Programming Fundamental

JS

Exploring

#9 JavaScript ES6

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ECMAScript 6

- Latest standardized version of ECMAScript 5.
- Includes many new features.
- Not fully supported in browser yet.

Let Keyword

```
var x = 5
var x = 10
console.log(x)

==========

let y = 2
let y = 4
console.log(y)
```

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Constant

```
const pi = 3.14;
pi = 10
console.log(pi);

// Error
```

Constant

```
const pi = 3.14;

function luasLingkaran(r){
    const pi = 10;
    console.log('Luas='+pi*r*r);
}

console.log(pi);    // 3.14
luasLingkaran(5);   // Luas=250
```

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Template String

```
let halo = `Halo
    Dunia!`
console.log(halo);
// Use tick (`) below Esc!
```

Template String

```
function halo(nama) {
    console.log('Halo, aku '+nama);}

function hai(nama) {
    console.log(`Hai, aku ${nama}`);
    console.log(`Usiaku ${7*3}`);}

halo('Andi');
// Halo, aku Andi

hai('Arif');
// Hai, aku Arif
// Usiaku 21
```

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String Methods
repeat & includes

```
let x = 'halo';

console.log(x.repeat(5));
// halohalohalohalohalo

console.log(x.includes('lo'));
// true
```

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String Methods
startsWith & endsWith

```
let x = 'halo';

console.log(x.startsWith('ha'));
console.log(x.startsWith('lo'));
console.log(x.startsWith('lo',2));

console.log(x.endsWith('lo'));
console.log(x.endsWith('ha'));
console.log(x.endsWith('ha',x.length-2));
```

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Spread Operator

```
let buah =
['apel','duku','pir'];

console.log(buah);
// ['apel','duku','pir']

console.log(...buah);
// apel duku pir
```

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Spread Operator

```
let no1 = [1, 2, 3];
let no2 = [no1, 4, 5, 6];
let no3 = [...no1, 7, 8, 9];

console.log(no2);
// [[1, 2, 3], 4, 5, 6]

console.log(no3);
// [1, 2, 3, 7, 8, 9]
```

Spread Operator

```
let angka = [1,2,3];
function jumlah(x,y,z){
    console.log(x+y+z);
}

jumlah(angka);
// 1,2,3undefinedundefined

jumlah(angka[0],angka[1],angka[2]);
// 6

jumlah(...angka);
// 6
```

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Default Parameter

```
function kuadrat(x=5){
    console.log(x*x);
}

kuadrat();      // 25
kuadrat(10);    // 100
```

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Arrow Function

```
let halo = function(){
    console.log('Halo Dunia!')
}

let hai = () => {
    console.log('Hai Hacker!')
}

let alo = () => console.log('Aloha!')

halo(); hai(); alo();
```

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Arrow Function
Return function

```
let pi = () => {
    return 3.14
}

let g = () => 9.8

console.log(pi());
console.log(g());
```

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Arrow Function
With a parameter

```
let halo = (nama) => {
    console.log(`Halo ${nama}`)
}

halo('Andi');

let hai =
nama => console.log(`Hai ${nama}`)

hai('Budi');
```

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Arrow Function
With 2 parameters

```
let halo = (x,y) => {
  console.log(`Halo ${x} ${y}`)
}

halo('Andi',21);
```

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Callback Function #1

```
let x = function () {
    console.log('Hai ini X!');
};

let y = function (callback) {
    console.log('Halo ini Y!');
    callback();
};

y(x);
```

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Callback Function #2

```
let x = () => {
    console.log('Hai ini X!');
};

let y = (callback) => {
    console.log('Halo ini Y!');
    callback();
};

y(x);
```

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Callback Function

#3 application without callback function

```
let hitung = (no1, no2, op) => {
   if(op=='kali'){
      return no1*no2
   };
   if(op=='bagi'){
      return no1/no2
   };
};
console.log(hitung(2, 3, 'kali'));
```

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Callback Function

#3 application with callback function

```
let kali = (x, y) => {
     return x * y;
}
let bagi = (x, y) => {
     return x / y;
}
let hitung = (no1, no2, op) => {
     return op(no1, no2);
};

console.log(hitung(2, 3, kali));
```

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Callback Function

#3 application with callback function

```
let kali = (x, y) => x * y;

let bagi = (x, y) => x / y;

let hitung =
(no1, no2, op) => op(no1, no2);

console.log(hitung(2, 3, kali));
```

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Callback Function

#4 insert anonymous function

```
let hitung = (no1, no2, op) => {
     return op(no1, no2);
};

console.log(hitung(2, 3, function(x,y) {
     return x + y;
}));


/*
console.log(hitung(2, 3, (x,y) => x + y))
*/
```

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Array Filtering

```
var w = [0,1,2,3,4,5]

var x = w.filter((val) => val !== 2);
var y = w.filter((val) => val % 2 == 0);
var z = w.filter((val) => val % 2 !== 0);

console.log(x);
console.log(y);
console.log(z);

  // ((val) => val % 2 !== 0) artinya
  // ((val) => {return val % 2 !== 0)}
```

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Array Mapping

```
var w = [1,4,9,16,25]

var x = w.map(Math.sqrt);
var y = w.map((val)=> val * 2);
var z = w.map((val)=> val!==9);

console.log(x);
console.log(y);
console.log(z);
```

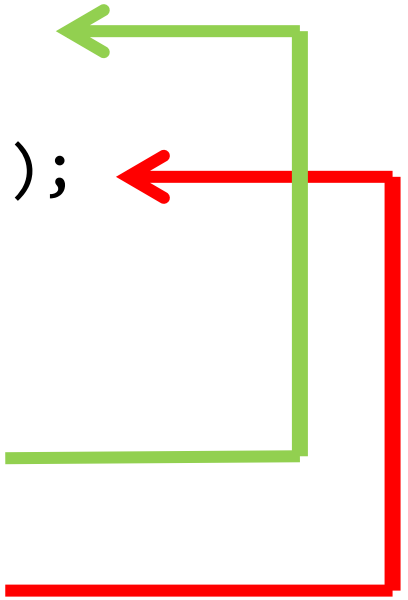
Array Mapping

```
var orang = [
  {nama : "Andi", marga: "Hasibuan"},
  {nama : "Budi", marga: "Sinaga"},
  {nama : "Caca", marga: "Pasaribu"}
];
function namaLengkap(item, index) {
  var fullname = [item.nama,item.marga].join(" ");
  return fullname;
}
function tesMap() {
  console.log(orang.map(namaLengkap));
  console.log(orang.map(namaLengkap)[0]);
  console.log(orang.map(namaLengkap)[1]);
  console.log(orang.map(namaLengkap)[2]);
}
tesMap()
```

Promises

```
let janji = new Promise(function(tepati,ingkari){
      let dipenuhi = true;
      if(dipenuhi){
            tepati('Janji Kutepati.');
      } else {
            ingkari('Janji Kuingkari.');
      }
});

janji.then(function(janjiDitepati) {
      console.log(janjiDitepati);
}).catch(function(janjiDiingkari) {
      console.log(janjiDiingkari);
})
```



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Object Literal

properties

```
let merk = 'Yamaha';
let tahun = 2015;

let mio = {
    merk: merk,
    prod: tahun
}

let vixion = {
    merk, tahun
}

console.log(mio);
console.log(vixion);
```

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Object Literal *method*

```
let mio = {
    kualitas: function(x){
        return `Mutu ${x}`;
    }
}

let vixion = {
    kualitas(x){
        return `Performa ${x}`;
    }
}

console.log(mio.kualitas('Oke banget!'));
console.log(vixion.kualitas('Juara!'));
```

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Set

```
let nama = new Set();

nama.add('Adi').add('Budi').add('Adi');
console.log(nama);
console.log(nama.size);

nama.delete('Adi');
console.log(nama);
console.log(nama.size);

nama.clear();
console.log(nama);
console.log(nama.size);
```

*Set is kind of **Array** that has **no duplicate items.***

To access Set Element, simply convert it to Array first.

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Array to Set

```
let id = ['Ali','Bona','Ali'];
let nama = new Set(id);

console.log(nama);
console.log(nama.size);
```

Array to Set Then Set to Array

```
let angka = [1,2,3,4,1,2,5,6];
console.log(angka);

let nomor = new Set(angka);
console.log(nomor);

let arrayAngka = [...nomor]
console.log(arrayAngka);
```

Destructuring *Array*

```
let buah = [
    'Apel',
    'Duku',
    'Leci'
]

var [ x, y, z ] = buah;

console.log(x);
console.log(y);
console.log(z);
```

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Destructuring *Object*

```
let andi = {
    nama: 'Andi',
    usia: 24,
    job: 'PNS'
}

var { nama, usia, job } = andi;

console.log(nama);
console.log(usia);
console.log(job);
```

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