

## Lab Source Code

//Lab01-02getElementContent.html

```
<script>
    var ele=document.getElementById("myDiv");
    console.log(ele.innerHTML);
    ele.innerHTML="<h2>JavaScript</h2>";
    ele.innerHTML+="Hello!";
</script>
```

//Lab02-01varDeclaration.html

```
<script>
    //literal(字面值)
    // console.log(0b1010);
    // console.log(0O12);
    // console.log(0x4E00);

    //1.var 變數宣告
    var intAge;
    //定義初始值
    intAge=10;
    //2.變數宣告時可以同時賦予初始值
    var intAge = 10;
    //3.不宣告變數，直接賦予初始值
    intAge=10;
    //顯示變數值
    console.log("intAge="+intAge); //string + number=>string

    //let 變數宣告
    let username ="Jack";
    // let username ="Tom";
    if(true){
        let age=25;
        console.log("in age="+age);
    }
    // console.log("out age="+age);
```

```

//const 變數宣告
const PI=3.1416;
// PI=3.14159;

//樣板字面值(Template Literals)(
console.log(`PI=${PI}`);

//跳脫字元
// "a+b"
console.log(`\"a+b\"`);
//\a+b\
console.log(`\\a+b\\`);
console.log(`\x41\x61\x24\x40`); //Aa$@
console.log(`\u4e00\u4e01`); //一丁
</script>

//Lab02-02DataTypes.html
<script>
//數字變數
let a=10;
console.log(`a=${a},typeof a=${typeof a}`); //a=10,typeof a=number

//字串變數
a="EEIT154"; //reassign 重新指定值
console.log(`a=${a},typeof a=${typeof a}`); //a=EEIT154,typeof a=string

//布林變數
let b=true;
let c=b+2;
console.log(`b=${b},typeof b=${typeof b}`); //boolean
console.log(`c=${c},typeof c=${typeof c}`); //number

if(c)
    console.log(true);
else
    console.log(false);

```

```

//null
let n=null;
console.log(`n=${n},typeof n=${typeof n}`); //object

//如果沒有初始值，JavaScript 會自動將變數的值初始化為 undefined(預設值)
let u;
console.log(`u=${u},typeof u=${typeof u}`);

//字串轉換為數值
console.log(`parseInt("123.45")=${parseInt("123.45")}`); //123
console.log(`parseInt("12a3.45")=${parseInt("12a3.45")}`); //12
console.log(`parseInt("a123.45")=${parseInt("a123.45")}`); //NaN not a number
console.log(`Number("123.45")=${Number("123.45")}`); //123.45
console.log(`Number("12a3.45")=${Number("12a3.45")}`); //NaN
console.log(`Number("a123.45")=${Number("a123.45")}`); //NaN

//數值轉換為字串
let price=12.5;
//price=$12.5
console.log(price); //12.5
console.log("price="+price); //price=$12.5
console.log(typeof ("price="+price)); //string
console.log(`price=${price}`); //price=$12.5
console.log(typeof `price=${price}`); //string
console.log(price.toString()); //12.5
console.log(typeof price.toString()); //string
</script>

//Lab03-01OperatorPrecedence.html
<script>
//算術運算子++
let a=1;
a++;
console.log(a);
a=1;
++a;
console.log(a);

```

```

a=1;
a=a+1;
console.log(a);

a=1;
let b=10*++a; //1. ++a; 2.b=10*a;
console.log(`a=${a},b=${b}`); //a=2,b=20

//關係運算子
//值相等==
//值及資料類型相等===
let c=5,d="5";
console.log(c==d); //true
console.log(c===d); //false

//邏輯運算子
let e="abc";
console.log(3||5); //3
console.log(3&&5); //5
console.log(0||e); //abc

//三元運算子（判斷式）?（真時回傳值）:（假時回傳值）
let x=-7;
let y=x>0?x:-1;
// if(x>0)
//     y=x;
// else
//     y=-1;
console.log(`x=${x},y=${y}`);

let i="abc";
let j=i?1:2;
console.log(`i=${i},j=${j}`);
</script>

```

//Lab04-01functionMethod.html

<script>

//=====定義函數方法一=====

//方法一函數宣告，定義帶參數的函數

```
function fAdd1(a, b) {  
    return (a + b);  
}
```

//=====函數呼叫=====

//呼叫帶參數的函數

```
console.log(`fAdd1(10,20)=$${fAdd1(10, 20)}`);
```

//JavaScript 沒有規定 function 的參數及呼叫 function 時給予的參數數量必須要一致

//少掉的參數為 undefined，而多的參數會被忽略

```
console.log("fAdd1(10)="+fAdd1(10)); //NaN
```

```
console.log("fAdd1(10,20,30)="+fAdd1(10,20,30)); //30
```

//預設參數值(ES6)

```
function fAdd1(a, b=20) {  
    //alert(b); //undefined  
    return (a + b);  
}
```

```
console.log(`fAdd1(10)=$${fAdd1(10)}`);
```

//=====定義函數=====

//方法二函數匿名函數

```
let fAdd2 = function (a,b) {  
    return(a + b);  
}
```

```
console.log(`fAdd2(10,50)=$${fAdd2(10, 50)}`);
```

//=====定義函數=====

//方法三箭頭函數(arrow function)

```
let fAdd3 = (a, b) => {return (a+b)}
```

```
console.log(`fAdd3(30,50)=$${fAdd3(30, 50)}`);
```

//函數沒有參數

```
let fAdd4=()=>{  
    return (100);  
}
```

```

console.log("fAdd4(="+fAdd4()); //100

//如果 statement 只有一行，return 和 {} 可省略
let fAdd4 = (a, b) => a + b;
console.log(`fAdd4(50,50)=$${fAdd4(50, 50)}`);

//只有一個參數，()可省略
let fAdd5 = a => a + 100;
console.log(`fAdd5(50)=$${fAdd5(50)}`);

//列印函數內容
console.log(`fAdd2=$${fAdd2}`);
console.log(`fAdd1=$${fAdd1}`);
fAdd2 = fAdd1; //function content
console.log(`fAdd2=$${fAdd2}`);

//Lab04-02varScope.html
<script>
//廣域(全域)變數
var a = 100; //global variable
//宣告數函數定義
function f() {
    var a = 10; //local variable
    //a = 1000; //global variable
    console.log(`in function a1=$${a}`);
    for (let a = 1; a <= 5; a++) {
        console.log(`function in let a=$${a}`);
    }
    console.log(`in function a2=$${a}`);
    console.log(`this.a=$${this.a}`);
    console.log(`window.a=$${this.a}`);
}
//呼叫函數
console.log(`function out before call a=$${a}`);
f();
console.log(`function out after call a=$${a}`);
</script>

```

```
//Lab05-02checkPassword.html
<body>
  Password:<input type="password" id="idPwd" size="6"/><br/>
  <input type="button" value="checkPassword" onclick="checkPwd();" />
</body>

<script>
  function checkPwd() {
    //取得元素
    let thePwdObj = document.getElementById("idPwd");
    //console.log(thePwdObj);
    //取得元素值
    let thePwdObjVal = thePwdObj.value;
    // console.log (typeof thePwdObjVal); //string

    let thePwdLen = thePwdObjVal.length;
    let flag1 = false, flag2 = false;
    //判斷元素值是否為空白，密碼長度是否大於 6
    if (thePwd == "")
      alert("you must enter");
    else if (thePwdLen >= 6) {
      //如果長度是否大於 6，判斷是否包含字母、數字、特殊符號
      for (let i = 0; i < thePwdLen; i++) {
        let PwdChr = thePwd.charAt(i).toUpperCase();
        if (PwdChr >= "A" && PwdChr <= "Z")
          flag1 = true;
        else if (PwdChr >= "0" && PwdChr <= "9")
          flag2 = true;
        if (flag1 && flag2) break;
      }
      if (flag1 && flag2) alert("correct"); else alert("incorrect");
    }
    else
      alert("Password length must be greater than 6");
  }
</script>
```

//Lab05-03DateObject.html

<script>

//建立日期物件語法 1

//let d = new Date();

//建立日期物件語法 2

d=new Date("2022-02-06");

d=new Date("2022-02-06T13:39:3");

d=new Date("2022-02-06T13:39:03");

d=new Date("2022/2/6");

d=new Date("2022/2/6 10:30:30 pm");

d=new Date("2022/1/31");

d=new Date("2022/1/32");

//建立日期物件語法 3

d=new Date(2022,1,6);

// d=new Date(2022,1,31);

// d=new Date(2022,1,32);

//let theYear = d.getFullYear() - 1911;

//let theMonth = d.getMonth() + 1;

//let theDate = d.getDate();

//console.log(d);

//console.log(`民國\${theYear}年\${theMonth}月\${theDate}日`);

</script>



//Lab05-04Object.html

```
<body>
  <div id="myDiv"></div>
  <script>
    let cars={
      brand:"tesla",
      "max speed":250,
      display:function(){
        return `${this.brand},${this["max speed"]}`;
      }
    }
    console.log(cars["brand"]);
    console.log(cars["max speed"]);
    console.log(cars.display());
    console.log("=====")

    //for..in
    let myDiv=document.getElementById("myDiv");
    for(let pro in cars){
      // console.log(pro); //property
      // console.log(cars[pro]); //value
      console.log("cars["+pro+"]: "+cars[pro]);
      // myDiv.innerHTML+="cars["+pro+"]: "+cars[pro]+"<br>";
      myDiv.innerHTML+="<li>cars["+pro+"]: "+cars[pro]+"</li>";
    }
  </script>
</body>
```

Lab05- 05arrayObject.html

```
<script>
  //Array 物件
  let balls=["baseball","basketball","tennis",123];
  // console.log(balls);
```

```

for(let ball of balls){
    // console.log(ball);
}

let myfoods = [["apple", "banana", "grape"], ["pork", "beef"]];
// console.log(myfoods[0][1]); //banana
// console.log(myfoods.length); //2
// for (let i = 0, maxi = myfoods.length; i < maxi; i++) {
//     for (let j = 0, maxj = myfoods[i].length; j < maxj; j++) {
//         console.log(myfoods[i][j]);
//     }
// }

// for(let foods of myfoods){
//     // console.log(foods);
//     for(let value of foods){
//         console.log(value);
//     }
// }

//Array 方法
let ary=[5,6,7];
console.log(balls.concat(ary));
console.log(balls.join("-"));
console.log(balls);
console.log(balls.reverse());
console.log(balls);
balls.push("item1","item2","item3");
console.log(balls);
balls.pop();
console.log(balls);
console.log(balls.slice(1,4));
console.log(balls);
balls.splice(1,2,"itme1","item2","item3");
console.log(balls);

```

</script>

//Lab05- 07JSON.html

```
<script>
var data = {"emps":[
    {"name":"Tom","workYears":3,"salary":35000},
    {"name":"Jack","workYears":5,"salary":40000},
    {"name":"Mary","workYears":7,"salary":45000}
]};

let str="<ul>";
let name,wy,salary;
// console.log(data.emps);
for(let value of data.emps) {
    // console.log(value.name);
    name=value.name;
    wy=value.workYears;
    salary=value.salary;

    str+="<li>" + name + ", " + wy + ", " + salary + "</li>";
    // console.log(str);

}
str+="</ul>" ;
document.getElementById("div1").innerHTML=str;
</script>
```

//Lab05- 09MathObject.html

```
<script>
    for(let i=0;i<10;i++){
        let no=Math.floor(Math.random()*6+1);
        console.log(no);
        console.log("=====");
    }
</script>
```

//Lab06- 01eventHandler1.html

```
<body>
  <!--HTML 屬性事件處理程序-->
  <h1 onclick="f1();">method 1</h1>
  <!-- JavaScript 屬性事件處理程序 -->
  <h1 id="m2">method 2</h1>
  <!-- W3C DOM 事件處理程序 -->
  <h1 id="m3">method 3</h1>
  <script>
    function f1(){
      alert("method 1");
    }
    function f2(){
      alert("method 2");
    }
    function f3(){
      alert("method 3");
    }
    document.getElementById("m2").onclick=f2;
    document.getElementById("m3").addEventListener("click",f3,false);
  </script>
</body>
```

//Lab06- 01eventHandler2.html

```
<body>
  <!-- HTML 屬性事件處理程序 -->
  <h1 onclick="f1();">method 1</h1>
  <!-- JavaScript 屬性事件處理程序 -->
  <h1 id="m2">method 2</h1>
  <!-- W3C DOM 事件處理器序 -->
  <h1 id="m3">method 3</h1>
  <script>
    function f1() {
      alert("method 1");
    }
    function f2() {
      alert("method 2");
    }

    function f3() {
      alert("method 3");
    }
    document.getElementById("m2").onclick=f2; //匿名函數就是函數宣告沒有函數名稱
    document.getElementById("m2").onclick=function() {
      alert("method 2xx");
    };
    document.getElementById("m3").addEventListener("click",f3);
    document.getElementById("m3").addEventListener("click",function() {
      alert("method 3xx");
    });
  </script>
</body>
```

//Lab06- 01eventHandler3.html

```
<script>
    function f1() {
        alert("method 1");
    }
    function f2() {
        alert("method 2");
    }
    function f3() {
        alert("method 3");
    }
    function init(){
        document.getElementById("m2").onclick=f2;
        document.getElementById("m2").onclick=function() {
            alert("method 2x");
        }
        document.getElementById("m3").addEventListener("click",f3);
        document.getElementById("m3").addEventListener("click",function() {
            alert("method 3x");
        });
    }
    window.onload=init;
</script>
</head>
<body>
    <!-- HTML 屬性事件處理程序 -->
    <h1 onclick="f1();">method 1</h1>

    <!-- JavaScript 屬性事件處理程序 -->
    <h1 id="m2">method 2</h1>

    <!-- W3C DOM 事件處理器程序 -->
    <h1 id="m3">method 3</h1>
</body>
```

//Lab06- 01eventHandler4.html

```
<script>
    function f1() {
        alert("method 1");
    }
    function f2() {
        alert("method 2");
    }
    function f3() {
        alert("method 3");
    }

    document.addEventListener("DOMContentLoaded",function (){
        document.getElementById("m2").onclick=f2;
        document.getElementById("m2").onclick=function() {
            alert("method 2x");
        }
        document.getElementById("m3").addEventListener("click",f3);
        document.getElementById("m3").addEventListener("click",function() {
            alert("method 3x");
        });
    });
</script>
</head>
<body>
    <!--HTML 屬性事件處理程序 -->
    <h1 onclick="f1();">method 1</h1>

    <!-- JavaScript 屬性事件處理程序 -->
    <h1 id="m2">method 2</h1>
    <!-- W3C DOM 事件處理程序 -->
    <h1 id="m3">method 3</h1>
</body>
```

```

//Lab06- 02eventHandlerAttachAdd.html
<body>
  <div id="iddiv1">
    div1
    <div id="iddiv2">div2</div>
  </div>
  <script>
    //=====
    //階層式標籤，事件流程分三階段，
    //事件捕獲(capture)階段==>處理目標階段==>事件氣泡(bubbling)階段
    //=====
    document.addEventListener("click", clickDoc, false); //事件繫結
    document.getElementById("iddiv1").addEventListener("click", clickDiv1, true);
    document.getElementById("iddiv2").addEventListener("click", clickDiv2, false);

    function clickDoc() {
      alert("document");
    }

    function clickDiv1() {
      alert("div1");
    }

    function clickDiv2() {
      alert("div2");
    }
  </script>
</body>

```



```
//Lab06-03eventHandlerMouseoverout.html
```

```
<body>
  
  <script>
    document.getElementById("idimg").addEventListener("mouseover",mouseover);
    document.getElementById("idimg").addEventListener("mouseover",mouseout);
    function mouseover() {
      document.getElementById("idimg").src="Images/chngstar.gif";
    }

    function mouseout() {
      document.getElementById("idimg").src="Images/star.gif";
    }
  </script>
</body>
```

```
//Lab06- 04eventHandlerFocusBlur.html
```

```
<body>
  name:<input type="text" id="idName" />
  <br />
  password:<input type="password" id="idPwd" />
  <hr />
  縣市:
  <select id="idaddr">
    <option value="1" selected>台北市</option>
    <option value="2" >新北市</option>
    <option value="3">桃園市</option>
  </select>

  <script>
    document.getElementById("idName").addEventListener("blur",blur);
    //事件繫結，焦點離開
    document.getElementById("idName").addEventListener("focus",focus);
    //事件繫結，取得焦點
    document.getElementById("idName").addEventListener("change",change);
    //事件繫結，改變內容
```

```

document.getElementById("idaddr").addEventListener("change",Addrchange);

function blur() {
    console.log("blur");
}

function focus() {
    console.log("focus");
}

function change() {
    console.log("change");
}

function Addrchange() {
    console.log("addr change");
}
</script>

</body>

//Lab06- 05checkPassword.html
<body>
    <label>Password:</label>
    <input type="password" id="idPwd" size="6" /><!-- 瀏覽器執行到此標籤會建立物件-->
    <span id="idsp"></span><br/>
    <!-- 1. -->
    <!-- <input type="button" id="idbut" value="checkPassword" onclick="checkPwd();" />
    -->

    <script>
        //2.
        document.getElementById("idPwd").addEventListener("blur",checkPwd);
        function checkPwd(){
            //取得 idPwd 元素
            let thePwdObj=document.getElementById("idPwd");
            console.log(thePwdObj);
            //取得 idPwd 元素值

```

```

let thePwdObjVal=thePwdObj.value;
console.log(thePwdObjVal);
console.log(typeof thePwdObjVal);

//判斷元素值是否為空白，密碼長度是否大於 6
//如果長度是否大於 6，判斷是否包含字母、數字、特殊符號
let sp=document.getElementById("idsp");
let thePwdObjValLen=thePwdObjVal.length;
let flag1=false,flag2=false,flag3=false;

if(thePwdObjVal=="")
    sp.innerHTML="you must enter";
else if(thePwdObjValLen>=6){
    // sp.innerHTML=">=6";
    for(let i=0;i<thePwdObjValLen;i++){
        let ch=thePwdObjVal.charAt(i).toUpperCase();
        if(ch>="A" && ch<="Z")
            flag1=true;
        else if(ch>="0" && ch<="9")
            flag2=true;
        if(flag1 && flag2) break;
    }
    if(flag1 && flag2)
        sp.innerHTML="correct";
    else
        sp.innerHTML="incorrect";
}
else{
    sp.innerHTML="Password length must be greater than 6";
}
}
</script>
</body>

```

```
// Lab07--01Dynamicstyle.html
<body>
  <h1 id="h" class="n" >this is heading 1</h1>
  <script>
document.getElementById("h").addEventListener("mouseover",mouseOver); //滑鼠滑入
document.getElementById("h").addEventListener("mouseout",mouseOut); //滑鼠滑出

    function mouseOver() {
      //動態樣式改變，方法 1
      document.getElementById("h").style.color="green";

      //動態樣式改變，方法 2
      document.getElementById("h").className="s";
    }

    function mouseOut() {
      //動態樣式改變，方法 1
      document.getElementById("h").style.color="pink";

      //動態樣式改變，方法 2
      document.getElementById("h").className="n";
    }
  </script>
</body>
```

```
//Lab07- 04dynamicPassword.html
```

```
<body>
  <label>Password:</label>
  <input type="password" id="idPwd" size="6" /><!-- 瀏覽器執行到此標籤會建立一個物件
-->
  <span id="idsp"></span><br/>
  <!-- <input type="button" id="idbut" value="checkPassword" onclick="checkPwd();"
/> -->
```

```
<script>
  document.getElementById("idPwd").addEventListener("blur",checkPwd);
  function checkPwd(){
    //取得 idPwd 元素
    let thePwdObj=document.getElementById("idPwd");
    console.log(thePwdObj);
    //取得 idPwd 元素值
    let thePwdObjVal=thePwdObj.value;
    console.log(thePwdObjVal);
    console.log(typeof thePwdObjVal);

    //判斷元素值是否為空白，密碼長度是否大於 6
    //如果長度是否大於 6，判斷是否包含字母、數字、特殊符號
    let sp=document.getElementById("idsp");
    let thePwdObjValLen=thePwdObjVal.length;
    let flag1=false,flag2=false,flag3=false;

    if(thePwdObjVal=="")
      sp.innerHTML="<img src='Images/error.png'>you must enter";
      // document.getElementById("idPwd")
      // .insertAdjacentHTML("afterend", "you must enter");
    else if(thePwdObjValLen>=6){
      // sp.innerHTML=">=6";
      for(let i=0;i<thePwdObjValLen;i++){
        let ch=thePwdObjVal.charAt(i).toUpperCase();
        if(ch>="A" && ch<="Z")
          flag1=true;
        else if(ch>="0" && ch<="9")
```

```
        flag2=true;
        if(flag1 && flag2) break;
    }
    if(flag1 && flag2)
        sp.innerHTML="correct";
    else
        sp.innerHTML="incorrect";
    }else{
        sp.innerHTML="Password length must be greater than 6";
    }
}
</script>
</body>
```

```
//Lab08-01setTimeout.html
<body>
  <input type="button" id="idbutstop" value="停止轉向連結" />
  <script>
    function stopf() {
      //window.clearTimeout-停止計時器
      window.clearTimeout(t);
    }

    //轉向連結到 https://www.ispan.com.tw
    //slide105,location.href-轉向連結到其它網址
    let t=window.setTimeout(function (){
      // location.href="https://www.ispan.com.tw";
      location.replace("https://www.ispan.com.tw");
    },2000);

    document.getElementById("idbutstop").addEventListener("click", stopf); //事件繫結
  </script>
</body>
```

```
//Lab08- 02setclock.html
```

```
<body>
```

```
<img alt="" id="picH1" /><img alt="" id="picH2" /><img alt="" id="picM1" /><img alt=""  
id="picM2" /><img alt="" id="picS1" /><img alt="" id="picS2" />
```

```
<script>
```

```
function setclock(){
```

```
    let d=new Date();
```

```
    h1=parseInt(d.getHours()/10);
```

```
    h2=d.getHours()%10;
```

```
    m1=parseInt(d.getMinutes()/10);
```

```
    m2=d.getMinutes()%10;
```

```
    s1=parseInt(d.getSeconds()/10);
```

```
    s2=d.getSeconds()%10;
```

```
    document.getElementById("picH1").src = `WinImages/${h1}.gif`;
```

```
    document.getElementById("picH2").src = `WinImages/${h2}.gif`;
```

```
    document.getElementById("picM1").src = `WinImages/${m1}.gif`;
```

```
    document.getElementById("picM2").src = `WinImages/${m2}.gif`;
```

```
    document.getElementById("picS1").src = `WinImages/${s1}.gif`;
```

```
    document.getElementById("picS2").src = `WinImages/${s2}.gif`;
```

```
}
```

```
Setclock();
```

```
window.setInterval(setclock,1000);
```

```
</script>
```

```
</body>
```



```
// Lab08-05eventObjectKeyboard.html
```

```
<script>
    //鍵盤事件繫結
    // document.addEventListener("keydown", keyDown); //大寫鍵，控制鍵
    document.addEventListener("keypress", keyDown); //大小寫鍵
    function keyDown(event) {
        alert(event.which);
        if (event.altKey) alert("ALT");
        if (event.ctrlKey) alert("CTRL");
        if (event.shiftKey) alert("SHIFT");
    }
</script>
```

```
//Lab08- 06eventTargetcurrentTarget.html
```

```
<body>
    <p id="idp">
        <input type="button" id="idbut" value="button" />
    </p>

    <script>
        //=====
        //階層式標籤，事件流程分三階段，
        //事件捕獲(capture)階段==>處理目標階段==>事件氣泡(bubbling)階段
        //=====
        document.getElementById("idp").addEventListener("click",clickP);
        document.getElementById("idbut").addEventListener("click",clickBut);

        function clickP(event) {
            alert("p target.id="+event.target.id+
                "\np currentTarget.id="+event.currentTarget.id); //idbut
        }

        function clickBut(event) {
            alert("input target.id="+event.target.id+
                "\ninput currentTarget.id="+event.currentTarget.id); //idbut
        }
    </script>
```

//Lab08- 08eventObjectDemo.html

```
<script>
    //在文件的 contextmenu 事件，取消預設的動作(preventDefault)
    document.addEventListener("contextmenu",function(event){
        event.preventDefault();
    })

</script>
```

//Lab08- 10querySelector.html

```
<script>
    //使用 document.getElementById()
    //使用 document.querySelector()
    let qs1=document.querySelector("td");
    console.log(qs1); //<td id="td1">A1</td>
    let qs2=document.querySelector(".myclass");
    console.log(qs2); //<td class="myclass">B2</td>
    let qs3=document.querySelector("#td1");
    console.log(qs3); //<td id="td1">A1</td> 標籤 元素 物件

    //使用 document.querySelectorAll()
    let qsA1=document.querySelectorAll("td");
    console.log(qsA1); //6
    let qsA2=document.querySelectorAll(".myclass");
    console.log(qsA2); //2
    let qsA3=document.querySelectorAll("#td1");
    console.log(qsA3); //NodeList 多個
</script>
```

//Lab08-11imageObject.html

```
<script>
    // let areas=document.getElementsByTagName("area");
    let areas=document.querySelectorAll("area.areabut");
    let areasLen=areas.length;
    alert(areasLen);
    for(let i=0;i<areasLen;i++){
        areas[i].addEventListener("mouseover",mouseOver);
        areas[i].addEventListener("mouseout",mouseOut);
        areas[i].addEventListener("click",Click);
    }

    function mouseOver() {
        console.log(this.id);    //idTaipei
        document.images[0].src = "images/Map"+this.id.substr(2)+".gif";
    }

    function mouseOut() {
        document.images[0].src = "images/map00.gif";
    }

    function Click() {
        document.getElementById("mapdiv").innerHTML =
            `<img src='images/${this.id.substr(2)}.gif'/>`;
    }
</script>
```

//Lab08-12formObject.html

```
<script>
    document.querySelector("#idbutton").addEventListener("click",checkf);//事件繫結
    document.querySelector("#idreset").addEventListener("click",resetf);
    document.querySelector("#idsubmit").addEventListener("click",submitf);

    function checkf() {
        console.log(document.forms.length); //<form>元素集合
        console.log(document.forms[0].length); //forms[0] 的 元素 8
        console.log(document.forms[0].elements); //forms[0] 的 元素
    }

    function resetf() {
        document.forms[0].reset();
    }

    function submitf() {
        let theName=document.getElementsByName("txtName")[0].value;

        if(theName=="")
            document.querySelector("#idsp").innerHTML="you must enter";
        else
            document.forms[0].submit();
    }
</script>
```

//Lab09-01DOM1.html

<script >

```
// alert(document.nodeType); //9
// alert(document.nodeName); //document
// alert(document.nodeValue); //null

//取得根元素 documentElement
let root = document.documentElement; //HTML
// alert(root.nodeType); //1
// alert(root.nodeName); //HTML
// alert(root.nodeValue); //null

let thebody = root.childNodes[1]; //BODY
// alert(thebody.nodeType); //1
// alert(thebody.nodeName); //BODY
// alert(thebody.nodeValue); //null
// alert(thebody.childNodes[1].nodeName); //P
// alert(thebody.childNodes[1].firstChild.nodeValue); //I am a JavaScript
let theNode = root.childNodes[1].childNodes[3].childNodes[3]; //LI
// alert(root.childNodes[1].childNodes[3].nodeName); //UL
// alert(theNode.nodeName);
// alert(theNode.firstChild.nodeValue); //bbbbbb
// alert(theNode.previousSibling.previousSibling.firstChild.nodeValue);
// alert(theNode.nextSibling.nextSibling.firstChild.nodeValue);

// alert(theNode.parentNode.nodeName); //UL
//alert(theNode.parentNode.lastChild.previousSibling.firstChild.nodeValue);

let lis = document.getElementsByTagName("li");
// alert(lis.length);
for (let i = 0; i < lis.length; i++) {
    // alert(lis.item(i).firstChild.nodeValue);
    //alert(lis[i].firstChild.nodeValue);
}
```

</script>

//Lab09-02DOM2.html

```
<script >
    let root =document.documentElement; //HTML
    // console.log(root.nodeName); //HTML
    let thehead=root.firstElementChild; //HEAD
    // console.log(thehead.nodeName)
    let thebody=root.lastElementChild; //BODY
    // console.log(thebody.nodeName)
    let theUl=thebody.firstElementChild.nextElementSibling.nextElementSibling;
    // console.log(theUl.nodeName);
    let theUlchilds=theUl.childElementCount; //UL DOM element Tree
    // console.log(theUlchilds); //6
    // console.log(theUl.childNodes); //DOM node Tree 13

    // console.log(theUl.childNodes[1].firstChild.nodeValue); //aaaaa
    // console.log(theUl.children); //6 object <li></li>

    // console.log(theUl.children[0].innerHTML); //aaaa
    // console.log(theUl.firstElementChild);

    let childEl = theUl.firstElementChild;
    while ( childEl ) {
        console.log(childEl); //<li></li>
        console.log(childEl.innerHTML); //aaaaa
        childEl = childEl.nextElementSibling;
    }
</script>
```

```
//Lab09-03DOMCreateDelete.html
```

```
<body>
  <div id="iddiv">div</div>
  <input type="button" id="CEle" value="CreateElement">
  <input type="button" id="REle" value="RemoveElement">

  <script>
    document.querySelector("#CEle").addEventListener("click", CreateElement)
    document.querySelector("#REle").addEventListener("click", RemoveElement)

    function RemoveElement(){
      let theNode=document.getElementById("idImg");
      // theNode.parentNode.removeChild(theNode);
      theNode.remove();
    }

    function CreateElement() {
      let theDIV = document.querySelector("#iddiv");

      let eleP = document.createElement("p");
      let txtP = document.createTextNode("Hello World");
      eleP.appendChild(txtP);

      theDIV.appendChild(eleP);

      let eleImg = document.createElement("img");
      eleImg.setAttribute("src", "DOM/DOMImage/rabbit-hat.gif");
      eleImg.setAttribute("id", "idImg");

      theDIV.appendChild(eleImg);
    }
  </script>
</body>
```

//附錄一 -01dragdrop.html

```
<script>
    document.querySelector("#dragItem").addEventListener("dragstart",
dragStartHandler);
    document.querySelector("#dropZone").addEventListener("dragover",
dragoverHandler);
    document.querySelector("#dropZone").addEventListener("drop", dropHandler);
    document.querySelector("#dropZone1").addEventListener("dragover",
dragoverHandler);
    document.querySelector("#dropZone1").addEventListener("drop", dropHandler);

    function dragStartHandler(e) {
        //儲存要拖放的資料
        // alert(e.target.id);
        e.dataTransfer.setData("text/plain",e.target.id); //id="dragItem"
    }
    function dragoverHandler(e) {
        //取消預設動作
        e.preventDefault();
    }
    function dropHandler(e) {
        //取消預設動作
        e.preventDefault();
        //取出拖放資料
        let eleID=e.dataTransfer.getData("text/plain");
        // alert(eleID);
        let eleObj=document.getElementById(eleID);
        console.log(eleObj); //<div id="dragItem" draggable="true">Drag me</div>
        //建立 div 元素
        let eleDiv=document.createElement("div"); //<div></div>
        //設定屬性及外觀
        eleDiv.innerHTML=eleObj.innerHTML;
        eleDiv.setAttribute("class","dragItemStyle")
        //新增到 dropZone or dropZone1 元素後面
        // alert(e.currentTarget.id);
        e.currentTarget.appendChild(eleDiv);
    }
</script>
```