

1MD3 Tutorial 6 – Generate HTML Code

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1 Start

“`brac`” adds a pair of angle brackets around the input string

```
def brac(s):  
    return "<" + s + ">"
```

2 Tag

“`tag`” returns a function which surround its input by a HTML tag for example `tag("u")` is a function takes a string then puts underline tag around it.

`tag("u")("Hello World!")` returns "`<u>Hello World!</u>`"

“`tagAtt`” is similar to `tag`, it takes one more input to include attributes of a HTML tag. “`tag`” can be defined by “`tagAtt`”.

`tag(s) ⇔ tagAtt(s, [])`

```
def tag(s):  
    return (lambda x: brac(s) + x + brac("/" + s))
```

```
def tagAtt(s,att):  
    return (lambda x: brac(s+" " + " ".join(["%s" % y for y in att])) + x + brac(s))
```

3 Using “`tag()`”

The following six functions are HTML tags. “`tag`” and “`tagAtt`” are used. I also show three ways to define a function

1. use “`def`” key word
2. use lambda expression
3. a return value of a high order function

The last method seems pretty concise. There are lots of tags in HTML, most of them can be created using “`tag`” or “`tagAtt`” function.

```

def body(s):
    return tag("body")(s)

def href(url, text):
    return tagAtt("a", ["href=\""+url+"\""])(text)

list = tag("li")
tbody = lambda x: tagAtt("table",["border"]) (tag("tbody")(x))
th = tag("td")
tr = tag("tr")

```

You are encouraged to define more tags from HTML.

4 Application

Function “list2HtmlList” converts a list to HTML list. It uses list comprehension to wrap each element with a tag, then uses “join” function to combine all strings in the list with new line character as a separator.

```

def list2HtmlList(l):
    return "\n".join(
        [list("%s" % x) for x in l])

```

Function “dic2table” converts a dictionary to a two columns table. “tr()” is called to create a row, in each row “th” is called to create two columns. The first column contains keys and the second column contains values.

```

def dic2table(d):
    body = "\n".join([tr(th("%s" % k) + th("%s" % x)) for k, x in d.items()])
    return tbody(body)

```

5 Example

The following example will create a HTML file called “mypage.html” after interpreted. Run it and modify it by your own.

```

import mkHtml

if __name__ == "__main__":
    dd = {"server":"mpilgrim", "database":"master", "uid":"sa", "pwd":"secret"}
    sq = mkHtml.href("http://www.cas.mcmaster.ca/~caos2", "Shiqi Cao")
    a = [1,2,3]
    al = mkHtml.list2HtmlList(a)
    f = open("mypage.html","w")
    f.write(mkHtml.body(al+
        mkHtml.list("hello world")
        + sq
        + mkHtml.dic2Table(dd)))
    f.close

```