Programming Fundamental

Exploring

#6 Function & Array

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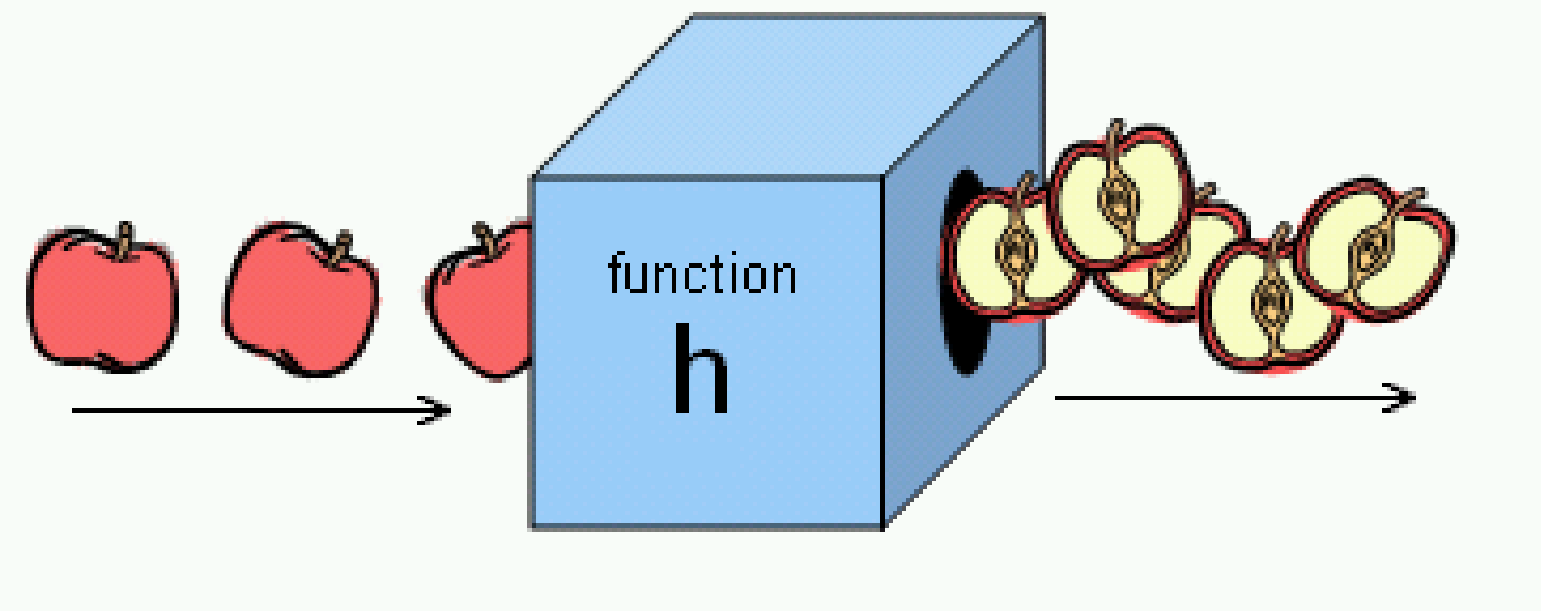
Function

Functions are blocks of code that can be named and reused.



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Function Statement

```
function contoh() {
    console.log('Halo Dunia!');
}
contoh();

/*
function namafunc(param) {prog}
*/
```

Function Expression

```
var contoh = function () {
    console.log('Halo Dunia!');
}
contoh();

/*
var namafunc = function (param) {prog}
*/
```

Function

```
let x = 10
let y = 50

function contoh() {
    console.log(x+y)
}

contoh();
```

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Function with a Parameter

```
function namaku(nama) {
    console.log (nama+' Susilo');
}

namaku('Adi');
namaku('Budi');
namaku('Caca');
namaku('Dedi');
```

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Function with 2 Parameters

```
function data(x,y) {
  console.log (x+' Lahir th '+y);
}

data('Adi','1990');
data('Budi','1991');
data('Caca','1992');
data('Dedi','1993');
```

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Return Function

```
function total(x,y) {
    z = x + y
    return z
}
console.log(total(4,5))
console.log(z)
```

```
/*
- z adalah local variabel dalam func total, tidak dapat
dipanggil di luar func tsb.
- jika z tidak di-return maka total(4,5) = undefined
*/
```

Return Function

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Return Function

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Recursive Function

```
function Pangkat(x,y){
    if (y == 1) {
        return x;
    }
    else {
        return x=x*Pangkat(x,y-1);
    }
}
console.log(Pangkat(7,2))
```

Fn inside Fn

```
function kali(x) {
    if (x < 2) {return 1;}
    else {return (x * tiga());}
}

function tiga(){
    return 3;
}

console.log(kali(5))
```

setTimeout

```
setTimeout(waktu, 3000);

function waktu() {
    console.log('Halo');
}

console.log('Yuk');
```

3000 ms (3 detik) setelah program running, output ‘Halo’ muncul. Output ‘Yuk’ muncul lebih dahulu, tanpa menunggu baris kode di atasnya (‘Halo’) selesai.

clearTimeout

```
var x = setTimeout(waktu, 3000);

function waktu() {
    console.log('Halo');
}
clearTimeout(x)
console.log('Yuk');
```

Baris setTimeout tidak diproses, lantaran dibatalkan seketika oleh clearTimeout.

setInterval

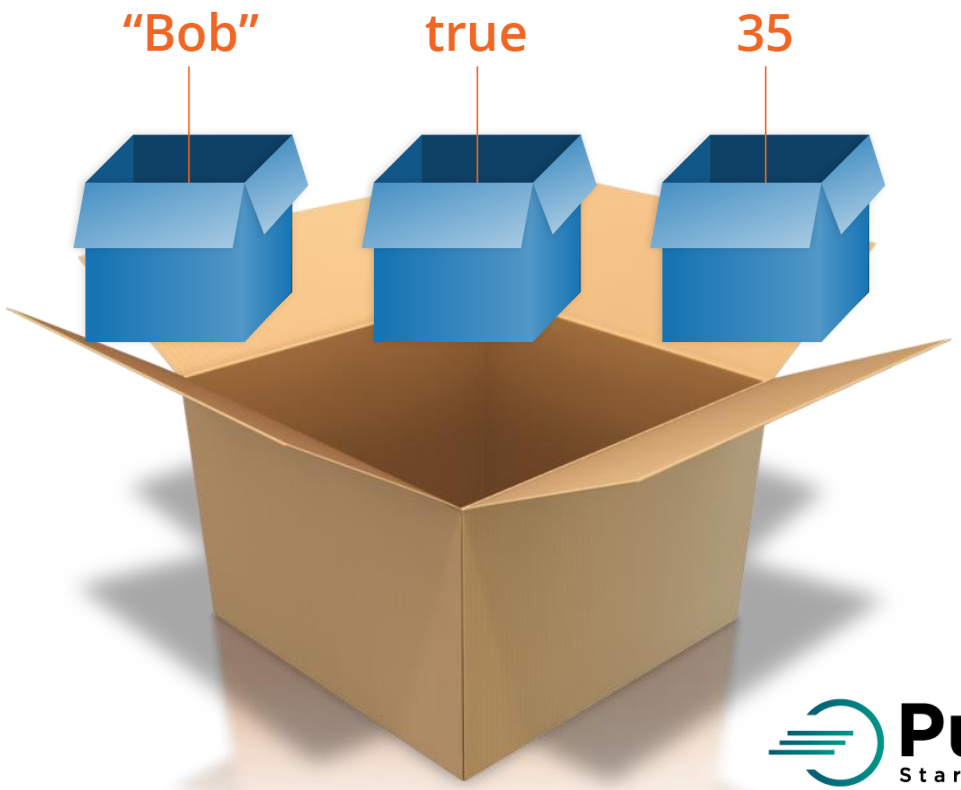
```
setInterval(waktu, 1500);

function waktu() {
    console.log('Halo');
}
```

Output ‘Halo’ akan muncul tiap 1500 ms (1.5 detik).
Untuk stop proses di cmd, tekan CTRL + C.

Array

Arrays are container-like values that can hold other values. The values inside an array are called elements.



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Array

```
let mobil1 = 'Alya';
let mobil2 = 'Xenia';
let mobil3 = 'Avanza';

==============================

let mobil =
['Alya','Xenia','Avanza'];

let mobil = [
    'Alya',
    'Xenia',
    'Avanza'
];
```

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Array

```
let mobil = ['Alya','Xenia','Avanza'];

console.log(mobil)

console.log(mobil.toString())

console.log(mobil.join(' * '))
```

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Array Elements

```
let mobil = ['Alya','Xenia','Avanza'];

console.log(mobil[0])

console.log(mobil[1])

console.log(mobil[2])

console.log(mobil[3])
```

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Array Elements

```
let buah, bPjg, i;

buah = ['Jeruk', 'Nanas', 'Apel'];

bPjg = buah.length;

for (i = 0; i < bPjg; i++) {
    console.log(buah[i]);
}
```

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Array Properties & Methods

< length, sort, reverse & indexOf >

```
let mobil = ['Alya','Xenia','Avanza'];

let w = mobil.length;
let x = mobil.sort();
//let y = mobil.reverse();
let z = mobil.indexOf('Avanza');

console.log(w)
console.log(x)
// console.log(y)
console.log(z)
```

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pop & push

```
let buah = ['Jeruk','Nanas','Apel'];

buah.pop();
console.log(buah)

buah.push('Kiwi');
console.log(buah)
```

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shift & unshift

```
let buah = ['Jeruk','Nanas','Apel'];

buah.shift();
console.log(buah)

buah.unshift('Lemon');
console.log(buah)
```

delete & splice

```
let buah = ['Jeruk','Nanas','Apel'];

buah.splice(2, 0, 'Lemon', 'Kiwi');
console.log(buah)

buah.splice(0, 1);
console.log(buah)

delete buah[0];
console.log(buah)
```

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slice

```
let buah = ['Banana', 'Orange',
'Lemon', 'Apple', 'Mango'];

let buah2 = buah.slice(1);
console.log(buah2)

let buah4 = buah.slice(1,4);
console.log(buah4)
```

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Adding Array Elements

```
let buah = ['Jeruk','Nanas','Apel'];

buah.push('Duku');
console.log(buah)

buah[buah.length] = 'Pisang';
console.log(buah)

buah[6] = 'Mangga';
console.log(buah)
```

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Merging (Concatenating) 2 Arrays

```
let nama1 = ['Andi','Budi'];
let nama2 = ['Caca','Dede','Euis'];

let nama3 = nama1.concat(nama2);
let nama4 = nama2.concat(nama1);

console.log(nama3)
console.log(nama4)
```

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Merging (Concatenating) 3 Arrays

```
let nama1 = ['Andi','Budi'];
let nama2 = ['Caca','Dede','Euis'];
let nama3 = ['Faza','Gilang'];

let x = nama1.concat(nama2,nama3);

console.log(nama1)
console.log(nama2)
console.log(nama3)
console.log(x)
```

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Solve It!

Buatlah algoritma untuk mengurutkan elemen array berikut:

x = [40, 100, 1, 5, 25, 10]

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Numeric Sorting Ascending

Function comparison

```
let x = [40, 100, 1, 5, 25, 10];

console.log(x)
console.log(x.sort())

x.sort(function(a,b){
    return a-b
});

console.log(x)
```

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Numeric Sorting Descending

Function comparison

```
let x = [40, 100, 1, 5, 25, 10];

console.log(x)
console.log(x.sort())

x.sort(function(a,b){
    return b-a
});

console.log(x)
```

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Solve It!

Buatlah algoritma untuk menentukan elemen tertinggi & terendah, dari array berikut:

x = [40, 100, 1, 5, 25, 10]

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Lowest & Highest Element #1

```
let x = [40, 100, 1, 5, 25, 10];

x.sort(function(a,b){
    return a-b
});

console.log(x[0])
console.log(x[x.length-1])
```

Lowest & Highest Element #2

```
let x = [40, 100, 1, 5, 25, 10];

function nilaiMin(a) {
    return Math.min.apply(null, a);
}

function nilaiMax(a) {
    return Math.max.apply(null, a);
}

console.log(nilaiMin(x))
console.log(nilaiMax(x))
```

Array of Arrays

```
var arrayKu = [
    ['Andi',24,'PNS'],
    ['Budi',28,'Pengacara'],
    ['Caca',21,'Siswa'],
]

console.log(arrayKu[0])
console.log(arrayKu[0][0])
console.log(arrayKu[1][1])
console.log(arrayKu[2][2])
```

Sorting Array of Arrays

```
var arrayKu = [
    ['Andi',24,'PNS'],
    ['Budi',28,'Pengacara'],
    ['Caca',21,'Siswa'],
]

arrayKu[0].sort()
arrayKu[1].reverse()

console.log(arrayKu[0])
console.log(arrayKu[1])
```

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