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# COMP 4985 Assignment 1: Testing

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Tim Makimov, A00903109, Set 40



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# 1. UI elements' functionality

## 1.1 Menu Options

1

Service name/Port lookup

4

Quit

2

Help

DNS

Options

Quit

Help

Enter Host name or IP address

Result

3

OK

1. Menu to select "Service name/Port lookup" shows up when "Options" is clicked.

2. Help prompt pops up is "Help" button is licked

3. If "OK" button on help prompt is licked the pop-up window will close

4. "Quit" menu element pops-up "Exit" button that terminates the program if clicked.

DNS

Options

Quit

Help

Exit

name or IP address

## 1.2 Buttons

DNS

Options Quit Help

Enter Host name or IP address

milliways.bcit.ca

Result

IP address: 142.232.66.1 Host name: milliways.scas.bcit.ca

Aliases: milliways.bcit.ca

1. When clicked "Convert" button calls the function that takes the user input from the "Input" field and dispays the output in the "Result" field.

2. Clicking "Clear" button clears both input and output fields.

Convert Clear

1 2

Service name/Port lookup

Lookup by:

1 ☒ Get port number

2 ☐ Get service name

Enter a service name, e.g. 'http'

https

Enter a protocol, e.g. 'udp'

tcp

Enter a port number, e.g. '80'

443

Lookup Cancel

3 4

1. "Get port number" radiobutton provides selection of Service Name and Protocol entry and removes access from Port Number field that serves as output .

Service name/Port lookup

Lookup by:

☐ Get port number

☒ Get service name

Enter a service name, e.g. 'http'

http

Enter a protocol, e.g. 'udp'

tcp

Enter a port number, e.g. '80'

80

Lookup Cancel

2. "Get service by name" radiobutton provides selection of Protocol and Port Number entries and removes entry access from Service Name field that serves as output.

3. Lookup button calls a function that takes input values from the user and displays the output in the 'greyed-out field.'

4. "Cancel" button closes the dialog window.

### 1.3 Input Fields

DNS

Options Quit Help

Enter Host name or IP address

test.com

Result

IP address: 69.172.200.235 Host name: test.com

DNS

Options Quit Help

Enter Host name or IP address

74.125.28.83

Result

IP address: 74.125.28.83 Host name: pc-in-f83.1e100.net

Service name/Port lookup

Lookup by:

☒ Get port number

☐ Get service name

Enter a service name, e.g. 'http'

http

Enter a protocol, e.g. 'udp'

tcp

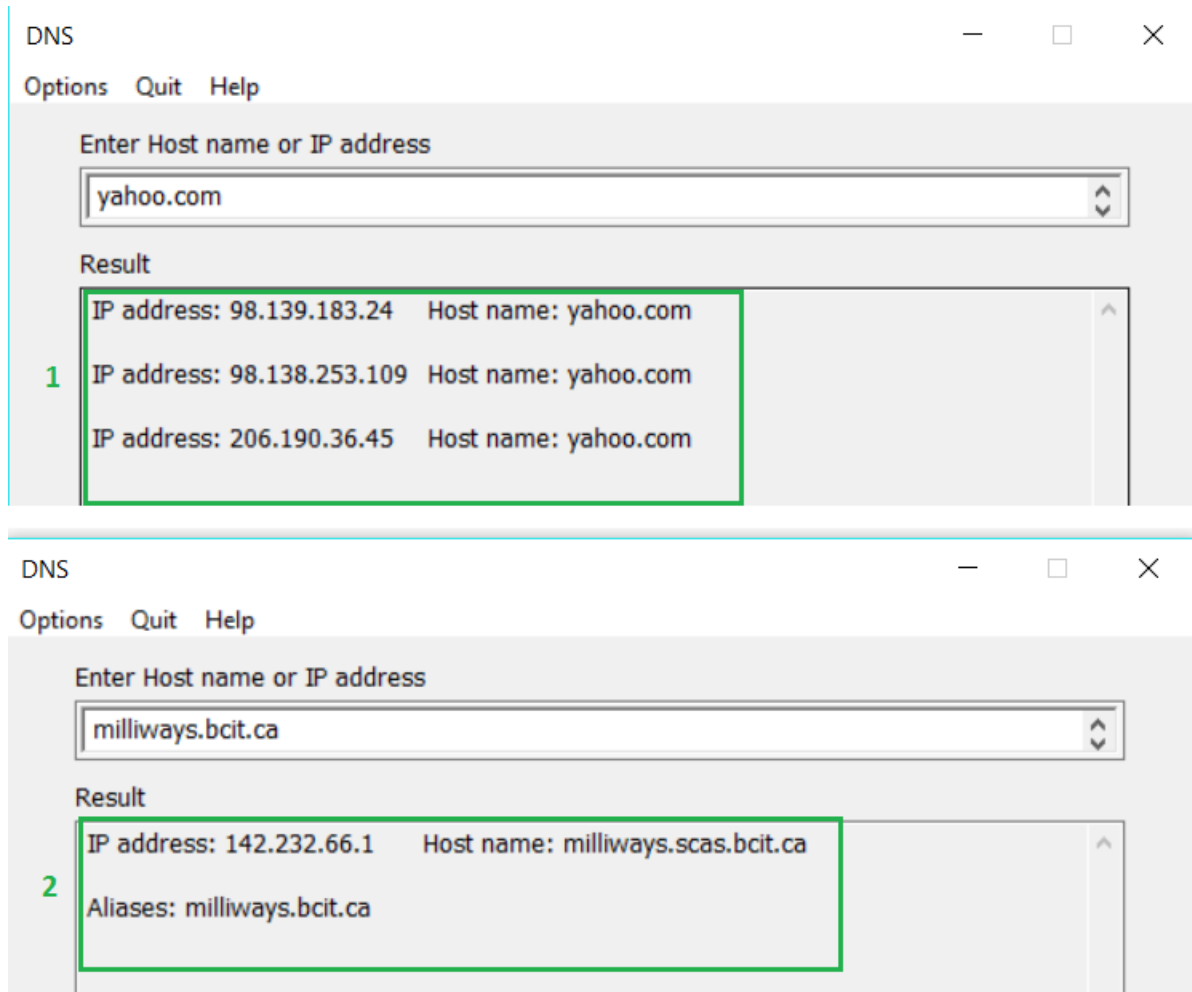
Enter a port number, e.g. '80'

80

Lookup Cancel

Passing in a Host Name or an IP address into input field with extra spaces added still produces valid output.

## 1.4 Output fields



1. The "Result" output field displays all relevant IP addresses and Host Names separated by a new line.

2. If an address has an alies it's displayed below the IP address and Host Name information.

Service name/Port lookup

Lookup by:

☒ Get port number

☐ Get service name

Service name, e.g. 'http'

Kerberos

Protocol, e.g. 'udp'

tcp

Port number, e.g. '80'

88

1

Lookup Cancel

Service name/Port lookup

Lookup by:

☐ Get port number

☒ Get service name

Service name, e.g. 'http'

epmap

Protocol, e.g. 'udp'

udp

Port number, e.g. '80'

135

2

Lookup Cancel

1. "Port number" I/O field outputs relevant port number.
2. "Service name" I/O field outputs relevant Service Name



## 2. Core functionality

### 2.1 Conversion between Host Names and IP addresses

The screenshot shows a window titled "DNS" with a menu bar containing "Options", "Quit", and "Help". Below the menu bar is a text input field labeled "Enter Host name or IP address" containing the text "milliways.bcit.ca". Below the input field is a "Result" section. The "Result" section contains three items, each in a green box with a green border:

- 1 IP address: 142.232.66.1
- 2 Aliases: milliways.bcit.ca
- 3 Host name: milliways.scas.bcit.ca

Below the "Result" section is a green text block that reads: "Enetering Host Name results in the next pieces of data being displayed:" followed by a list:

- 1. IP address
- 2. Alias (if there is one)
- 3. Host name

At the bottom of the window are two buttons: "Convert" and "Clear".

DNS

OptionsQuitHelp

Enter Host name or IP address

youtube.com

Result

IP address: 199.212.24.20Host name: youtube.com

IP address: 199.212.24.26Host name: youtube.com

IP address: 199.212.24.23Host name: youtube.com

IP address: 199.212.24.21Host name: youtube.com

IP address: 199.212.24.27Host name: youtube.com

IP address: 199.212.24.22Host name: youtube.com

IP address: 199.212.24.18Host name: youtube.com

IP address: 199.212.24.19Host name: youtube.com

IP address: 199.212.24.17Host name: youtube.com

IP address: 199.212.24.16Host name: youtube.com

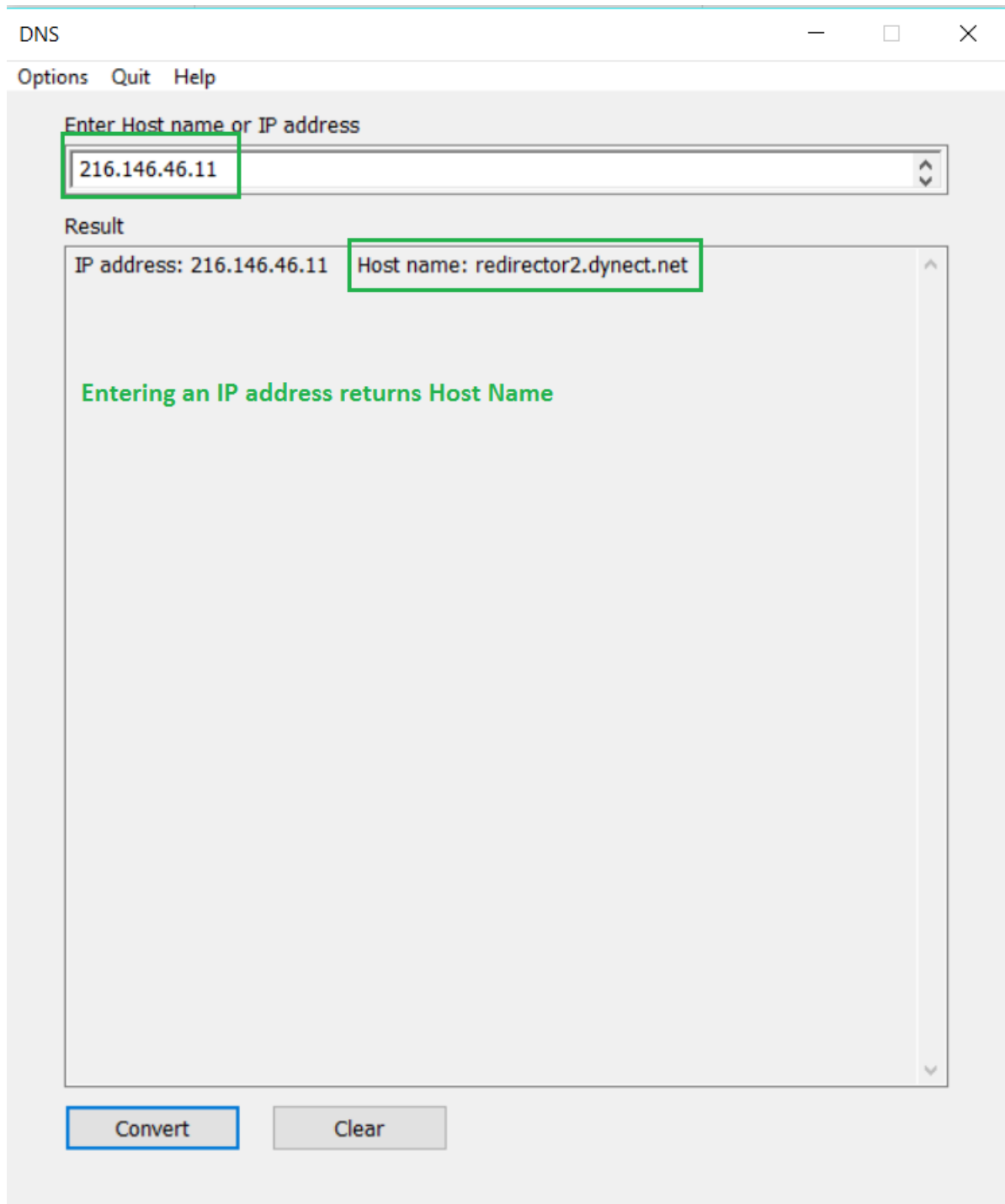
IP address: 199.212.24.24Host name: youtube.com

IP address: 199.212.24.25Host name: youtube.com

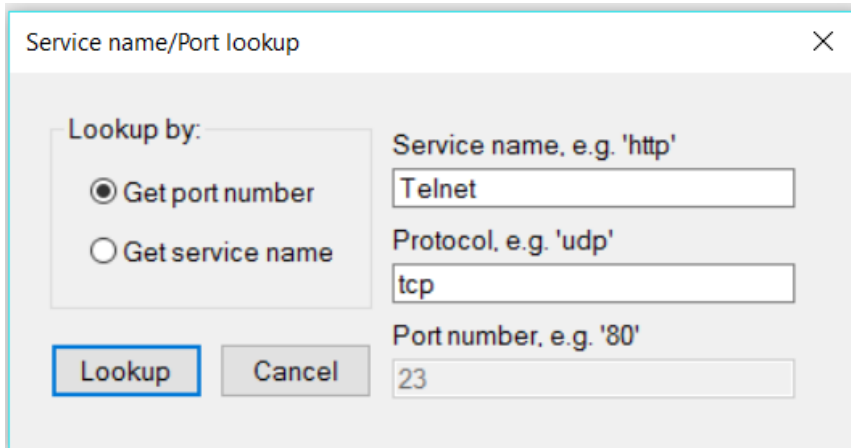
If a Host Name has more than 1 associated IP address, all of them will be printed out.

Convert

Clear



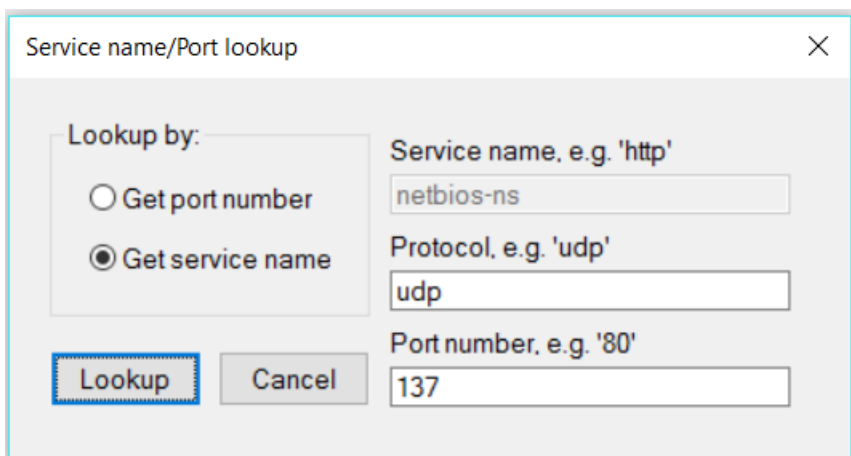
## 2.1 Get Service name functionality



The screenshot shows a dialog box titled "Service name/Port lookup" with a close button (X) in the top right corner. Inside the dialog, there is a section labeled "Lookup by:" with two radio buttons: "Get port number" (which is selected) and "Get service name". To the right of this section are three text input fields: "Service name, e.g. 'http'" containing "Telnet", "Protocol, e.g. 'udp'" containing "tcp", and "Port number, e.g. '80'" containing "23". At the bottom left of the dialog are two buttons: "Lookup" and "Cancel".

Entering valid Service Name and Protocol outputs the port number.

## 2.3 Get port number

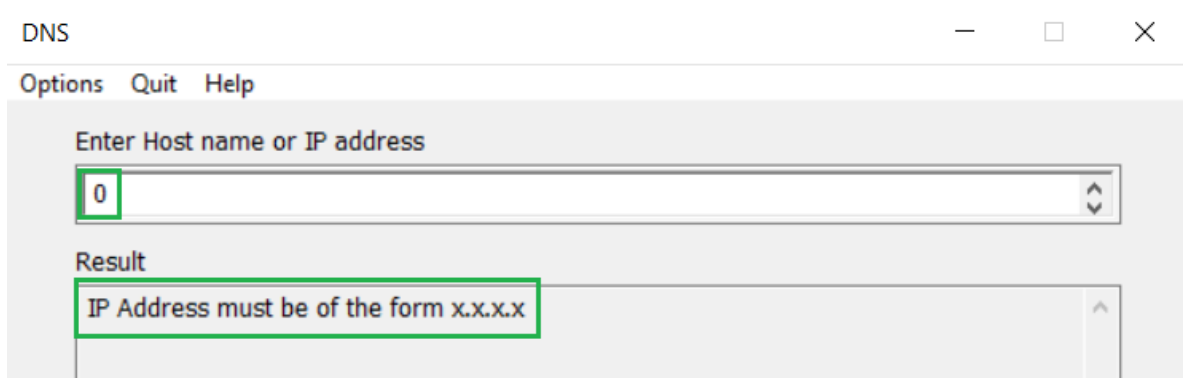


The screenshot shows the same "Service name/Port lookup" dialog box. In this instance, the "Get service name" radio button is selected. The "Service name" field now contains "netbios-ns", the "Protocol" field contains "udp", and the "Port number" field contains "137". The "Lookup" button is highlighted with a blue border.

Entering valid Protocol (udp) and Port Number (137) outputs relevant Service Name.

## 2.4. Error handling for Host Name – IP conversion

Below invalid inputs and error messages are tested:



DNS

Options Quit Help

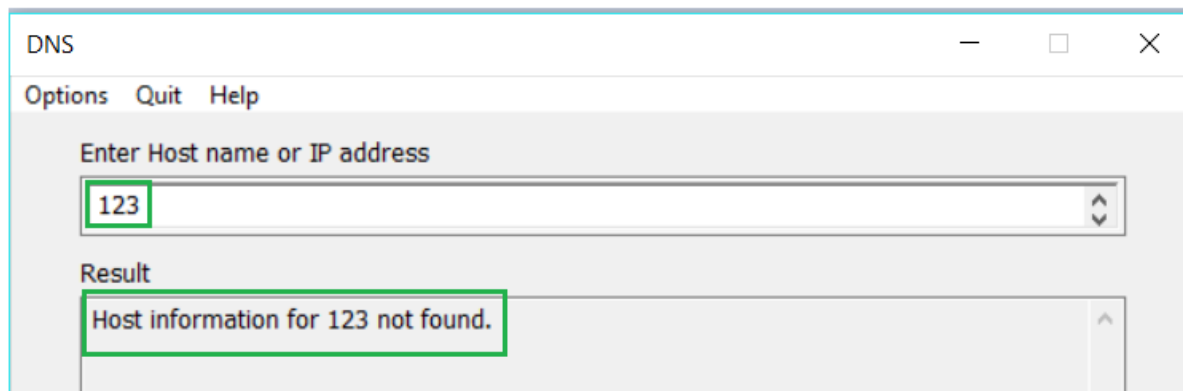
Enter Host name or IP address

0

Result

IP Address must be of the form x.x.x.x

This screenshot shows the DNS application window with the title bar 'DNS' and menu bar 'Options Quit Help'. The input field 'Enter Host name or IP address' contains the value '0'. The output field 'Result' displays the error message 'IP Address must be of the form x.x.x.x'. Both the input and the result text are highlighted with green boxes.



DNS

Options Quit Help

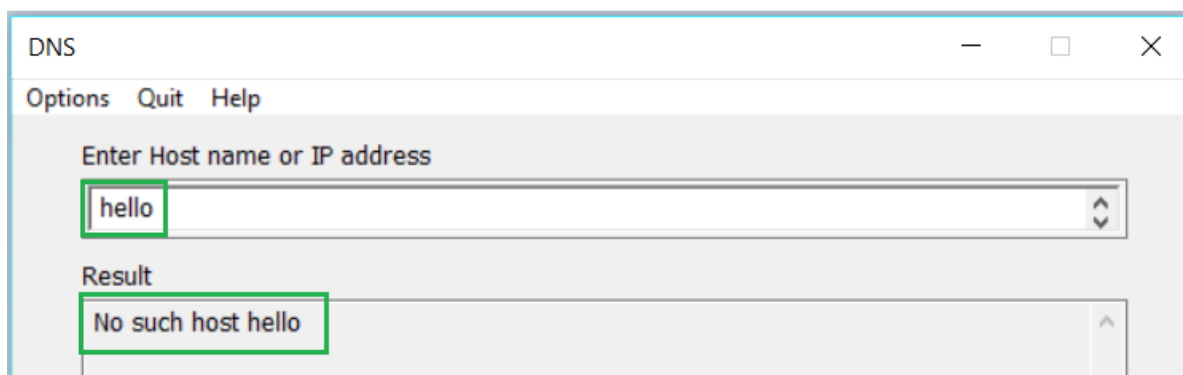
Enter Host name or IP address

123

Result

Host information for 123 not found.

This screenshot shows the DNS application window with the title bar 'DNS' and menu bar 'Options Quit Help'. The input field 'Enter Host name or IP address' contains the value '123'. The output field 'Result' displays the error message 'Host information for 123 not found.'. Both the input and the result text are highlighted with green boxes.



DNS

Options Quit Help

Enter Host name or IP address

hello

Result

No such host hello

This screenshot shows the DNS application window with the title bar 'DNS' and menu bar 'Options Quit Help'. The input field 'Enter Host name or IP address' contains the value 'hello'. The output field 'Result' displays the error message 'No such host hello'. Both the input and the result text are highlighted with green boxes.

## 2.5 Error handling for get Service Name and Get Port Number

Service name/Port lookup

Lookup by:

☒ Get port number

☐ Get service name

Service name, e.g. 'http'

http

Protocol, e.g. 'udp'

NTP

Port number, e.g. '80'

Error in getservbyname

Lookup Cancel

Service name/Port lookup

Lookup by:

☐ Get port number

☒ Get service name

Service name, e.g. 'http'

Error in getservbyport

Protocol, e.g. 'udp'

udp

Port number, e.g. '80'

143

Lookup Cancel