About Me

Incoming SDE Intern + SDE (FTE) @ **Delhivery**

SDE Intern + SDE (FTE) offer @ **Chaayos**

Technical Content Writer/Engineer @ **Scaler**

Technical Content Writer/Engineer @ **PrepBytes**

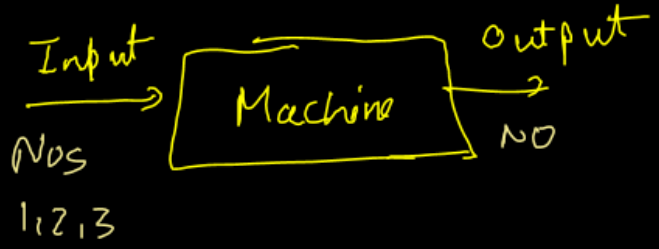
Ex – Technical Content Writer @ **InterviewBit**

Ex – Technical Content Engineer @ **Pepcoding**

Offers from other Ed-tech institutions like Unstop (Dare2Compete), TuteDude, etc.

Computer → Human convinience

↳ Machine



Communication

Computer understands Binary lang (0 and 1s)

Humans understand Human Lang → instructions + emotions

Prog Lang

① Compiler → Software that converts Prog Lang to Binary Lang

Input / Output -

```java
// "static void main" must be defined in a public class.
public class Main {
    public static void main(String[] args) {

    }
}
```

comments

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        //this is a comment
    }
    //this is also a comment
}
```

Print in Java

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        System.out.print("DSA classes");
    }
}
```

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        System.out.print("Guneet Malhotra");
        System.out.print("DSA Classes");
    }
}
```

```
Finished in 69 ms
Guneet MalhotraDSA Classes
```

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        System.out.print("Guneet Malhotra ");
        System.out.print("DSA Classes");
    }
}
```

```
Finished in 82 ms
Guneet Malhotra DSA Classes
```

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        System.out.print("Guneet Malhotra");
        System.out.print(" DSA Classes");
    }
}
```

```
Finished in 84 ms
Guneet Malhotra DSA Classes
```

System.out.print("Rohan");

RI

Rohan
I

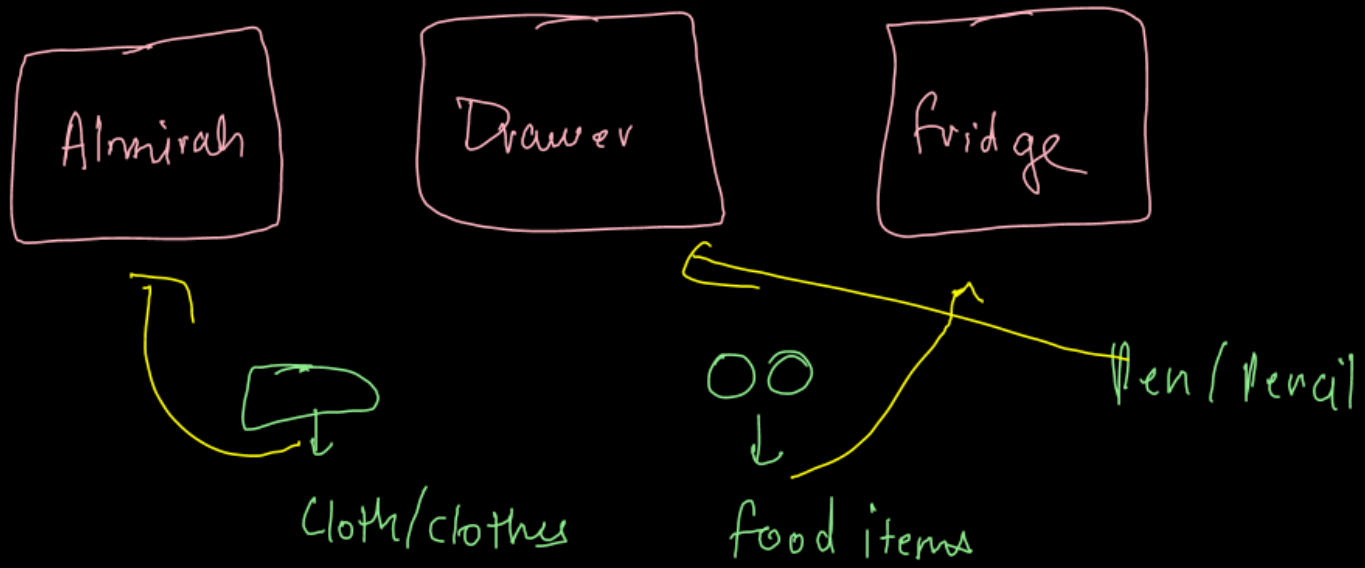
```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        System.out.println("Guneet Malhotra");
        System.out.print("DSA Classes");
    }
}
```

```
Finished in 122 ms
Guneet Malhotra
DSA Classes
```

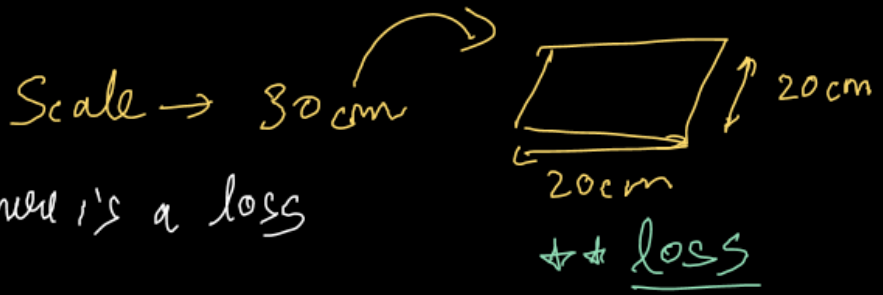
stdin

Data types in Java

Type of container.



If we try to put item in small size container, there is a loss



Size in bytes

Integral (w/o decimal)
- byte — 1
- short — 2
- int — 4
- long — 8

} 30, 50, 700 etc.

floating pt type (with decimal)
- float — 4
- double — 8

} 3.141, 8.632 etc

Characters → char — 2 → A-Z, a-z, 0-9, #, *, etc.

True/false → boolean — Not fixed

Range of Datatype

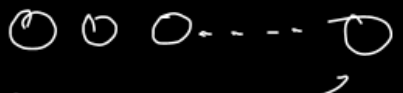
1 byte = 8 bits

$[-2^{N-1}$ to $2^{N-1}-1]$ → Here N is the no of bits.

Range of Short

Size = 2bytes = 2x8 = 16bits

$$\left[-2^{16-1} \text{ to } 2^{16-1} - 1 \right]$$



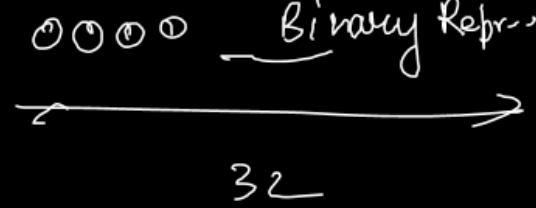
$$\left[-32768 \text{ to } 32767 \right]$$

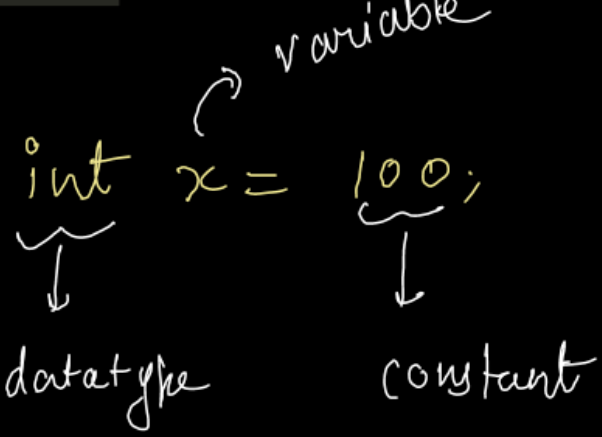
32768 → 17bit

Data loss

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x = 100;
        System.out.println(x);
    }
}
```

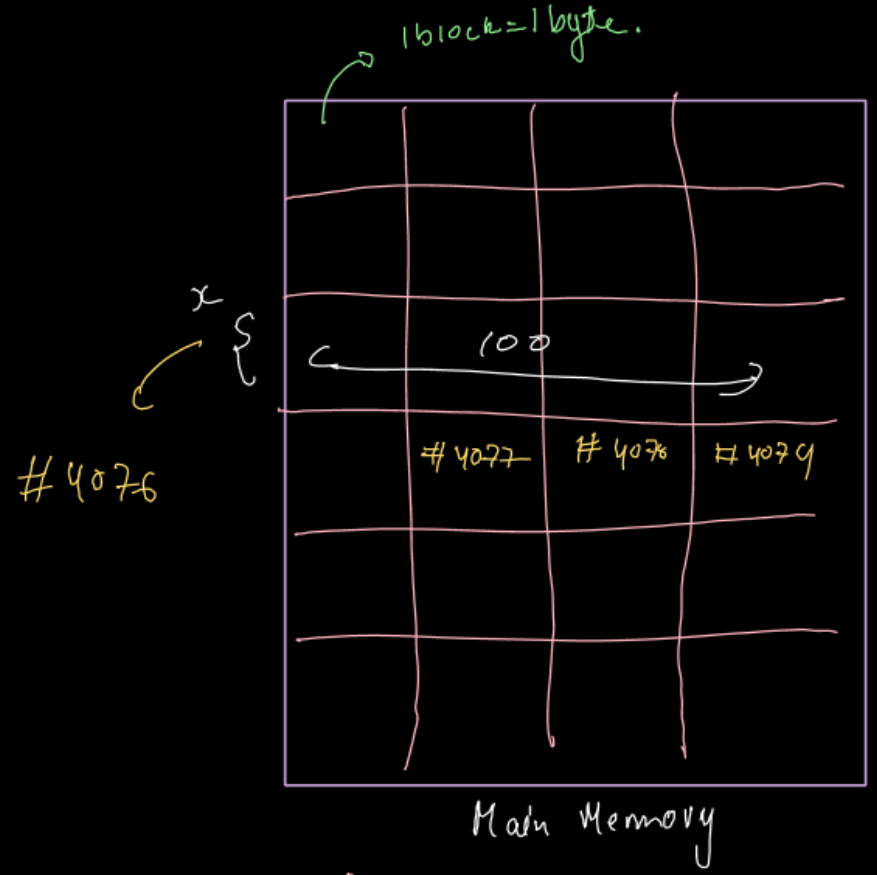
```
Finished in 62 ms
100
```





int x = 100;

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x = 100; (1)
        System.out.println(x);
    }
}
```



```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x = 100;
        System.out.println(x);

        char ch = 'a';
        System.out.println(ch);
    }
}
```

```
Finished in 64 ms
100
a
```

Operators in Java

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x = 100;
        System.out.println(x);

        char ch = 'a';
        System.out.println(ch);
    }
}
```

int x = 100;

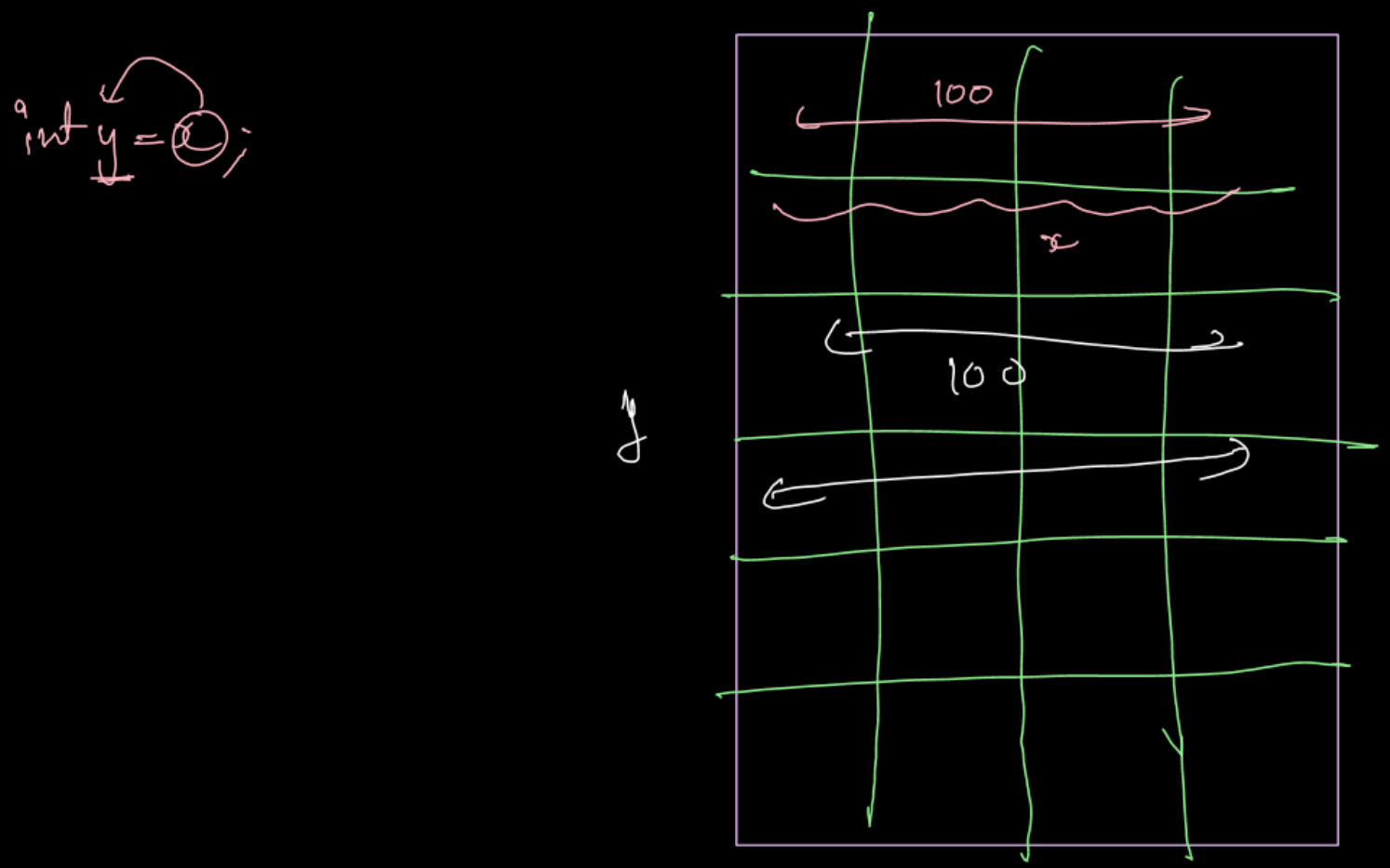
LHS ↓ RHS

assignment operator

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x = 100;
        int y = x;
        System.out.println(x);
        System.out.println(y);
    }
}
```

RHS gets assigned to LHS

int y = x;


int y = 0;
100
x
100
y

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x;
        x = 100;
        System.out.println(x);
    }
}
```

$x = \cancel{0} \; 100$

```
Finished in 50 ms
100
```

* Initialization of values is a must in Java.

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x;
        System.out.println(x);
    }
}
```

```
Finished in N/A
Line 5: error: variable x might not have been initialized [in Mai
n.java]
        System.out.println(x);
                           ^
```

Arithmetic Operators

+	plus
−	minus
*	multiply
/	divide
%	modulus

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x = 10;
        int y = 30;
        int res = x / y;
        System.out.println(res);
    }
}
```

10/30 = 1 1/3 = 0.33...

×

int x = 1.99

= 1

= 0

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x = 10;
        int y = 30;
        float res = (float)x / y; //typecasting
        System.out.println(res);
    }
}
```

→ process of converting IDT to another.

integer operator → decimal truncates

x is converted to float 10 → 10.00

float / int = float

10/30 → 0

30) 10 (0

−0

10 → remainder is the ans of modulus.

Quotient is the ans of integer /.

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        int x = 10;
        int y = 30;
        int res = x % y;
        System.out.println(res);
    }
}
```

```
Finished in 70 ms
10
```

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int num = scn.nextInt();
        System.out.println(num);
    }
}
```

```
Finished in 108 ms
256
```

stdin

```
256
```

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int num = scn.nextInt();
        System.out.println(num);

        float f = scn.nextFloat();
        System.out.println(f);
    }
}
```

```
Finished in 164 ms
256
10.987
```

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        int num = scn.nextInt();
        System.out.println(num);

    }
}
```

```
Finished in N/A
java.util.InputMismatchException
  at line 939, java.base/java.util.Scanner.throwFor
  at line 1594, java.base/java.util.Scanner.next
  at line 2258, java.base/java.util.Scanner.nextInt
  at line 2212, java.base/java.util.Scanner.nextInt
  at line 5, Main.main
```

stdin

```
10.987
```

```java
import java.util.*;
public class Main {
    public static void main(String[] args) {
        Scanner scn = new Scanner(System.in);
        char ch = scn.nextChar();
        System.out.println(ch);
    }
}
```

```
Finished in N/A
Line 5: error: cannot find symbol [in Main.java]
        char ch = scn.nextChar();
                  ^
  symbol:   method nextChar()
  location: variable scn of type Scanner
```

Next Char is not a method.