



AP[®] Computer Science

Peeking at Programming with JavaScript Student Guide

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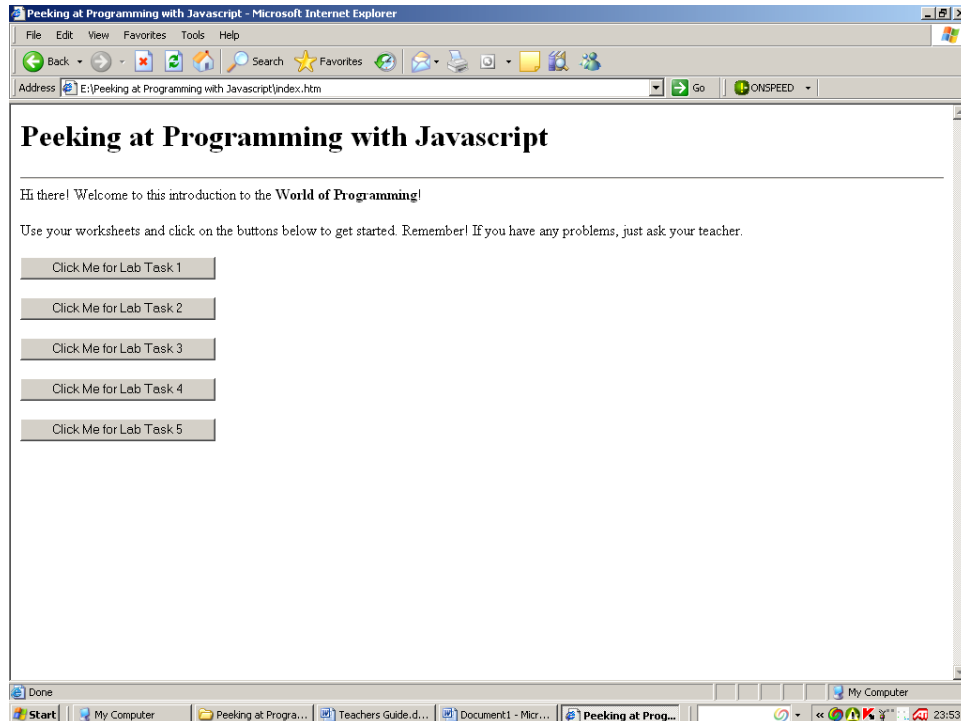
Student Guide

In this practical lab, you are going to learn a little bit about computer programming and find out how JavaScript allows us to do fun things with Web pages.

The first thing you need to do is to get hold of the files we are going to use. Your teacher will show you where to find them on the network. Copy the **WHOLE** folder, not just its contents, to your work area.

Finished? Good. We are ready to start.

Double click on the index.htm file. It should open up in your Web browser like this:



Each one of the buttons will lead you on to a lab task. At the moment, only the first two buttons actually do anything. The first thing you need to do is to make the other three buttons work.

Lets take a look at the code behind this Web page.

Click **VIEW** on the menu bar and then choose **SOURCE**. Notepad will open up with some Web page code in it. Near to the top of the page is the JavaScript that runs when you click a button. When you click the Lab Task 1 button, the **function** lab1 is run, the Lab Task 2 button runs the **function** lab2 and so on.

A **function** means a self-contained block or unit of code.

```
<HTML>
<TITLE>
Peeking at Programming with JavaScript
</TITLE>

<HEAD>
<SCRIPT LANGUAGE="JAVASCRIPT" TYPE="TEXT/JAVASCRIPT">
function lab1()
{
    alert ("Hi there! This is your first JavaScript program")
}

function lab2()
{
    window.open ("lab2.htm")
}

function lab3()
{
    /* Can you adjust this code to open
lab3.htm ?
*/
}

function lab4()
{
    /* Can you adjust this code to open
lab4.htm ?
*/
}

function lab5()
{
    /* Can you adjust this code to open
lab5.htm ?
*/
}

</SCRIPT>
</HEAD>

<BODY>
<H1>Peeking at Programming with JavaScript</H1>
<HR>
Hi there! Welcome to this introduction to the <B>World of Programming</B>!
<P>
Use your worksheets and click on the buttons below to get started.
Remember! If you have any problems, just ask your teacher.
<P>

<FORM ID = "MyForm" METHOD = "submit" ACTION="someAction.cgi">
<INPUT TYPE = "button" NAME = "button1" VALUE = "Click Me for Lab Task 1" onclick = "lab1()"/>
<P>
<INPUT TYPE = "button" NAME = "button2" VALUE = "Click Me for Lab Task 2" onclick = "lab2()"/>
<P>
<INPUT TYPE = "button" NAME = "button3" VALUE = "Click Me for Lab Task 3" onclick = "lab3()"/>
<P>
<INPUT TYPE = "button" NAME = "button4" VALUE = "Click Me for Lab Task 4" onclick = "lab4()"/>
<P>
<INPUT TYPE = "button" NAME = "button5" VALUE = "Click Me for Lab Task 5" onclick = "lab5()"/>

</FORM>
</BODY>
</HTML>
```

Click button 1,
run function
"lab1"

This is where we set
up the JavaScript in
the page

This is just a COMMENT
to remind you what the
code is for.

Here we set up
some buttons
to click...

This is the
writing INSIDE
the button

and here we say
what happens
when we click the
button

Lab Task 1

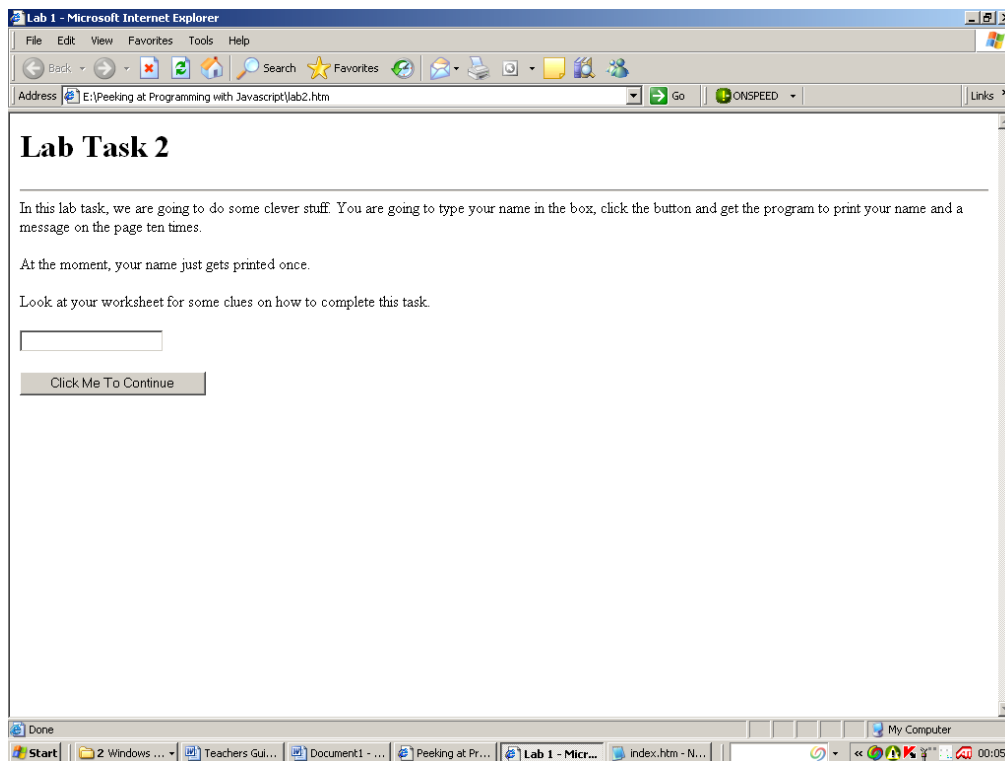
This is really easy. If you click the Lab Task 1 button, you will see it pops up a grey box with a message in it like this:



Task:	The code that makes this happen is inside the lab1 function. Can you change this code so that the message box displays a different message?
-------	--

Lab Task 2

Click the Lab Task 2 button. You should now see:



Type your name in the box and click the button. A message including your name will be displayed on the screen.

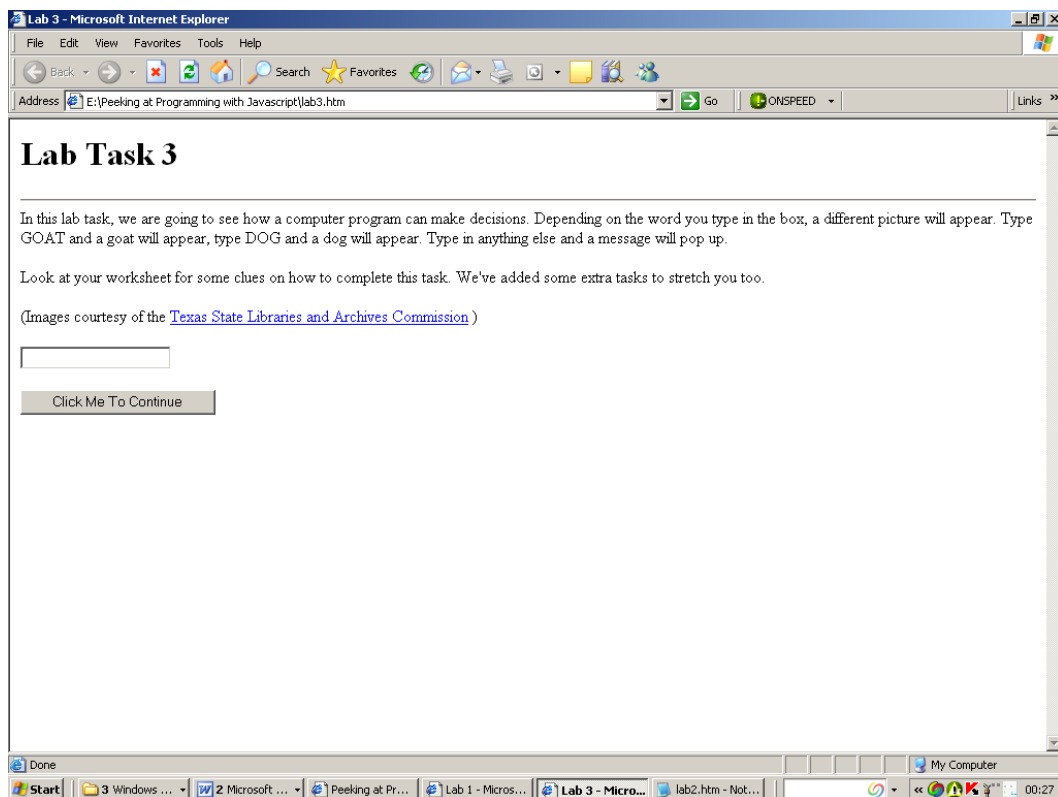
Click the BACK button in your browser to get back to this page. Use VIEW and SOURCE to show the page code.

Look at how the JavaScript function prints something on the screen. Can you see how we have taken the name you typed into the text box and joined it together with "Hi there" ?

Task:	<p>You need to print the same message on the screen ten times. You COULD just repeat this code 10 times, it would work fine. Would it be sensible if you needed to do the same thing 20 or even 100 times though?</p> <p>You are going to use a LOOP to make repeating this code easier. Your teacher will show you two ways of repeating code with loops using FOR and WHILE.</p> <p>Try each method out. Which one do you prefer?</p>
--------------	---

Lab Task 3

OK. Go back to the main index page and click the lab task 3 button. You will see:



Depending what you type in the box, a different picture will appear. At the moment, the only animal that the program knows is a goat. Type GOAT in the box, click the button and see what happens.

What happens if you type in the name of another animal instead?

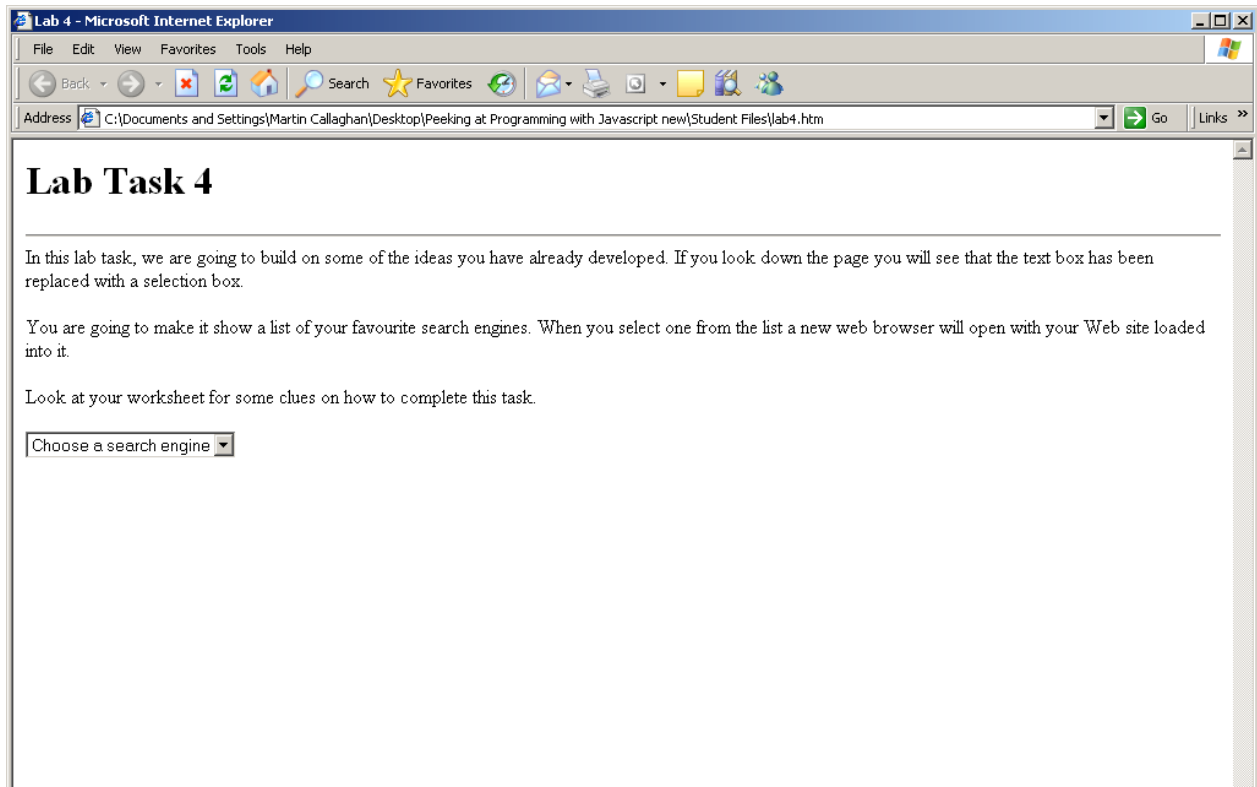
Use VIEW and SOURCE to look at the code for the page. In the lab3 function at the top of the code you will see a new instruction, IF. Your teacher will explain how this works.

Task 1:	You need to add some extra code here so that when the user types in either GOAT or DOG, the correct picture is displayed (goat.htm and dog.htm are the Web pages containing the pictures). If the user types in anything else, you need to display a message box with a suitable message.
Task 2:	Your teacher will show you another way of selecting which action to take using the SWITCH statement. Change your code to use this method instead. When do you think you would use IF and when would you use SWITCH?

Lab Task 4

Still with it? Good!

Click the BACK button on your browser to go back to the main index page. Now click the lab task 4 button:



In this task, you are going to use the selection box to choose which search engine to visit (you could easily adapt this lab to have list of any set of Web sites if search engines are a bit boring. The selection box can be changed to add as many items as you like.).

If you click the DOWN ARROW at the right edge of the box and click **Google** or **MSN**, nothing happens. Your teacher will demonstrate what should happen.

As we have done before, use VIEW and SOURCE to look at the page code.

You should see this function at the top of the page:

```
function lab4(website)
{
mypage = website.options[website.selectedIndex].value

if
}

```

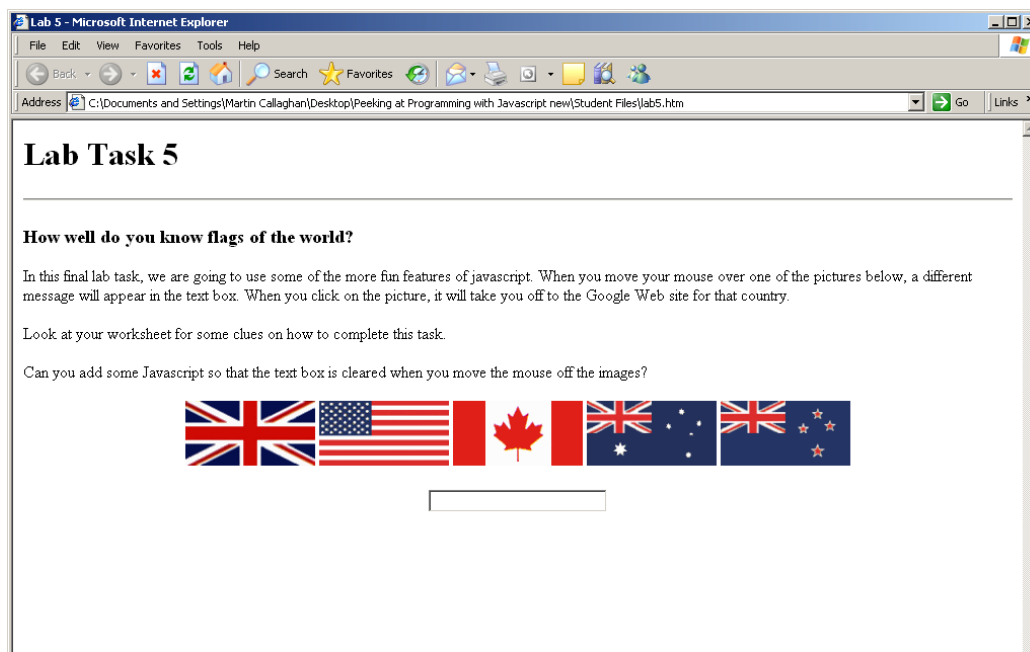
Mypage is a variable that contains the URL of the Search engine you select. Look a little further down the page to see how the selection box is set up.

This is what you need to do:

Task 1:	Use the IF statement to open up a new window with the selected Web site.
Task 2:	Make sure that if the top line of the selection box is chosen, nothing happens (your teacher will tell you about !=)
Task 3:	Add another three entries to the selection box (perhaps Yahoo, Altavista and AskJeeves). Change the IF statement to SWITCH and set it up to open new browser windows loaded up with the correct search engine home page.

Lab Task 5

Just as before, open up the Lab Task 5 page from the home page and use VIEW and SOURCE to look at the page source.




Lab Task 5

How well do you know flags of the world?

In this final lab task, we are going to use some of the more fun features of javascript. When you move your mouse over one of the pictures below, a different message will appear in the text box. When you click on the picture, it will take you off to the Google Web site for that country.

Look at your worksheet for some clues on how to complete this task.

Can you add some Javascript so that the text box is cleared when you move the mouse off the images?



This time there are THREE functions:

They are activated when you move your mouse over the flags on the page. Look at the main body to look at how these events work.

When you move your mouse over a flag the onMouseOver event will call the **lab5** function. Double clicking a flag runs the onDbclick function, which calls the **newsite** function.

Moving your mouse OFF a flag will run the onMouseout event which calls the **textboxclear** function.

Each event all passes a bit of data (a **parameter**) to the lab5 and the **newsite** functions. This makes sure that (1) the correct country name appears in the text box, and (2) the correct Web site is launched.

```
function lab5 (country)
{
    countryid = country
    if (countryid == 1) MyForm.namebox.value = "United Kingdom"
    if (countryid == 2) MyForm.namebox.value = ""
}

function newsite (flagid)
{
    if (flagid == 1) window.open ("http://www.google.co.uk")
    if (flagid == 2) window.open ("http://")
}

function textboxclear ()
{
    MyForm.namebox.value =
}
```

These are your tasks:

Task 1:	Finish off the textboxclear function to clear the text box when the mouse is moved off the flag image.
Task 2:	Use the example given in the lab5 function to make sure the correct country name is displayed in the textbox when you move your mouse over that country's flag.
Task 3:	Write the rest of the newsite function to take you to the correct Google search page when the flag image is double clicked.
Task 4:	Can you rewrite the IF statements with SWITCH statements instead?