Today's agenda

↳ Quizzes & learning

Quiz 1: → int x = 10;

Syntax to declare the variable?

a) type   variable_name = value ; ✓
b) variable_name   type   = value ;
c)   variable_name   = value ;
d)   None of the above.

Quiz 2:

Declare an int variable with name y and value 20?

a) Int y : 20; xx
↳ int y = 20;   → (C)

Quiz 3

int a = 10;
int b = 20;
System.out.println (a+b);   → 30

10   20
 a   b

Quiz 4:

```
int a = 20;
int b = 30;
System.out.println(a + " " + b);
          ↳ 20  30
```

→ removed from leaderboard

Quiz 5:

```
        t
int  temp = 10;
System.out.println(Temp);
          ↳ error
```

Quiz 6:

```
System.out.println(a);
int a = 10;
          ↳ error
```

Quiz 7:

→ you Can't initialize Same variable name twice?

int a = 20;

int a = 30;

System.out.println (a);
↳ error

Quiz 8:

int n = 20;

System.out. print (n);

n = 40;

System.out.println (n); ↘

40
~~20~~
n

2040

Quiz 9:

int a = 10;

int b = 20;

$a = \overset{20}{\cancel{b}} + 30;$

System.out.println (a); → 50

~~50~~
~~10~~
a

20
b

10 = 10

LHS = RHS
↓
LHS == RHS

↳ Computer → = → assignment operator

↳ assign right Side value to left Side.

* variable naming rules

1. Name Can Contain lowercase, uppercase alphabets or digit (0-9) or '$' (Dollar) or '_' (underscore)

2. First letter/character of the name Cannot be number.

3. Can't use reserve keywords as variable name:
   Reserved word: words which are already predefined in java. ex: Public, Static, void, int etc.

Quiz 10!

```
int x = 10;  ✓
int 1y = 20;  ✗✗          ⇒  ans = 1
int y@b = 30;  ✗✗
```

How many of above are Correct variable names?

Quiz 11!

```
int _y = 10;  ✓
int any = 20;  ✓          ⇒  ans = 3
int x a = 30;  ✗✗
int x$2 = 45;  ✓
```

How many of above are Correct variable names?

Quiz !2:

```
int Static = 60;                    → error
System.out.Println (Static);
```
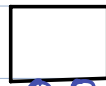
Different Categories of data
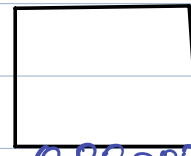
a) Numbers **b) Tent** **c) boolean**

true   false

Integers → Decimal

boolean flag = false;
type   name   initialized value

- byte
- short
- int
- long

(10 kg) (25kg) (50 kg) (100 kg)

item:

5 kg → ✓ (ideal) ✓ ✓ ✓
75 kg → ✗✗ ✗✗ ✗✗ ✓✓

Range / Capacity

Capacity /
range
are
different

byte	-2^7 to 2^7-1 : $\{-128, 127\}$	
short	-2^{15} to $2^{15}-1$: $\{-32768, 32768\}$	
int → $\{-2*10^9$ to $2*10^9\}$	-2^{31} to $2^{31}-1$: $\{-214...., 214768.\}$	
long $\{-2*10^{18}$ to $2*10^{18}\}$	-2^{63} to $2^{63}-1$: $\{------, ..-\}$	

⇓

Complete explanation is in Bit manipulation
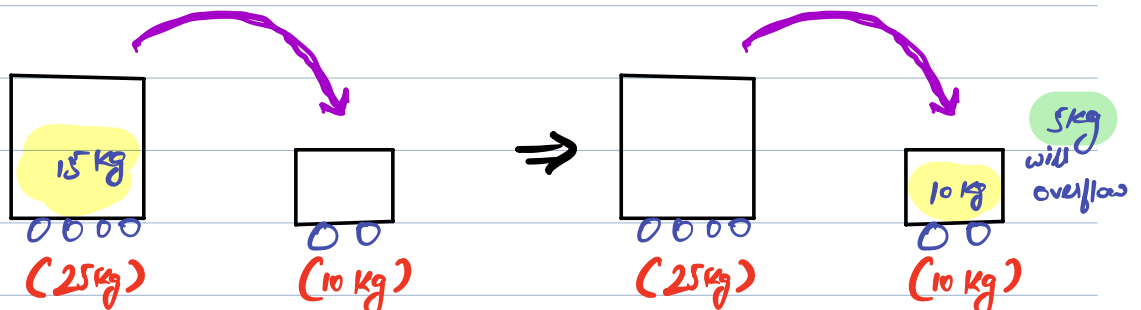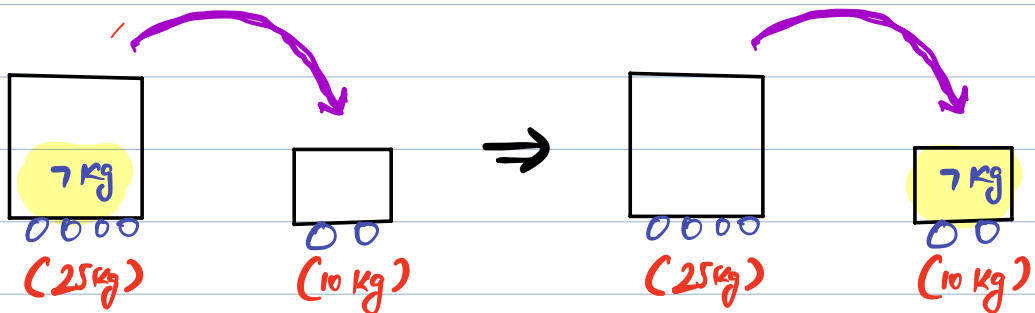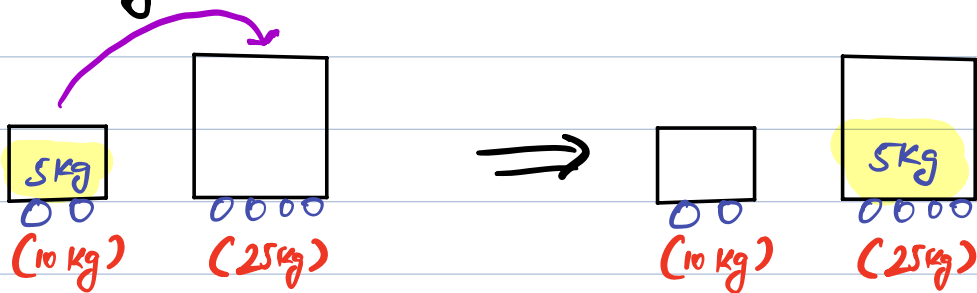Class.

4. The default value is int. To initialize long you need **long a = 100000000000L.**

↳ you didn't come this far only to come this far.

→ **Type Casting**

5kg

(10 kg)   (25kg)   ⟹   (10 kg)   5kg (25kg)

7 Kg (25kg)   (10 kg)   ⟹   (25kg)   7 Kg (10 kg)

15 kg (25kg)   (10 kg)   ⟹   (25kg)   10 kg (10 kg)   5kg will overflow

int $\rightarrow$ $\{-2^{31}$ to $2^{31}-1\}$ $\rightarrow$ $\{-2*10^9$ to $2*10^9\}$

long $\rightarrow$ $\{-2^{63}$ to $2^{63}-1\}$ $\rightarrow$ $\{-2*10^{18}$ to $2*10^{18}\}$

ex1: int n = 100

long y = n; $\rightarrow$ implicit

System.out.println (y);

ex2: long n = 1000;

explicitly $\leftarrow$ int y = (int)n;

System.out.println (y); $\rightarrow$ 1000

1000   1000
n   y

Quiz 13

```
int a = 10000;
long b = a;
System.out.Println (b);
```
└ 10000

Quiz 14:

```
long a = 100000;          int y = (int) a
int y = a;                → Typecast ?
System.out. Println (y);
```

Quiz 15:

```
long a = 10^10 L;
int b = (int) a;
System.out.println (b);
```

10^{10} → a

random value → b ? int

↳ Scanner `scn` = new Scanner (System.in);   ← name

```
int n = scn.nextInt();
System.out.println(n);
```

Quiz 16:

input : 30

scanner scn : new scanner (system.in);

int a : scn. nextInt ();

System.out.println (a);

↳ error

(small s in System)

Quiz 17:

input : 30

Scanner scn : new Scanner (system.in);

int a : scn. nextInt ();

small s

↳ error

System.out.println (a);

Quiz 18:

input : 30

Scanner scn : new Scanner (System.in);

int a : scn. nextInt ();

System.out.println (a);

↳ 30

Quiz 19:

input: `24` `30`

```
Scanner scn = new Scanner (System.in);
int x = scn.nextInt();  ←24
int y = scn.nextInt();  ← 30
System.out.println (x);  → 24
```

Quiz 20:

input: `24` `30`

```
Scanner scn = new Scanner (System.in);
int x = scn.nextInt();
int y = scn.nextInt();
int z = scn.nextInt();
System.out.println (x + y + z);
```
                                    ↳ error

↳ Done with today's class

```
float x = 3.4f;
double y = x;
System. out. point (y);
```

```
int x = 40;
double y = x;
System. out. Point (y);
```

```
double x = 3.45;         → error
int y = x;
System. out. point (y);
```