Igor Oleshko
CSC 138
Professor Dai
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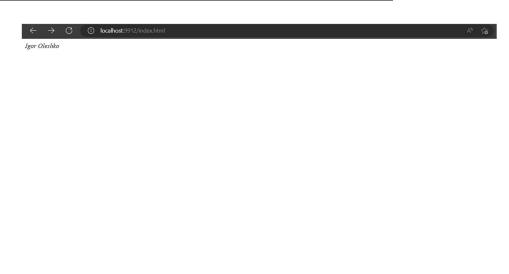# Socket Programming 3 - Web Server

Source Code:

```python
1  # Import the socket module
2  from socket import *
3
4  # Import sys in order to terminate the program
5  import sys
6
7  # Create a server socket
8  serverSocket = socket(AF_INET, SOCK_STREAM)
9
10 # Use 9912 as the serverPort because that is used for web servers
11 serverPort = 9912
12
13 # Bind the serverSocket with the serverPort number
14 serverSocket.bind(('',serverPort))
15
16 # Listen to the serverSocket for 1
17 serverSocket.listen(1)
18
19 # Print the message to display that the server is ready
20 print('The server is ready to receive')
21
22
23 while True:
24
25     #Establish the connection
26     print('Ready to serve...')
27
28     # Accept the connectionSocket and the address from the client
29     connectionSocket, addr = serverSocket.accept()
30
31     try:
32         # Recieve the encoded message
33         message = connectionSocket.recv(1024).decode()
34
35
36
37         # Capture the filename by splitting out the 2nd part of the message
38         filename = message.split()[1]
39
40         # Open the file
41         f = open(filename[1:])
```

```python
43          # Capture the data that was in the file in the 2nd part by reading the file
44          outputdata = f.read()
45
46          # Create a variable to hold the OK command
47          okCommand = 'HTTP/1.1 200 OK\r\n\r\n'
48
49          # Send one HTTP header line into socket
50          connectionSocket.send(okCommand.encode())
51
52          # Send the content of the requested file to the client
53          for i in range(0, len(outputdata)):
54
55              # Loop through each of the lines of code and send it
56              connectionSocket.send(outputdata[i].encode())
57
58          # Send the return carriage to show that we are ending our message
59          connectionSocket.send("\r\n".encode())
60
61          # Close client socket
62          connectionSocket.close()
63
64      except IOError:
65
66          # Create a variable to hold the NOT FOUND command
67          notFoundCommand = 'HTTP/1.1 404 Not Found\r\n\r\n'
68
69          # Send response message for file not found
70          connectionSocket.send(notFoundCommand.encode())
71
72          # Display the HTML message that a file was not found
73          connectionSocket.send("<h1>404 Not Found</h1>\r\n".encode())
74
75          # Close client socket
76          connectionSocket.close()
77
78  # Close server socket
79  serverSocket.close()
80
81  # Terminate the program after sending the corresponding data
82  sys.exit()
```

Console Code showing when the server is ready to receive and every time when a new connection is built and it is ready to server

```
The server is ready to receive
Ready to serve...
Ready to serve...
```

HTML code being displayed when the file exists in the directory

← → ↻ ⓘ localhost:9912/index.html

Igor Oleshko

HTML code being displayed when the file does not exist in the directory

← → ↻ ⓘ localhost:9912/ic.html

404 Not Found