

# PicoMite W network course

## Chapter 9

To start following the examples in this chapter we will alter the server program and the HTML file.

The servercode is simple to alter. Just alter this line:

```
WEB transmit PAGE a%,"eight.html"
```

Into

```
WEB transmit PAGE a%,"nine.html"
```

Again for convenience I hereby give the complete code:

```
Dim buff%(512)
WEB ntp 1
PRINT
PRINT "Your IP address is : " + MM.Info(ip address)
PRINT

WEB tcp interrupt serverstart

Do
  randomnum = Int(Rnd(100)*100)
Loop

Sub serverstart
Local p%, t%
For a%=1 To MM.Info(MAX connections)
  LongString CLEAR buff%()
  WEB tcp READ a%,buff%()edit

  p%=LInStr(buff%(),"GET")
  t%=LInStr(buff%(),"HTTP")
  s$=""
  If (p%<>0) And (t%<>0) And (t%>p%) Then
    s%=LGetStr$(buff%(),p%,t%-p%+4)
    Print "String is ",s$
  EndIf
  If Instr(s$,"HTTP") Then
    Print "sending page"
```

```
    WEB transmit PAGE a%, "nine.html"  
  EndIf  
Next a%  
End Sub
```

Copy this code into MMEdit and save it as server09.bas as well on your computer as on the PicoMiteWeb.

Next thing to do is to change the HTML code. Open the file from the previous session with the name "eight.html" and save it (again on your PC and on the PicoMiteWeb) by the name "nine.html"

## Adding a table.

For putting lots of data on a webpage nothing beats putting this data in a table.

Before we are going to do that we are going to reduce the size of the picture on the website. This is easy to do. Just open the file nine.html in MMEdit and change the next line:

```

```

into:

```

```

The only changes concern the width and height of the graphic. This reduces the image size to 1/4th of its original size. Your HTML file should now look like this:

```
<!DOCTYPE html>

<header>
<title>PicoMiteWeb test page</title>

<meta name="viewport" content="width=device-width,
initial-scale=1.0">

</header>

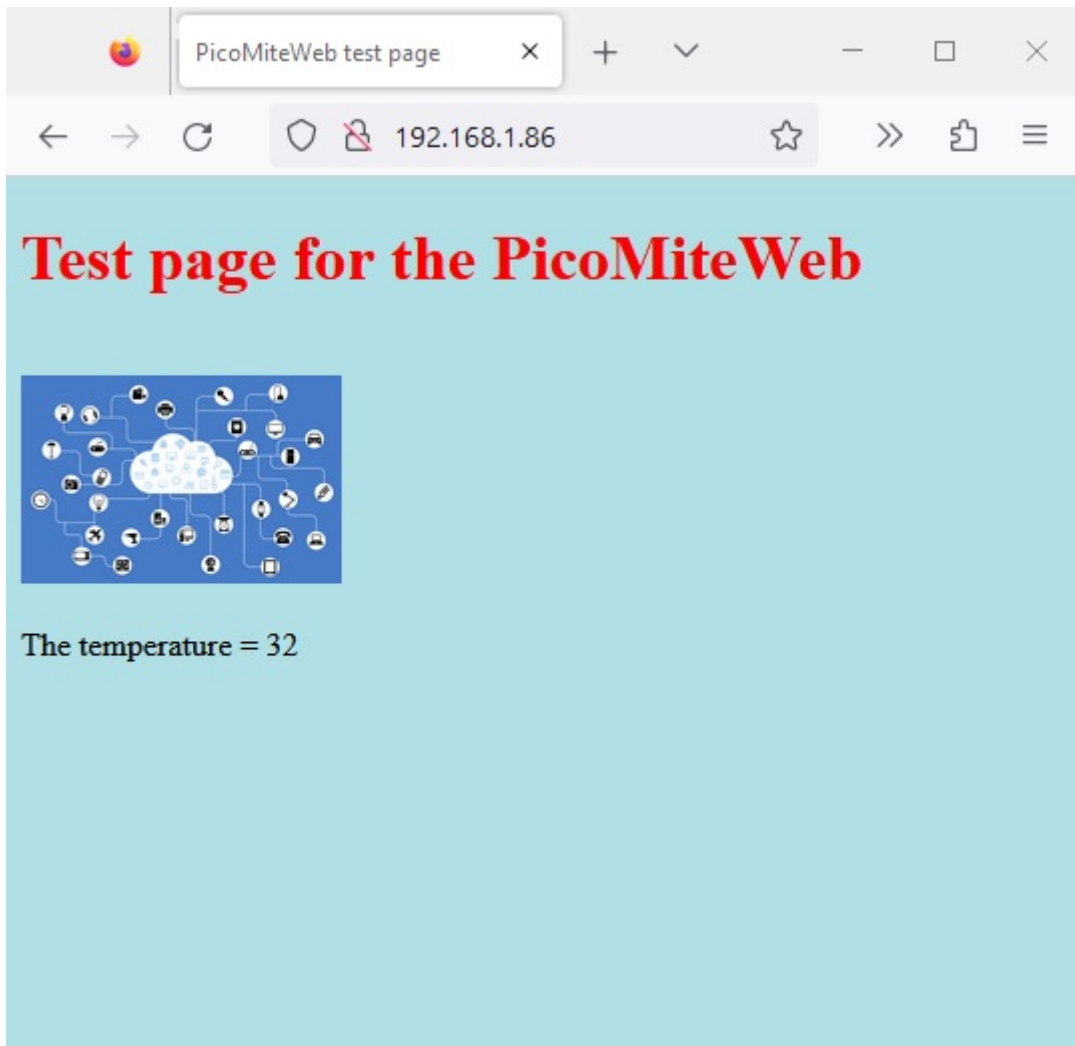
<body style="background-color: PowderBlue">

<h1 style = "color: red">Test page for the
PicoMiteWeb</h1>
<br>
  
<br>
<br>
The temperature = {randomnum}
<br>

</body>

</html>
```

And the webpage should look like this:



## Building a table

Now we can add a table to this page as we have enough real estate on the page.

A table is just a square divided in rows and columns. Just like you might recognise from a spreadsheet. In HTML we can define how many rows there are and how many columns. We can put a header on top of the table and put lines around each field to show its boundaries.

Let us start with a simple table with 2 rows and 2 columns.

```
<table border="1" style="height:75px; width:75px;">
  <tbody>
    <tr>
      <td></td>
      <td></td>
    </tr>
    <tr>
      <td></td>
      <td></td>
    </tr>
  </tbody>
</table>
```

This is what the HTML code looks.

Let us have a look at all the parts.

```
<table border="1" style="height:75px; width:75px;">
```

This is the opening tag and tells the webpage to start a table.

The elements have a borderwidth of 1 pixel.

Each element has a height of 75 pixels and a width of also 75 pixels.

We can adjust that later on.

```
<tbody>
```

This tells the webpage that the body of the table starts here.

```
<tr>
  <td></td>
  <td></td>
</tr>
```

A row is created with <tr> then in that row 2 columns are created with <td>. The end

of each column is market by </td> just like almost all HTML code is market with an ending tag.

```
<tr>
  <td></td>
  <td></td>
</tr>
```

Then a second row is created, again with 2 columns.

Please note that each row starts with <tr> and the end is marked with </tr>

The last step is to tell the webpage that this is the end of the tables body. That is down with </body> and that here the table ends with </table>

So the complete HTML code now looks like this:

```
<!DOCTYPE html>

<header>
<title>PicoMiteWeb test page</title>

<meta name="viewport" content="width=device-width,
initial-scale=1.0">

</header>

<body style="background-color: PowderBlue">

<h1 style = "color: red">Test page for the
PicoMiteWeb</h1>
<br>
  
<br>
<br>
<table border="1" style="height:75px; width:75px;">
  <tbody>
    <tr>
      <td></td>
      <td></td>
    </tr>
    <tr>
      <td></td>
      <td></td>
```

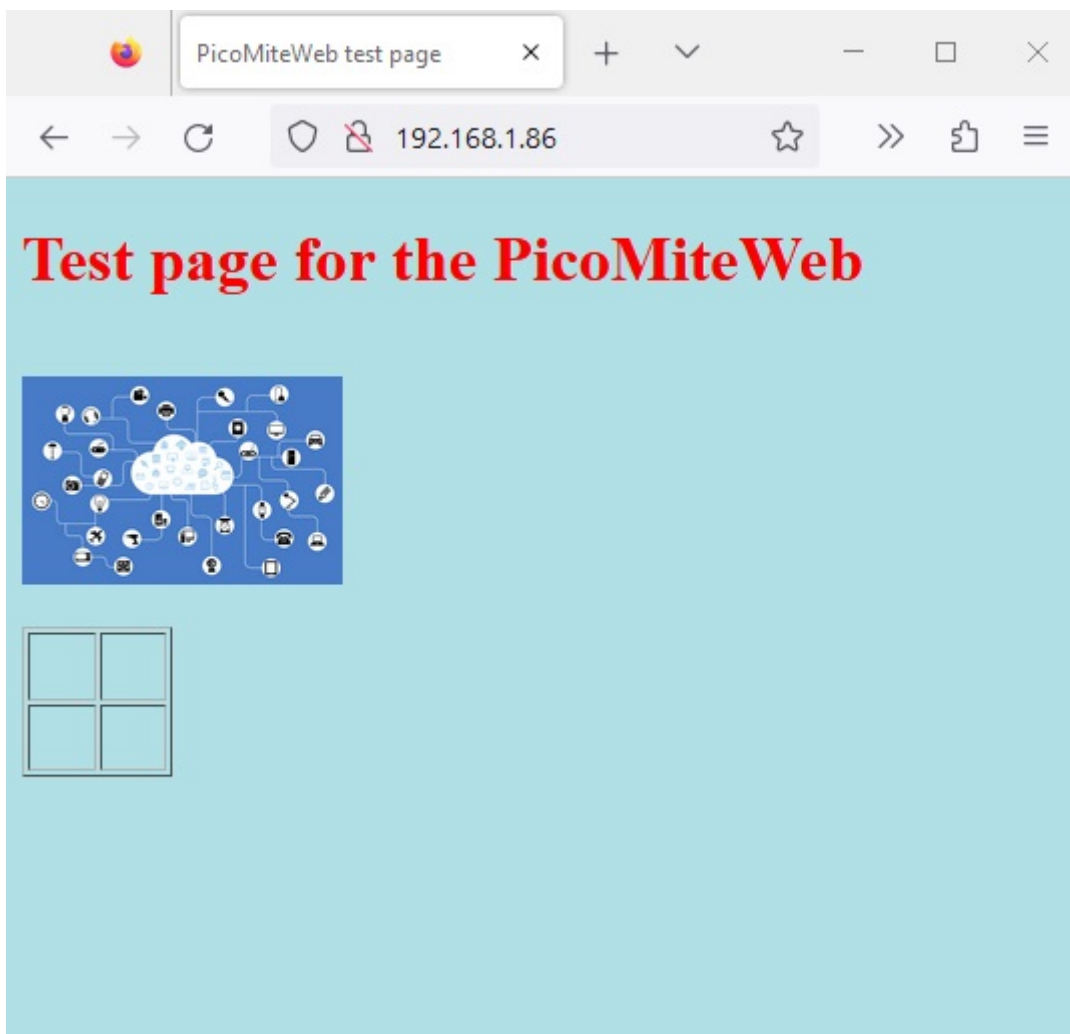
```
        </tr>
    </tbody>
</table>
```

```
<body>
```

```
</html>
```

Not a lot of code and we already have text on the page, a picture that is fetched from a remote server, and an empty table.

Save this as "nine.html" on your computer and on your PicoMiteWeb.



And this is how the page looks now.

## Putting data in the table.

An empty table is of course not what we want. We want to put some data into it. Well that is easy.

Let us start with putting some text in our table.

As an example I am going to build this table as a table that shows the temperature in 2 rooms in our house. Let us say the Living room and our Mancave.

So the first column in the first row should display Living and the first column in the second row should display Mancave.

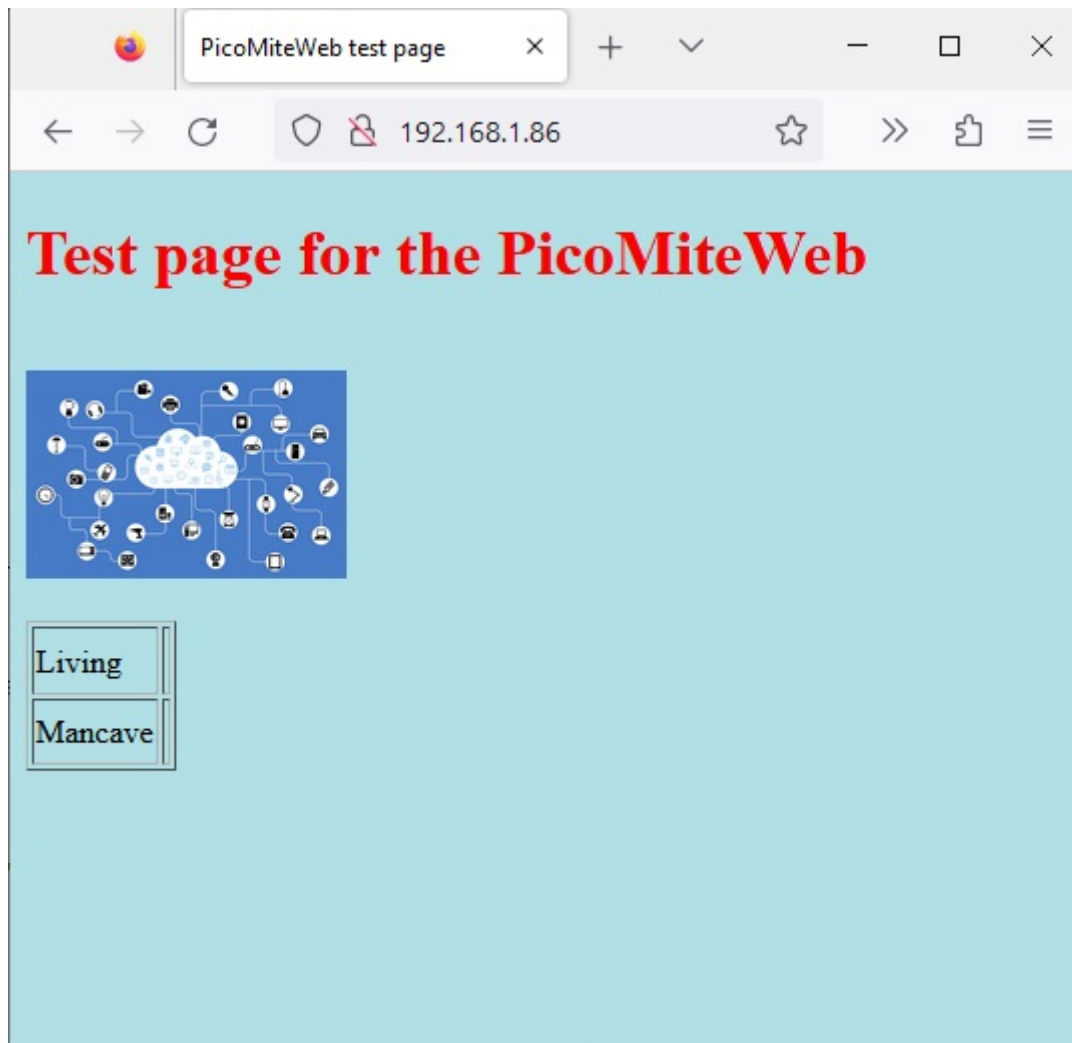
Here is the altered HTML code that does that:

```
<table border="1" style="height:75px; width:75px;">
  <tbody>
    <tr>
      <td>Living</td>
      <td></td>
    </tr>
    <tr>
      <td>Mancave</td>
      <td></td>
    </tr>
  </tbody>
</table>
```

As you can see the text is put between the <td> and </td> tags of the first row and column and in the second row and column.

Make the alterations in the file "nine.html" and save them.





And this is what our webpage should look now.

Next step is to put the values in the second column.

## Adding values into a table.

The beginning of our server program generates a variable in which a random number is placed.

```
Do
    randomnum = Int(Rnd(100)*100)
Loop
```

As you have seen in the previous chapters we only need to put that variable between {} brackets in our HTML code.

So let us put that variable in the second column of our table.

```
<table border="1" style="height:75px; width:75px;">
  <tbody>
    <tr>
      <td>Living</td>
      <td>{randomnum}</td>
    </tr>
    <tr>
      <td>Mancave</td>
      <td>{randomnum}</td>
    </tr>
  </tbody>
</table>
```


That is easy isn't it !!!

Again alter the HTML code like shown here and save it both to your computer and PicoMiteWeb. Running the serverprogram your page will look like this.

PicoMiteWeb test page

192.168.1.86

# Test page for the PicoMiteWeb



Living	67
Mancave	67

## Adding a header

To make our table a bit more attractive we can add a header.

A header is put into a new row in the table and should go at the top. It is not defined as a general row with `<tr> </tr>` but has as an extra a special tag: `<thead> </thead>`

So the header is defined as follows:

```
<thead>
  <tr>
    <th colspan="2">Temperatures</th>
  </tr>
</thead>
```

As this is a table with the temperatures in our home I put "Temperatures" in as the caption of the headers.

There is something special you need to look at:

```
<th colspan="2">Temperatures</th>
```

Unlike a normal row the header has a special tag being `<th> </th>`.

In that tag there is a parameter: `colspan = "2"` this means that the header is to be as wide as the two columns we have created.

If you make a table with more columns: adjust the `colspan` accordingly.

## Adjust the color

To enhance our table even more we can adjust the color of each cell and the color of the complete table.

Look at this line in our HTML file:

```
<body style="background-color: PowderBlue">
```

This was discussed some chapter 7. In that chapter we set the background color for the complete page. This however is no law. We can still change the background color of each individual element on our page.

```
<table border="1" style="height:75px; width:75px;">
```

This is the HTML code that starts our table. We can add to this the command that changes the background color for the complete table. It is done like this:

```
<table border="1" style="height:75px; width:75px;
background-color: Yellow">
```

So after `style="height:75px; width:75px;` I just added: **background-color: Yellow**

Please notice that extra parameters (like the background color) are separated by a semicolon. Like this:

```
style="height:75px; width:75px; background-color: Yellow
```

So let us have a look at how our complete HTML code looks now:

```
<!DOCTYPE html>
```

```
<header>
```

```
<title>PicoMiteWeb test page</title>
```

```
<meta name="viewport" content="width=device-width,
initial-scale=1.0">
```

```
</header>
```

```
<body style="background-color: PowderBlue">
```

```
<h1 style = "color: red">Test page for the
PicoMiteWeb</h1>
```

```
<br>
```

```

<br>
<br>
<table border="1" style="height:75px; width:75px;
background-color: Yellow">
  <thead>
    <tr>
      <th colspan="2">Temperatures</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>Living</td>
      <td>{randomnum}</td>
    </tr>
    <tr>
      <td>Mancave</td>
      <td>{randomnum}</td>
    </tr>
  </tbody>
</table>

<body>


</html>
```

And this is how the page should look:

PicoMiteWeb test page

192.168.1.86

# Test page for the PicoMiteWeb



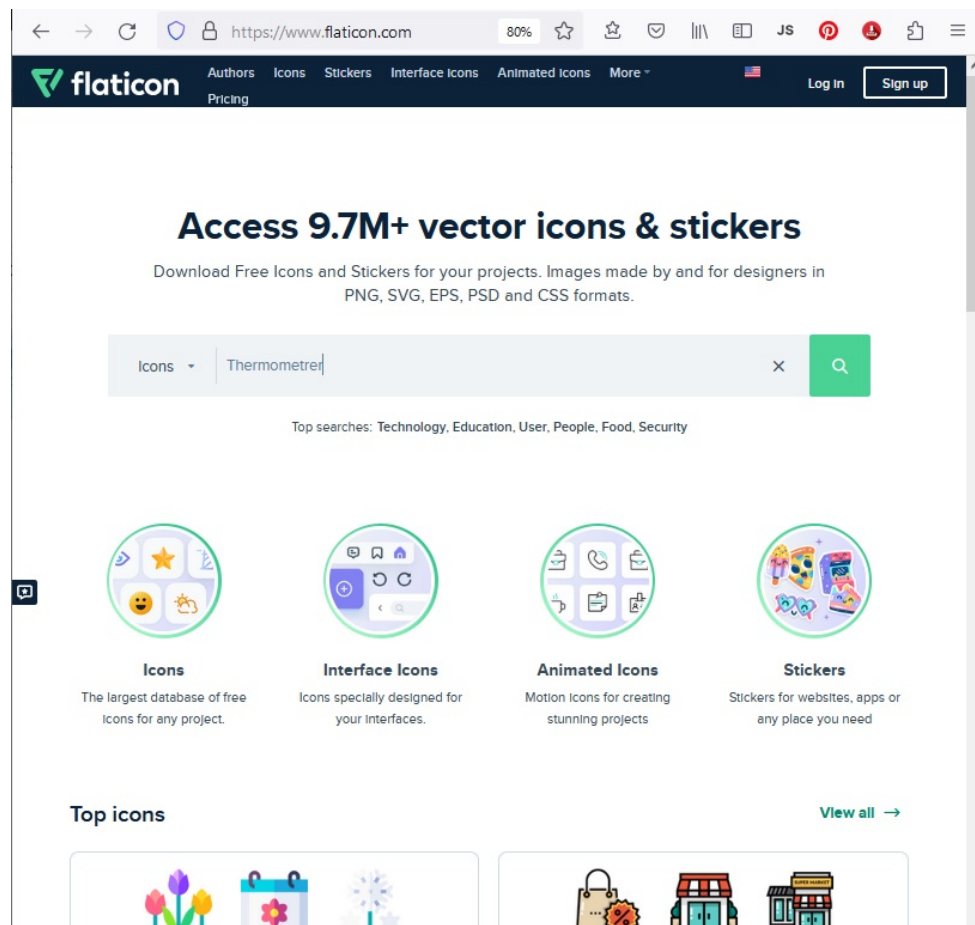
Temperatures	
Living	6
Mancave	6

## Adding meaningful graphics

The previous chapter showed how to add graphics and pictures to your webpage. Let's go a step further.

In the previous chapter I pointed you to two services where you can get free pictures. Pixabay and Flaticon. The last one is specialised on small graphics, so called icons. We are going to have a look at this. So point your browser to:

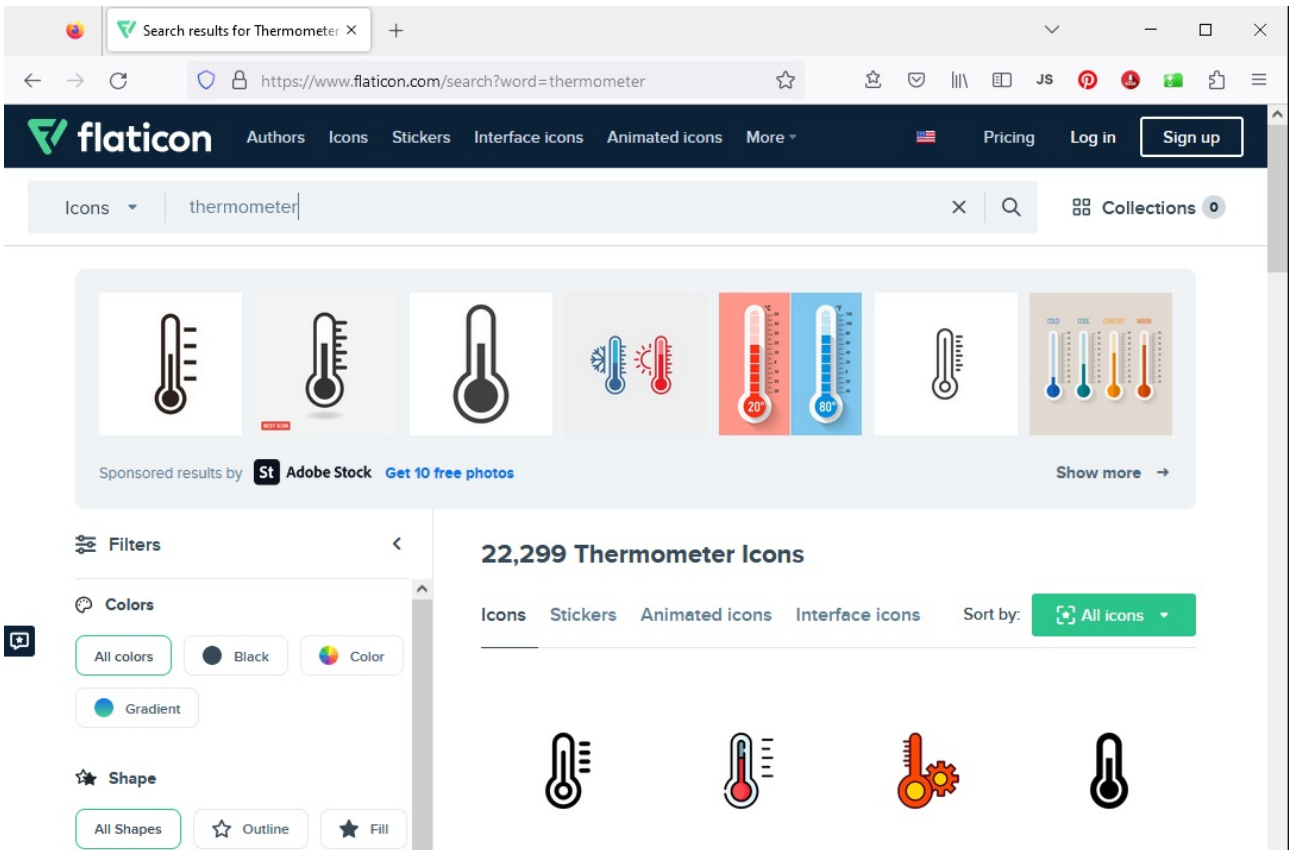
<https://www.flaticon.com/>



Feel free to look around on this website as it offers loads of icons that are free to use.

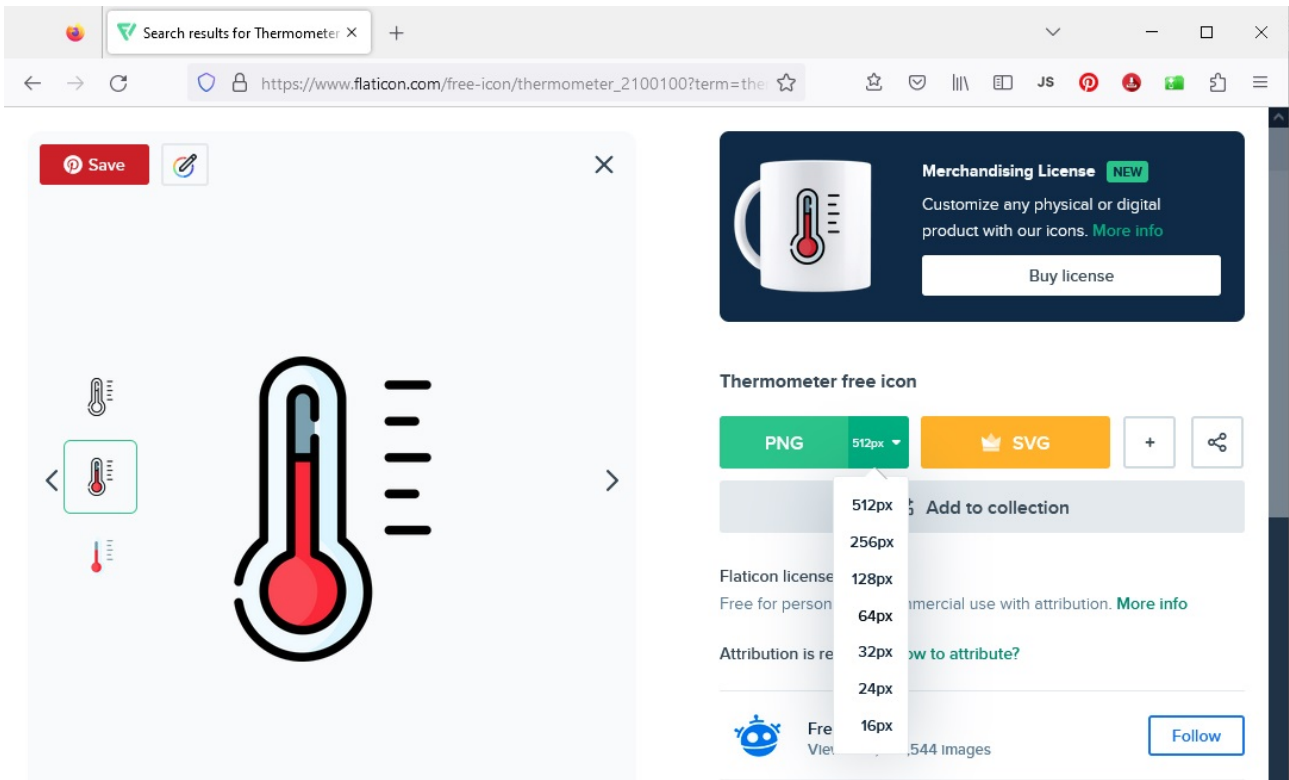
On the webpage look for thermometer in the search option.





And OOPS 22.299 Icons ???

I take the easy way out and I fancied the second one on the page. So I clicked on that:



Click on the green PNG button where it says 512px. 512px of course means that the picture is 512 x 512 pixels. That is too much for what I am trying to achieve. So I clicked on 64px and then on Free Download.

The picture was downloaded to my download folder on my computer.

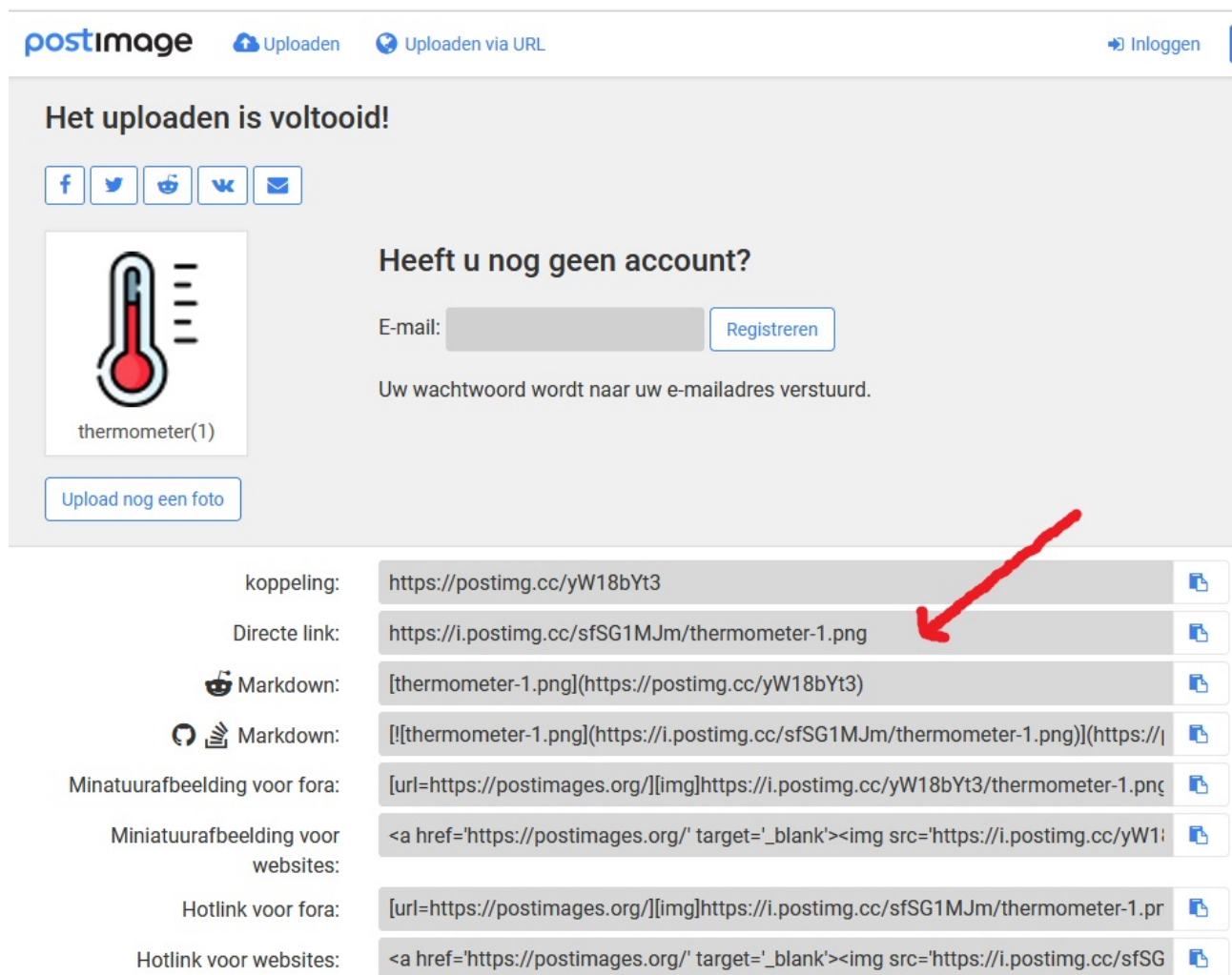
Now let's do the same as described in the previous chapter: we are going to upload this picture to the <https://postimages.org/> website.

Please re-read the previous chapter if you are not sure how to do use the postimages.org service.











**Note:**

*You do not have to follow this step as I am going to provide the download link to you as I already have uploaded the thermometer picture.*

So I pointed my webbrowser to <https://postimages.org/> and uploaded the thermometer icon.



The screenshot shows the postimages.org website interface. At the top, there are navigation links for 'Uploaden' and 'Uploaden via URL', and a 'Inloggen' button. The main heading is 'Het uploaden is voltooid!' (The upload is complete!). Below this, there are social media sharing icons for Facebook, Twitter, Reddit, VK, and Email. A thumbnail of the uploaded image, a thermometer, is shown with the filename 'thermometer(1)'. To the right, there is a registration section titled 'Heeft u nog geen account?' (Do you not have an account yet?) with an email input field and a 'Registreren' button. Below the registration section, there is a list of generated links for various purposes, each with a copy icon. A red arrow points to the 'Directe link' (Direct link) which is <https://i.postimg.cc/sfSG1MJm/thermometer-1.png>.

koppeling:	<a href="https://postimg.cc/yW18bYt3">https://postimg.cc/yW18bYt3</a>	
Directe link:	<a href="https://i.postimg.cc/sfSG1MJm/thermometer-1.png">https://i.postimg.cc/sfSG1MJm/thermometer-1.png</a>	
 Markdown:	<code>[thermometer-1.png](https://postimg.cc/yW18bYt3)</code>	
 Markdown:	<code>[[thermometer-1.png](https://i.postimg.cc/sfSG1MJm/thermometer-1.png)](https://i</code>	
Miniatuurafbeelding voor fora:	<code>[url=https://postimages.org/][img]https://i.postimg.cc/yW18bYt3/thermometer-1.png</code>	
Miniatuurafbeelding voor websites:	<code>&lt;a href='https://postimages.org/' target='_blank'&gt;&lt;img src='https://i.postimg.cc/yW18bYt3/thermometer-1.png'</code>	
Hotlink voor fora:	<code>[url=https://postimages.org/][img]https://i.postimg.cc/sfSG1MJm/thermometer-1.png</code>	
Hotlink voor websites:	<code>&lt;a href='https://postimages.org/' target='_blank'&gt;&lt;img src='https://i.postimg.cc/sfSG1MJm/thermometer-1.png'</code>	

And here is the download link we will need. It is where the arrow points.

## Graphics in the table.

So we have a table and we have a graphic. How do we get the graphic into the table.

First let us start to add another column to our table. That column will be positioned between the other two columns.

So our table HTML code needs to look like this:

```
<table border="1" style="height:75px; width:75px;
background-color: Yellow">
  <thead>
    <tr>
      <th colspan="3">Temperatures</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>Living</td>
      <td></td>
      <td>{randomnum}</td>
    </tr>
    <tr>
      <td>Mancave</td>
      <td></td>
      <td>{randomnum}</td>
    </tr>
  </tbody>
</table>
```

So what I did was to add a `<td></td>` tag to each row. These tags are still empty now.

As you can see I have also changed the colspan parameter to 3 so the header will cover all 3 columns now.

The link for the thermometer image is:

**<https://i.postimg.cc/sfSG1MJm/thermometer-1.png>**

So what we have to do now is to put this link into the empty cells. This is done the same way as we did with the first image on the page.

Just put the code:

```

```

Into the empty table cells.

So our new HTML code looks like this:

```
<!DOCTYPE html>

<header>
<title>PicoMiteWeb test page</title>

<meta name="viewport" content="width=device-width,
initial-scale=1.0">

</header>

<body style="background-color: PowderBlue">

<h1 style = "color: red">Test page for the
PicoMiteWeb</h1>
<br>
  
<br>
<br>
<table border="1" style="height:75px; width:75px;
background-color: Yellow">
  <thead>
    <tr>
      <th colspan="3">Temperatures</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>Living</td>
      <td>
        
      </td>
      <td>{randomnum}</td>
```

```

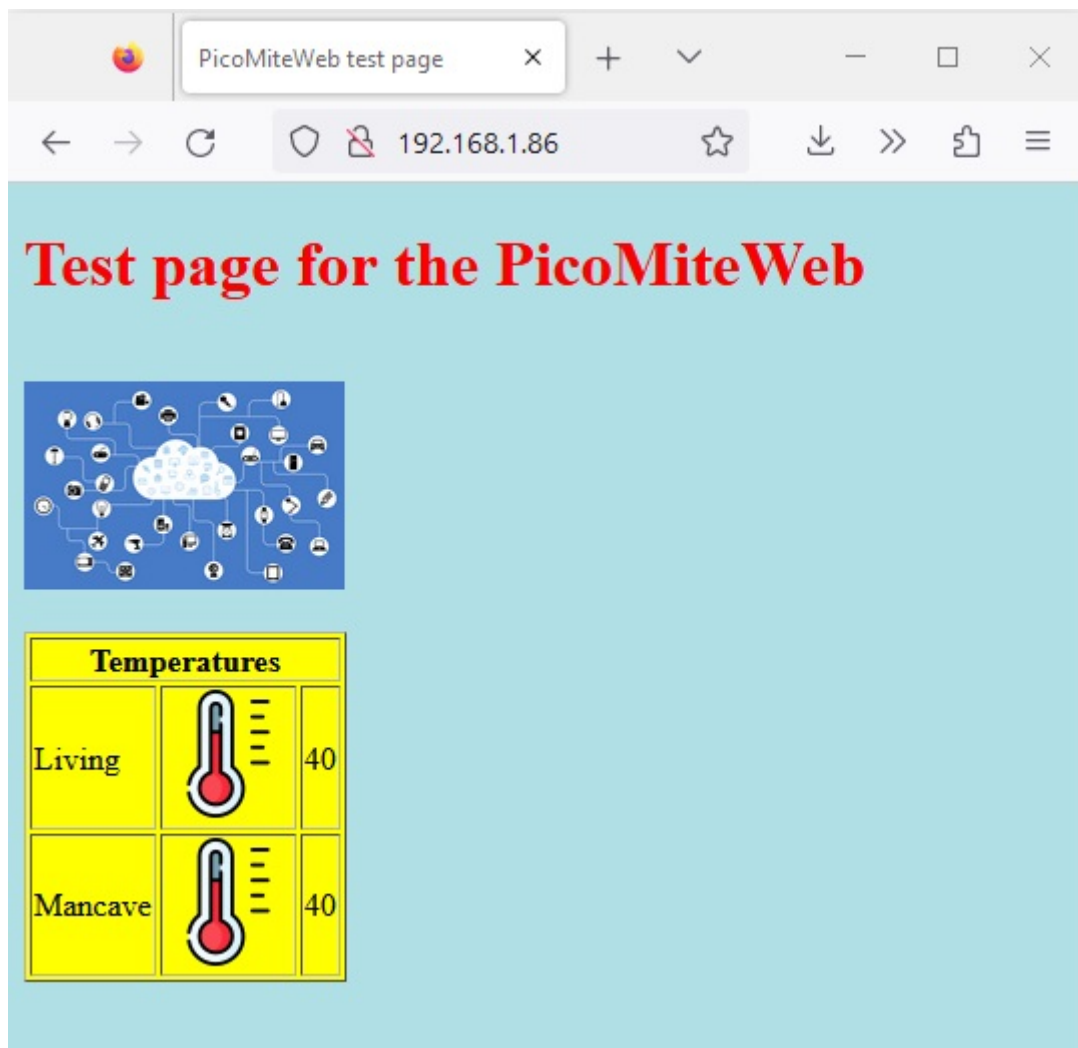
</tr>
<tr>
  <td>Mancave</td>
  <td>
    
  </td>
  <td>{randomnum}</td>
</tr>
</tbody>
</table>

<body>

</html>

```

And tada !!!!



Here is our complete webpage (until now) with graphics.

Everytime you refresh the webpage a different random number will be shown in the last column.

## **Excercise.**

Here is a small excercise for you to practice with this all.

In our serverprogram there is a loop that generates a random number:

```
Do  
    randomnum = Int(Rnd(100)*100)  
Loop
```

Just to check if everything is clear alter this loop in such a way that each time two different variables are created that get a random number.

Now alter the HTML code in such a way that both the living room and the mancave display the different random numbers.