

Iteration in Pseudocode and JavaScript

for... while... do-while...

Iteration is Closer than You Think









Iteration in Pseudocode

Iteration in Pseudocode

for:

🐷 The cat will say "meow" for 10 times.

Could you step forward for 5 times?

while:

I will continue my game while you are sleeping.

✓ I will continue to eat while I am still hungry.

- for is for iteration that we know exactly how many times it will run.
- while is for iteration that we do not know how many times it will run. But one thing we know is the condition for it to stop.
- do-while is almost the same as while, but with one exception which will be explained latter.

Reference: http://users.csc.calpoly.edu/~jdalbey/SWE/pdl_std.html

Why Iteration?

- We programmers adhere to DRY (Don't Repeat Yourself) doctrine religiously,
- Not using iteration leads you to:
 - Hard to maintain code,
 - Error prone code.
- Imagine the scenario below when you do not use iteration:

for Examples

```
FOR loop FROM 0 TO times
DISPLAY 'meow'
END FOR

2. INIT times AS NUMBER WITH VALUE OF 10
FOR loop FROM 1 TO times
IF loop MORE THAN EQUAL 5
DISPLAY loop
END IF
END FOR
```

INIT times AS NUMBER WITH VALUE OF 5

while Examples

END WHILE

```
1. INIT times AS NUMBER WITH VALUE OF 5
WHILE times MORE THAN EQUAL 0
DISPLAY 'meow'
DECREMENT times
END WHILE
```

```
2. INIT a AS NUMBER WITH ANY VALUE

WHILE TRUE

IF a MODULUS 100 EQUAL TO 0

DISPLAY a

BREAK

ELSE

INCREMENT a

END IF
```

INIT a AS NUMBER WITH ANY VALUE
WHILE TRUE

IF a MODULUS 100 EQUAL TO 0

DISPLAY a

BREAK

END IF

INCREMENT a

END WHILE

do-while Examples (1)

```
INIT times AS NUMBER WITH VALUE OF 5
DO
DISPLAY 'meow'
DECREMENT times
WHILE times MORE THAN EQUAL 0
```



INIT times AS NUMBER WITH VALUE OF 5
WHILE times MORE THAN EQUAL 0
DISPLAY 'meow'
DECREMENT times
END WHILE

do-while Examples (2)

```
INIT times AS NUMBER WITH VALUE OF -1
DO
   DISPLAY 'meow'
   DECREMENT times
WHILE times MORE THAN EQUAL 0
```

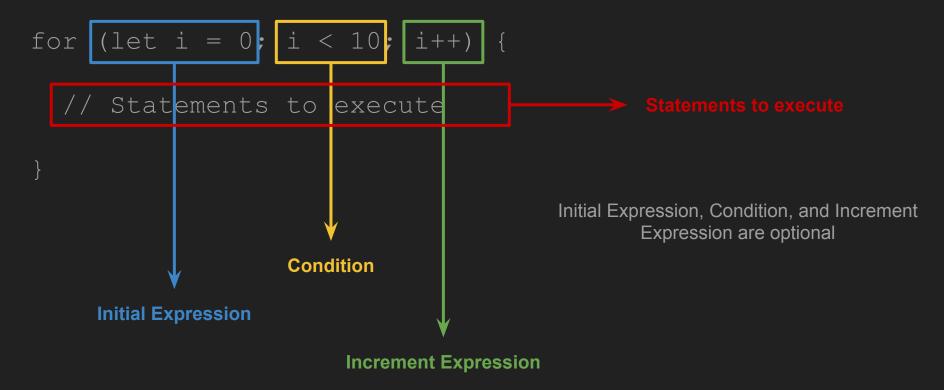
Same?

INIT times AS NUMBER WITH VALUE OF -1
WHILE times MORE THAN EQUAL 0
 DISPLAY 'meow'
 DECREMENT times
END WHILE

for Iteration in JavaScript

```
for (let i = 0; i < 10; i++) {
   // Statements to execute
}</pre>
```

for Iteration in JavaScript



while Iteration in JavaScript

```
while (conditions) {
   // Statements to execute
}
```

while Iteration in JavaScript

```
(conditions) {
Statements to execute
    Conditions
```

do-while Iteration in JavaScript

```
do {
    // Statements to execute
} while (conditions);
```

do-while Iteration in JavaScript

```
do
     Statements to execute
  while (conditions);
            Conditions
```