



Practical Project: **TinyShell**

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A decorative network diagram on the left side of the slide. It features several nodes of different sizes and colors (teal, red, and light gray) connected by thin gray lines. The nodes are arranged in a non-linear fashion, with some larger nodes and some smaller ones, creating a complex web-like structure.


01

Introduction

A decorative network diagram on the right side of the slide. It features several nodes of different sizes and colors (teal, red, and light gray) connected by thin gray lines. The nodes are arranged in a non-linear fashion, with some larger nodes and some smaller ones, creating a complex web-like structure.

Introduction to shell

- Shell is a command line environment
- Interaction between user and operating system via command line.



```

C:\Windows\system32\cmd.exe

C:\Users\limited\Desktop>dir -size -dn -sizeolar il -dnolar il -sort dn -n il
26.448  24/10/2016 20:48 C:\Users\limited\Desktop\cs.exe
2.023.424 24/10/2016 13:57 C:\Users\limited\Desktop\Everything.exe
32.740  21/10/2016 16:17 C:\PostgreSQL
1.040.576 21/10/2016 16:17 C:\Users\limited\HTUSER.DAT
53.747  21/10/2016 16:17 C:\Users\limited\AppData\Local\IconCache.db
268.425.454 21/10/2016 16:08 C:\pagefile.sys
730.197.584 21/10/2016 16:08 C:\pagefile.sys
307.113  19/10/2016 19:31 C:\Users\limited\Desktop\Everything-Dehag.exe
181  19/10/2016 18:47 C:\Users\limited\Desktop\Everything.ini
7.328.537 14/10/2016 23:25 C:\dev\Everything.db

C:\Users\limited\Desktop>_

```

Command Line Interface (CLI)

Tiny Shell

list, create,
kill, stop,
resume

**Process
Management**

listpath,
addpath

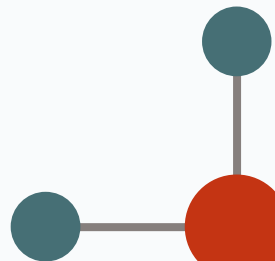
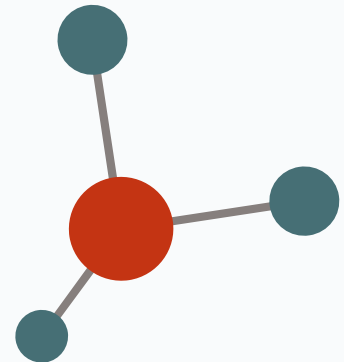
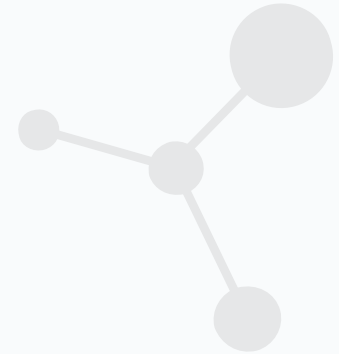
**Path
Management**

**Special
Commands**

date, time, dir,
exebat, google,
etc.

**Batch
commands**

exebat, cmd



Tiny Shell

```
exit [sf] - Exit the shell along with all running background processes.  
If 'sf' is provided, the shell waits for all background processes to exit before it exits.  
clear - Clear the console.  
time - Print the current time in different time zones.  
listpath - List all paths in the PATH environment variable.  
date - Print the current date.  
list - List all background processes.  
close - Close handles and delete all terminated background processes.  
dir - Print the current working directory.  
addpath <path> - Add a new path to the PATH environment variable.  
fork <dir> [foreground/background] - Create a new process to run an executable file  
from the specified directory in the foreground or background. The default is foreground.  
exebat <filepath> - Execute a batch file from the specified filepath.  
cd <dir> - Change the current directory.  
stop <pid> - Stop a process with the specified process ID (pid).  
resume <pid> - Resume a stopped process with the specified process ID (pid).  
kill <pid> - Terminate a process with the specified process ID (pid).  
history - View previous commands  
clearhistory - Clear the command history  
google - Open Google search tool; we also support Vietnamese queries  
youtube - Open YouTube in the default browser  
chatgpt - Open ChatGPT in the default browser  
facebook - Open Facebook in the default browser  
web <url> - Open a webpage given by the url in the default browser
```

A decorative network diagram on the left side of the slide. It features several nodes of different sizes and colors (teal, red, and light gray) connected by thin gray lines. The nodes are arranged in a non-linear, branching pattern.

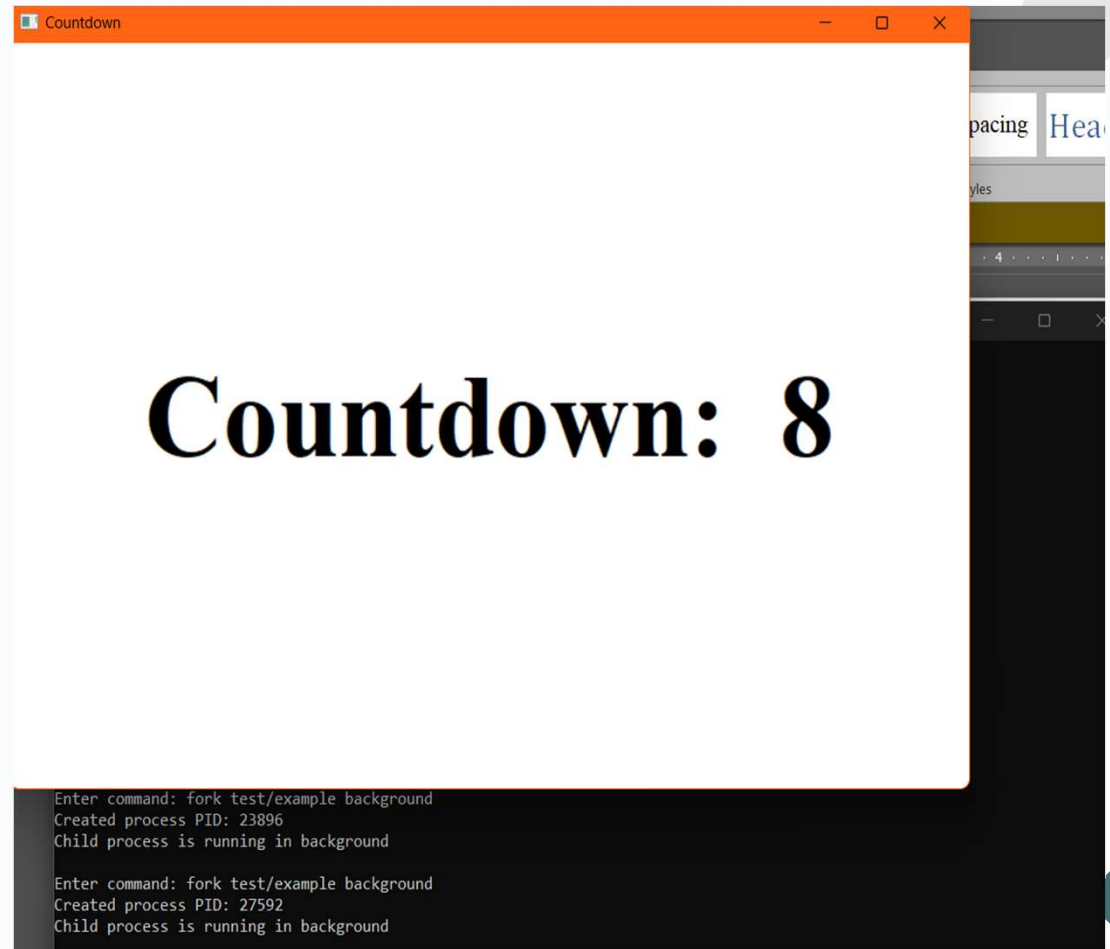
02

Features

A decorative network diagram on the right side of the slide. It features several nodes of different sizes and colors (teal, red, and light gray) connected by thin gray lines. The nodes are arranged in a non-linear, branching pattern, mirroring the style of the diagram on the left.

Create Process

- Allows users to create and manage both background and foreground processes.
- Use Ctrl+C to kill a currently running foreground process.
- If no foreground process is running, Ctrl+C will exit the shell and terminate all background processes.

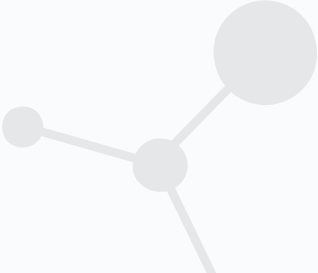


Process Management

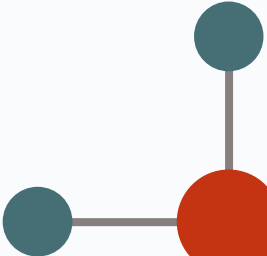
- The shell lists processes showing their names, statuses, and PIDs (Process IDs).
- Users can stop, resume, or kill a specific process identified by its PID (Process ID).
- Use `close` to remove terminated processes from the management table.
- example: `kill 29628`

`stop 29628`

`resume 29628`

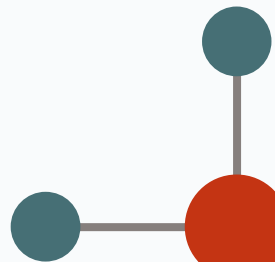
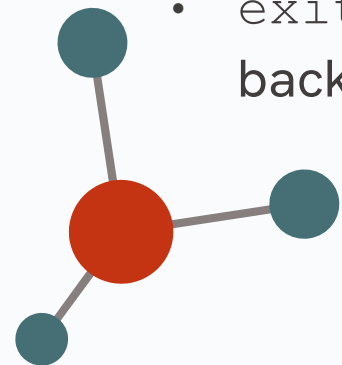
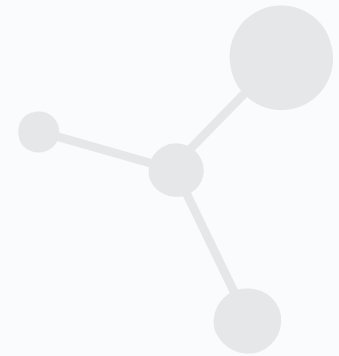


```
Enter command: list
PID: 17056 --> Name: test/example --> Status: Terminated
PID: 24212 --> Name: test/example --> Status: Stopped
PID: 29628 --> Name: test/example --> Status: Running
PID: 24788 --> Name: test/example --> Status: Running
PID: 10932 --> Name: test/example --> Status: Running
```



Special Commands

- `date`: Show current date.
- `time`: Display current time across different time zones.
- `cd`: Change directory (similar to Windows cmd).
- `dir`: List contents of current directory (similar to Windows cmd).
- `history`: Show previously executed commands.
- `google`: Enter query to open browser and search (supports Vietnamese).
- `youtube`, `chatgpt`
- `web<url>` : Browse specific website
- `exit [sf]` : Exit the shell, can exit in "soft" mode: waits for remaining background processes to finish before exiting



Enter command: google
Enter query: thời tiết hà nội hôm nay
Enter command:

Google

thời tiết hà nội hôm nay

Tous

Actualités

Images

Vidéos

Shopping

⋮ Plus

Résultats pour **Hanoi** · Choisir une zone ⋮



37 °C | °F

Précipitations : 0%

Humidité : 54%

Vent : 13 km/h

Température

Précipitations

Vent

Batch commands

- running a specific .bat file (example: `exebat test1.bat`)
- executing commands directly from the keyboard (example: `cmd ping google.com`)

```
Enter command: cmd ping google.com

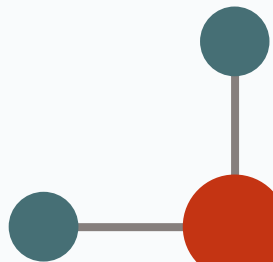
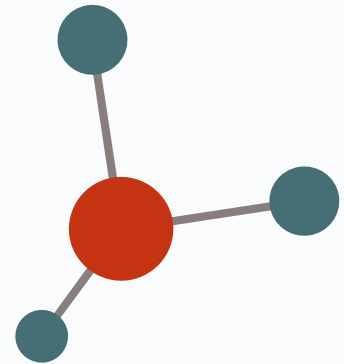
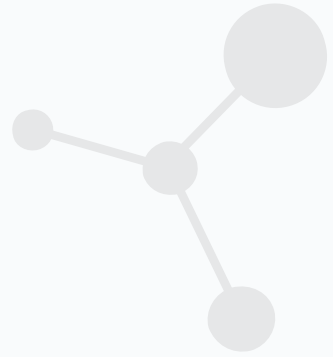
Pinging google.com [142.250.71.142] with 32 bytes of data:
Reply from 142.250.71.142: bytes=32 time=36ms TTL=117
Reply from 142.250.71.142: bytes=32 time=41ms TTL=117
Reply from 142.250.71.142: bytes=32 time=40ms TTL=117
Reply from 142.250.71.142: bytes=32 time=37ms TTL=117

Ping statistics for 142.250.71.142:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 36ms, Maximum = 41ms, Average = 38ms
```

Path Management

- `listpath` : Lists all paths currently accessible.
- `addpath` : Adds a new path to the Shell environment.

```
Enter command: listpath  
C:\Users\DELL  
D:\  
E:\  
C:\Users\DELL\TinyShell\test\
```

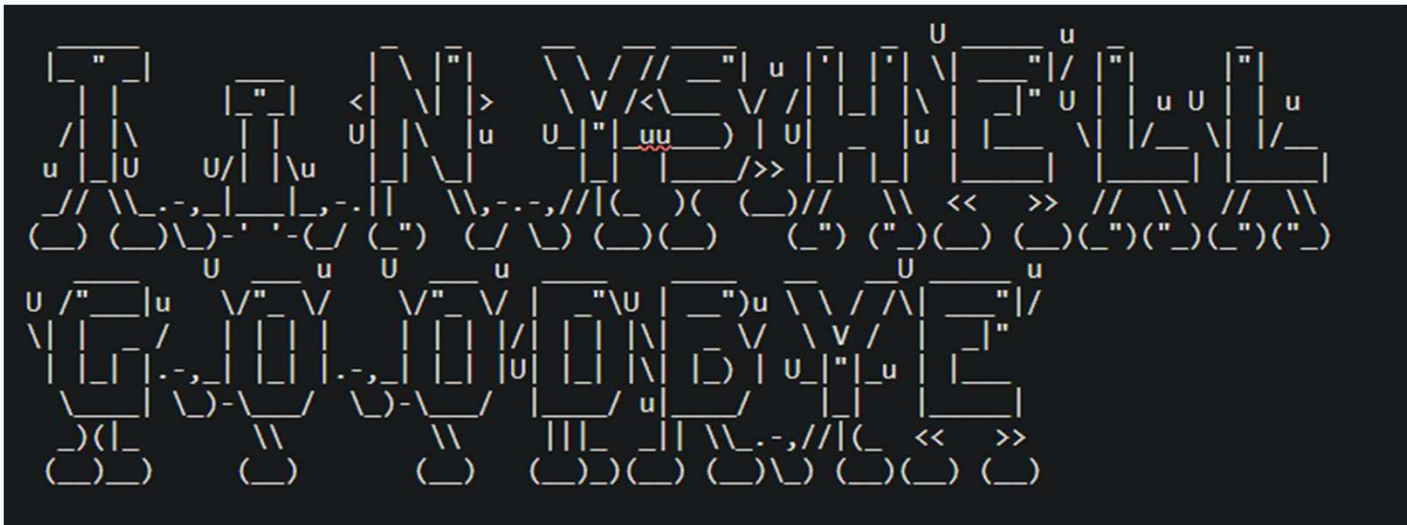


The image features a central text area with the number '03' in a teal, sans-serif font. Below it, the word 'Conclusion' is written in a bold, dark grey, sans-serif font. The background is a light grey-blue gradient. On the left and right sides, there are abstract network diagrams. The left diagram consists of several teal and red circular nodes connected by thin grey lines, with some additional grey nodes and lines floating nearby. The right diagram is similar, with a larger teal node at the top and a chain of smaller teal and red nodes below it, also accompanied by floating grey elements.

03

Conclusion

- Through the project, team members gain a better understanding of the WIN32 API.
- The team will continue to develop additional features for the Shell





**Thanks for
listening!**