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Lab 1

Linux Shell and scripting

### Task 1

I about 8 hours on this lab so through many revisions to scripts and unit files, so it can't be contained in a few screenshots. Instead, I will showcase my work and explain what I did and why. This should convince you this is my work.

Pitch.sh is the script that runs at startup. It returns "aaaaah", creates pitch.txt in /tmp and writes "stonks" to the pitch.txt file every 10 sec.

```
[bob8326@fedora home]$ cat pitch.sh
#!/bin/bash
echo "aaaaaah"
touch /tmp/pitch.txt

while true
do
    echo "stonks" > /tmp/pitch.txt
    sleep 10
done
```

This is the unit file that specifies the service file attributes. It contains a description, type, interpreter, and script location. The Wanted key specifies that it will be called upon graphical and multi-user boot modes.

```
[bob8326@fedora ~]$ cat /usr/lib/systemd/system/pitch.service
[Unit]
Description= This script will try justify renting office space
               california
[Service]
Type=simple
ExecStart=/bin/bash /home/pitch.sh
[Install]
WantedBy=multi-user.target
```

The screenshot below shows the service running along with the number of tasks

```
• pitch.service - This script will try justify renting office space in california
   Loaded: loaded (/usr/lib/systemd/system/pitch.service; enabled; vendor preset: disabled)
   Active: active (running) since Sun 2022-08-28 17:23:56 MST; 4min 47s ago
     Main PID: 672 (bash)
       Tasks: 2 (limit: 9485)
      Memory: 712.0K
         CPU: 35ms
      CGroup: /system.slice/pitch.service
              └─ 672 /bin/bash /home/pitch.sh
                 2564 sleep 10

Aug 28 17:23:56 fedora systemd[1]: Started pitch.service - This script will try justify renting office space
Aug 28 17:23:56 fedora bash[672]: aaaaaah
```

The screen shot below shows the script being run by init. This is because ppid is 1 and init's pid is 1 as it is the parent of all Linux process.

```
[bob8326@fedora ~]$ ps -ef | grep pitch
root          668          1  0 18:44 ?        00:00:00 /bin/bash /home/pitch.sh
bob8326       2558       2268  0 18:49 pts/0    00:00:00 grep --color=auto pitch
[bob8326@fedora ~]$
```

This is the would be command history for someone who could do it in one attempt

```
[root@fedora bob8326]# vim /home/pitch.sh
[root@fedora bob8326]# vim /usr/lib/systemd/system/pitch.service
[root@fedora bob8326]# systemctl enable pitch.service
[root@fedora bob8326]# systemctl start pitch.service
[root@fedora bob8326]#
```

<https://www.digitalocean.com/community/tutorials/understanding-systemd-units-and-unit-files>

<https://stackoverflow.com/questions/68737235/how-to-resolve-code-exited-status-203-exec-while-creating-a-system-service-for>

<https://unix.stackexchange.com/questions/379411/where-do-i-put-my-systemd-service>

## Task 2

Below is the the custom target 'pitch.target'

This target combines the graphical Interface target with the pitch.service

```
root@fedora:/usr/lib/systemd/system
[Unit]
Description=GraphInt+PitchService
Documentation=man:systemd.special(7)
Requires=multi-user.target
Wants=display-manager.service
Wants=pitch.service
Conflicts=rescue.service rescue.target
After=multi-user.target rescue.service rescue.target display-manager.service
AllowIsolate=yes
```

Below is the custom target running

```
[bob8326@fedora ~]$ systemctl isolate pitch.target
```

This is the status of the pitch.target, as you can see it's running

```
[root@fedora bob8326]# systemctl status pitch.target
● pitch.target - GraphInt+PitchService
   Loaded: loaded (/usr/lib/systemd/system/pitch.target; static)
   Active: active since Sun 2022-08-28 19:34:14 MST; 28min ago
     Until: Sun 2022-08-28 19:34:14 MST; 28min ago
    Docs: man:systemd.special(7)

Aug 28 19:34:14 fedora systemd[1]: Reached target pitch.target - GraphInt+PitchService.
```

I disabled the pitch.service and ran pitch.target in isolate mode. The target.service still launched.

```
[bob8326@fedora ~]$ systemctl status pitch.service
● pitch.service - This script will try justify renting office space in california
   Loaded: loaded (/usr/lib/systemd/system/pitch.service; disabled; vendor preset: disabled)
   Active: active (running) since Sun 2022-08-28 20:08:22 MST; 2min 31s ago
     Main PID: 2697 (bash)
       Tasks: 2 (limit: 9485)
      Memory: 716.0K
         CPU: 23ms
    CGroup: /system.slice/pitch.service
            └─ 2697 /bin/bash /home/pitch.sh
               4406 sleep 10

Aug 28 20:08:22 fedora systemd[1]: Started pitch.service - This script will try justify renting office
Aug 28 20:08:22 fedora bash[2697]: aaaaaah
```

The resource below suggests appending a target.wants directory instead of instead of creating a new target but the screenshots above is the best way I could find to create a custom target.

[https://wiki.archlinux.org/title/Systemd#Create\\_custom\\_target](https://wiki.archlinux.org/title/Systemd#Create_custom_target)