**Functions**

1.Named Functions：A named function is a function declaration as it appears as a statement. For example:

function add(a,b){

return a+b;}

2.Function Expression:

A JavaScript function can also be defined using an **expression**.

A function expression can be stored in a variable:

var x=function(a,b){return a+b;}

Also expression can be stored in a verb-noun:

const addTwoNumbers= function(a,b){

return a+b;}

3.arrow Functions:

Arrow functions allow us to write shorter function syntax:

const add=(a,b)=>{

return a+b;

}

Hello=(val) => {

return “Hello” + val}

Hello(“Cao“)

**Other Topics**

1. Optional Arguments

It’s a functions in which certain arguments are optional. You can set a default value for any argument - so if the argument is not present, the default value will be used.

function add(a=100,b){

return a+b;

}

add(2,3);

JavaScript ignores all extra arguments, and if we don't pass enough then the missing ones are undefined.

function square(a){

return a\*a;

}

square(4,’sad’,’but’)//ignores all extra arguments

function add(a,b){

return a+b;

}

add(5)

1. Rest Parameters

When we use `...something` in a parameter it gets bound to an array

This means that we get a list and can iterate over it

We can think of this as having unlimited arguments!!!

function add(…numbers){

let result=0;

for(let x of numbers){

result+=x;}

return result;

}

function add2(number,...numbers){

for(let x of numbers){

number+=x;}

return number;

}

add2(1,2,3)//6

1. Scope

Each function acts as if it is an island unto itself when it comes to scope.

Each scope can look around it for variables to use.

let number=10;

const add=function(a){

let number=20;

return number+a;

}

add(1);//21, not 11

4.Nested functions

A function is called “nested” when it is created inside another function.

Functions have their own scope so they can centralize what they need

You can also have functions inside of functions

The outer function can't see in, but the inner function can see the outer function

Const add=function(number){

Cons doAddition=function(){

total=number+number;

return total;

}

return doAddition();

}