

JAVASCRIPT

-- Looping --

Week XI

Static Web Programming
Semester 1

Looping Structure

- Loop is a set of instructions or codes executed a number of times as long as the condition is true.
- Loops are handy, if you want to run the same code over and over again, each time with a different value.
- JavaScript supports different kinds of loops:
 1. For ...
 2. While ...
 3. Do ... While ...

For ...

- For loops through a block of code a number of times.
- It often used to create a loop with particular number of loops.
- The for loop has the following syntax:

```
for (statement 1; statement 2;
    statement 3)
{
    code block to be executed
}
```

For ...

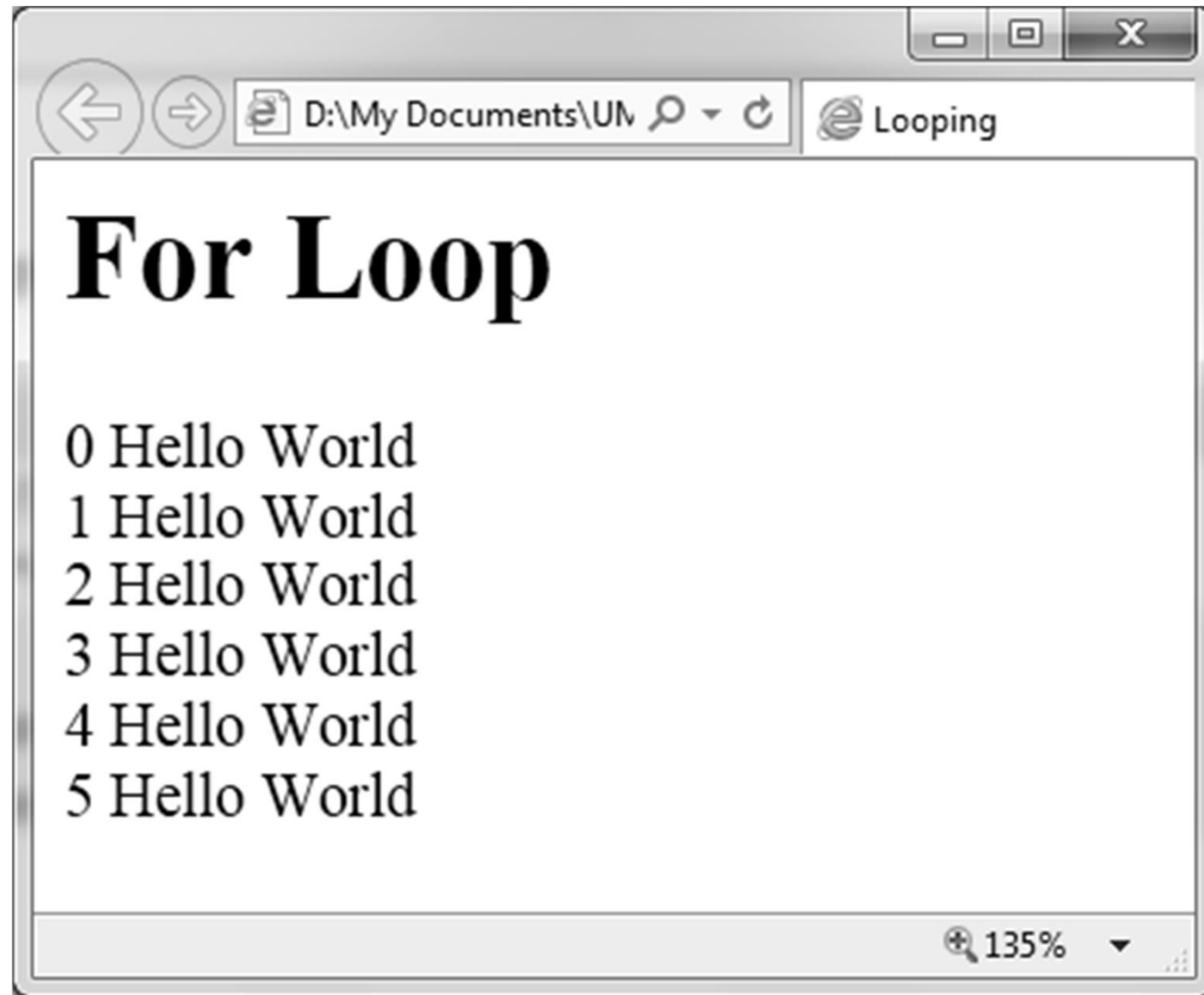
Description:

- Statement 1 : initialization
 - Initialization: normally you will use statement 1 to initiate the variable used in the loop.
- Statement 2 : condition
 - Condition: defines the condition for the loop to run. It is often used to evaluate the condition of the initial variable.
- Statement 3 : increment
 - Increment: it increases the initial variable. It can do anything like negative increment (`i--`), positive increment (`i = i + 15`), or anything else

Example:

```
<body>
<script language = "JavaScript">
    var x;
    for (x=0;x<=5; x++)
    {
        document.write(x+" Hello World<br>");
    }
</script>
</body>
```

On browser



While Loop

- While loop often used in structured programming.
- The loop is used when the number of loop is unknown.
- The while loop loops through a block of code as long as a specified condition is true.

While Loop

- Syntax:

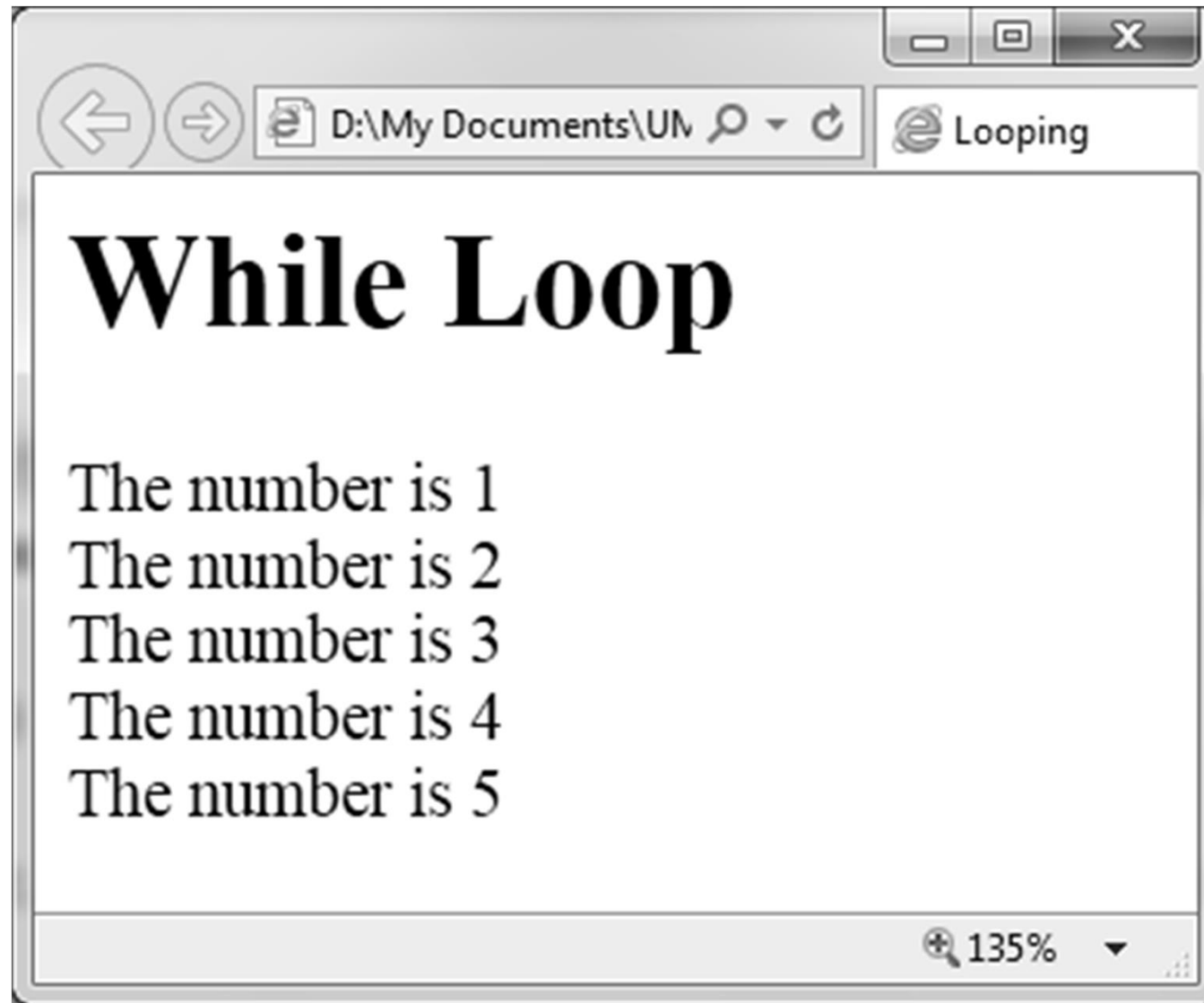
```
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while (condition) {
    code block to be executed
    when the condition is
    true;
    increment;
}
```

- If you forget to increase the variable used in the condition, the loop will never end. This will crash your browser.

Example:

```
<body>
<script language = "JavaScript">
  var x;
  x = 1;
  while (x<=5)
  {
    document.write("The number is " + x
+ "<br/>");
    x++;
  }
</script>
</body>
```

On browser





The Advantage of While Loop

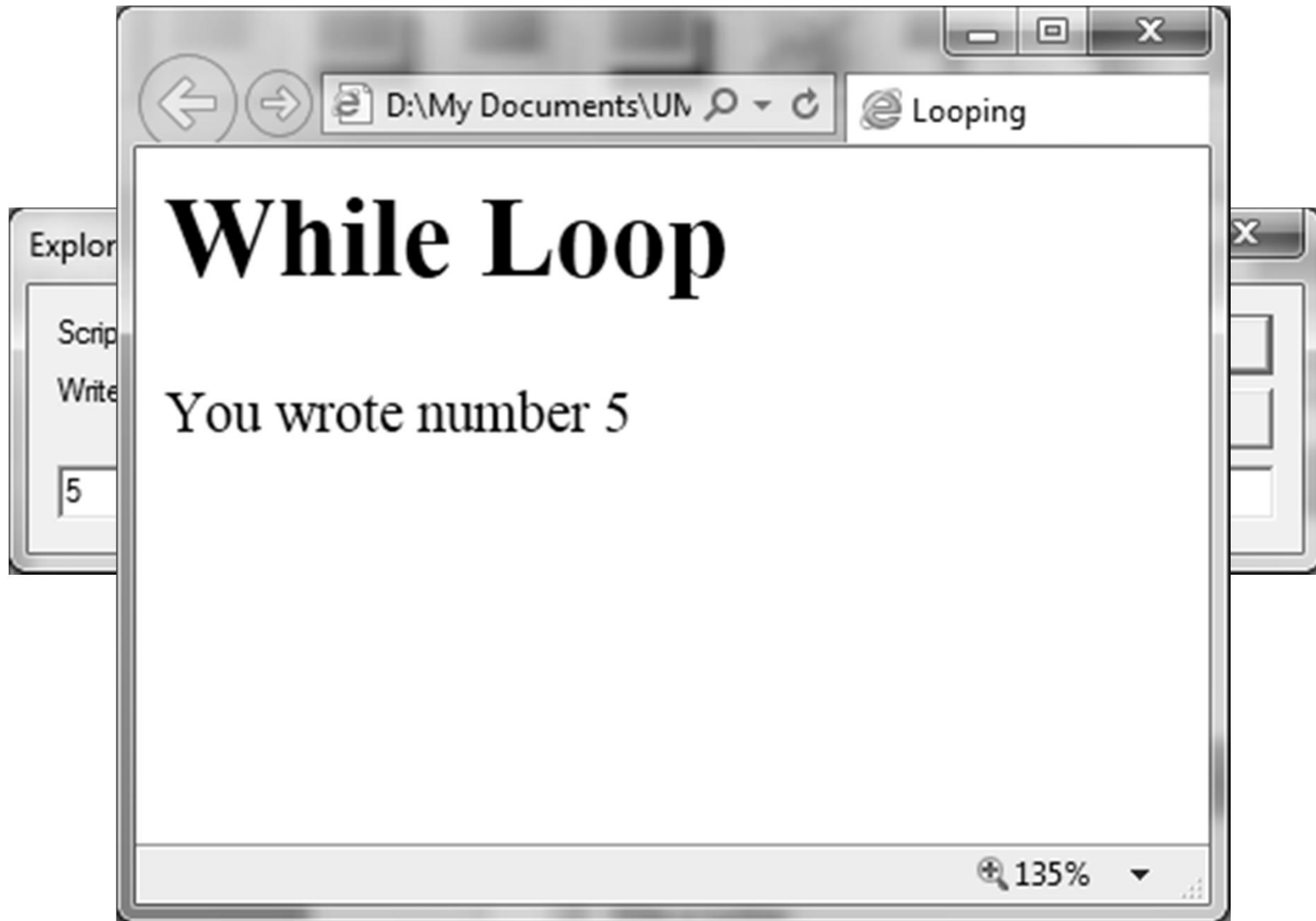


- While loop can be used when the number of loops is unknown compared to For loop which should be specified.
- For instance: “ I will eat when I am hungry”.
- The statement is the loop basic concept in daily life.
- In this case, the number of times to eat is unknown, but the condition should be identified: when I am hungry.

Example:

```
<body>
  <script type="text/javascript">
    var number;
    while( number!= 5 )
    {
      number = prompt("Write a number :
        ", 0);
    }
    document.write("You wrote number 5");
  </script>
</body>
```

On browser



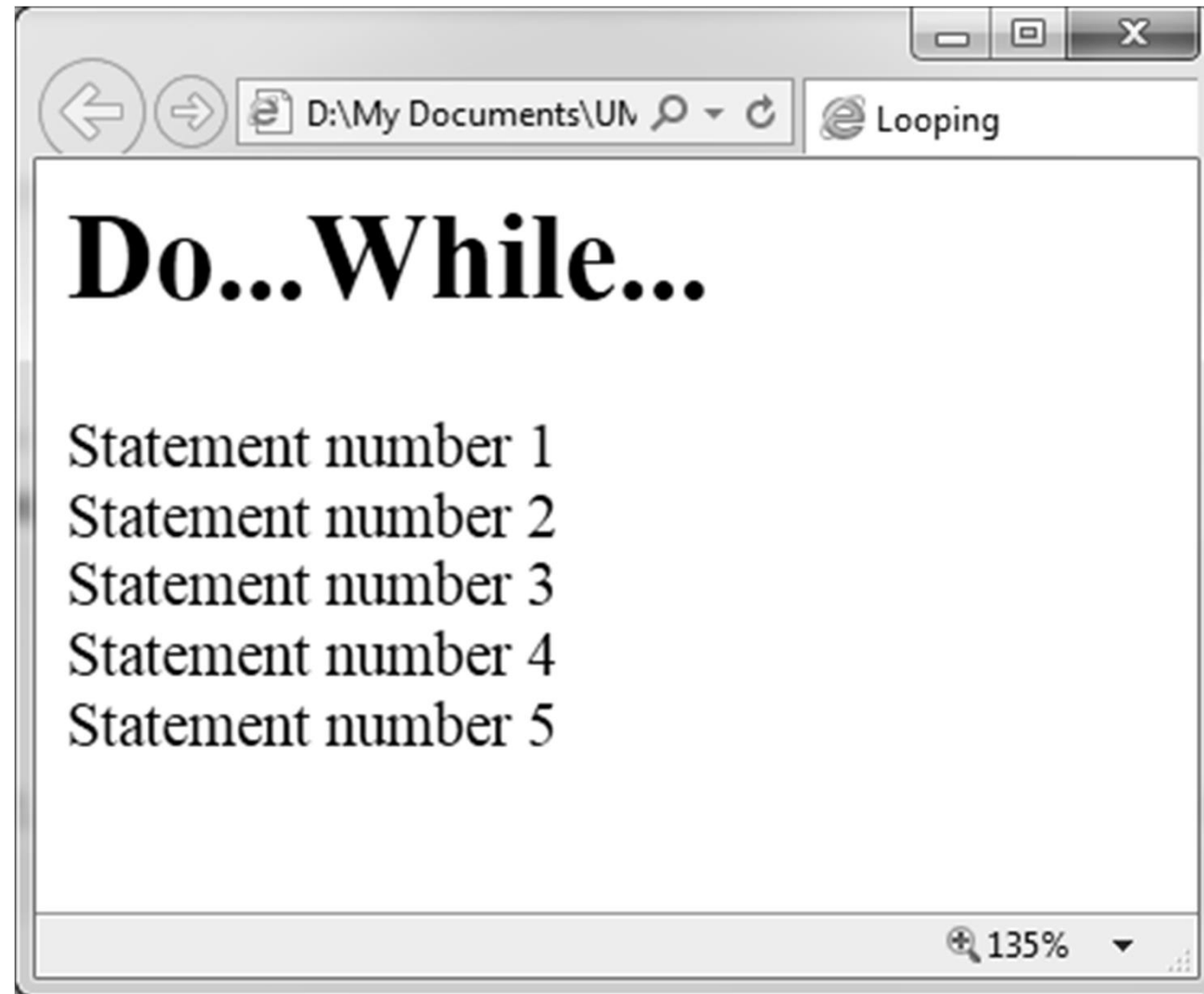
Do ... While ...

- Basically, the structure of do while loop is similar to the structure of while loop. In the while loop, the selection is at the top, but in the do while loop, the selection is just under the closing statement.
- It means, by using do while, there will be at least one loop.

Example:

```
<script language="javascript">
  var x=1;
  do
  {
    document.write("Statement number " +
      x + "<br/>");
    x++;
  }
  while (x<=5)
</script>
```

On browser



Loop in a loop

- Loop in a loop is a structure of statement looping performed in the other looping structure.
- Statement loop inside will be executed until the condition is false, then will execute the outside loop to return the inside loop.

Loop in a loop

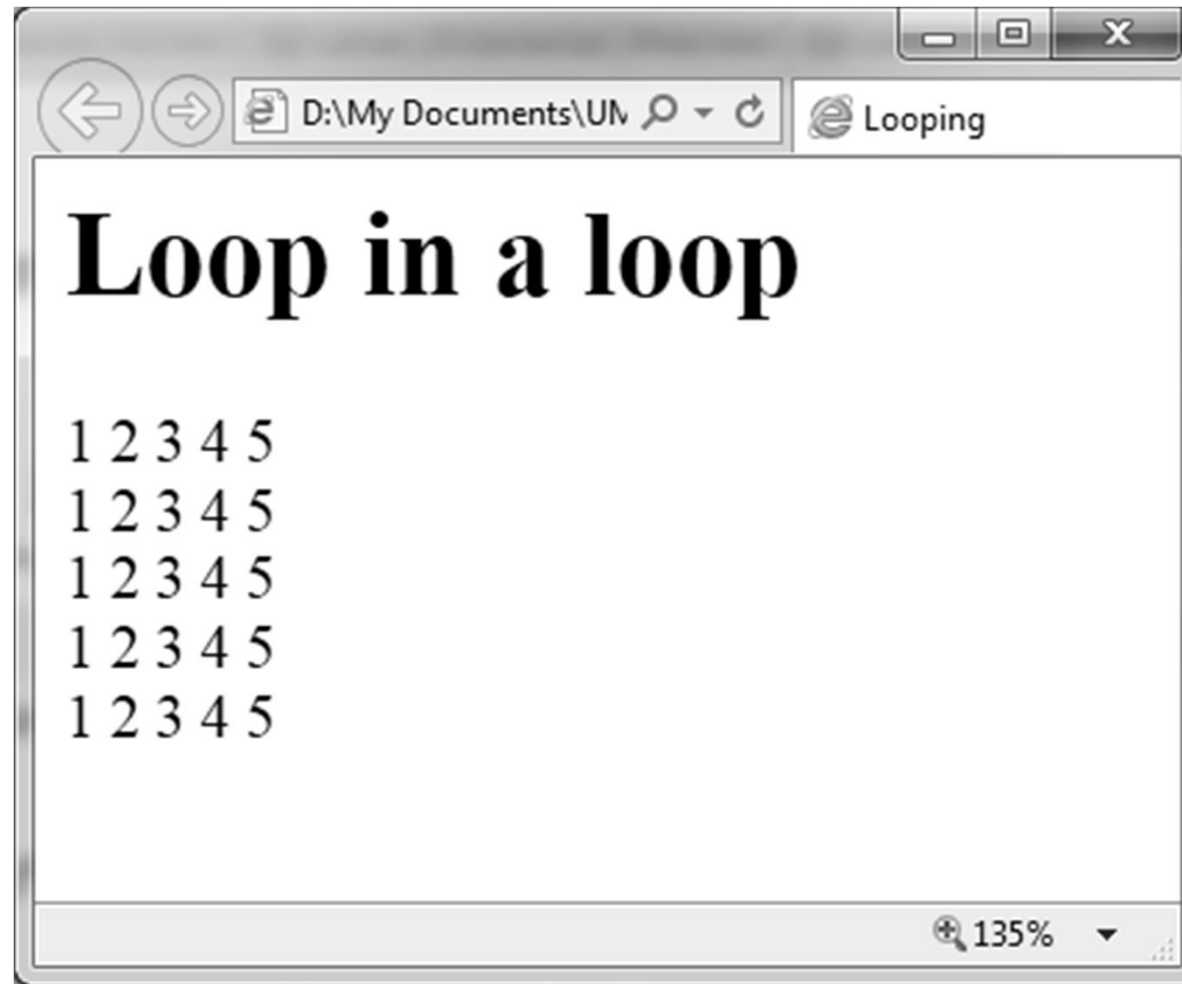
- Loop in a loop can use the combination of 3 loop structures.
- Syntax example:

```
For (initialization;condition;increment)
{
    For (initialization;condition;increment)
    {
        code block to be executed;
    }
}
```

Example:

```
<script language="javascript">
  var x,y;
  for (x=1;x<=5;x++)
  {
    for (y=1;y<=5;y++)
    {
      document.write(y+" ");
    }
    document.write("<br/>");
  }
</script>
```

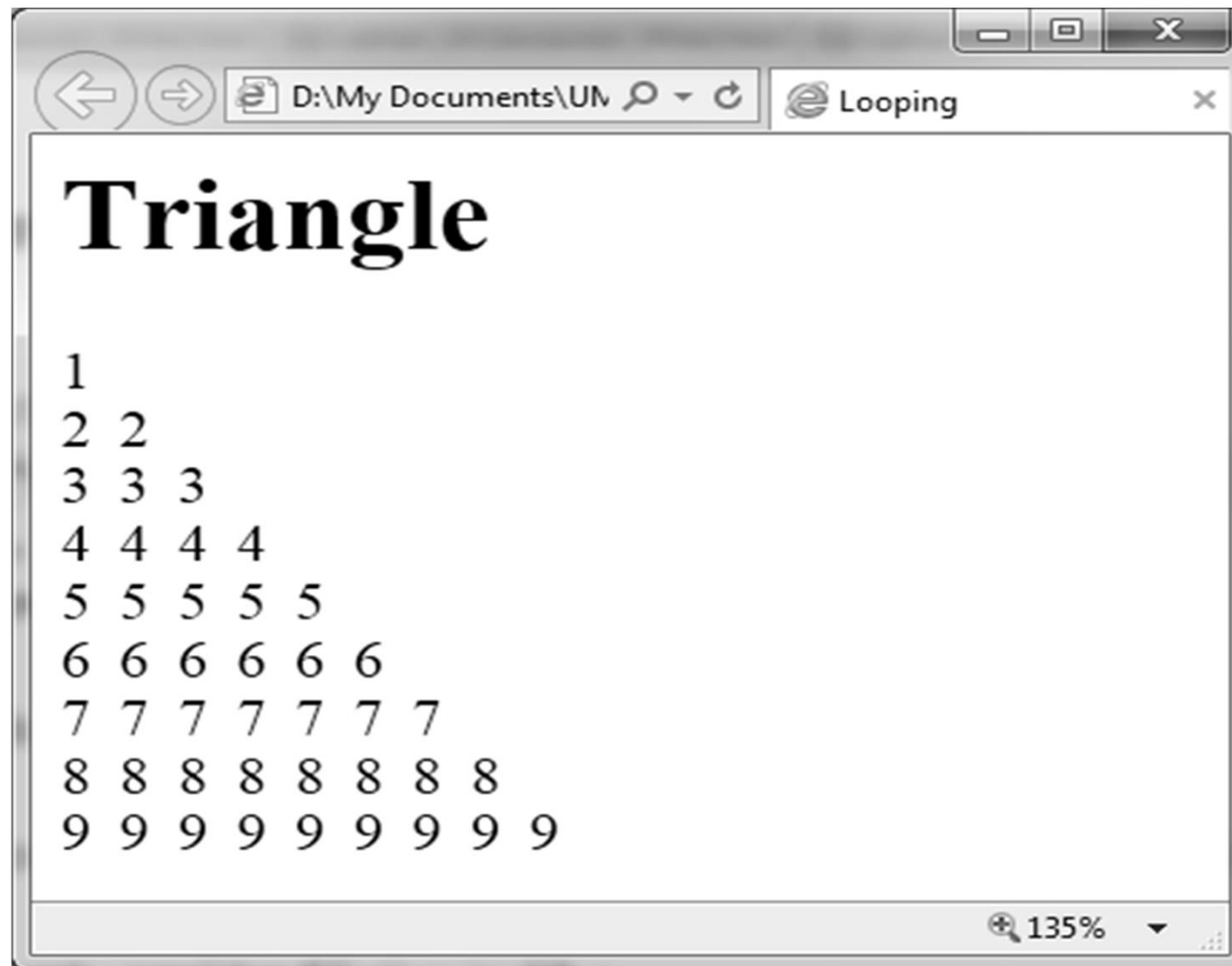
On browser



Exercise!!

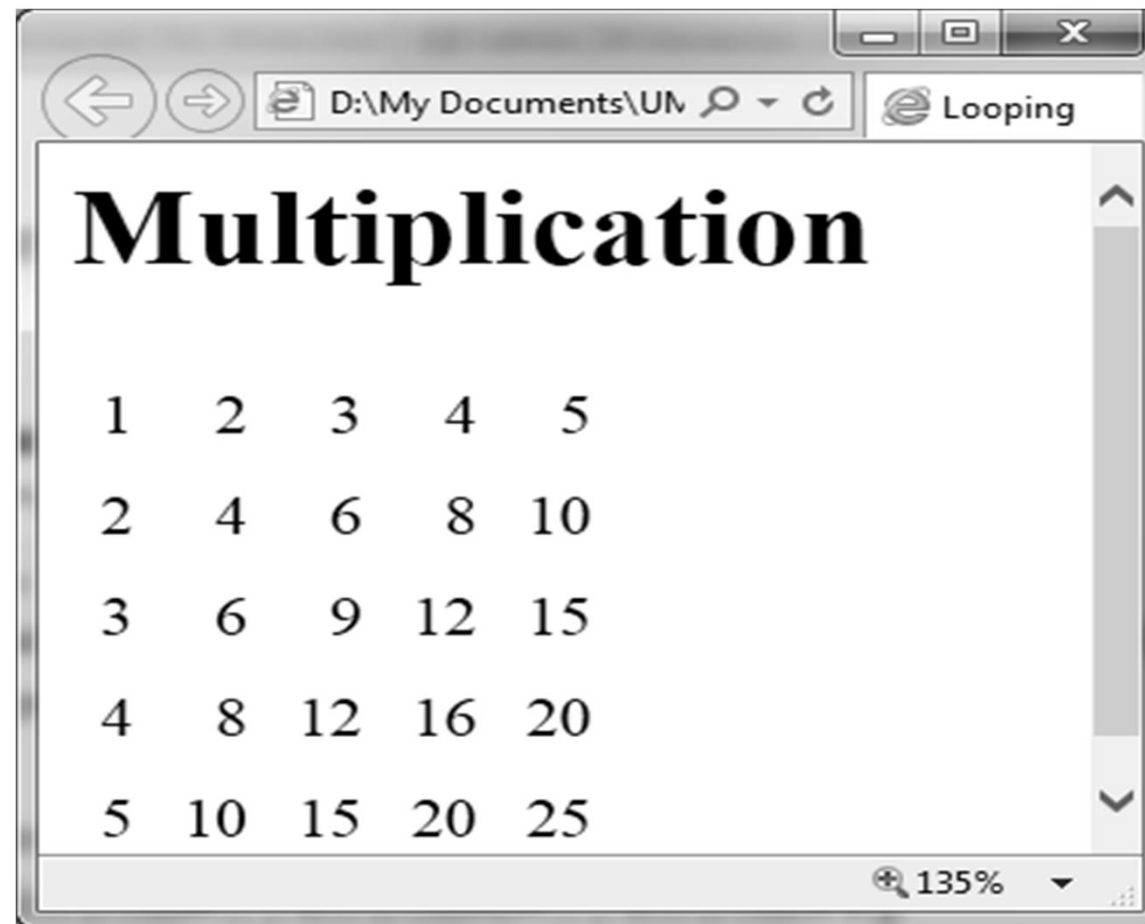
Question

- I. Create the following page:



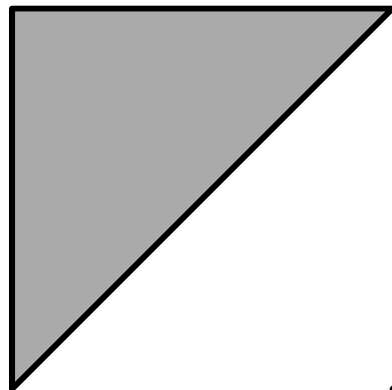
Question

2. Create a program to display the multiplication on a page:

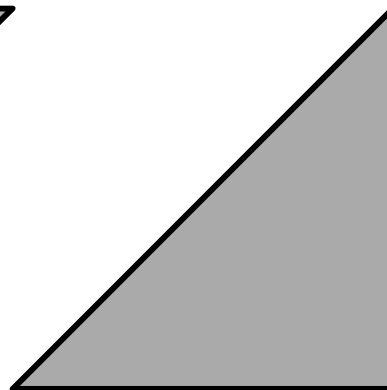


Question

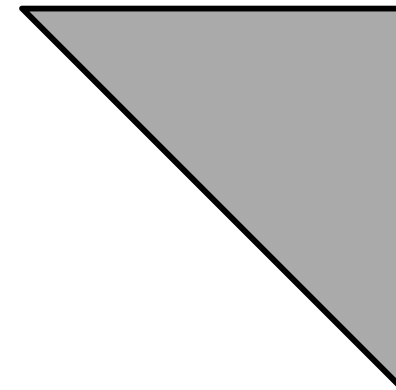
3. Modify the triangle from question number 1 into other triangle shape:



(a)



(b)



(c)