

Assignment 1 - Command Line Interpreter

Homework is to be completed individually. Send your zipped source code and executable file to me via CANVAS. Be sure to include your name at the top of each source file submitted. For example:

// ConsoleApplication1.cpp : Simple Command Line Interpreter.

Interactive Shell:

Write a C/C++ program to implement an interactive shell in which users can execute commands. Call this program **myShell**. Create an infinite loop (**while(1)**) that repeatedly prompts the user to enter a command (see example output and input below). Consider using **fgets()** to read a line of input from the user. Before executing the command entered by the user, the command must be compared against the list of supported commands shown here:

- **dir**
- **help**
- **vol**
- **path**
- **tasklist**
- **notepad**
- **echo**
- **color**
- **ping**

Since some commands require more than one argument (e.g. **echo**, **color**, **ping**), you will need to parse the user input into its arguments. Consider using the **strtok()** function.

Assumptions: Assume arguments within **myShell** do not contain spaces. In other words, don't worry about parsing out quoted strings in your argument list. You may assume that no more than four arguments will be used on the command line (i.e. similar to **argv[0]**, **argv[1]**, **argv[2]**, and **argv[3]**).

For example:

COMMAND TYPED BY THE USER: ==> **ping 192.168.1.1**

- ARGUMENT 0: "ping"
- ARGUMENT 1: "192.168.1.1"

If the command in **argument[0]** is in the list above, your program must execute the command in a child thread via **CreateThread()**. In other words, create a child thread that executes the command. The parent thread waits for the child to terminate.

If the user types exit or quit, your shell should simply terminate. Sample output and input are shown below:

```
Welcome to myShell
```

```
==> dir
```

```
Volume in drive C is Windows  
Volume Serial Number is 301D-8616
```

```
Directory of c:\Users\spati\documents\visual studio  
2015\Projects\ConsoleApplication1\ConsoleApplication1
```

```
08/27/2016 08:59 AM      <DIR>          .  
08/27/2016 08:59 AM      <DIR>          ..  
08/27/2016 08:59 AM                                1,686  
ConsoleApplication1.cpp  
08/25/2016 05:42 PM                                8,060  
ConsoleApplication1.vcxproj  
08/25/2016 05:42 PM                                1,346  
ConsoleApplication1.vcxproj.filters  
08/27/2016 09:00 AM      <DIR>          Debug  
08/25/2016 05:42 PM                                1,799 ReadMe.txt  
08/25/2016 05:42 PM                                306 stdafx.cpp  
08/25/2016 05:42 PM                                320 stdafx.h  
08/25/2016 05:42 PM                                314 targetver.h  
7 File(s) 13,831 bytes  
3 Dir(s) 526,080,049,152 bytes free
```

```
==> ping 192.168.1.1
```

```
Pinging 192.168.1.1 with 32 bytes of data:  
Reply from 192.168.1.1: bytes=32 time=2ms TTL=64  
Reply from 192.168.1.1: bytes=32 time=1ms TTL=64  
Reply from 192.168.1.1: bytes=32 time=3ms TTL=64  
Reply from 192.168.1.1: bytes=32 time=4ms TTL=64
```

```
Ping statistics for 192.168.1.1:  
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 1ms, Maximum = 4ms, Average = 2ms
```

```
==> exit
```

```
Thanks for using myShell!
```