



Computational Thinking?

Session-3



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Flowcharts



Let's discuss and try to predict what does **flowchart** mean!






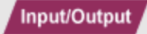




Flowcharts

- A flowchart is a diagram that represents a sequence of instructions.
- Flowcharts have standard symbols to represent different instructions.

Flowcharts



Name	Symbol	Usage
Start or Stop		The beginning and end points in the sequence.
Process		An instruction or a command.
Decision		A decision, either yes or no.
Input or Output		An input is data received by a computer. An output is a signal or data sent from a computer.
Connector		A jump from one point in the sequence to another.
Direction of flow		Connects the symbols. The arrow shows the direction of flow of instructions.



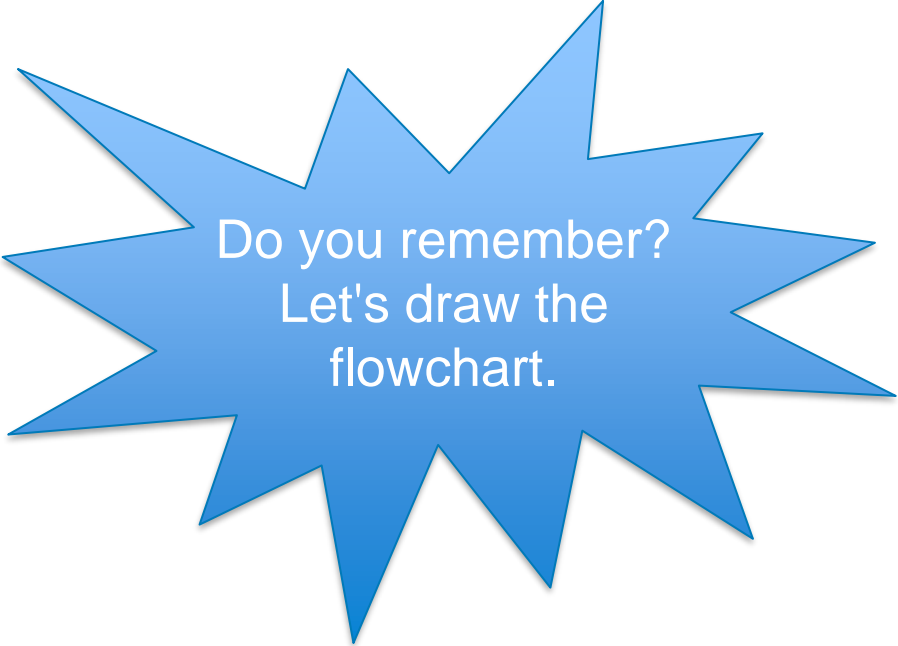
Example

START

INPUT number1 ,number2
sum=number1+number2

PRINT sum

END



Do you remember?
Let's draw the
flowchart.



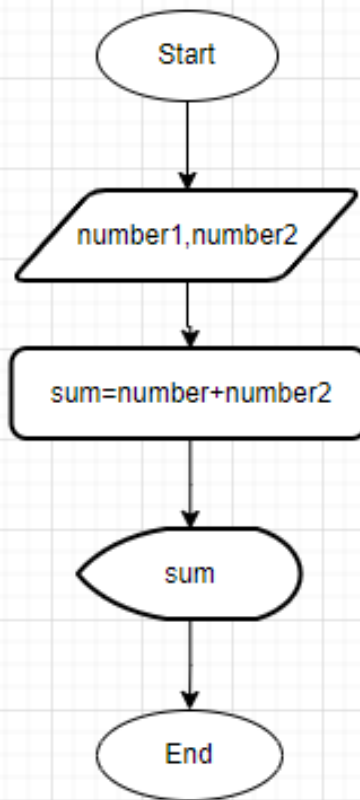
Example

START

INPUT number1 ,number2
sum=number1+number2

PRINT sum

END





Example

Takes a number and show is the number odd or even?

START

Input number

$r = \text{number} \bmod 2$

IF $r == 0$

 print 'even'

ELSE

 print 'odd'

END



Example

Takes a number and show is the number odd or even?

START

Input number

$r = \text{number} \bmod 2$

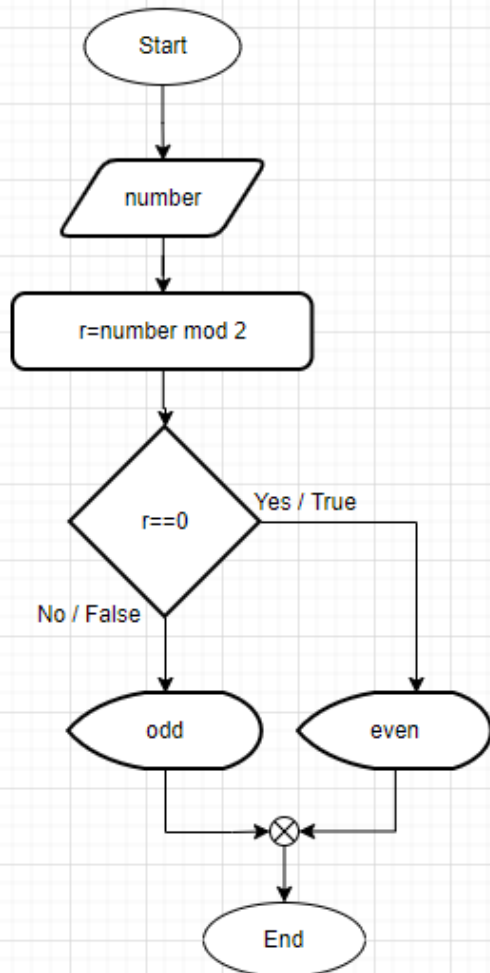
IF $r == 0$

print 'even'

ELSE

print 'odd'

END





Example

START

INPUT a,b,c

big=a

IF b>big

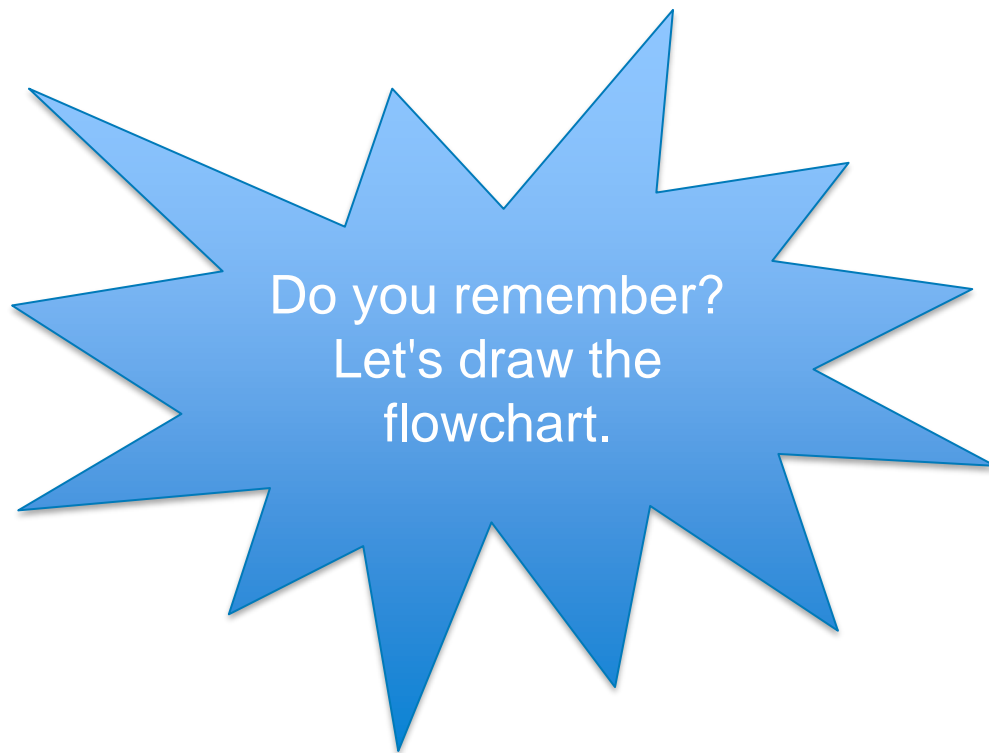
big=b

IF c>big

big=c

print big

END





Example

START

INPUT a,b,c

big=a

IF $b > \text{big}$

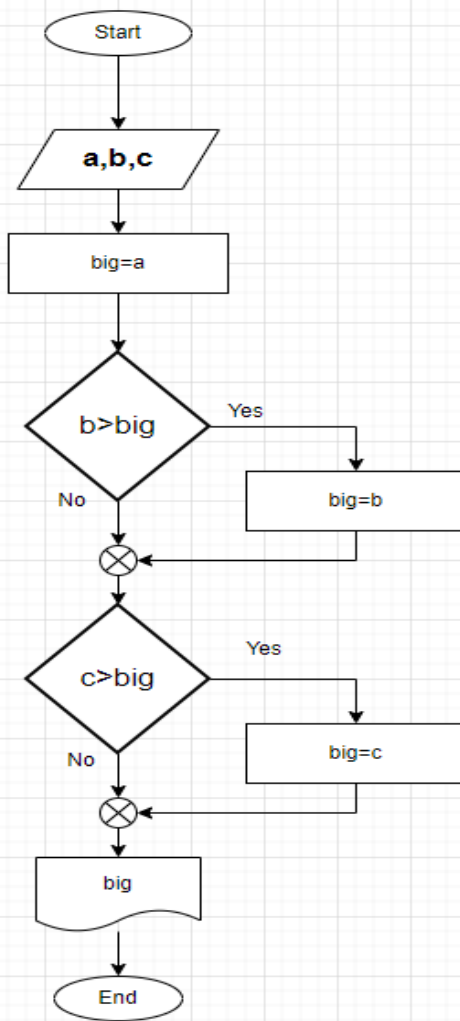
big=b

IF $c > \text{big}$

big=c

print big

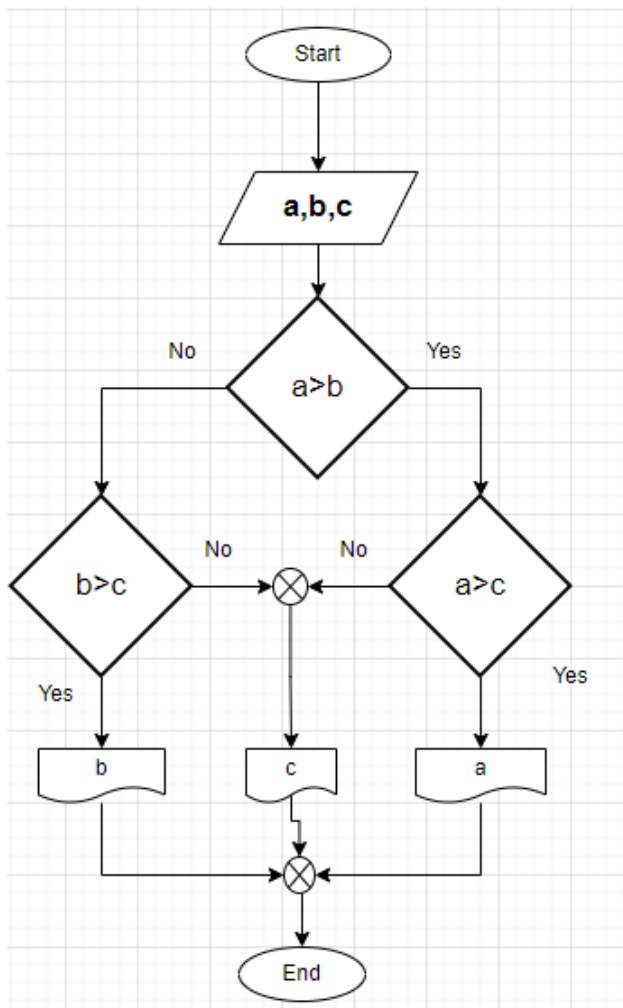
END





Example

Another solution





Assignment



Calculate the shipping fee
according to the information
given in the table

distince	price multiplier by distance
0-500	50
500-1000	100
1000+	500



Assignment solution

distance	price multiplier by distance
0-500	50
500-1000	100
1000+	500

START

packagePrice, packageWeight, distance

INPUT " Enter Package Weight ", packageWeight

INPUT " Enter Distance ", distance

IF (distance >= 0) and (distance <= 500)

packagePrice = packageWeight * 50

ELSE IF (distance > 500) and (distance <= 1000)

packagePrice = packageWeight * 100

ELSE

packagePrice = packageWeight * 500

PRINT "Package Price=" + packagePrice

END

Assignment solution

distance	price multiplier by distance
0-500	50
500-1000	100
1000+	500

START

packagePrice, packageWeight, distance

INPUT " Enter Package Weight ", packageWeight

INPUT " Enter Distance ", distance

IF (distance >= 0) and (distance <= 500)

packagePrice = packageWeight * 50

ELSE IF (distance > 500) and (distance <= 1000)

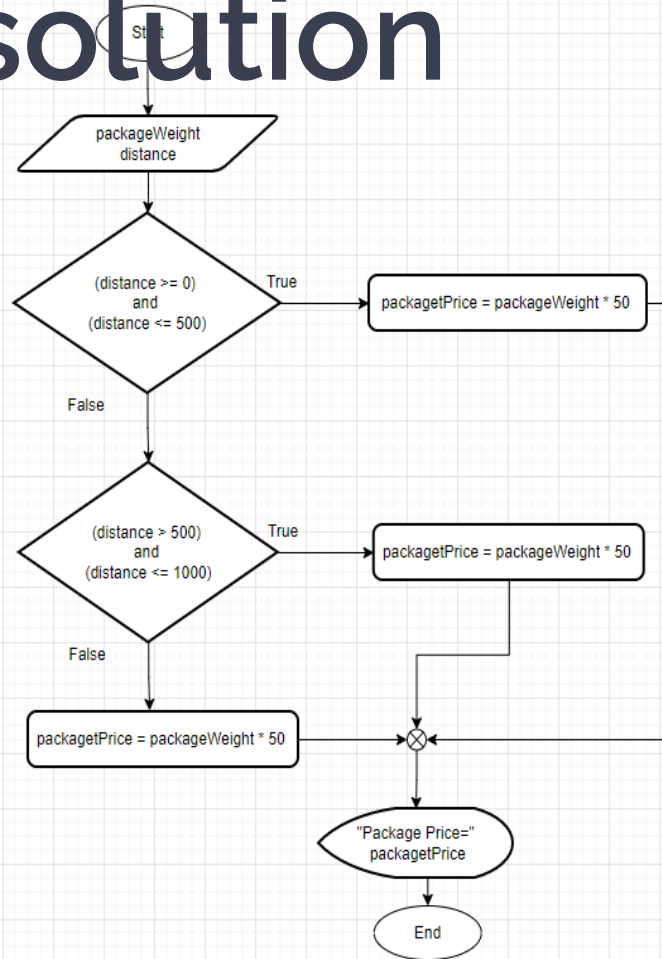
packagePrice = packageWeight * 100

ELSE

packagePrice = packageWeight * 500

PRINT "Package Price=" + packagePrice

END





Example

START

IF lamp plugged in

 IF bulb burned out

 repair lamp

 GoTo end

 ELSE

 Plug in lamp

 GoTo end

ELSE

 plug in lamp

 go to end

END



Example

START

IF lamp plugged in

IF bulb burned out

repair lamp

GoTo end

ELSE

Plug in lamp

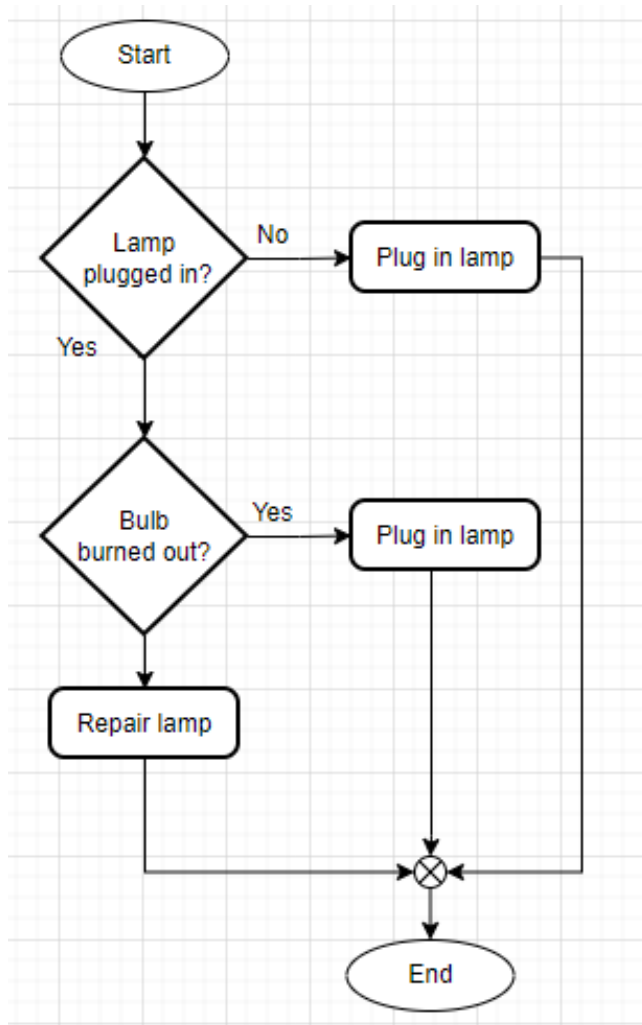
GoTo end

ELSE

plug in lamp

go to end

END





Login Diagram

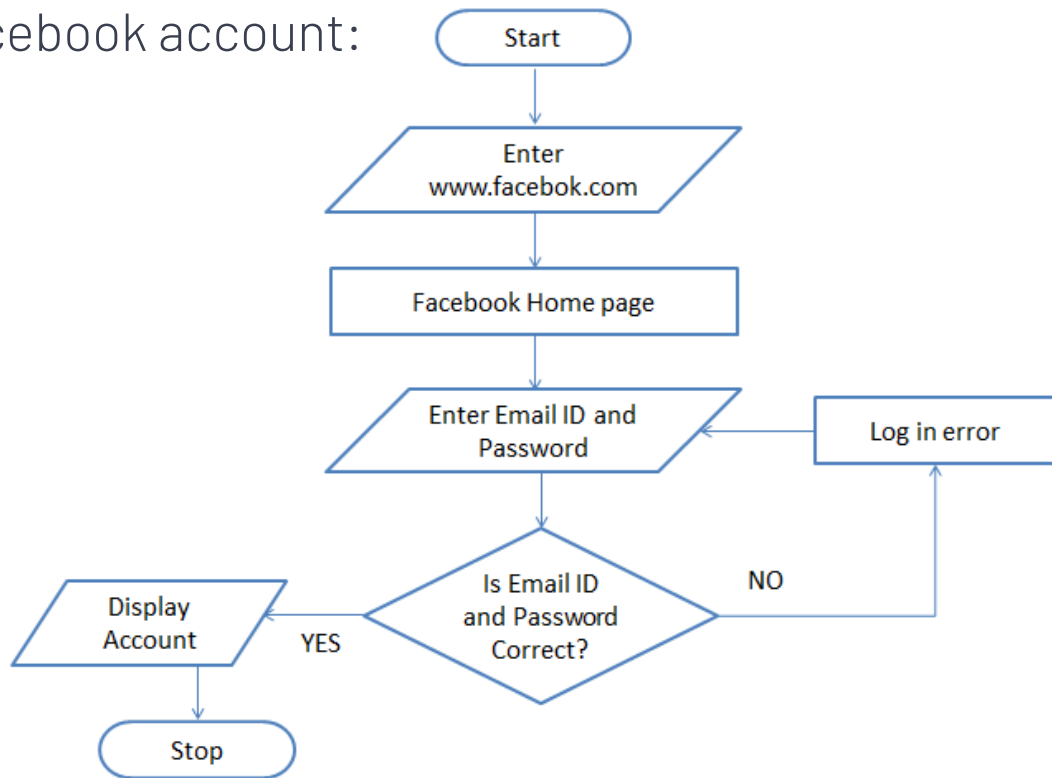
Draw a flowchart to login to your facebook account



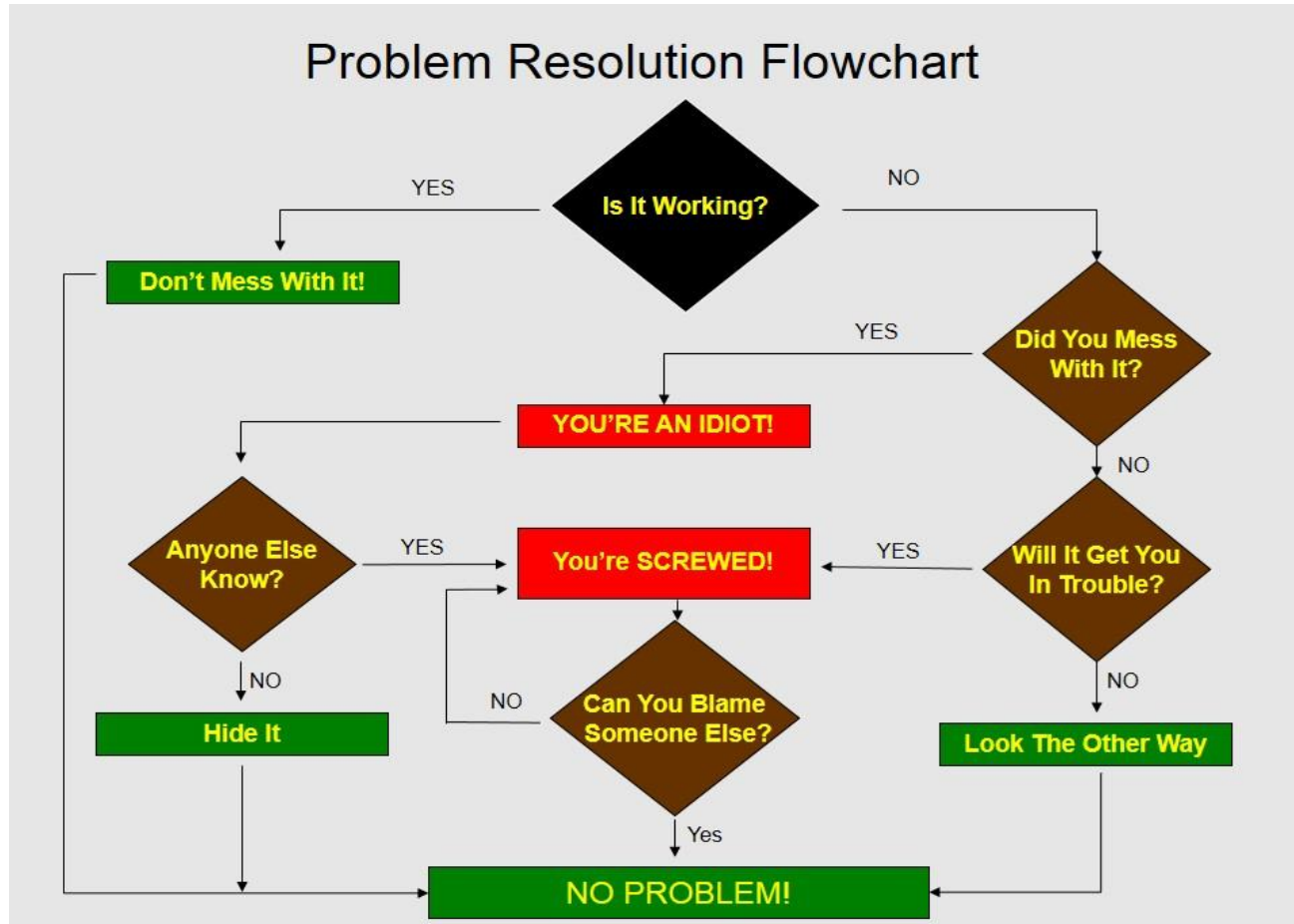


Login Diagram

A flowchart to login to facebook account:



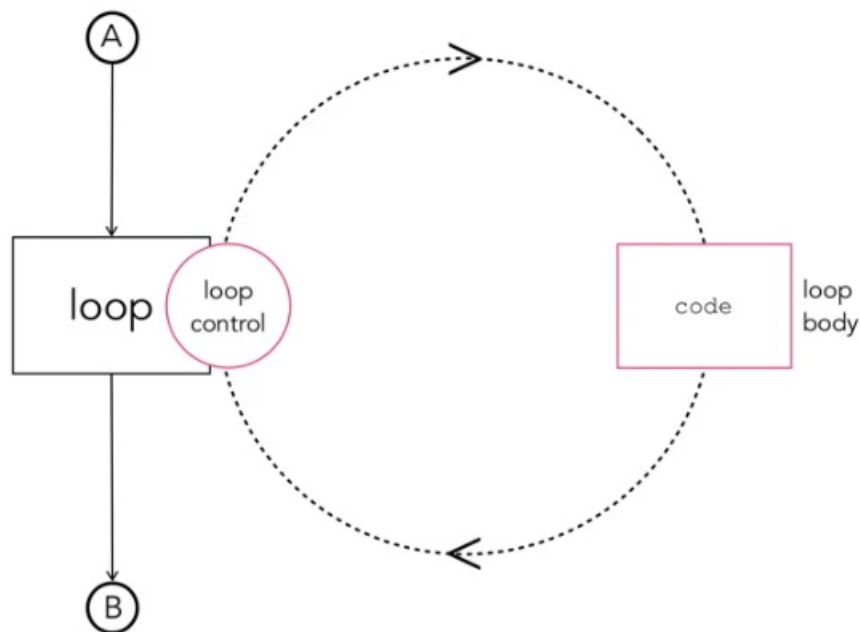
Flowcharts





LOOPS

A loop is a sequence of instructions that is continually repeated until a certain condition is reached.





FOR structure

For loop runs for each element inside a group.

For example:

```
FOR every day of the week
```

```
    Count;
```

```
ENDFOR
```



FOR structure

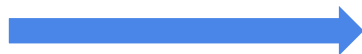
For loop runs for each element inside a group.

For example:

For every 25 minutes of study

Earn one Pomodoro;

endfor



Pomodoro = Pomodoro +1





Let's wash the dishes

Let's wash the dishes. Think that we have all the tools etc.



Let's wash the dishes



gather the dirty dishes

if you have a dishwasher around you

put the dirty dishes inside the dishwasher

set the settings of the dishwasher

while the time set is not over

wait

else

while dishes are not clean

take one of the dishes

wash it with your hand

dry it and put it aside





WHILE Structure

While is similar to the for loop, differently it runs the loop until the condition provided is **unsatisfied**.

Example:

Apples = 5

Oranges = 10

While apples < oranges

 increase apples;

endwhile



THANKS!

Any questions?

