Data Types, Variables & operators:

① → Imagine you are developing SIS for your college How will you store student details such as name, age, grade & attendance

→ Show idea which relate to ~~if~~ Answer to Variable data types and Operators

② Concept

* Variable store data in a Program.
* Eg. storing stud details

```
Class student
{
    string name;
    int age;
    double grade;
    boolean isPresent;
}
```

Why we need different ~~data~~ type.

③ Operators:

* Operators Perform operation on Variables
* Eg Avg stud grade

```
class studgrade
{
  Public static void main (String[] args)
  {
    double grade1 = 85.5, grade2 = 90.0,
           grade3 = 78.5;

    double avg = (grade1 + grade2 + grade3)/3;
    System.out.Println (" Avg Grade " + Avg);
  }
}
```

check if a stud Pass:

* Comparison operators

```
if ( avg >= 50)
  {
    System . out. Println (" Pass");
  }
  else
  {
    System.out.Println ( "fail");
  }
```

Hands-on-Activity:

→ Implement std class that stores a std's name, marks in three subjects & calculates the total and Average marks.

```
class student
{
    string name;
    int mark1, mark2, mark3;
    student (string n, int m1, int m2,
                                int m3)
    {
        name = n;
        mark1 = m1;
        mark2 = m2;
        mark3 = m3;
    }
Void calculateResult()
{
    int total = mark1 + mark2 + mark3;
    double avg : total / 3.0;
    System.out.println("Average", +avg);
}
Public static Void main (String[] args)
{
    student s1 = new student ("Bob", 80, 75, 90);
    s1. calculateResults();
}
}
```

Add method to check student pass or not.

How do operators help in Problem-solving?

* Play Crucial Role in solving Real world Problems

① Performing mathematical calculations (Arith operators)

+, −, *, / & %

Eg:

Calculating Total & avg

```
int m1 = 85, m2 = 90, m3 = 78;
total = m1 + m2 + m3;
Avg = total / 3;
S.O.P ("total", + total);
S.O.P ("Avg", + Avg);
```

* Operators helps in salary calculations, tax computation, transactions

② Comparison operators [Make Decisions]

<, >, <=, >=, ==, !=

```
if (avg >= 50)
{
    S.O.P ("Pass");
}
else
{
    S.O.P ("fail");
}
```

grade sys
age verification
eligibility check

⑤ Logical operators

& && , | , || Combine multiple Condition

```
boolean goodgrade = Avg > 85;
boolean goodattd  = Attpercentage > 90;

if (goodattd && goodgrade) {
    S.O.P("Eligible");
}
else {
    S.O.P("Not eligible");
}
```

Authentication rule-base decision data filtering

④ Assignment & Increment operator

= ++