# DSA using Java

↳ logic building
problem solving

Software engineer

Steps :-

↳ problem statement / idea

↳ approach / logic

↳ Implimentation ⟶ Java

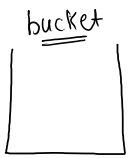
# Java

↳ used to develop android app.
↳ big data
↳ hardware devices
↳ . . . . . .

## Variables :-

↳ a = 5 → constant

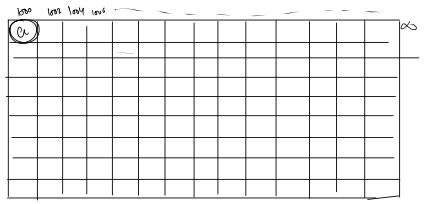
↳ used to store & manage some info./data




data structures :-
↳ manage the data so that we can use it in an efficient way

algorithms :-

↳ data types :-
- ↳ int // integer :- 0, 1, 3, 37, -3, -8 ....
- ↳ float // decimal :- 2.3, 4.5, 7.37, -3.2
- ↳ char // character :- 'a', 'B', 'z', 'Z', '<', '+', '.', '$', '#',
- ↳ String // collection of char :- "Kunal", "AB12", "12345", "A1#B"
- ↳ boolean // :- true, false



↳ variables

How to declare a variable :-

```
int a = 5;
char b = 'A';
boolean c = false;
String d = "ABC123";
float e = 7.23;
```

```
int a = 5 ;   // declaring a variable
// dont need 5 anymore
// and need 6
a = 6 ;
```

↓

Comment
↳ which is a part of code but doesnot get executed

```
//
/*        */
```

↳ **Keyword** :- are those having some meaning and which can't be used as variable

variable — int xyz / abc / kunal = 5; // int static = 5 ✗ (static ↑)

```
int a = 5 ;
```

↳ **Operators** :-

| | post | pre |
|---|---|---|
| ↳ increment :- | a++ , | ++a |
| ↳ decrement :- | a-- | --a |

```
int a = 5 ;   // declaration & initialization
int b ;       // declaration
int c ;       //  "
b = a++ ;
c = b++ ;
a = ++b ;
b = ++c ;
c = ++a ;
a = b++ ;
```

| a | b | c |
|---|---|---|
| 5 | 6 | |
| 5 | 6 | 7 |
| 7 | 7 | 7 |
| 7 | 8 | 8 |
| 8 | 8 | 8 |
| 8 | 9 | 8 |

```
int a, b, c ;   //declaration
a = 5           // initialization of a
```

```
b = ++a ;
c = ++b ;
a = b++ ;
b = c++ ;
c = ++a ;
a = a+b ;   <-  a += b ;
b = b-c ;   <-  b -= c ;
c = c+b ;   <-  c += b ;
b-- ;
a++ ;
c-- ;
```

(7 - 8 ; 8 + (-1))

| a | b | c |
|---|---|---|
| 6 | 6 | - |
| 6 | 7 | 7 |
| 7 | 8 | 7 |
| 7 | 7 | 8 |
| 8 | 7 | 8 |
| 15 | 7 | 8 |
| 15 | -1 | 8 |
| 15 | -1 | 7 |
| 15 | -2 | 7 |
| 16 | -2 | 7 |
| 16 | -2 | 6 |

Syso ( a++ ) ⇒ Syso(a); a = a+1

Syso (++a) ⇒ a = a+1; Syso(a)

gmp

```java
public static void main(String[] args) {
    data type , name the variable, constant value
    int a = 5;
    System.out.println(a);  // variable name

    a = 6;
    System.out.println(a);

    String b = "ABC";
    System.out.println(b);

    b = "XYZ";
    System.out.println(b);

    boolean c = true;
    System.out.println(c);

    char d = 'x';
    System.out.println(d);
```

```java
int a = 2;
int b = 3;

int sum = a + b;

System.out.println(sum);

int minus = a - b;
System.out.println(minus);

int mult = a * b;
System.out.println(mult);

int div = a / b;
System.out.println(div);
```

```java
int a = 5;
a++;    // post increment
System.out.println(a);

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

a = a + 5;  // 10
a += 5; // 15
```