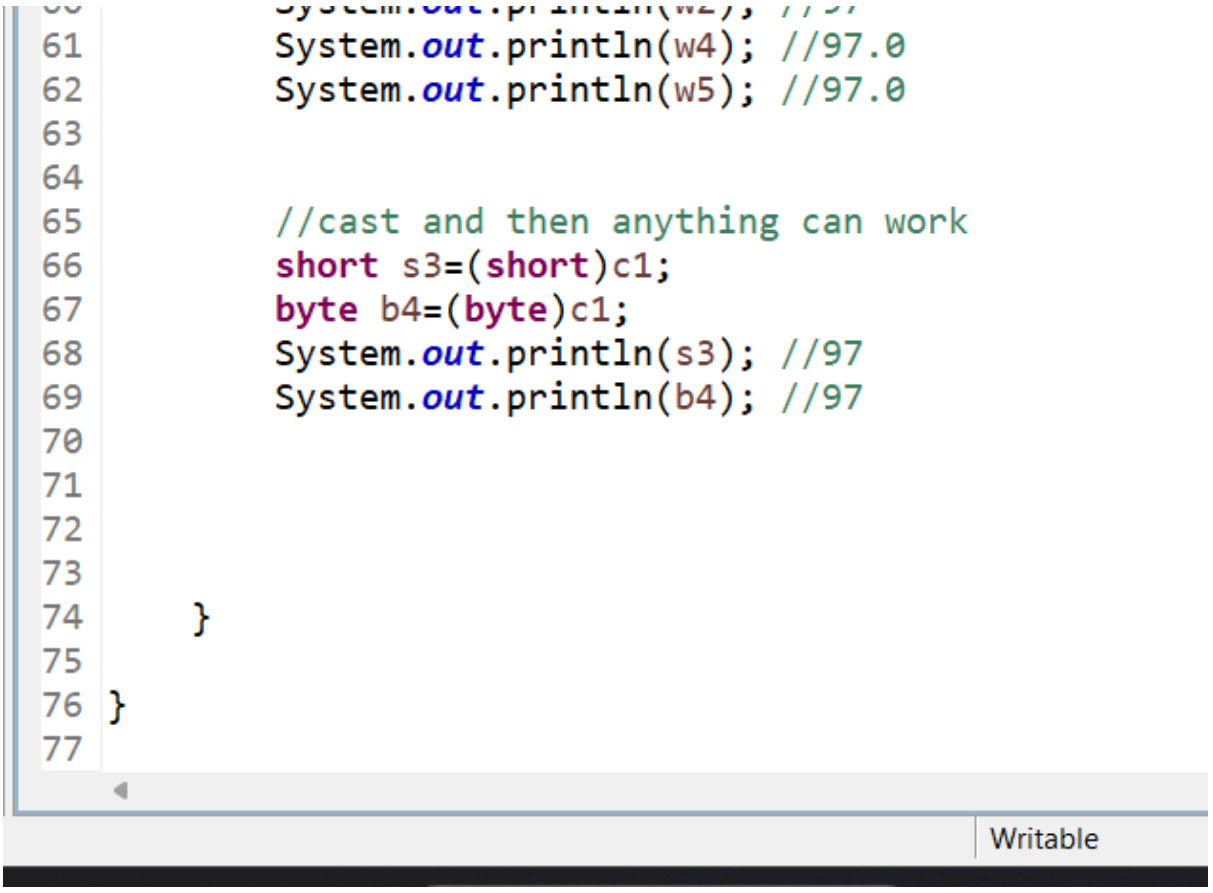
cast1.java | cast2.java

```java
package com.day4;

public class cast2 {

public static void main(String[] args) {

        //big value cannot be stored in small value.

        double b1=10;

//      short s1=b1; //Type mismatch: cannot convert from double to short
//      int i1=b1; //Type mismatch: cannot convert from double to int
//      float f1=b1; //Type mismatch: cannot convert from double to float
        double d1=b1;

        System.out.println(d1); //10.0

    }

}

```


cast3.java
cast1.java
cast2.java
package com.day4;
public class cast3 {
public static void main(String[] args) {
//to store big value into small use cast.
//there can be data loss.
double b1=200;
short s1=(short)b1;
int i1=(int)b1;
float f1=(float)b1;
double d1=(double)b1;
byte b3=(byte)b1;
System.out.println(s1); //200
System.out.println(i1); //200
System.out.println(f1); //200.0
System.out.println(d1); //200.0
System.out.println(b3); //-56
short s2=200;
byte b2=(byte)s2;
System.out.println(b2); //-56
// Why we got -56-
// Total number of characters in byte can be 256.
// We want to store 200. So 200-256=-56.
}
}

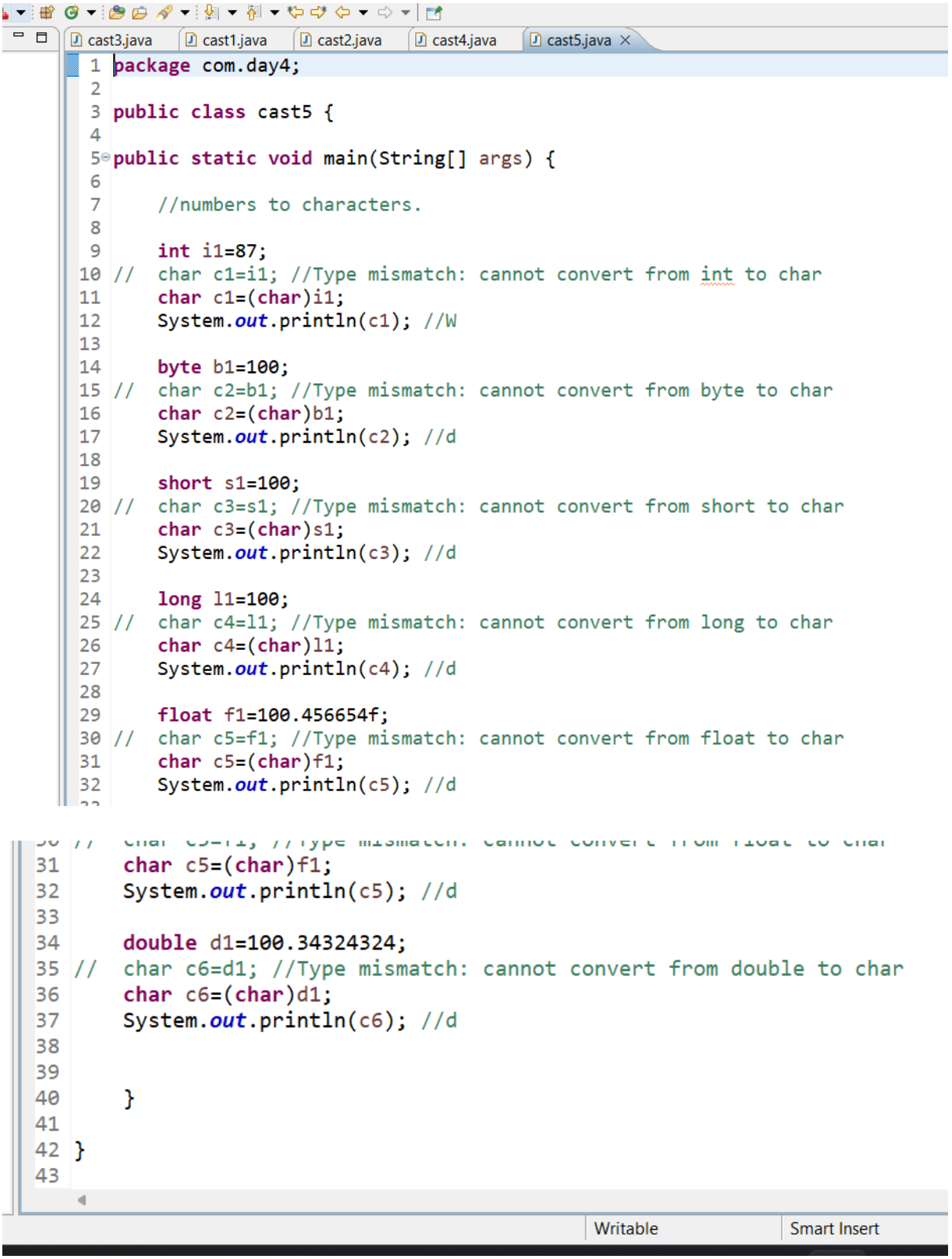

cast3.java
cast1.java
cast2.java
cast4.java
1 package com.day4;
2
3 public class cast4 {
4
5 public static void main(String[] args) {
6
7 //if the values are small and can be accomodated then no issues.
8
9 double b1=20;
10
11 short s1=(short)b1;
12 int i1=(int)b1;
13 float f1=(float)b1;
14 double d1=(double)b1;
15 byte b3=(byte)b1;
16 long l1=(long)b1;
17
18 System.out.println(s1); //20
19 System.out.println(i1); //20
20 System.out.println(f1); //20.0
21 System.out.println(d1); //20.0
22 System.out.println(b3); //20
23 System.out.println(l1); //20
24
25
26 short s2=200;
27 byte b2=(byte)s2;
28 System.out.println(b2); //-56
29 // Why we got -56-
30 // Total number of characters in byte can be 256.
31 // We want to store 200. So 200-256=-56.
32

```
//      Total number of characters in byte can be 256.
//      We want to store 200. So 200-256=-56.


        int p=100;
        float f=p;
        System.out.println(f); //100.0


        float f11=12.33f;
        int p11=(int)f11;
        System.out.println(p11); //12


        int d11=1000;
        double dd=d11;
        System.out.println(dd); //1000.0



        char c1='a';

        int w=c1; //allowed to store char.
//      short w1=c1; //Type mismatch: cannot convert from char to short
        long w2=c1; //allowed to store char.
//      byte w3=c1; //Type mismatch: cannot convert from char to byte
        float w4=c1; //allowed to store char.
        double w5=c1; //allowed to store char.

        System.out.println(w); //97
        System.out.println(w2); //97
        System.out.println(w4); //97.0
        System.out.println(w5); //97.0
```



```
61          System.out.println(w4); //97.0
62          System.out.println(w5); //97.0
63
64
65          //cast and then anything can work
66          short s3=(short)c1;
67          byte b4=(byte)c1;
68          System.out.println(s3); //97
69          System.out.println(b4); //97
70
71
72
73
74      }
75
76  }
77
```

Writable

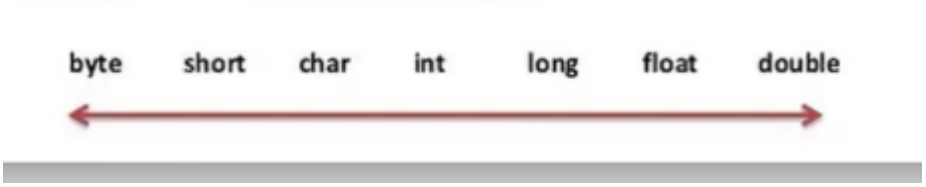



```java
package com.day4;

public class cast5 {

public static void main(String[] args) {

    //numbers to characters.

    int i1=87;
//  char c1=i1; //Type mismatch: cannot convert from int to char
    char c1=(char)i1;
    System.out.println(c1); //W

    byte b1=100;
//  char c2=b1; //Type mismatch: cannot convert from byte to char
    char c2=(char)b1;
    System.out.println(c2); //d

    short s1=100;
//  char c3=s1; //Type mismatch: cannot convert from short to char
    char c3=(char)s1;
    System.out.println(c3); //d

    long l1=100;
//  char c4=l1; //Type mismatch: cannot convert from long to char
    char c4=(char)l1;
    System.out.println(c4); //d

    float f1=100.456654f;
//  char c5=f1; //Type mismatch: cannot convert from float to char
    char c5=(char)f1;
    System.out.println(c5); //d

//  char c5=f1; //Type mismatch: cannot convert from float to char
    char c5=(char)f1;
    System.out.println(c5); //d

    double d1=100.34324324;
//  char c6=d1; //Type mismatch: cannot convert from double to char
    char c6=(char)d1;
    System.out.println(c6); //d


    }

}
```

Big to small not possible-

Casting Primitive Data Type

- **Widening:** Converting a lower data type into higher data type is called widening.
- **Narrowing:** Converting a higher data type into lower data type is called narrowing



Keep removing 256 till the values comes between -128 to 127.

You need to keep substracting 256.

```
31
32          int j = 1000;
33          byte k = (byte) j;
34          System.out.println(k);//-24
35
```

Increment decrement-

TypeCastingConcept.java | IncrementAndDecrementOperators.java

```java
package javasessions;

public class IncrementAndDecrementOperators {


    public static void main(String[] args) {


        //++ and --

        //1. post increment:
        int a = 1;
        int b = a++;

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

```

Output is 2, 1.

```java
int c = -98;
int d = c++;
System.out.println(c);//-97
System.out.println(d);//-98

//2. pre increment:
int f = 1;
int g = ++f;


System.out.println(f);
System.out.println(g);
```

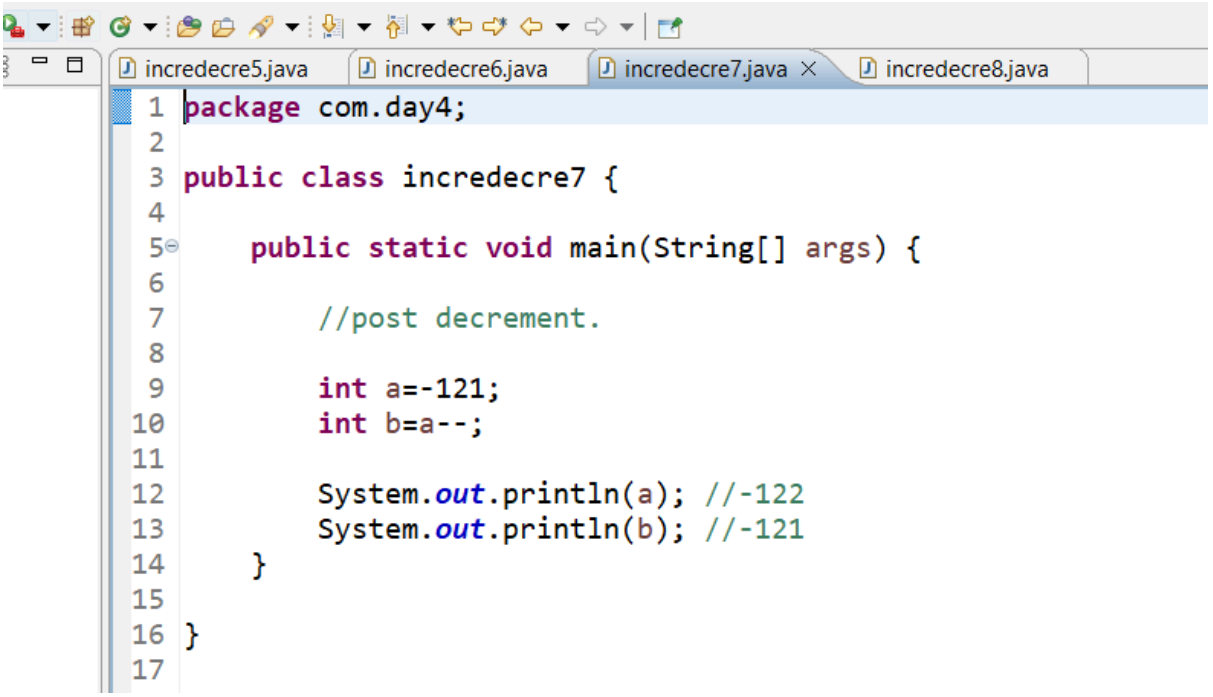
Output is 2, 2.

```java
int r = -100;
int t = ++r;
System.out.println(r);//-99
System.out.println(t);//-99
```

```java
int h = -48;
int l = ++h;
System.out.println(h);//-47
System.out.println(l);//-47
```

```java
//3. post decrement: --
int m = 2;
int n = m--;
System.out.println(m);//1
System.out.println(n);//2
```

write one example for negative values.



write my example. - 6 and 8

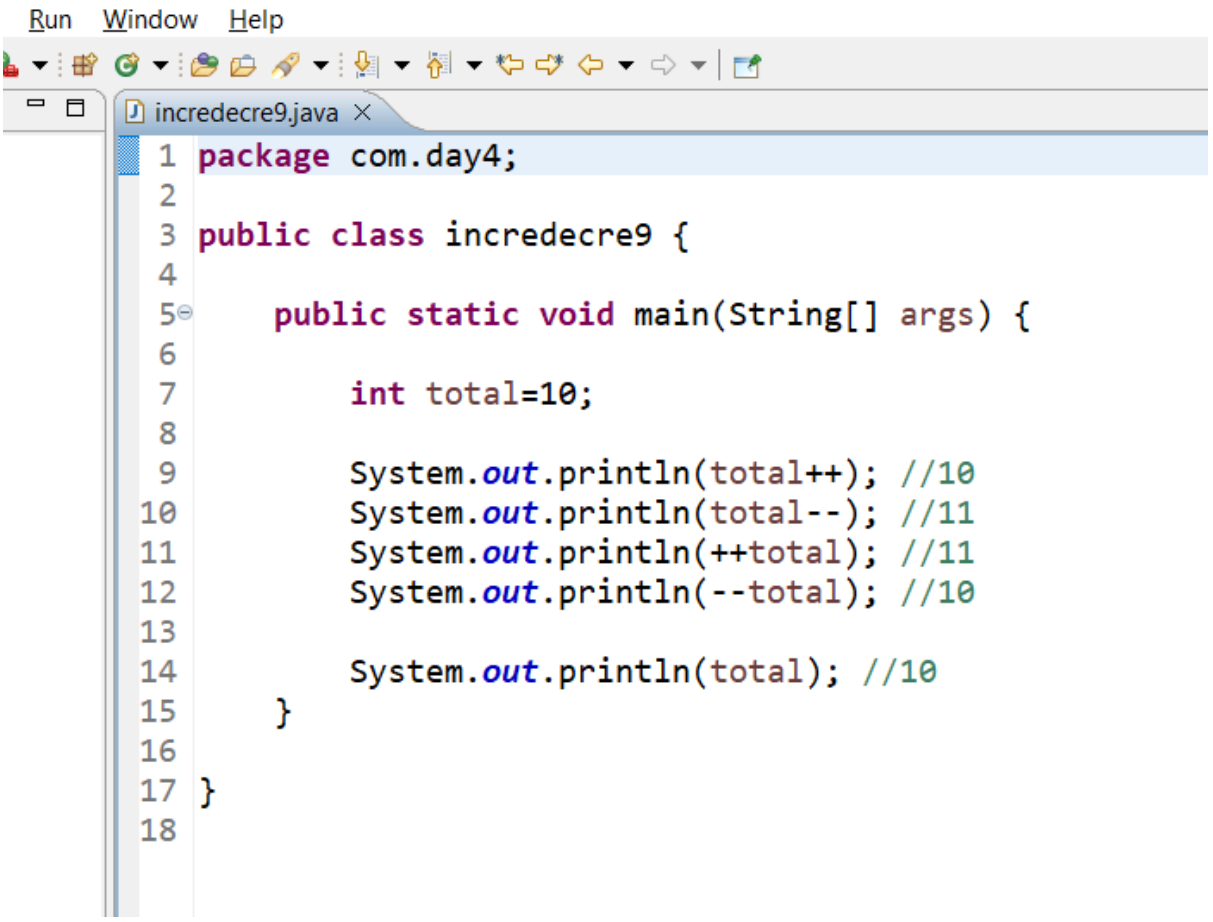
incredecre6.java

```java
package com.day4;

public class incredecre6 {

    public static void main(String[] args) {

        //First print the total value, then increment in memory.

        int total=10;
        int total1=10;
        int total2=10;
        int total3=10;

        System.out.println(total++); //10
        System.out.println(total1--); //10
        System.out.println(++total2); //11
        System.out.println(--total3); //9
    }

}
```

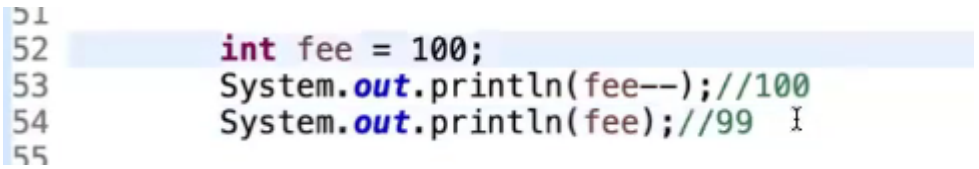
incredecre6.java | incredecre8.java

```java
package com.day4;

public class incredecre8 {

    public static void main(String[] args) {

        //First print the total value, then increment in memory.

        int total=10;

        System.out.println(total++); //10
        System.out.println(total--); //11
        System.out.println(++total); //11
        System.out.println(--total); //10
    }

}
```

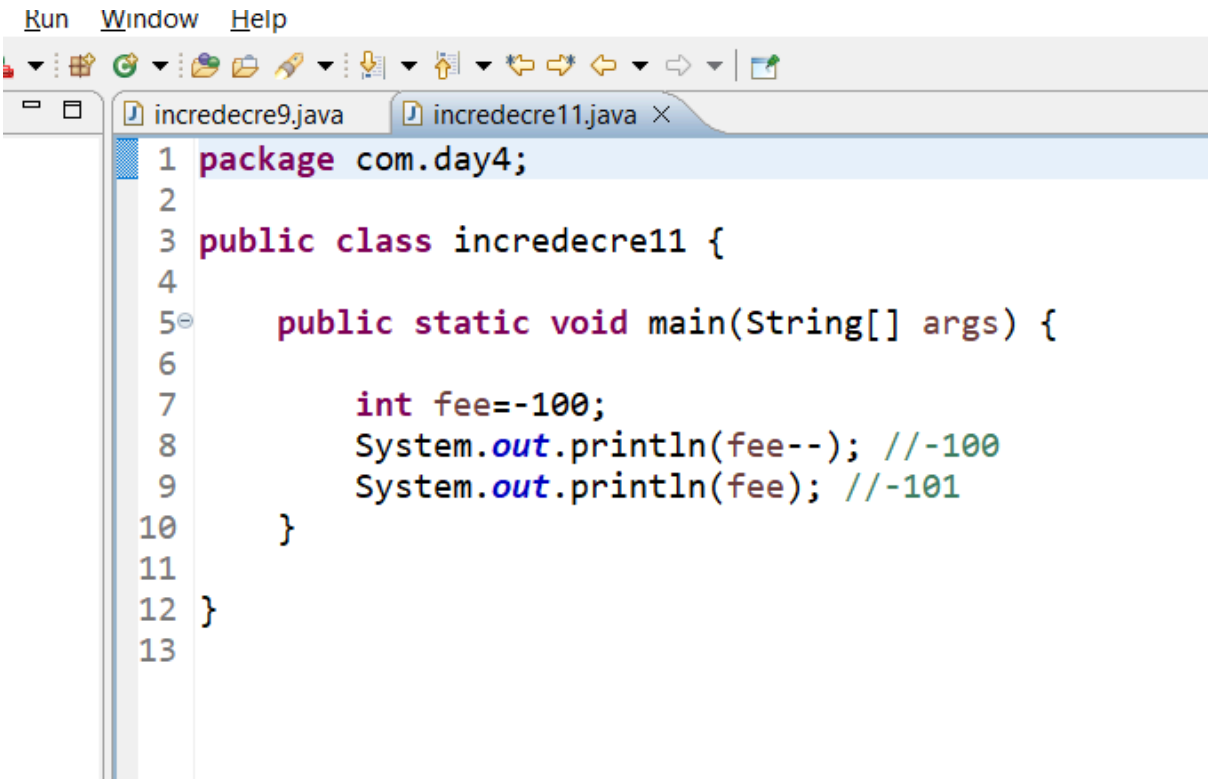
write 9

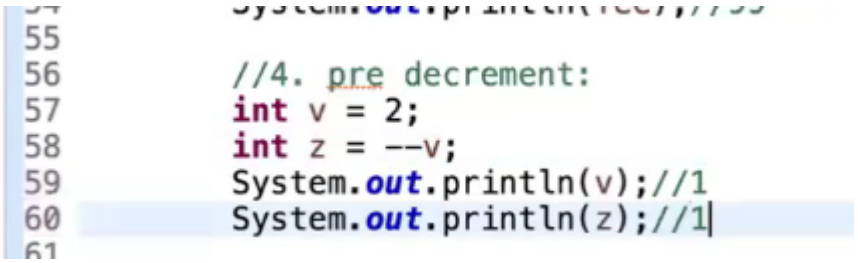


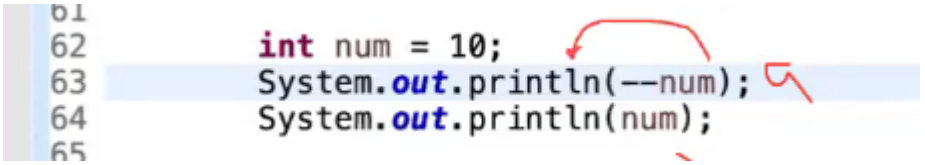
First print the total value, then increment in memory.



write 11.


Run Window Help
incredecre9.java
incredecre11.java
1 package com.day4;
2
3 public class incredecre11 {
4
5 public static void main(String[] args) {
6
7 int fee=-100;
8 System.out.println(fee--); //-100
9 System.out.println(fee); //-101
10 }
11
12 }
13


55
56 //4. pre decrement:
57 int v = 2;
58 int z = --v;
59 System.out.println(v);//1
60 System.out.println(z);//1


62 int num = 10;
63 System.out.println(--num);
64 System.out.println(num);

Output is 9,9.

```
66
67          int i = 11;
68          int j = i++ + ++i;
69
70
71          System.out.println(i);
72          System.out.println(j);
```

Output is 13,24.

```
68
69          int a = 11, b = 22;
70          int c = a + b + a++ + b++ + ++a + ++b;
71
72
73          System.out.println("a=" + a);//13
74          System.out.println("b=" + b);//24
75          System.out.println("c=" + c);//103
76
```

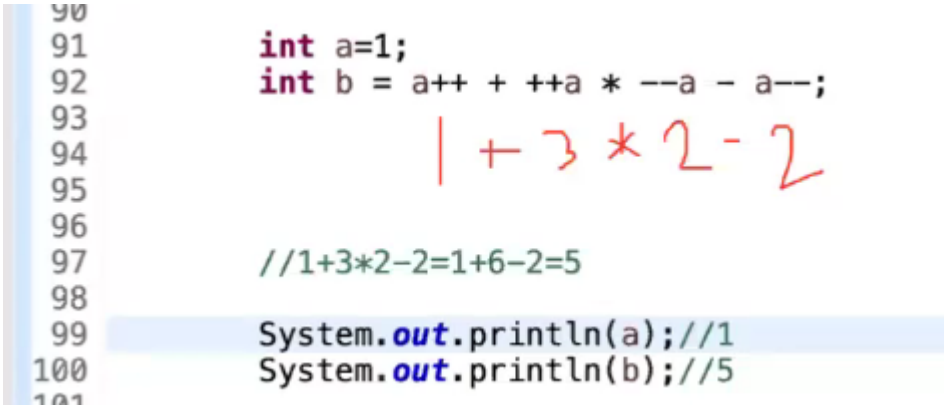
```
76
77          int i=0;
78          int j = i++ - --i + ++i - i--;
79
80          System.out.println(i);
81          System.out.println(j);
82
```

Output is 0,0.

```
83
84          int m = 0, n = 0;
85          int p = --m * --n * n-- * m--;
86
87          System.out.println(m);
88          System.out.println(p);
89          System.out.println(n);
```

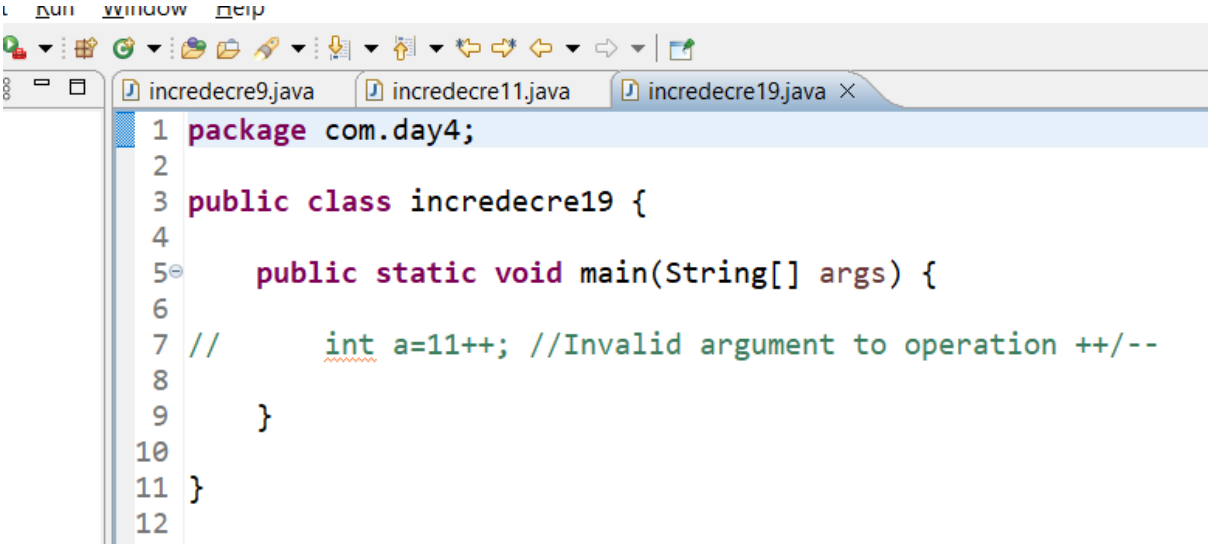
-2, 1, -1.

for individual values, increment or decrement happens instantly .. only on assignments the pre and post comes into play.



Compile error –

incre 19 paste here.



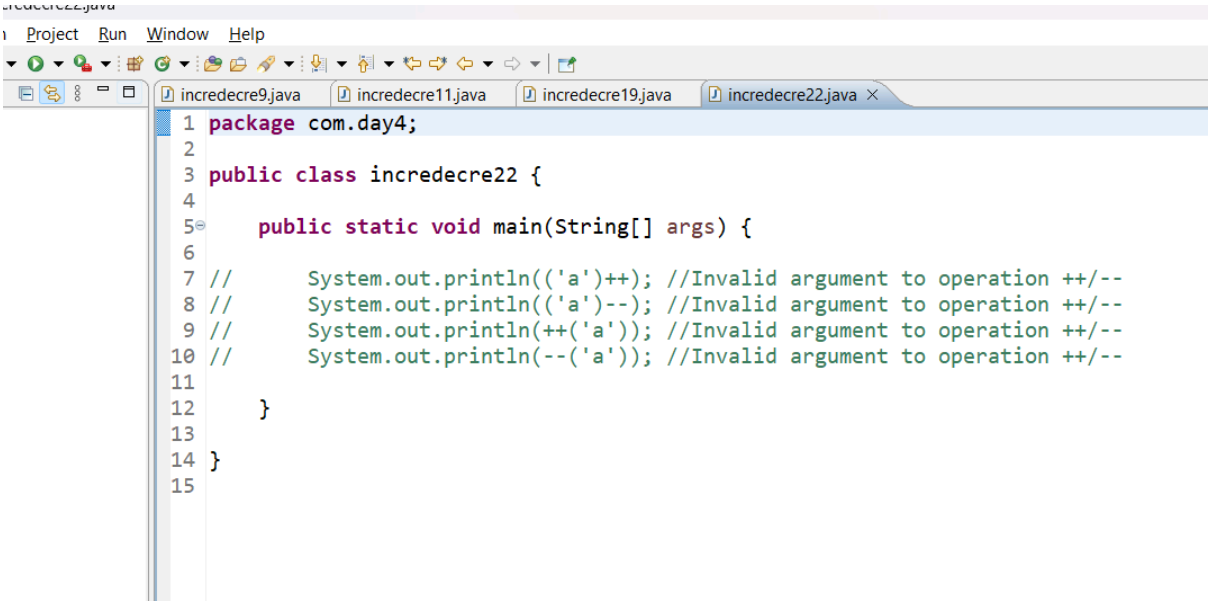
```
106
107         char ch = 'A';//65
108         System.out.println(ch++);//A
109         System.out.println(ch);//B
110
```

```
111
112         double d = 1.2;
113         System.out.println(++d);
114         System.out.println(d);
115
```

2.2, 2.2.

Not allowed to increment or decrement values-

incre 22 paste it here. to see error.



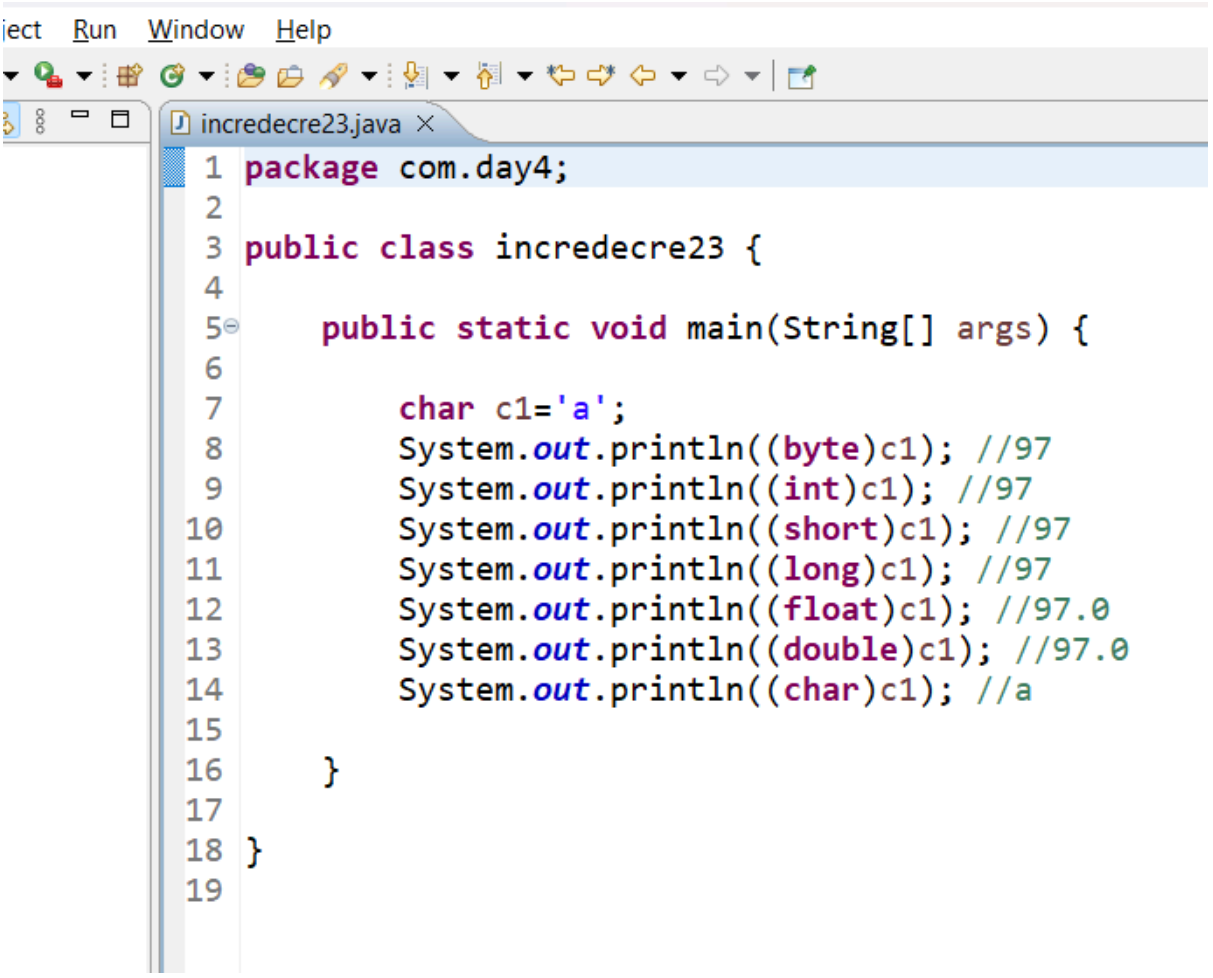
```
115
116         char c = 'a';//97
117         System.out.println(c++);//98
118         System.out.println(c);//98--b
119
```

A,b.

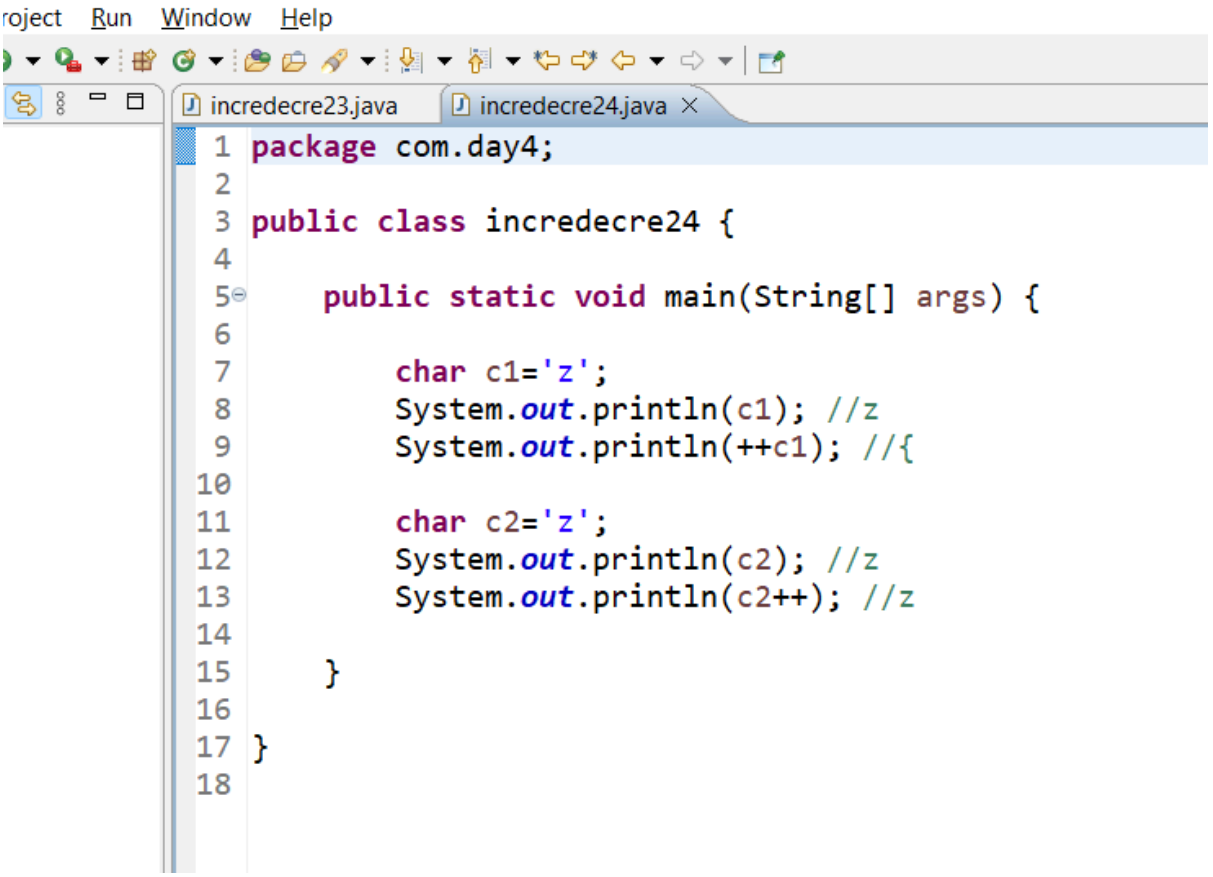
```
120         char v = 'b';
121         System.out.println(v++);//b
122         System.out.println(v);//c
123
```

To get ascii from char-

incre 23 paste here.

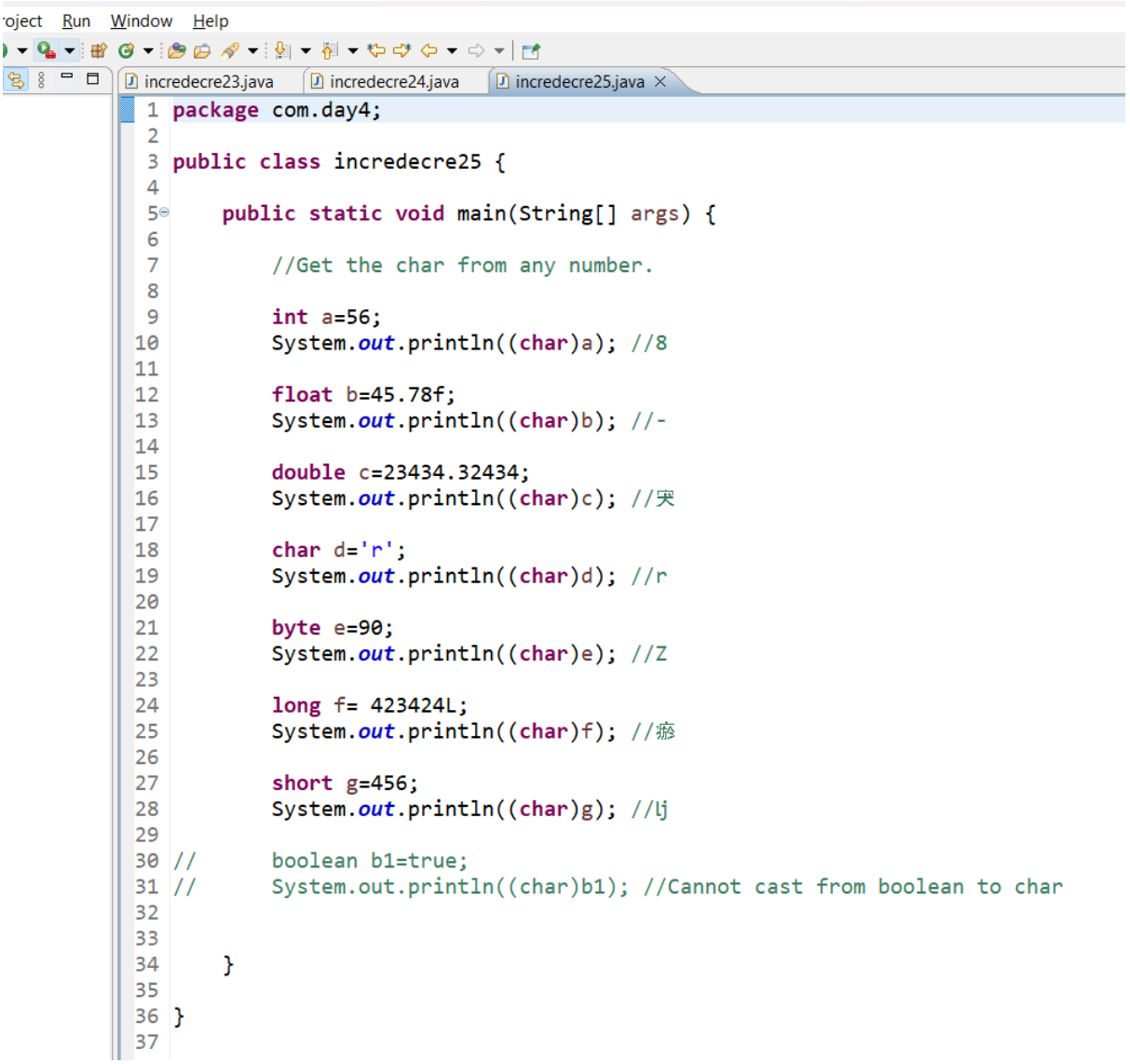


incre 24 paste here-



Get the char from any number-

incre 25 paste here-


oject Run Window Help
incredecre23.java
incredecre24.java
incredecre25.java
1 package com.day4;
2
3 public class incredecre25 {
4
5 public static void main(String[] args) {
6
7 //Get the char from any number.
8
9 int a=56;
10 System.out.println((char)a); //8
11
12 float b=45.78f;
13 System.out.println((char)b); //-
14
15 double c=23434.32434;
16 System.out.println((char)c); //罕
17
18 char d='r';
19 System.out.println((char)d); //r
20
21 byte e=90;
22 System.out.println((char)e); //Z
23
24 long f= 423424L;
25 System.out.println((char)f); //癌
26
27 short g=456;
28 System.out.println((char)g); //lj
29
30 // boolean b1=true;
31 // System.out.println((char)b1); //Cannot cast from boolean to char
32
33
34 }
35
36 }
37

add incre 26-

incredecre26.java

```java
package com.day4;

public class incredecre26 {

    public static void main(String[] args) {

        //get the number from character.

        char c1='a';

        System.out.println((int)c1); //97

        System.out.println((byte)c1);//97

        System.out.println((long)c1);//97

        System.out.println((short)c1);//97

        System.out.println((float)c1); //97.0

        System.out.println((double)c1); //97.0

//      System.out.println((boolean)c1);//Cannot cast from char to boolean/


    }

}

```