

Thursday Sept. 14

Lecture 3

office hours

13:30 - 15:30

M, Tu, Th.

Number division in Java

$$\boxed{}_1 / \boxed{}_2$$

If both $\boxed{}_1$ and $\boxed{}_2$
are integers, the result
is quotient.
Otherwise, result with precision.

print(8 / 2) (4) (2 + 3) * 4
print(8.0 / 2) 4.0

print(9 / 2) 4
print(9 / 2.0) 4.5

step 2:
9.0 / 2
= 4.5

int i = 9;
int j = 2;

→ print(i / j) 4

① ~~4.5~~ print((double) i / j) ^{step 1 9.0}

② ~~4.5~~ print(((double) 9.0) / j)

2 / 3 0

2.0 / 3

$\overline{m}t$ / $\overline{m}t$
 \overline{c} / \overline{j}

großartig

(double) $\overline{c}/\overline{j}$

X

~~$\overline{c}.0$ / \overline{j}~~

(double) $\overline{c}/\overline{j}$

✓

((double) $\overline{c})/\overline{j}$

✓

```
1 public class CircileUtilitesApplication {
2     public static void main(String[] args) {
3         System.out.println("Initial radius of CU: " + CircleUtilities.radius);
4         int d1 = CircleUtilities.getDiameter();
5         System.out.println("d1 is: " + d1);
6         System.out.println("c1 is: " + CircleUtilities.getCircumference1());
7         System.out.println("=====");
8         System.out.println("d2 is: " + CircleUtilities.getDiameter(20));
9         System.out.println("c2 is: " + CircleUtilities.getCircumference(20));
10        System.out.println("=====");
11        System.out.println("Change the radius of CU to 30...");
12        CircleUtilities.setRadius(30);
13        System.out.println("=====");
14        d1 = CircleUtilities.getDiameter();
15        System.out.println("d1 is: " + d1);
16        System.out.println("c1 is: " + CircleUtilities.getCircumference1());
17        System.out.println("=====");
18        System.out.println("d2 is: " + CircleUtilities.getDiameter(20));
19        System.out.println("c2 is: " + CircleUtilities.getCircumference(20));
20    }
21 }
22
```

```

1 public class CircleUtilities {
2     private static final int RADIUS_TO_DIAMETER = 2;
3     static int radius = 10;
4     public static final int PI = 3;
5
6     static int getDiameter() {
7         int diameter = radius * RADIUS_TO_DIAMETER;
8         return diameter;
9     }
10    static int getDiameter(int radius) {
11        return radius * RADIUS_TO_DIAMETER;
12    }
13    static void setRadius(int newRadius) {
14        radius = newRadius;
15    }
16    public static int getCircumference(int radius) {
17        return getDiameter(radius) * PI;
18    }
19    public static int getCircumference1() {
20        return getDiameter() * PI;
21    }
22    private static int getCircumference2() {
23        return getCircumference(radius);
24    }
25 }

```

print(CU.radius) 10
 int di = CU.getDiameter();
 println(di); 20
 println(CU.getDiameter(20)) 60
 println(CU.getDiameter(20)) 40
 println(CU.getCirc(20)) 120

CU	
R-T-D	2
PI	3
radius	10
:	

$20 \times 2 \times 3$
 20
 $di = \text{int}$

~~CUt:App~~ }
client

~~CUt:1~~
↓
supplier

get Area (⁻¹⁰~~radius~~)
↓
service
name

not good
should be
an error

supplier will
just calculate
 $(-10)^2 \times 3 = 300$

}


```
class MyUtil {
```

```
    static void m(int x) {
```

```
        . . .
```

```
    }
```

```
}
```

```
class MyUtilApp {
```

```
    MyUtil.m(23.4);
```

(int) 23.4

sample

.7

Counter :

$$0 \leq \text{value} \leq 3 \quad \text{Req.}$$

void increment () {

~~Req.~~ : When should we throw a

IllegalArgument Exception ?

value ++ ;

① value > $\frac{\text{MAX}}{3}$]

inappropriate
if value = MAX