## CS1116/CS5018

# Web Development 2

### Dr Derek Bridge

School of Computer Science & Information Technology University College Cork

### Big head

- $\bullet$  A person's hat size is obtained by measuring the circumference of the head just above the ears in inches and dividing by  $\pi$
- Up to now, a program to take in circumferences and output hat sizes would consist of two files, e.g.:
- o head.html: an HTML web page that contains a form

o hat.py: a Python program that receives the data, carries out the calculation, and prints the result into a new web page

# Two files (1) User types/clicks URL for head.html (2) browser requests head.html (3) server sends back head.html (4) user fills in head circumference, e.g. 36 and presses submit (5) browser requests hat.py?circumference=36 hat.py?circumference=36 (6) server executes hat.py (7) server sends back the output web client web server

## Self-processing page

- We can instead write this using a **self-processing page**:
- o a single Python program, e.g., head\_to\_hat.py
- when requested without user data, it outputs the form
- when requested with user data, it receives the data, carries out the calculation, and outputs the form again but with the result included

#### web server (3) server executes head\_to\_hat.py (8) server sends back the output, i.e. the form plus user's hat size (7) server executes head\_to\_hat.py (4) server sends back the output,i.e. the form (5) user fills in head circumference, e.g. 36 (6) browser requests head\_to\_hat.py?circumference=36 (2) browser requests head\_to\_hat.py (1) User types/clicks URL for head\_to\_hat.py Self-processing page and presses submit web client

## **Pseudocode**

output a web page containing the form and the hat size output a web page containing the form if the user has not sent us any data: calculate the person's hat size

#### Ö.

```
output a web page containing the form and the hat size % \left( 1,0,0,0\right) =0
                                                                                       calculate the person's hat size
                                         if the user has sent us some data:
set the hat size to 0
```

# head\_to\_hat.py: a self-processing page

```
<form action="head_to_hat.py" method="get">
</domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence"></domnuterence</domnuterence</domnuterence</domnuterence</domnuterence</domnuterence</domnuterence</domnuterence</dr>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            <meta charset="utf-8" />
<title>Big head</title>
                                                                                                                                                                                                                                                                                          print('Content-Type: text/html')
                                                                                                                                                                                               from cgi import FieldStorage
from math import pi
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        </html>""" % (hat_size))
                                                                                                                                                                                                                                                                                                                                                                        form_data = FieldStorage()
hat_size = 0.0
if
                                             #!/usr/local/bin/python3
                                                                                                       from cgitb import enable
enable()
Complete the program:
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <html lang="en">
<head>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     <! DOCTYPE html>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 </form>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 </head>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 cpod>
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           print("""
                                                                                                                                                                                                                                                                                                                              print()
```

## Sticky forms

- A sticky form
- if you submit some data using the form and the form is then re-displayed, the text fields are re-displayed with your data still in them
- Modify head\_to\_hat.py to make the form a sticky form

## Private study

 $Modify\ head\_to\_hat.py\ so\ that\ it\ also\ validates\ the\ user's\ input$