

Prahasi Kacham HW WSS 2017

Web Development

Websites are a great way to display your brand, promote your business or create a portfolio. With websites, the possibilities are endless.

History

Websites over time have transformed from symbols in the terminal to viewing a website in a browser. After that, there was the introduction of JavaScript, Flash and CSS which are all assets to creating a website. Then came responsive web design, grid layout and frameworks. The future: that's up to you.



Why is Web Development important?

Web development helps display quality information that has a great user interface and has a large influence on whoever visits the website. This type of development has grown tremendously over the past few years and with the introduction of web libraries, anything is possible.

Figuring out what to add to the webpage

There are many different options as to what you can add on a webpage. Here are some examples of what you can add!

- Basic text with some styling

```
In[7]:= Style["Hello, I am a programmer.", FontColor -> Red, FontSize -> 16]
```

```
Out[7]= Hello, I am a programmer
```

- Interpret function as HTML

```
In[1]:= ExportString[
  Style["Hello, I am a programmer.", FontColor -> Red, FontSize -> 16], "HTMLFragment"]

Out[1]= <span style="font-size:16px;color:#ff0000">Hello, I am a programmer.</span>
```

- Highlight text

```
In[2]:= Style["This was a project I did for my freshman year. Check it out below!",
  Background -> Pink]
```

```
Out[2]= "This was a project I did for my freshman year. Check it out below!"
```

- Interpret function as HTML

```
In[3]:= ExportString[Style["This was a project I did for my freshman year. Check it out below!",
  Background -> Pink], "HTMLFragment"]
```

```
Out[3]= <span style="background-color:#ff8080">This was a
project I did for my freshman year. Check it out below!</span>
```

- Display an area on a website

In[10]:= `FormFunction[{"city" → "City"}, GeoGraphics[#city] &, "PNG"]`

Out[10]= `FormFunction[`

city

Submit

Back

Out[11]= `FormFunction[`

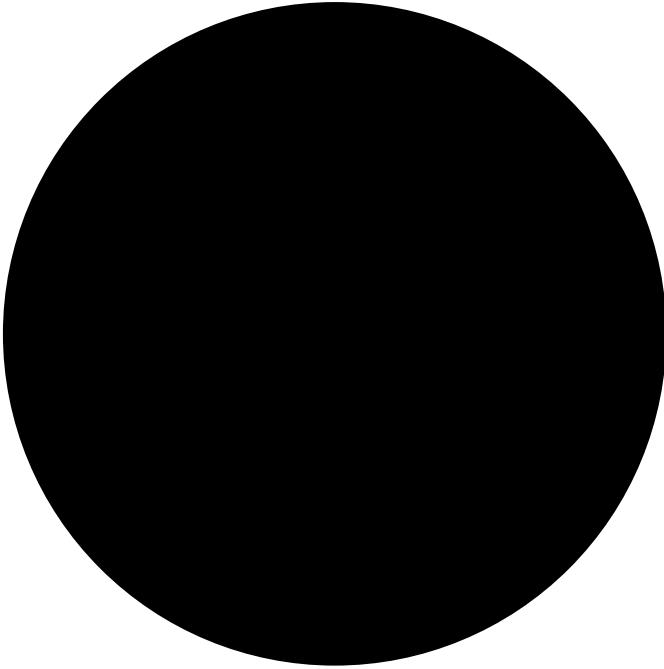
- Interpret function as HTML

In[8]:= `ExportString[FormFunction[{"city" → "City"}, GeoGraphics[#city] &, "PNG"], "HTMLFragment"]`

In[14]:= `<div class="form-object form-horizontal"><div class="default-submit" style="width: 0; height: 0; overflow: hidden;"><button type="submit"></button></div><div class="form-group"><label for="id_city" class="control-label col-sm-1">city</label><div class="col-sm-11"><input type="text" value="" class="form-control" name="city" id="id_city" data-field-name="City" data-field-type="Semantic" data-field-verbose="city" data-field-examples="Koln, Germany||New York City||Paris, TX" data-field-prompt="Enter a city||(or anything indicating one)" /></div></div></div>`

- Create a graphics shape

In[32]:= **Graphics**[Disk[]]



Out[32]=

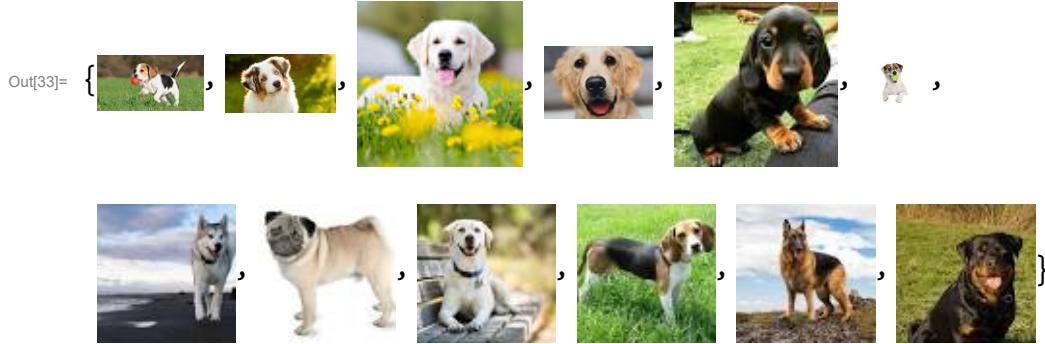
- Interpret function as XML

In[31]:= **ExportString**[**Graphics**[Disk[]], "SVG"]

```
Out[31]= <?xml version="1.0" encoding="UTF-8"?>
<svg xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink"
  width="353pt" height="352pt" viewBox="0 0 353 352" version="1.1">
<g id="surface14">
<path style=" stroke:none;fill-rule:evenodd;fill:rgb(0%,0%,0%);fill-opacity:1;" 
  d="M 352.320313 179 C 352.320313 133.296875 334.164063 89.46875 301.847656
  57.152344 C 269.53125 24.835938 225.703125 6.679688 180 6.679688 C 134.296875
  6.679688 90.46875 24.835938 58.152344 57.152344 C 25.835938 89.46875 7.679688
  133.296875 7.679688 179 C 7.679688 224.703125 25.835938 268.53125 58.152344
  300.847656 C 90.46875 333.164063 134.296875 351.320313 180 351.320313 C
  225.703125 351.320313 269.53125 333.164063 301.847656 300.847656 C 334.164063
  268.53125 352.320313 224.703125 352.320313 179 Z M 352.320313 179 "/>
</g>
</svg>
```

- Display images

In[35]:= **Import**["<https://www.google.com/search?q=dog>", "Images"]



- Deploy the FormFunction to the web

```
In[18]:= CloudDeploy[FormFunction[{"city" → "City"}, GeoGraphics[#city] &, "PNG"]]  
Out[18]= CloudObject[https://www.wolframcloud.com/objects/7279291e-609c-4f13-8491-6a56d5921716]
```

Creating a simple web app that tells you the population of a country

- Create a functional web app

```
In[29]:= CloudDeploy[FormFunction[{"x" → "Country"},  
CountryData[#, "Population"] &], Permissions → "Public"]  
Out[29]= CloudObject[https://www.wolframcloud.com/objects/d2f5c3fb-5cb5-4398-9cc9-9f8dc1f61af8]
```

```
ExportString[FormFunction[{"x" → "Country"},  
CountryData[#, "Population"] &], "HTMLFragment"]  
Out[28]= <div class="form-object form-horizontal"><div class="default-submit" style="width:  
0; height: 0; overflow: hidden;"><button type="submit"></button></div><div  
class="form-group"><label for="id_x" class="control-label col-sm-3"><strong>Find  
the population of this country:</strong></label><div class="col-sm-9"><input  
type="text" value="" class="form-control" name="x" id="id_x"  
data-field-name="Country" data-field-type="Semantic" data-field-verbose="country"  
data-field-examples="Iceland || ITA || the US || Japan || Nigeria" data-field-prompt="Enter  
a country || (or anything indicating one)" /></div></div></div>
```

You can change the layout of a form on a web app

- Deploy a blue form

```
In[22]:= CloudDeploy[  
FormFunction[{"city" → "City"}, GeoGraphics[#city] &, "PNG", PageTheme → "Black"]]  
Out[22]= CloudObject[https://www.wolframcloud.com/objects/b98a8963-8b5e-40aa-86e7-e09fdd71c506]
```

Create a simple website that lets you upload a picture and detects the number of edges

- Cloud Deploy an app that detect edges of an image

```
In[11]:= CloudDeploy[FormPage[{"image" → "Image"}, EdgeDetect [#image] &], Permissions → "Public"]
Out[11]= CloudObject[https://www.wolframcloud.com/objects/2038139e-c0ce-4219-a505-c8ee9e7eb89b]
```

Advanced Features

Web API's

- Create code for calling an API from C#

```
In[40]:= EmbedCode[APIFunction[{"x" → "Integer"}, #x^4 &], "C#"]
```

Embeddable Code

Use the code below to call the Wolfram Cloud function from C#:

Code

[Copy to Clipboard](#)

```
using System;
using System.Net;
using System.Text;
using System.IO;
using System.Collections.Specialized;

namespace RequestTest
{
    class MainClass
    {

        public static String call(int x)
        {
            using (var client = new WebClient())
            {
                client.Headers.Add("Content-Type", "application/x-www-form-
urlencoded");
                client.Headers.Add("User-Agent", "EmbedCode/Cloud/1.0");
            }
        }
    }
}
```

Out[40]=

Embed

- Create embed code to help embed in other languages

```
In[15]:= EmbedCode[CloudDeploy["I am a programmer"]]
```

Embeddable Code

Use the code below to call the Wolfram Cloud function from HTML:

Code

[Copy to Clipboard](#)

Out[15]=

```
<iframe src="https://www.wolframcloud.com/objects/d9838e1b-8c4f-4b1a-99d6-a87d41df9d9d?_embed=iframe" width="600" height="800" />
```

Further Explorations

Mobile Apps

Authorship information

Prahasi Kacham

6/22/17

pk285@mynsu.nova.edu