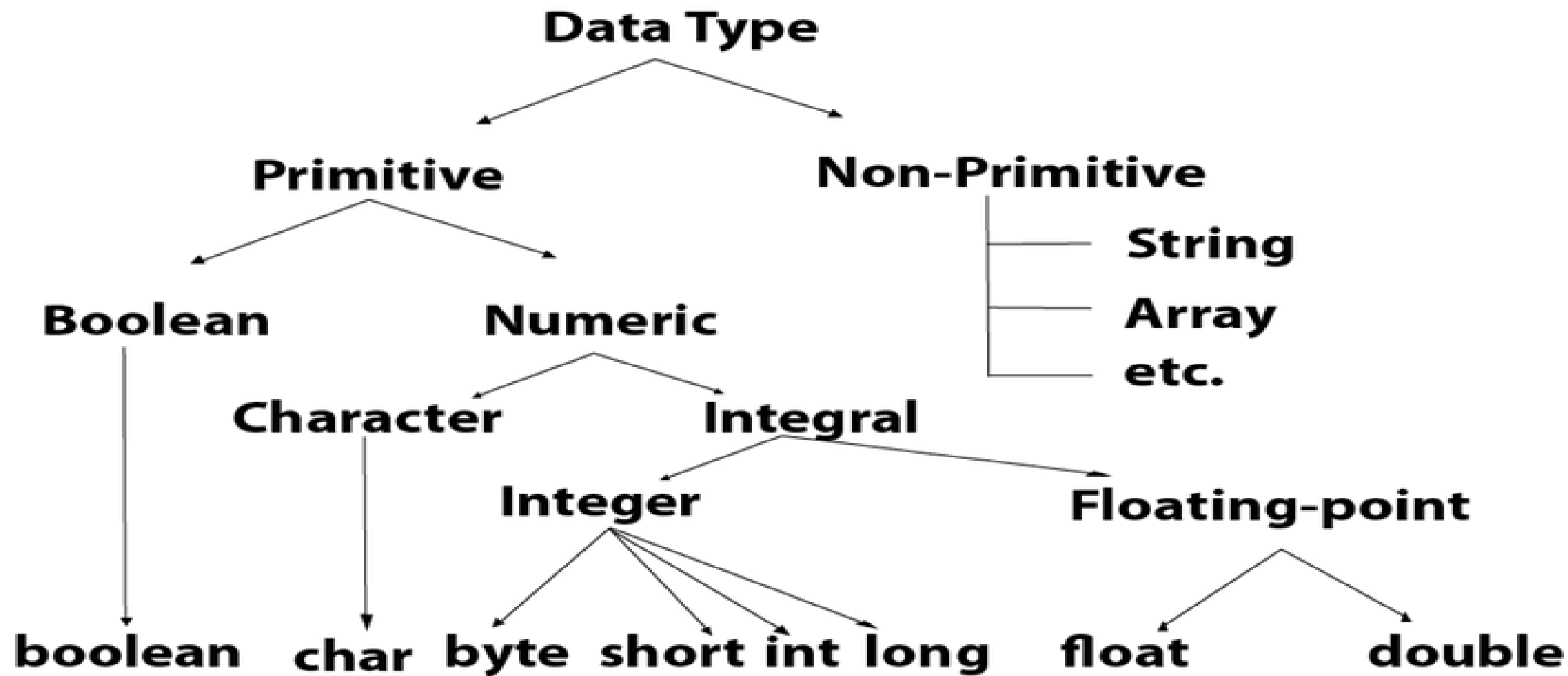# Logic Building Session
Day 4: MAR 2023
Session 1

Kiran Waghmare

Data Types
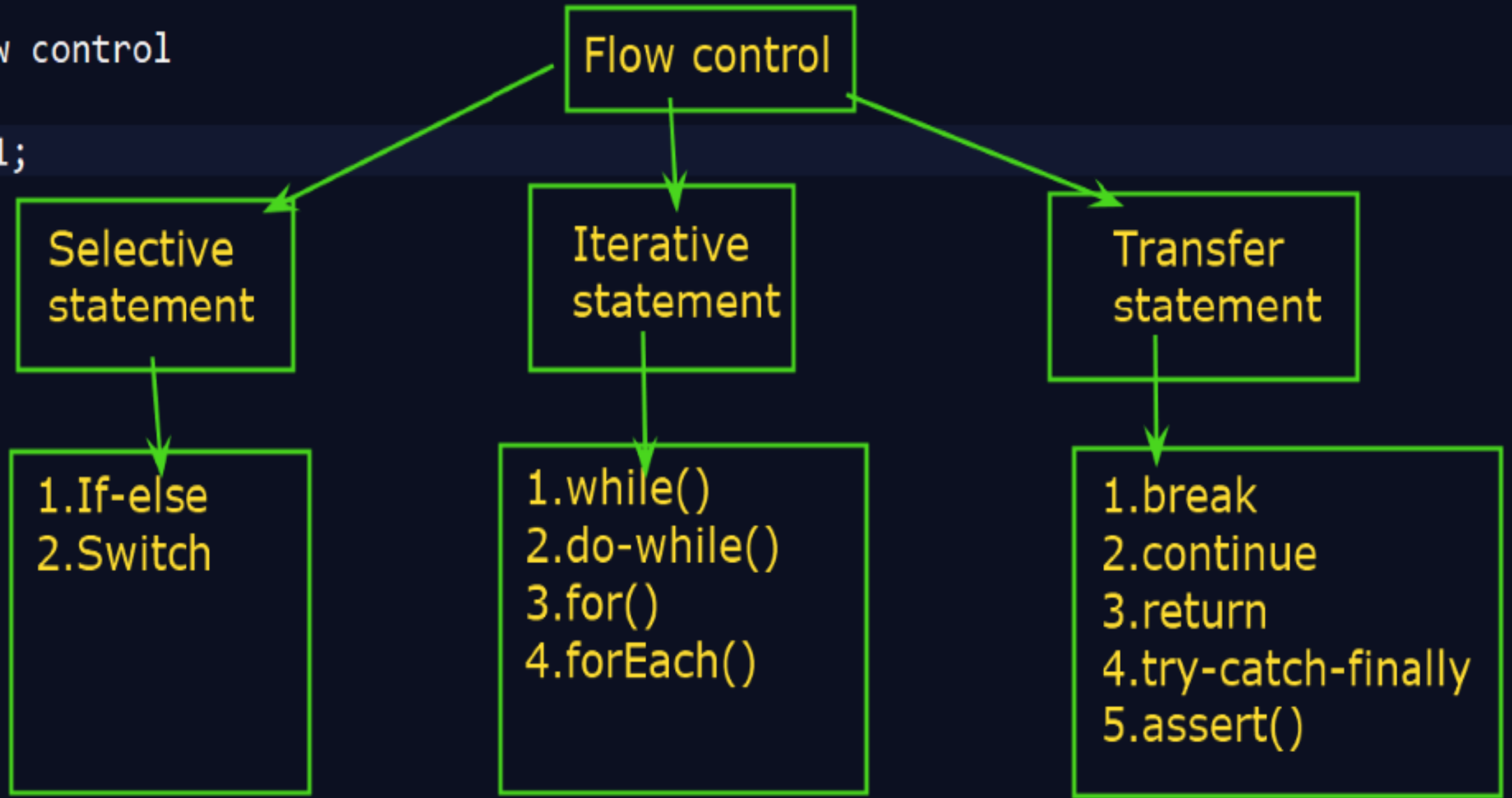
Type Name	Minimum Value	Maximum Value	Default	Size	Literal
byte	-128	127	0	8-bit +/-	——
short	-32768	32767	0	16-bit +/-	——
int	-2147483648	2147483647	0	32-bit +/-	3, 077, 0xBAAC
long	-9223372036854775808	9223372036854775807	0	64-bit +/-	3L
float	-1.40239846e-45	3.40282347e+38	0.0	32-bit IEEE float	3.0F, 3.0E2F
double	-4.94065645841246533e-324	1.79769313486231570e+308	0.0	64-bit IEEE float	3.0, 3.0E2, 3.0e2D
boolean	false	true	false	N/A	true, false
char	\u0000	\uffff	\u0000	16-bit Unicode	'3'
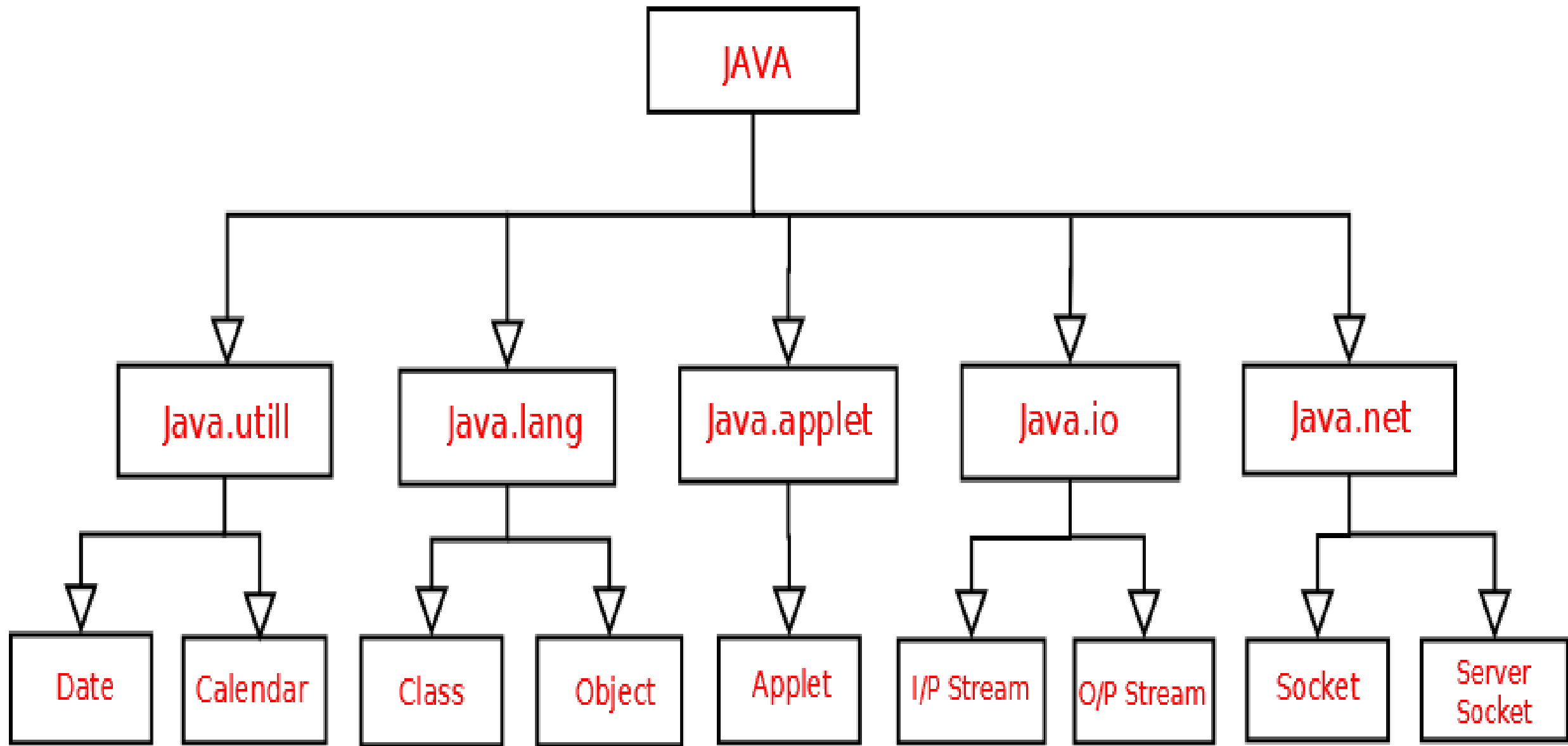
```
----------------------------------------
Topic:
    -Flow control

    i=i+1;
```
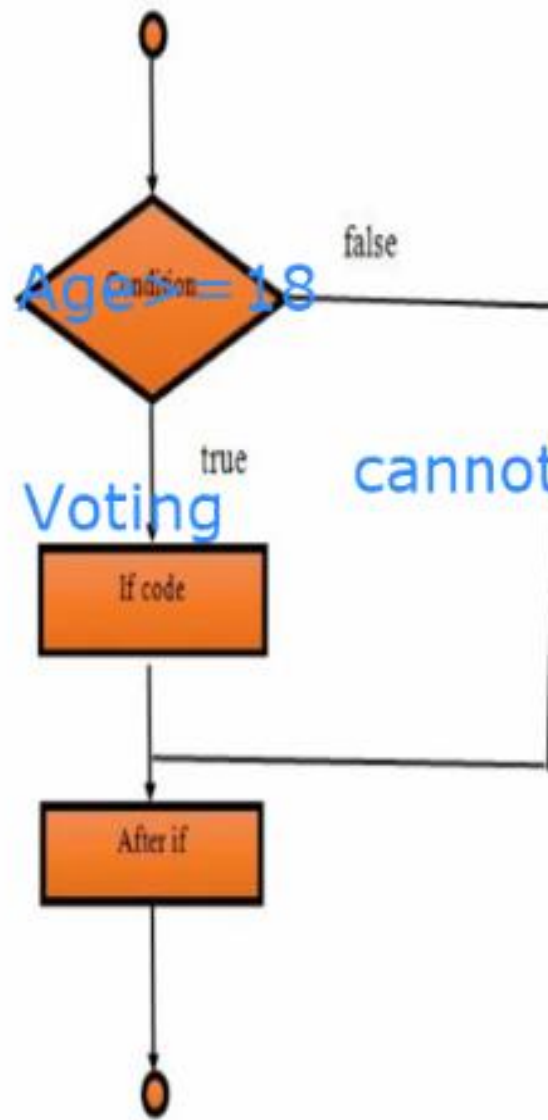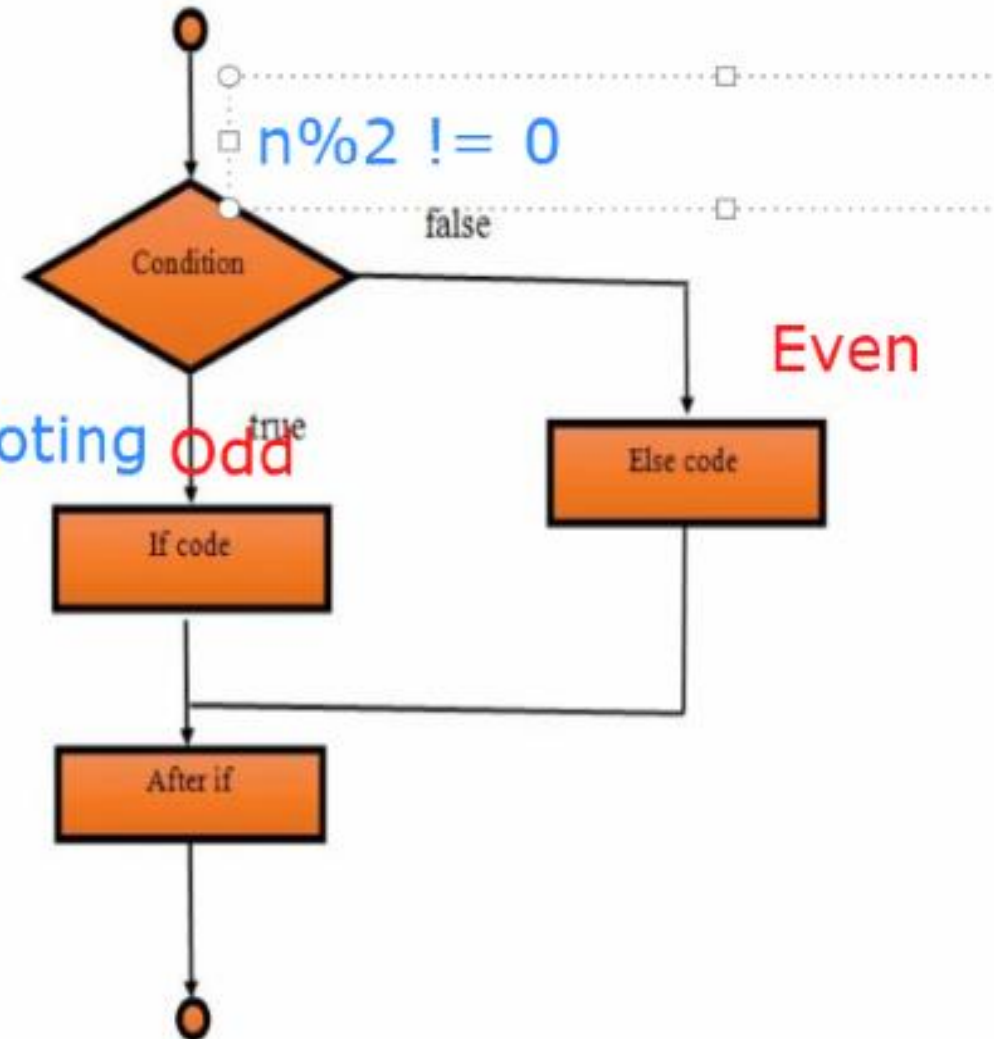


```
                         ┌─────────────────┐
                         │  Flow control   │
                         └─────────────────┘
          ┌──────────────────────┼──────────────────────┐
          ▼                      ▼                        ▼
┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│    Selective     │   │    Iterative     │   │    Transfer      │
│    statement     │   │    statement     │   │    statement     │
└──────────────────┘   └──────────────────┘   └──────────────────┘
          │                      │                        │
          ▼                      ▼                        ▼
┌──────────────────┐   ┌──────────────────┐   ┌──────────────────┐
│ 1.If-else        │   │ 1.while()        │   │ 1.break          │
│ 2.Switch         │   │ 2.do-while()     │   │ 2.continue       │
│                  │   │ 3.for()          │   │ 3.return         │
│                  │   │ 4.forEach()      │   │ 4.try-catch-finally │
│                  │   │                  │   │ 5.assert()       │
└──────────────────┘   └──────────────────┘   └──────────────────┘
```

Data-flow-diagram of If Block

Data-flow-diagram of If Else Block

Age>=18 Condition false

Voting true

If code

cannot do the voting

After if

n%2 != 0 Condition false

Odd true **Even**

If code

Else code

After if

Data-flow-diagram of If Block

Data-flow-diagram of If Else Block

Mouse   Select   Text   Draw   Stamp   Spotlight   Eraser   Format   Undo   Redo   Clear
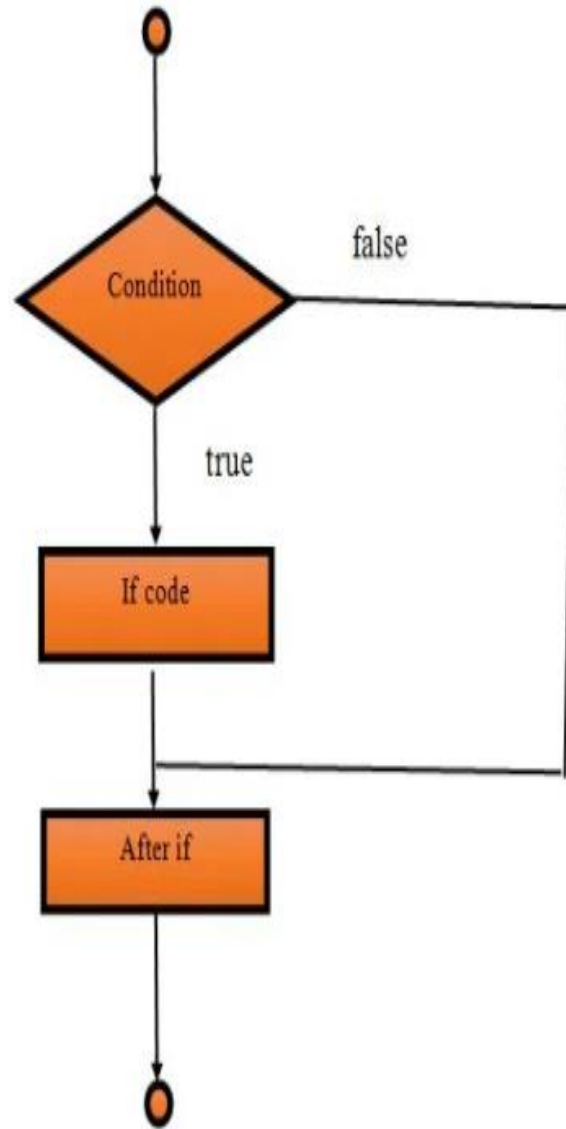
Who can see what you share here? Recording On
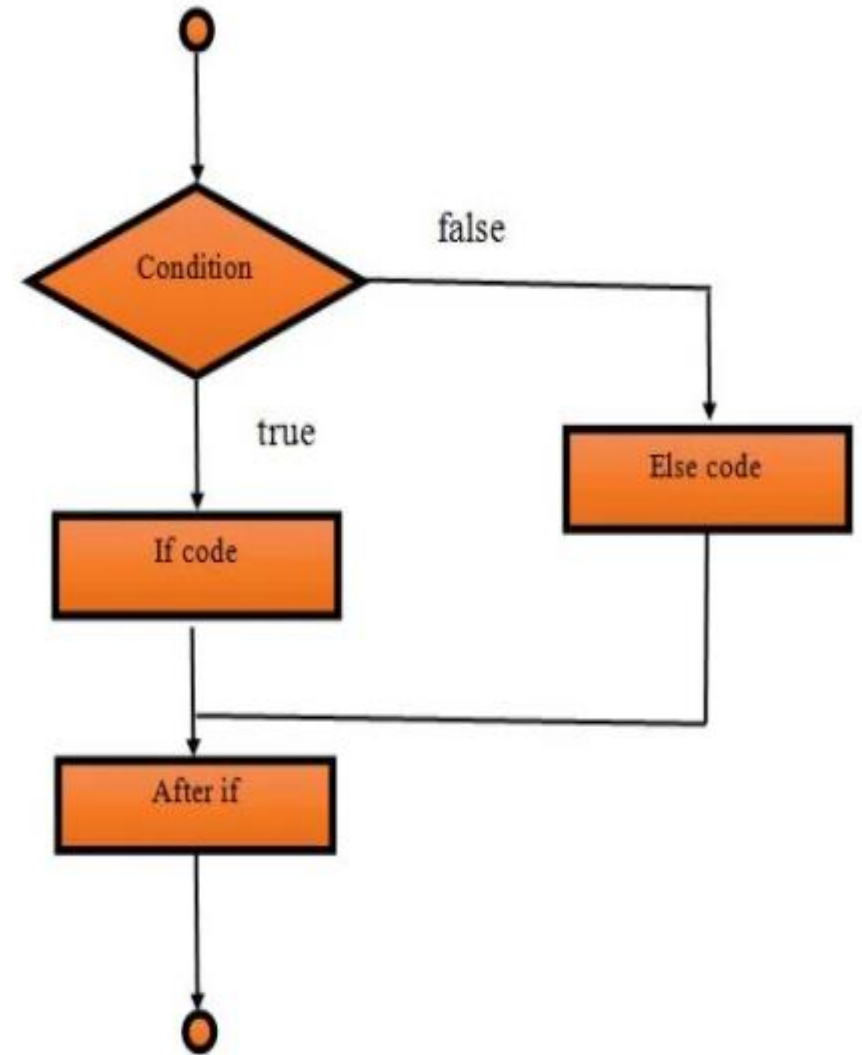
```java
class IfElse1{

    public static void main(String args[])
    {
        int marks = 58;

        if(marks >= 75)
        {
            System.out.println("First division");
        }
        System.out.println("Check karo !!");

    }

}
```

```
D:\Test>javac IfElse1.java

D:\Test>java IfElse1
First division

D:\Test>javac IfElse1.java

D:\Test>java IfElse1

D:\Test>javac IfElse1.java

D:\Test>java IfElse1
Check karo !!

D:\Test>
```

```java
class IfElse1{

    public static void main(String args[])
    {
        int marks = 98;

        if(marks >= 75)
        {
            System.out.println("First division");
        }
        System.out.println("Check karo !!");
    }

}
```

```
C:\WINDOWS\system32\cmd.exe

D:\Test>java IfElse1

D:\Test>javac IfElse1.java

D:\Test>java IfElse1
Check karo !!

D:\Test>javac IfElse1.java

D:\Test>java IfElse1
First division
Check karo !!

D:\Test>
```

```java
class IfElse2{

    public static void main(String args[])
    {

        int marks = 98;

        if(marks >= 75)
        {
            System.out.println("First division");
        }
        if(marks >= 65)
        {
            System.out.println("Second division");
        }
        System.out.println("Check karo !!");
    }
}
```

```java
class IfElse2{

    public static void main(String args[])
    {
        int marks = 68;

        if(marks >= 75)
        {
            System.out.println("First division");
            if(marks >= 65)
            {
                System.out.println("Second division");
            }
        }

        System.out.println("Check karo !!");
    }
}
```

Nested If block

Mouse   Select   Text   Draw   Stamp   Spotlight   Eraser   Format   Undo   Redo   Clear

hand

Who can see what you share here? Recording On

```java
class IfElse2{

    public static void main(String args[])
    {
        int marks = 8;

        if(marks >= 75)
        {
            System.out.println("First division");

        }
        else
        {
            System.out.println("Check karo !!");

        }

    }

}
```
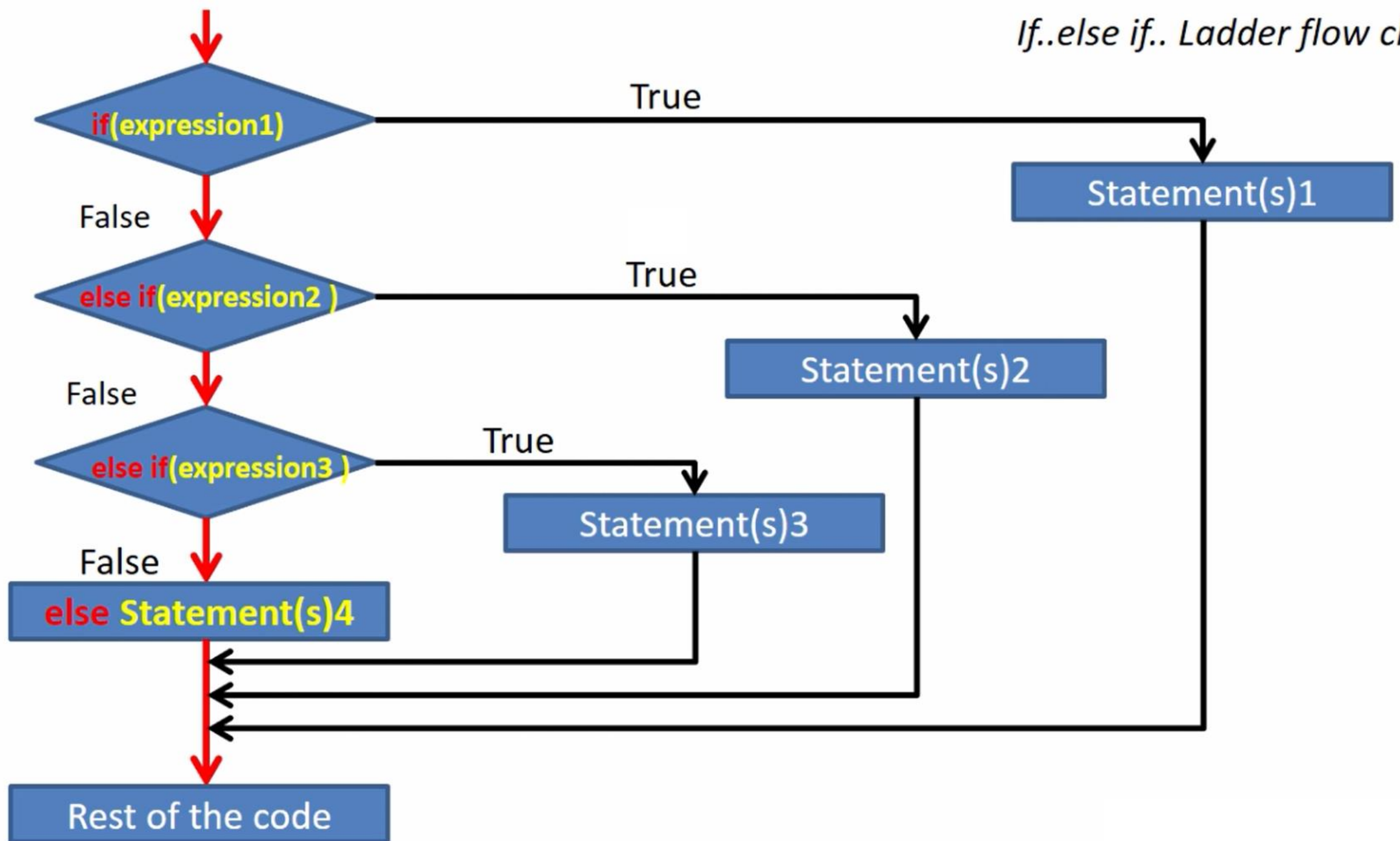
If..else if.. Ladder flow chart

if(expression1) — True → Statement(s)1

False

else if(expression2) — True → Statement(s)2

False

else if(expression3) — True → Statement(s)3

False

else Statement(s)4

Rest of the code

```java
class IfElse4{

    public static void main(String args[])
    {
        int marks=75;

        if(marks < 50)
        {
            System.out.println("Fail !");
        }
        else if(marks >=50 && marks <60)
        {
            System.out.println("D Grade");
        }
        else if(marks >=60 && marks <70)
        {
            System.out.println("C Grade");
        }
        else if(marks >=70 && marks <80)
        {
            System.out.println("B Grade");
        }
        else if(marks >=80 && marks <90)
        {
            System.out.println("A Grade");
```

```
C:\WINDOWS\system32\cmd.exe

D:\Test>java IfElse2
Check karo !!

D:\Test>javac IfElse3.java

D:\Test>java IfElse3
1
Hi Girls !!

D:\Test>javac IfElse4.java

D:\Test>java IfElse4
B Grade

D:\Test>
```
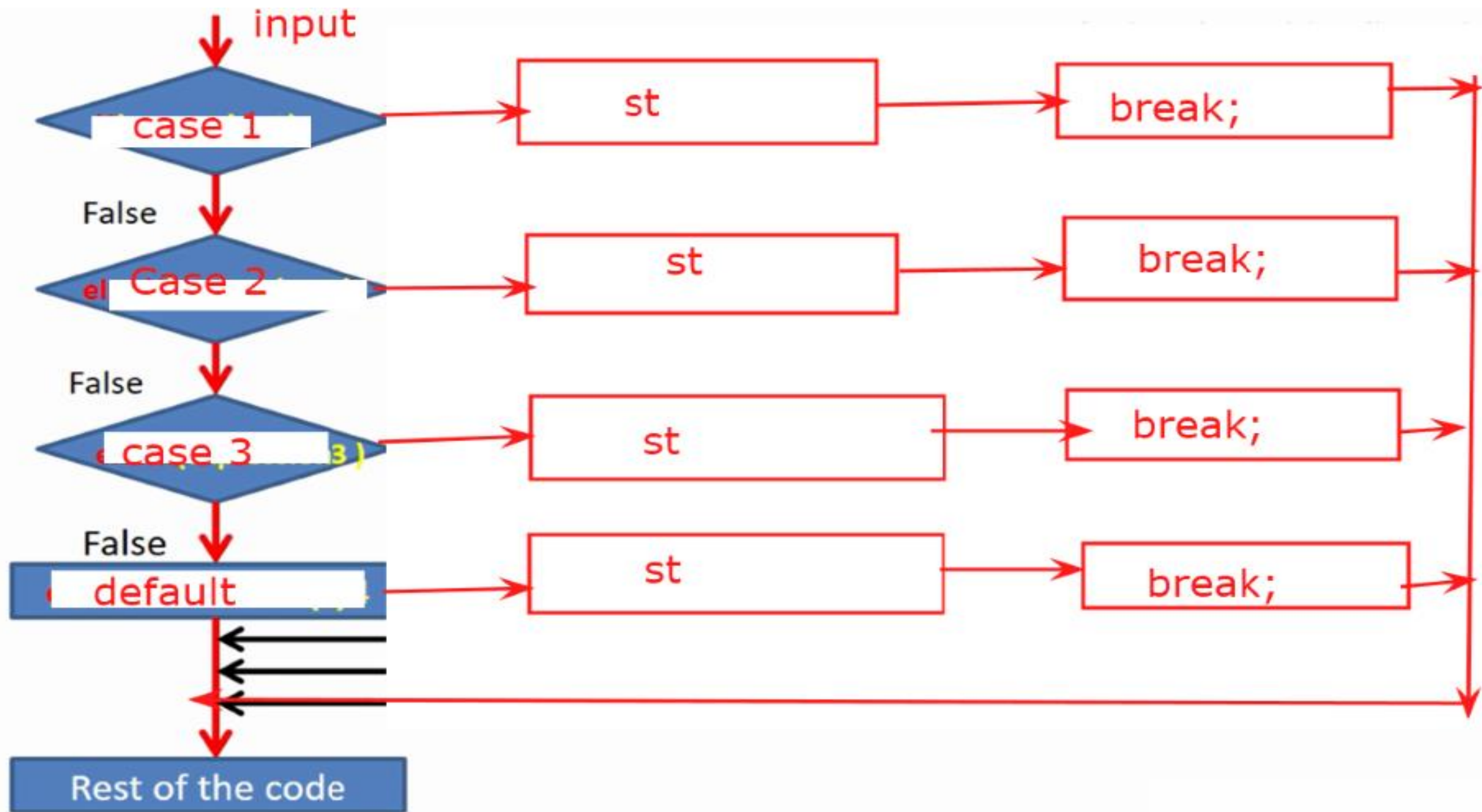
Mouse   Select   Text   Draw   Stamp   Spotlight   Eraser   Format   Undo   Redo

Who can see what you share here? Recording On
C:\WINDOWS\system32\cmd.exe

```java
class Switch{

    public static void main(String args[])
    {
        int day =3;

        String str;

        switch(day)
        {
            case 1: str = "Monday";

            case 2: str = "Tuesday";

            case 3: str = "Wednesday";

            case 4: str = "Thursday";

            case 5: str = "Friday";

            case 6: str = "Saturday";

            case 7: str = "Sunday";

            default: str = "Invalid day !";
        }
        System.out.println(str);
    }
}
```

```
D:\Test>java IfElse4
B Grade

D:\Test>javac IfElse4.java

D:\Test>java IfElse4
Fail !

D:\Test>javac Switch.java

D:\Test>java Switch
Invalid day !

D:\Test>
```

Mouse   Select   Text   Draw   Stamp   Spotlight   Eraser   Format   Undo   Redo

Who can see what you share here? Recording On

```java
class Switch{

    public static void main(String args[])
    {
        int day =3;

        String str;

        switch(day)
        {
            case 1: str = "Monday";break;

            case 2: str = "Tuesday";break;

            case 3: str = "Wednesday";break;

            case 4: str = "Thursday";break;

            case 5: str = "Friday";break;

            case 6: str = "Saturday";break;

            case 7: str = "Sunday";break;

            default: str = "Invalid day !";break;
        }
        System.out.println(str);
    }
}
```

Mouse   Select   Text   Draw   Stamp   Spotlight   Eraser   Format   Undo   Redo   Clear

Who can see what you share here? Recording On
C:\WINDOWS\system32\cmd.exe

```java
class Switch{

    public static void main(String args[])
    {
        int day =3;

        String str;

        switch(day)
        {
            case 1: str = "Monday";break;

            case 2: str = "Tuesday";break;

            case 3: str = "Wednesday";break;

            case 4: str = "Thursday";break;

            case 5: str = "Friday";break;

            case 6: str = "Saturday";break;

            case 7: str = "Sunday";break;

            default: str = "Invalid day !";break;
        }
        System.out.println(str);
    }
}
```

```
D:\Test>java IfElse4
Fail !

D:\Test>javac Switch.java

D:\Test>java Switch
Invalid day !

D:\Test>javac Switch.java

D:\Test>java Switch
Wednesday

D:\Test>
```

Mouse   Select   Text   Draw   Stamp   Spotlight   Eraser   Format   Undo   Redo   Clear

Who can see what you share here? Recording On

```java
char ch = sc.next().charA
//char ch = 'a';---> Compile time
switch(ch)
{
    case 'a':

    case 'e':

    case 'i':

    case 'o':

    case 'u':

    System.out.println(ch + " is a LOWER vowel

    case 'A':

    case 'E':

    case 'I':

    case 'O':

    case 'U':

    System.out.println(ch + " is a UPPER vowel.");

    default: System.out.println(" galat input diya hai!");
```

```
D:\Test>javac Switch1.java

D:\Test>java Switch1
shksfkskfjls
 galat input diya hai!

D:\Test>javac Switch1.java

D:\Test>java Switch1
A
A is a UPPER vowel.
 galat input diya hai!

D:\Test>
```

```java
//char ch = 'a';---> Comp
switch(ch)
{
    case 'a':

    case 'e':

    case 'i':

    case 'o':

    case 'u':

    System.out.println(ch + " is a LOWER vowe

    case 'A':

    case 'E':

    case 'I':

    case 'O':

    case 'U':

    System.out.println(ch + " is a UPPER vowel.");

    default: System.out.println(" galat input diya hai!");

}
```

```
D:\Test>javac Switch1.java

D:\Test>java Switch1
A
A is a UPPER vowel.
 galat input diya hai!

D:\Test>java Switch1
u
u is a LOWER vowel.
u is a UPPER vowel.
 galat input diya hai!

D:\Test>
```

Who can see what you share here? Recording On

```java
class Switch2{

    public static void main(String args[])
    {

        String day = "Monday";// compiletime


        switch(day)
        {
            case "Monday": System.out.println("Working day");

            case "Tuesday": System.out.println("CDAC Working day"

            case "Wednesday":System.out.println("Formal Working

            System.out.println("String use in case option........'



            default: System.out.println(" Chutti hai !");

        }

    }


}
```

```
D:\Test>javac Switch1.java

D:\Test>java Switch1
e
e is a LOWER vowel.

D:\Test>javac Switch2.java

D:\Test>java Switch2
Working day
CDAC Working day
Formal Working day
String use in case option..

D:\Test>
```
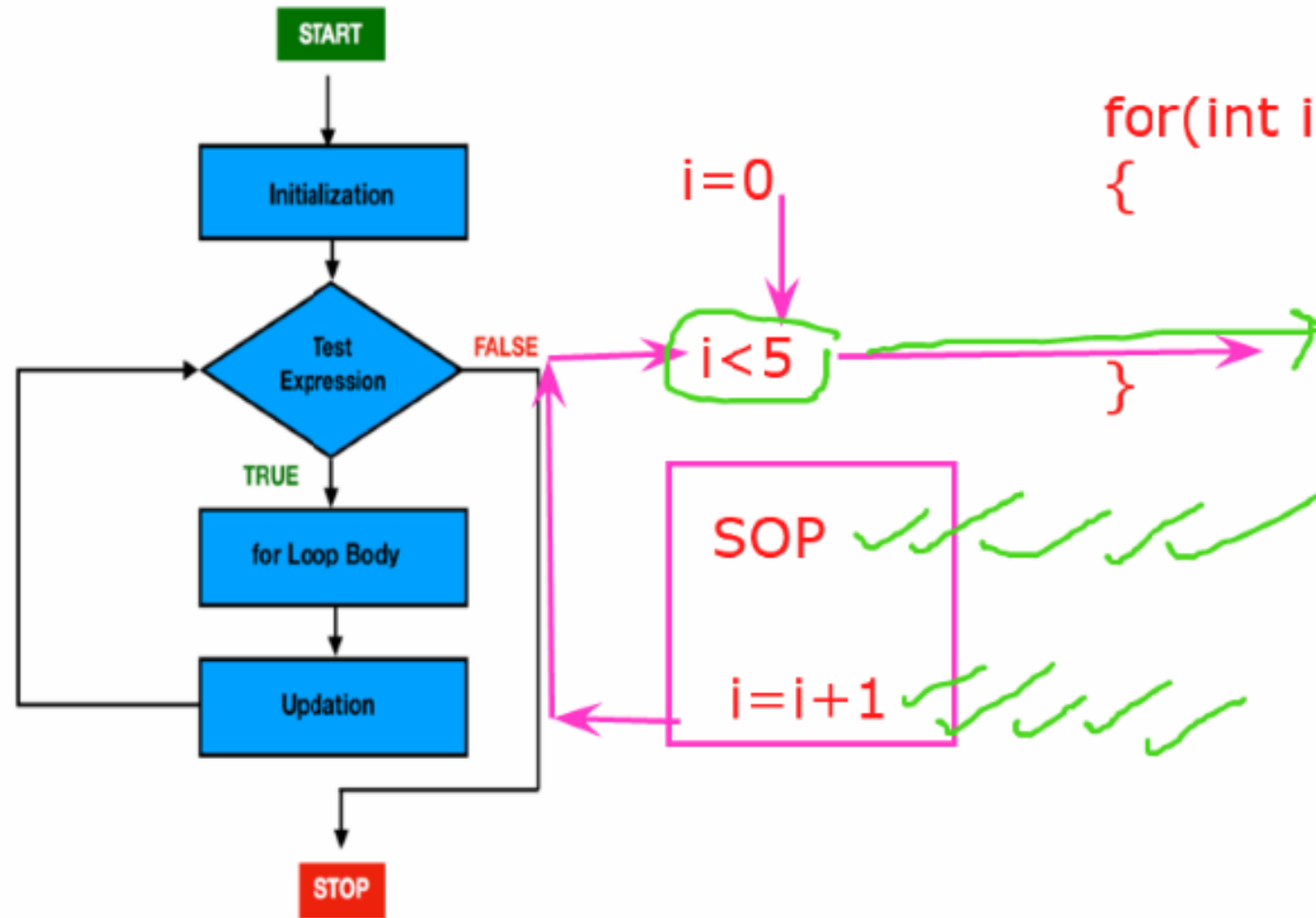
Flowchart of for loop

Flowchart of for loop

START

Initialization

Test Expression

FALSE

TRUE

for Loop Body

Updation

STOP

i=0

i < 5

SOP

i=i+1

$i=0,1,2,3,4,5$

for(int i=0;i<5;i++)
{

}
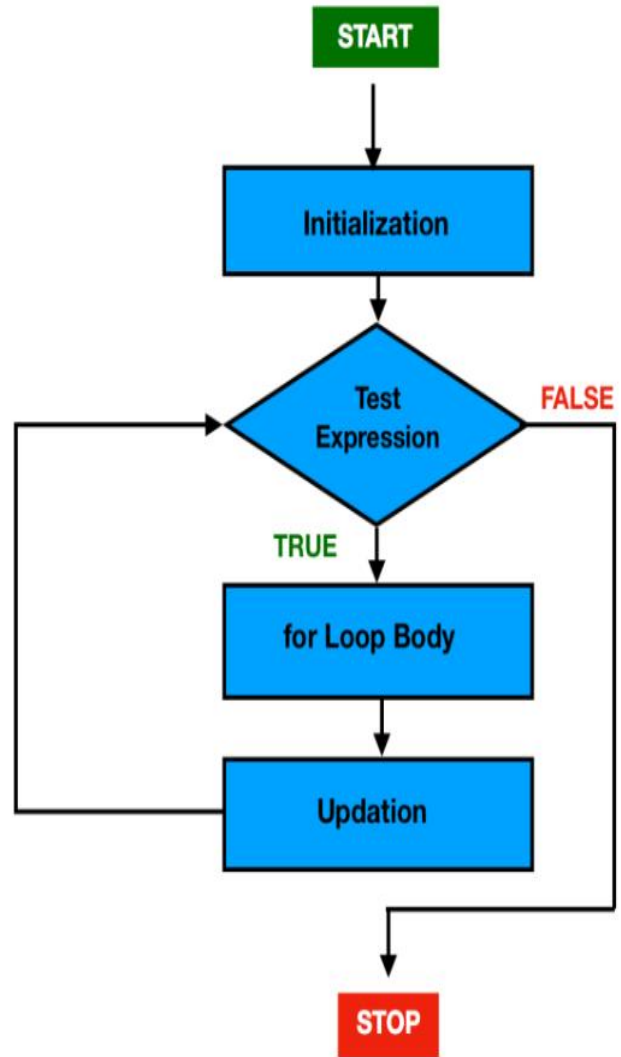
```java
class ForLoop{

    public static void main(String args[])
    {

        for(int i=1;i<5;i++)
        {


        System.out.println(" Keep moving!");
        System.out.println(" Keep learning !");


        }

    }

}
```

```
Chutti hai !
Chutti hai !
Chutti hai !
Chutti hai !
Chutti hai !
Chutti hai !

D:\Test>javac ForLoop.java

D:\Test>java ForLoop
Keep moving!
Keep learning !
Keep moving!
Keep learning !
Keep moving!
Keep learning !
Keep moving!
Keep learning !

D:\Test>
```
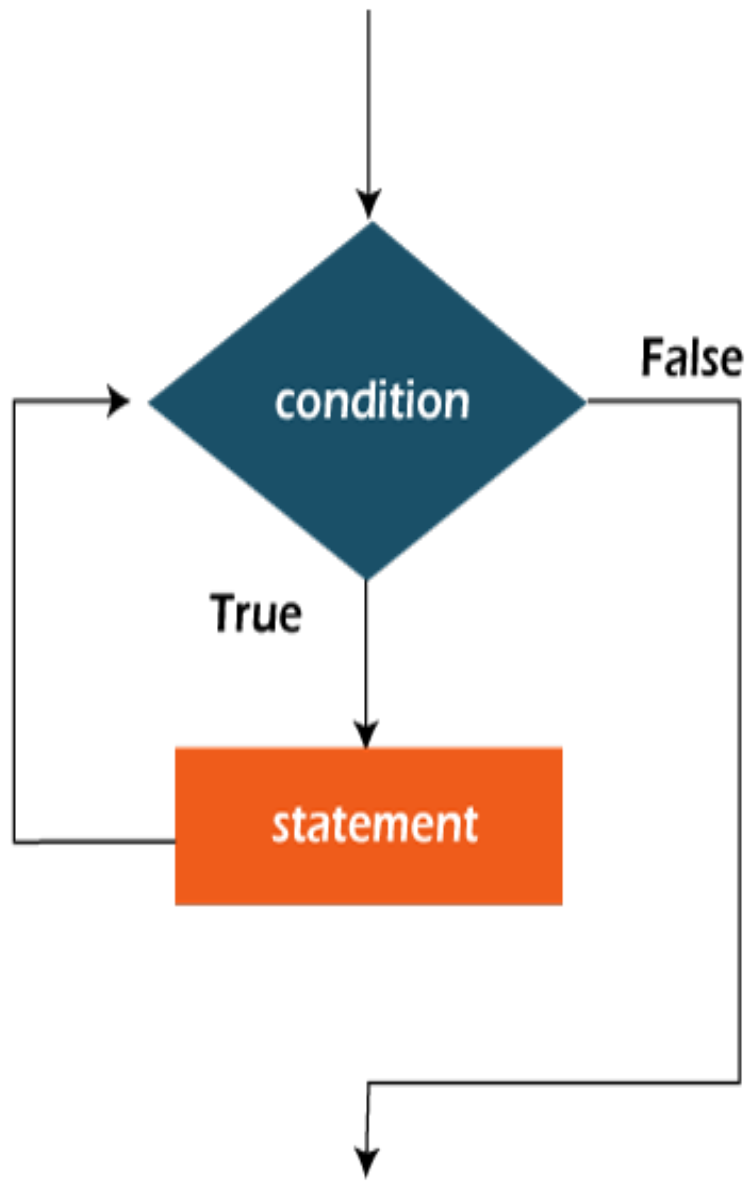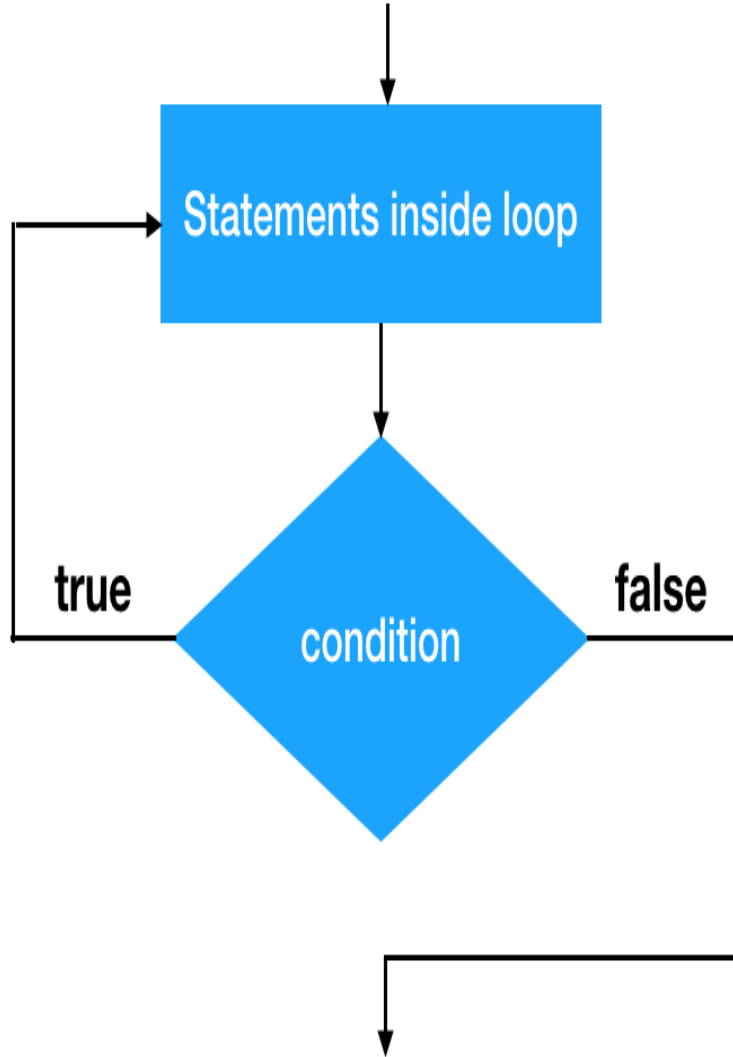
do while loop

Statements inside loop

true   condition   false

Outside do-while loop