

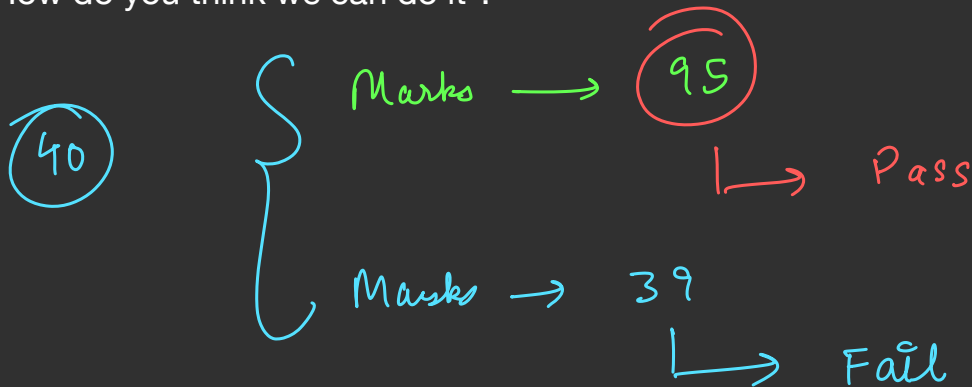
# L3

## Control flow (if-else & loops)

Join Discord - <https://tinyurl.com/ly-discord>

Let's suppose you want the computer to decide whether someone will pass or fail in exam based on marks entered.

How do you think we can do it ?



# What are conditionals statements and their use ?



decision  $\longrightarrow$  conditional statement

```
if (condition)
{
    Statement;
}
```

```
if (marks  $\geq$  40)
{
    _____
    _____
}
}
```

if

```
int n = 14;
```

```
if (n % 7 == 0)
```

```
{  
    S.O.P.en ("Number is divisible by 7");  
}
```

## If - Else

✓ if ( condition )  
{

}

✓ else  
{

}

if ( n % 2 == 0 )  
{

S.O. Ptn ( " Even " );

}

else  
{

S.O. Ptn ( " Odd " );

}

n = 6

↓

even / odd

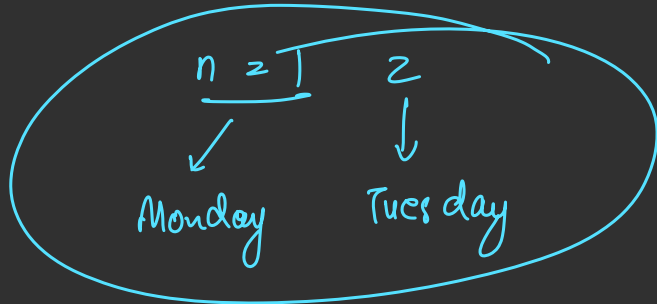
## If - else - if Ladder



```
if (condition)
{
    statement 1;
}
else if (condition 2)
{
    statement 2;
}
else
{
    statement 3;
}
```

↳ multiple condition

↳ multiple checks



## Max of 2 numbers

```
int a = 5;
```

```
int b = 6;
```

```
if (a > b)
```

```
{
```

```
    System.out.println(a + " is maximum");
```

```
}
```

```
else
```

```
{
```

```
    System.out.println(b + " is maximum");
```

```
}
```

$a = 5, c = 4$

$b = 6,$

Max of 3 numbers

$a \geq b \text{ \& \& } a \geq c$

$\text{if } (a \geq b \text{ \& \& } a \geq c)$

{

$\text{S.O.Plm}(a);$

}

$\text{else if } (b \geq a \text{ \& \& } b \geq c)$

{

$\text{S.O.Plm}(b);$

}



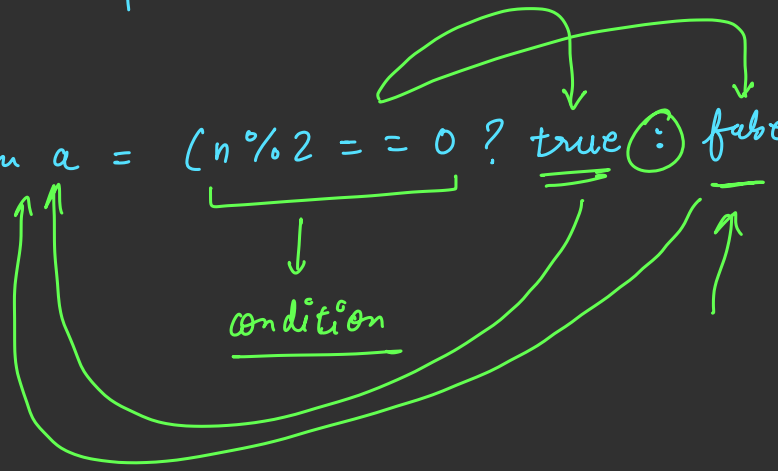
```
if ( condition )
{
    Statement;
}
else
{
    Statement 2 ;
}
```

## Ternary Operator

→ ? : ←

boolean a = ( n % 2 == 0 ? true : false )

↓  
condition



# Watermelon problem Codeforces

<https://codeforces.com/problemset/problem/4/A>

# What is Switch Case ?

day = 1, 2, 3, 4



7 if-else

--- 7



value 1

switch ( expression )

{

case value 1:

→ statement 1

X

case value 2:

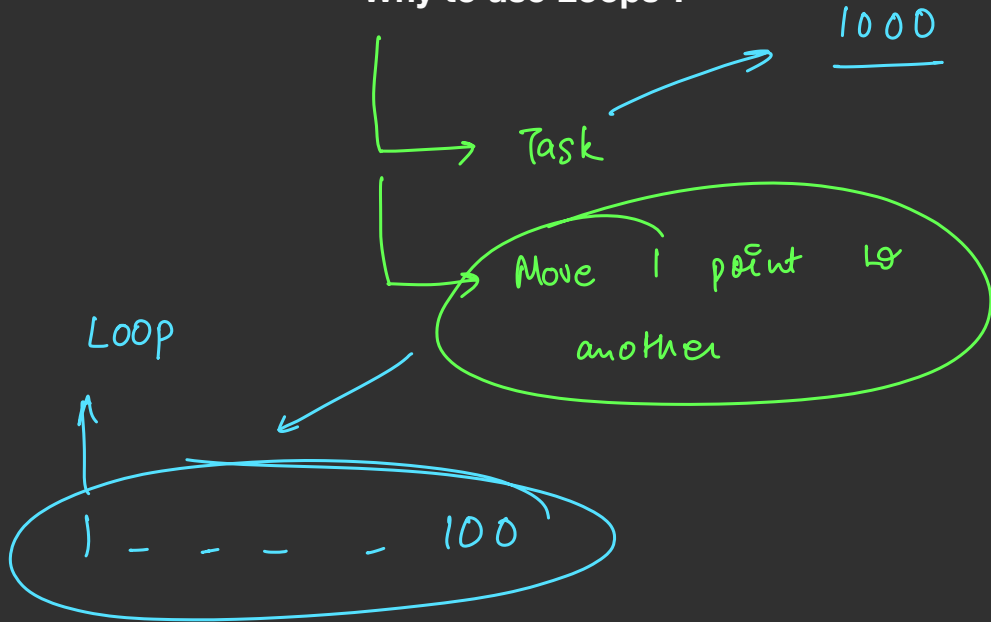
→ statement 2  
break;

value 1

match



# Why to use Loops ?

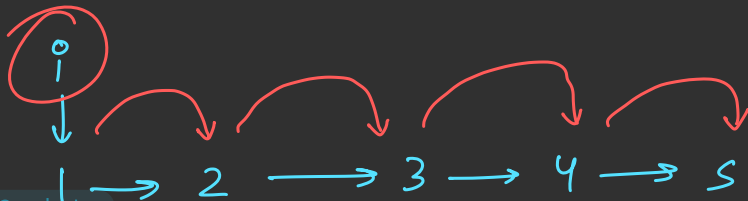


## For Loop

$\Sigma$  `for (int i = 1; i <= 5; i = i + 1)`  $\}$

*STOP* →

initialization part      test condition      update expression



## For Loop

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

{

`S.O.Plm(i);`

}

1  
2  
3  
4  
5

6

6 <= 5

false

# While Loop

```
initialization statement  
while ( test condition )  
{  
    Statement  
    update expression  
}
```

{  
initialization  
test condition  
update

$6 < 5$   $\rightarrow$  false

$\text{int } i = 1;$

$\text{while ( } \underline{i < 5} \text{ )}$   
 $\{$

$\text{S.O. len}(i);$

$i = i + 1;$

$\}$

$i = 1, 2, 3, 4, 5$  ✓ ✓ ✓ ✓ ✓

STEP 1  $i = 1$   $i < 5$

$\rightarrow$  true

①

$i = 2$

STEP 2  $i = 2$   $2 < 5$

②

$i = 3$

$i = 6$



# Do-While Loop

initialization statement

do

{

statement ✓

update expression

} while (test-condition);

```
int i = 1;
```

```
do
```

```
{
```

```
    S.O. Print ("Hello");
```

```
    i = i + 1;
```

```
} while (i <= 5);
```

i = 1, Hello, i = 2, 2 <= 5

i = 2, Hello, i = 3, 3 <= 5

i = 3, Hello, i = 4, 4 <= 5

i = 4, Hello, i = 5, 5 <= 5

i = 5, Hello, i = 6, 6 <= 5

↓

STOP

## Homework Questions

1. Program to check whether a number is negative, positive or zero.
2. Program to check whether a number is divisible by 5 and 11 or not.
3. Program to check whether a number is even or odd.
4. Program to find sum of all even numbers between 1 to n.
5. Program to find sum of all odd numbers between 1 to n.
6. Program to find HCF (GCD) of two numbers.
7. Program to find LCM of two numbers.

*Thank You!*

Please practice more questions and examples as above !!