FOR LOOPS

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AFTER THIS PRESENTATION

- You'll be able to create different kinds of for loop

WE WILL LOOK AT

for

for ... in

for ... of

FOR LOOPS

- `for` clearly shows the start and end values

- `for` is especially good for handling a series of data

- (*`data_structure`*`.length`
  tells you how many items *data_structure* contains)

```html
<html><head>
  <script>
  var continents=["Australia", "Africa",
      "Antarctica", "Eurasia", "America"];
  var response, count=0;
    for (var index=0; index < continents.length;
                      index++) {
      response = confirm("Have you been to " +
                      continents[index] + "?");
      if (response) count++;
    }
    alert("You have been to " + count +
        " continents!");
  </script>
</head></html>
```

Have you been to Australia?

OK   Cancel

Have you been to Africa?

OK   Cancel

Have you been to Antarctica?

OK   Cancel

Have you been to Eurasia?

OK   Cancel

Have you been to America?

OK   Cancel

You have been to 3 continents!

OK

用在数组里
for…in: 用做index

FOR ... IN LOOPS

- `for ... in` gives you the index of each item

```html
<!doctype html>
<html><head>
  <script>
    var continents=["Australia", "Africa",
      "Antarctica", "Eurasia", "America"];
    var response, count=0;
    for (var index in continents) {
      response=confirm("Have you been to "
            + continents[index] + "?");
      if (response) count++;
    }
    alert("You have been to " + count +
        " continents!");
  </script>
</head></html>
```

可以用在数组里

但此处的变量是index

用在有多个成员变量的数据结构
里，可以用做遍历其成员变量
for…in: 用做index

FOR … IN LOOPS

- This example shows how `for … in` can be used to access the content of a data structure

```
<!doctype html>
<html><head>
  <title>Example of for in</title>
  <script>
  var response, count=0;
  var onePerson = { initials:"DR", age:40,
                    job:"Professor" };

  for (var property in onePerson) {
    alert(property + "=" + onePerson[property]);
  }
  </script>
</head></html>
```

注意这里也是用做index

initials=DR

[OK]

age=40

[OK]

job=Professor

[OK]

for…of: 用做变量

FOR ... OF LOOPS

- for ... of gives you each item

```html
<!doctype html>
<html><head>
  <title>Example of for of</title>
  <script>
  var continents=["Australia", "Africa",
      "Antarctica", "Eurasia", "America"];
  var response, count=0;
  for (var continent of continents) {
    response = confirm("Have you been to " +
                        continent + "?");
    if (response) count++;
  }
  alert("You have been to " + count + " continents!");
  </script>
</head></html>
```

用做变量

OMITTING PARTS

- The 3 parts of the `for` can be omitted

- E.g. this will make an infinite loop:

```
for ( ; ; ) {
    alert("Welcome!");
}
```

This is OK:

```javascript
var number=1;
for ( ; number <= 12; number++ ) {
    alert(number + " times 9 = ", number * 9);
}
```

So is this:

```javascript
for (var rabbits=2, generation=1;
    generation<=12;
    generation++, rabbits *= 2 ) {
        alert("gen: " + generation +
            " total:" + rabbits);
}
```

LOOP CONTROL

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AFTER THIS PRESENTATION

- You'll be able to control loops in two new ways

WE WILL LOOK AT

break

continue

LOOP CONTROL

- `break` totally stops the loop

- `continue` stops the current iteration

- These apply to both types of loop

```
<!doctype html>
<html><head><script>
  var total_amount=0;
  while (true) {
  this_amount=prompt("How much in this account?");
  this_amount=parseFloat(this_amount);
  if (this_amount>0)
    total_amount+=this_amount;
  else
    break;
  }
  alert("Your total savings: " + total_amount);
</script></head></html>
```

How much in this account?

10.5 [ ]

OK Cancel

How much in this account?

30 [ ]

OK Cancel

How much in this account?

[ ]

OK Cancel

Your total savings: 40.5

OK

CONTINUE

- `continue` skips the current iteration of the loop

- (*array*`.push()` adds an item to the end of *array*)

```html
<!doctype html>
<html><head>
  <script>
    var year, great_years = [];
    for (year = 2014; year <= 2016; year++) {
      correct=confirm(year + " was great for you?")
      if (!correct) continue;
      great_years.push(year)
    }
    alert("Your great years were: " + great_years);
  </script>
</head></html>
```

2014 was great for you?

OK   Cancel

2015 was great for you?

OK   Cancel

2016 was great for you?

OK   Cancel

Your great years were: 2014,2016

OK