

# PRUEBA COMPETENCIAL (PRESENCIAL) - NOVIEMBRE

查看ip

```
li@uss:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
        inet 127.0.0.1/8 scope host lo
            valid_lft forever preferred_lft forever
            inet6 ::1/128 scope host noprefixroute
                valid_lft forever preferred_lft forever
2: ens18: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether bc:24:11:3b:4f:71 brd ff:ff:ff:ff:ff:ff
        althname enp0s18
        inet 192.168.1.208/24 metric 100 brd 192.168.1.255 scope global dynamic ens18
            valid_lft 602731sec preferred_lft 602731sec
        inet6 fe80::be24:11ff:fe3b:4f71/64 scope link
            valid_lft forever preferred_lft forever
```

编辑文件修改ip

- sudo nano /etc/netplan/50-cloud-init.yaml

```
network:
  version: 2
  ethernets:
    ens18:
      dhcp4: false
      addresses:
        - 192.168.1.53/24
      routes:
        - to: 0.0.0.0/0
          via: 192.168.1.1
    nameservers:
      addresses:
        - 1.1.1.1
        - 8.8.8.8
```

更改完成

```
li@uss:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
        inet 127.0.0.1/8 scope host lo
            valid_lft forever preferred_lft forever
            inet6 ::1/128 scope host noprefixroute
                valid_lft forever preferred_lft forever
2: ens18: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether bc:24:11:3b:4f:71 brd ff:ff:ff:ff:ff:ff
        althname enp0s18
        inet 192.168.1.53/24 brd 192.168.1.255 scope global ens18
            valid_lft forever preferred_lft forever
        inet6 fe80::be24:11ff:fe3b:4f71/64 scope link
            valid_lft forever preferred_lft forever
li@uss:~$
```

改密码

```
li@uss:~$ passwd
Changing password for li.
Current password:
New password:
Retype new password:
passwd: password updated successfully
```

更新系统

```
li@uss:~$ sudo apt update && sudo apt upgrade
```

## ssh连接

## 安装 netdiscover

```
li@uss:~$ sudo apt install netdiscover  
[...]
```

- sudo netdiscover

```
Currently scanning: 172.16.104.0/16 | Screen View: Unique Hosts
1866 Captured ARP Req/Rep packets, from 21 hosts. Total size: 111798
-----
IP          At MAC Address      Count    Len   MAC Vendor / Hostname
192.168.1.228 dc:45:46:0a:6b:a3 39      2340  Unknown vendor
192.168.1.176 c4:75:ab:25:ab:cf 1800    108000 Intel Corporate
192.168.1.1   cc:2d:21:2b:27:90  8       480   Tenda Technology Co.,Ltd.Dongguan branch
192.168.1.30  68:1d:ef:3c:80:bb  1       42    Shenzhen CYX Technology Co., Ltd.
```

## 1.

### 复制 MOTD 文件内容

- sudo nano /etc/motd

```
GNU nano 7.2                               /etc/motd *
```

LCARS TERMINAL INTERFACE SECTOR: /var/log

NODO: Lxin-Server NCC-0704  
ROL : Servidor de Entrenamiento ASIR  
MODO: Simulación de puente de mando  
Cadate: Li Xinyuan  
ID Grupo: 12138  
Saludo LCARS: "Todos los sistemas operativos."  
Fecha Estelar: \$(date)

MODOS RÁPIDOS  
01 Estado del núcleo warp -> sudo systemctl status  
02 Sensores de red -> ip a / ss -tulpn  
03 Registros de la Flota -> journalctl / tail -f /var/log/\*  
04 Cámaras de ingeniería -> top / htop

PROTOCOLO DE ACCESO  
A1 Identidad de oficial: lxin0704  
A2 Código de autenticación: «larga vida y prosperidad»

创建一个新的文件，将复制的所有内容粘贴到该文件里，并赋予文件运行权限

- sudo nano /etc/update-motd.d/01-lcars
- sudo chmod +x /etc/update-motd.d/01-lcars

```
li@uss:~$ sudo nano /etc/update-motd.d/01-lcars
li@uss:~$ sudo chmod +x /etc/update-motd.d/01-lcars
```

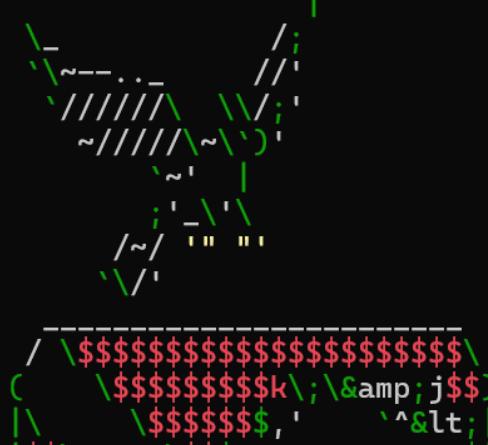
### 更改内容

```
Fecha_Estelar=$(date +"%Y/%m/%d %H:%M:%S")
cat << "EOF"

LCARS TERMINAL INTERFACE                      SECTOR: /var/log

NODO: Lxin-Server NCC-0704  
ROL : Servidor de Entrenamiento ASIR  
MODO: Simulación de puente de mando  
Cadate: Li Xinyuan  
ID Grupo: 12138  
"Todos los sistemas operativos."
```

```
Cadate: Li Xinyuan
ID Grupo: 12138
EOF
echo "Fecha Estelar: $Fecha_Estelar"
cat << "EOF"
"Todos los sistemas operativos."
-----
"Bienvenido, querido capitán."
-----  

-----  

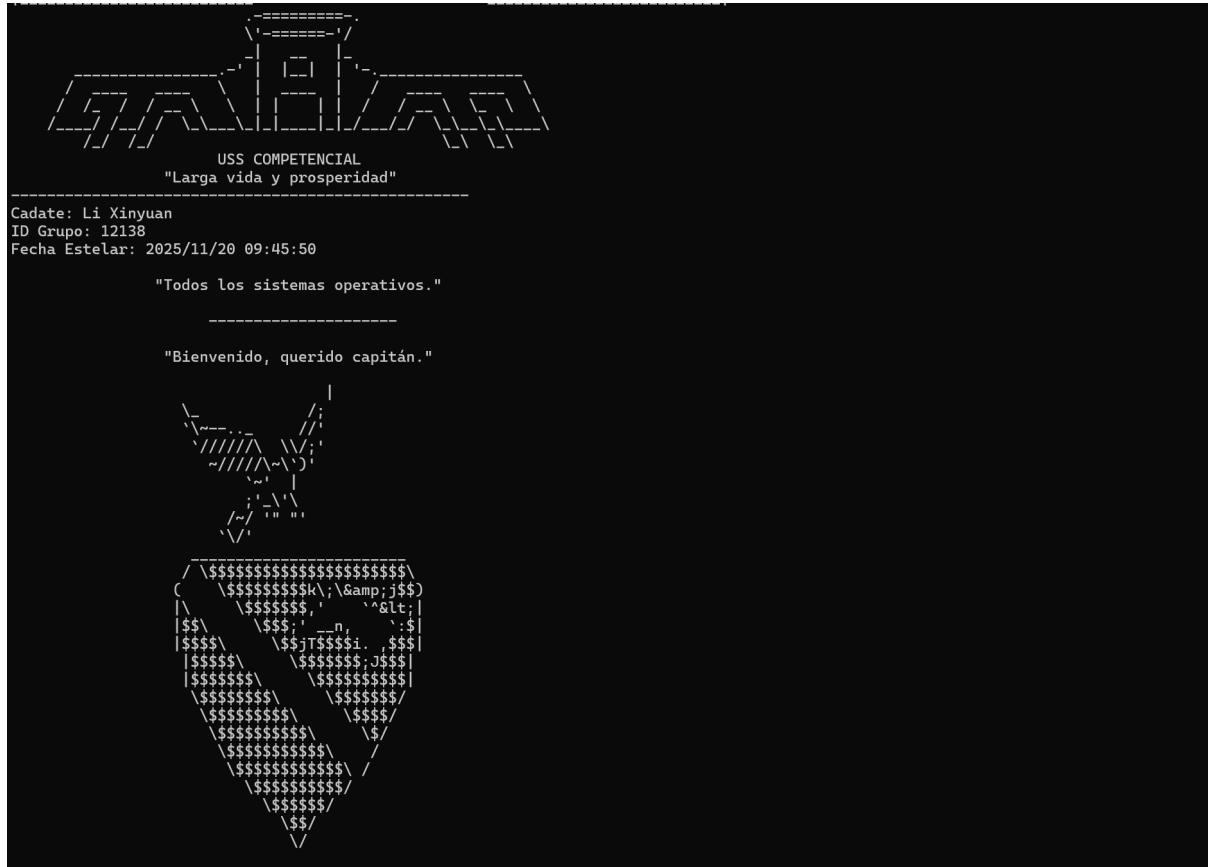
"/\$$$$$$$$$$$$$$$$$$$$$$$$$\\
( \$$$$$$$$$k\; & j\$ )
| \$$$$$, ' ^ < ; |
| $$\ \$$$; ' _n, ` : $ |
| $$$\ \$$jT$$$i. , $$ |
| $$$\ \$$$; J$$$ |
| $$$\ \$$$ \$$$ | \$$ |
| \$$$ \$$$ \$$$ / \$$ |
| \$$$ \$$$ \$$$ \$/ \$$ |
| \$$$ \$$$ \$$$ \$/ | \$$ |
| \$$$ \$$$ \$$$ \$/ | \$$ |
| \$$$ \$$$ \$$$ \$/ | \$$ |
| \$$$ \$$$ \$$$ \$/ | \$$ |
EOF
```

清空原先 /etc/motd 的内容

- sudo truncate -s 0 /etc/motd

```
li@uss:~$ sudo truncate -s 0 /etc/motd
```

重新登录



## 2.

安装、启用并验证Apache、MySQL y php:

- sudo apt update
- sudo apt install -y apache2 mysql-server php php-mysql libapache2-mod-php

```
li@uss:/$ sudo apt update
```

```
li@uss:/$ sudo apt install -y apache2 mysql-server php php-mysql libapache2-mod-php
```

- sudo mysql\_secure\_installation

```
li@uss:/$ sudo mysql_secure_installation
```

Securing the MySQL server deployment.

Connecting to MySQL using a blank password.

启用:

- sudo systemctl start apache2
- sudo systemctl enable apache2

```
li@uss:/$ sudo systemctl start apache2
```

```
li@uss:/$ sudo systemctl enable apache2
Synchronizing state of apache2.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable apache2
```

- sudo systemctl start mysql
- sudo systemctl enable mysql

```
li@uss:/$ sudo systemctl start mysql
li@uss:/$ sudo systemctl enable mysql
Synchronizing state of mysql.service with SysV service script with /usr/lib/systemd/systemd-sysv-install
Executing: /usr/lib/systemd/systemd-sysv-install enable mysql
```

验证：

- sudo systemctl status apache2

```
li@uss:/$ sudo systemctl status apache2
● apache2.service - The Apache HTTP Server
  Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
  Active: active (running) since Tue 2025-11-18 11:23:07 UTC; 12min ago
    Docs: https://httpd.apache.org/docs/2.4/
   Main PID: 10410 (apache2)
```

- sudo systemctl status mysql

```
li@uss:/$ sudo systemctl status mysql
● mysql.service - MySQL Community Server
  Loaded: loaded (/usr/lib/systemd/system/mysql.service; enabled; preset: enabled)
  Active: active (running) since Tue 2025-11-18 11:33:01 UTC; 3min 24s ago
    Main PID: 12310 (mysqld)
      Status: "Server is operational"
```

- sudo mysql -u root -p

```
li@uss:/$ sudo mysql -u root -p
Enter password:
Welcome to the MySQL monitor. Commands end with ; or \g.
Your MySQL connection id is 10
Server version: 8.0.43-Ubuntu0.24.04.2 (Ubuntu)

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affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> |
```

### 3.

安装并启用UFW

- sudo apt install ufw -y

```
li@uss:/$ sudo apt install ufw -y
```

- sudo ufw enable

```
li@uss:/$ sudo ufw enable
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
```

允许SSH、HTTP、HTTPS

- sudo ufw allow ssh
- sudo ufw allow http
- sudo ufw allow https

```
li@uss:/$ sudo ufw allow ssh
Rule added
Rule added (v6)
li@uss:/$ sudo ufw allow http
Rule added
Rule added (v6)
li@uss:/$ sudo ufw allow https
Rule added
Rule added (v6)
```

验证

```
li@uss:/$ sudo ufw status
Status: active

To                         Action      From
--                         --          --
22/tcp                      ALLOW       Anywhere
80/tcp                      ALLOW       Anywhere
443                         ALLOW       Anywhere
22/tcp (v6)                 ALLOW       Anywhere (v6)
80/tcp (v6)                 ALLOW       Anywhere (v6)
443 (v6)                    ALLOW       Anywhere (v6)
```

创建php文件在网页显示防火墙状态

- sudo nano firewall\_status.php

```
li@uss:/var/www/html$ sudo nano firewall_status.php
```

```
<!DOCTYPE html>
<html lang="es">
<head>
    <meta charset="UTF-8">
    <title>Estado del Escudo Deflector</title>
    <style>
```

```

body { background-color: black; color: #00FFFF; font-family: Arial, sans-serif; }
.panel { border: 2px solid #FF9999; padding: 20px; margin: 20px auto;
max-width: 600px; }
h1, h2 { color: #FF9999; }
</style>
</head>
<body>
<div class="panel">
<h1>USS Enterprise NCC-1701-D - Escudo Deflector</h1>
<h2>Estado del Escudo</h2>
<?php
$ufw_status = shell_exec('sudo ufw status');
echo "<pre>$ufw_status</pre>";
?>
<p>Escudos levantados. Solo permitido SSH, HTTP y HTTPS.</p>
</div>
</body>
</html>

```

```

GNU nano 7.2                                              firewall_status.php
<!DOCTYPE html>
<html lang="es">
<head>
<meta charset="UTF-8">
<title>Estado del Escudo Deflector</title>
<style>
body { background-color: black; color: #00FFFF; font-family: Arial, sans-serif; }
.panel { border: 2px solid #FF9999; padding: 20px; margin: 20px auto; max-width: 600px; }
h1, h2 { color: #FF9999; }
</style>
</head>
<body>
<div class="panel">
<h1>USS Enterprise NCC-1701-D - Escudo Deflector</h1>
<h2>Estado del Escudo</h2>
<?php
$ufw_status = shell_exec('sudo ufw status');
echo "<pre>$ufw_status</pre>";
?>
<p>Escudos levantados. Solo permitido SSH, HTTP y HTTPS.</p>
</div>
</body>
</html>

```

配置sudo免密, 使PHP能执行 ufw status

- sudo visudo

在文件末尾添加:www-data ALL=(ALL) NOPASSWD: /usr/sbin/ufw status

```

# Allow members of group sudo to execute any command
%sudo    ALL=(ALL:ALL) ALL

# See sudoers(5) for more information on "@include" directives:

@includedir /etc/sudoers.d
www-data ALL=(ALL) NOPASSWD: /usr/sbin/ufw status
|           ←

```

浏览器访问 : http://IP/firewall\_status.php



#### 4.

##### 安装docker

- sudo apt install -y apt-transport-https ca-certificates curl software-properties-common gnupg lsb-release
- curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg
- echo "deb [arch=\$(dpkg --print-architecture) signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/ubuntu \$(lsb\_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
- sudo apt update && sudo apt install -y docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin

##### 创建遥测数据生成脚本

- sudo nano telem\_generator.php

```
Li@uss:/var/www/html$ sudo nano telem_generator.php
```

```
<?php
$telemetry = [
    'apache_status' => shell_exec('systemctl is-active apache2'),
    'mysql_status' => shell_exec('systemctl is-active mariadb'),
    'php_version' => phpversion(),
    'docker_version' => shell_exec('docker --version 2>/dev/null') ?: 'Docker no instalado',
```

```

'kernel_version' => shell_exec('uname -r'),
'uptime' => shell_exec('uptime -p')
];

header('Content-Type: application/json');
echo json_encode($telemetry, JSON_PRETTY_PRINT);
?>

```

```

GNU nano 7.2                                     telem_generator.php

<?php
$telemetry = [
    'apache_status' => shell_exec('systemctl is-active apache2'),
    'mysql_status' => shell_exec('systemctl is-active mariadb'),
    'php_version' => phpversion(),
    'docker_version' => shell_exec('docker --version 2>/dev/null') ?: 'Docker no instalado',
    'kernel_version' => shell_exec('uname -r'),
    'uptime' => shell_exec('uptime -p')
];

header('Content-Type: application/json');
echo json_encode($telemetry, JSON_PRETTY_PRINT);
?>
|
```

创建遥测展示页面：

- sudo nano telem\_panel.html

```

li@uss:/var/www/html$ sudo nano telem_panel.html
|
```

```

<!DOCTYPE html>
<html lang="es">
<head>
    <meta charset="UTF-8">
    <title>Panel de Diagnóstico de Ingeniería</title>
    <style>
        body { background-color: black; color: #00FFFF; font-family: Arial,
        sans-serif; }
        .lcars-panel { border: 3px solid #FF9999; padding: 15px; margin: 10px
        auto; max-width: 800px; }
        .lcars-title { color: #FF9999; border-bottom: 2px solid #FF9999;
        padding-bottom: 5px; }
        .telemetry-item { margin: 10px 0; padding: 5px; border: 1px solid
        #00FFFF; }
        .telemetry-label { color: #FF9999; font-weight: bold; }
    </style>
</head>
<body>
    <div class="lcars-panel">
        <h1 class="lcars-title">Panel de Diagnóstico de Ingeniería - USS
        Enterprise NCC-1701-D</h1>
        <div id="telemetry-data" class="telemetry-item">
```

```
Cargando datos de telemetría...
</div>
</div>

<script>
  fetch('telem_generator.php')
    .then(response => response.json())
    .then(data => {
      const telemetryDiv = document.getElementById('telemetry-data');
      telemetryDiv.innerHTML =
        <div><span class="telemetry-label">Estado Apache:</span>
      ${data.apache_status}</div>
        <div><span class="telemetry-label">Estado MySQL:</span>
      ${data.mysql_status}</div>
        <div><span class="telemetry-label">Versión PHP:</span>
      ${data.php_version}</div>
        <div><span class="telemetry-label">Versión Docker:</span>
      ${data.docker_version}</div>
        <div><span class="telemetry-label">Versión Kernel:</span>
      ${data.kernel_version}</div>
        <div><span class="telemetry-label">Tiempo Activo:</span>
      ${data.uptime}</div>
        `;
    })
    .catch(error => {
      document.getElementById('telemetry-data').innerHTML =
        <div class="error">Error al cargar telemetría:
      ${error.message}</div>
        `;
    });
  </script>
</body>
</html>
```

```
GNU nano 7.2                                     telem_panel.html
<!DOCTYPE html>
<html lang="es">
<head>
    <meta charset="UTF-8">
    <title>Panel de Diagnóstico de Ingeniería</title>
    <style>
        body { background-color: black; color: #00FFFF; font-family: Arial, sans-serif; }
        .lcars-panel { border: 3px solid #FF9999; padding: 15px; margin: 10px auto; max-width: 800px; }
        .lcars-title { color: #FF9999; border-bottom: 2px solid #FF9999; padding-bottom: 5px; }
        .telemetry-item { margin: 10px 0; padding: 5px; border: 1px solid #00FFFF; }
        .telemetry-label { color: #FF9999; font-weight: bold; }
    </style>
</head>
<body>
    <div class="lcars-panel">
        <h1 class="lcars-title">Panel de Diagnóstico de Ingeniería - USS Enterprise NCC-1701-D</h1>
        <div id="telemetry-data" class="telemetry-item">
            Cargando datos de telemetría...
        </div>
    </div>
    <script>
```



在浏览器里访问 [http://IP/telemetry\\_panel.html](http://IP/telemetry_panel.html)

## 5.

创建Git hub仓库并初始化

<https://github.com/>

**Create a new repository**

Repositories contain a project's files and version history. Have a project elsewhere? [Import a repository](#). Required fields are marked with an asterisk (\*).

**1 General**

Owner \* **Repository name \***  
lxin0704-12138 / starfleet-prueba-competencial-LiXinyuan  
 starfleet-prueba-competencial-LiXinyuan is available.

Great repository names are short and memorable. How about [upgraded-disco](#)?

Description  
Examiner  
6 / 350 characters

**2 Configuration**

Choose visibility \*  
Choose who can see and commit to this repository  
 Public

Add README  
READMEs can be used as longer descriptions. [About READMEs](#)  
 Off

- mkdir starfleet-prueba-competencial-LiXinyuan

```
li@uss:/var/www/html$ cd
li@uss:~$ mkdir starfleet-prueba-competencial-LiXinyuan
li@uss:~$ cd starfleet-prueba-competencial-LiXinyuan
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ |
```

- git init

```
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/li/starfleet-prueba-competencial-LiXinyuan/.git/
```

## 将文件复制到目录里

- cp /var/www/html/firewall\_status.php .
- cp /var/www/html/telem\_generator.php .
- cp /var/www/html/telem\_panel.html .
- cp /etc/motd .

```
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ cp /var/www/html/firewall_status.php .
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ ls
firewall_status.php
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ cp /var/www/html/telem_generator.php .
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ cp /var/www/html/telem_panel.html .
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ cp /etc/motd .
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ ls
firewall_status.php  motd  telem_generator.php  telem_panel.html
```

## 编辑 [README.md](#) 文件

```
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ sudo nano README.md
```

```
GNU nano 7.2
Examen del cadata:Li Xinyuan
ID Grupo:12138
Saludo LCARS:"Todos los sistemas operativos."
Fecha: 2025/11/18
```

## 配置全局用户信息

- git config --global user.name "lxin0704-12138"
- git config --global user.email "lxin0704@gmail.com"

```
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ git config --global user.name "lxin0704-12138"
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ git config --global user.email "lxin0704@gmail.com"
```

## 提交 git

- git add .
- git commit -m "Examen\_2025\_11\_18"
- git branch -M main
- git remote add origin <https://github.com/lxin0704-12138/starfleet-prueba-competencial-LiXinyuan.git>
- git push -u origin main

```
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ git add .
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ git commit -m "Examen_2025_11_18"
[master (root-commit) 4961789] Examen_2025_11_18
 5 files changed, 146 insertions(+)
  create mode 100644 README.md
  create mode 100644 firewall_status.php
  create mode 100644 motd
  create mode 100644 telem_generator.php
  create mode 100644 telem_panel.html
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ git branch -M main
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ git remote add origin https://github.com/lxin0704-12138/starfleet-prueba-competencial-LiXinyuan.git
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ git push -u origin main
```

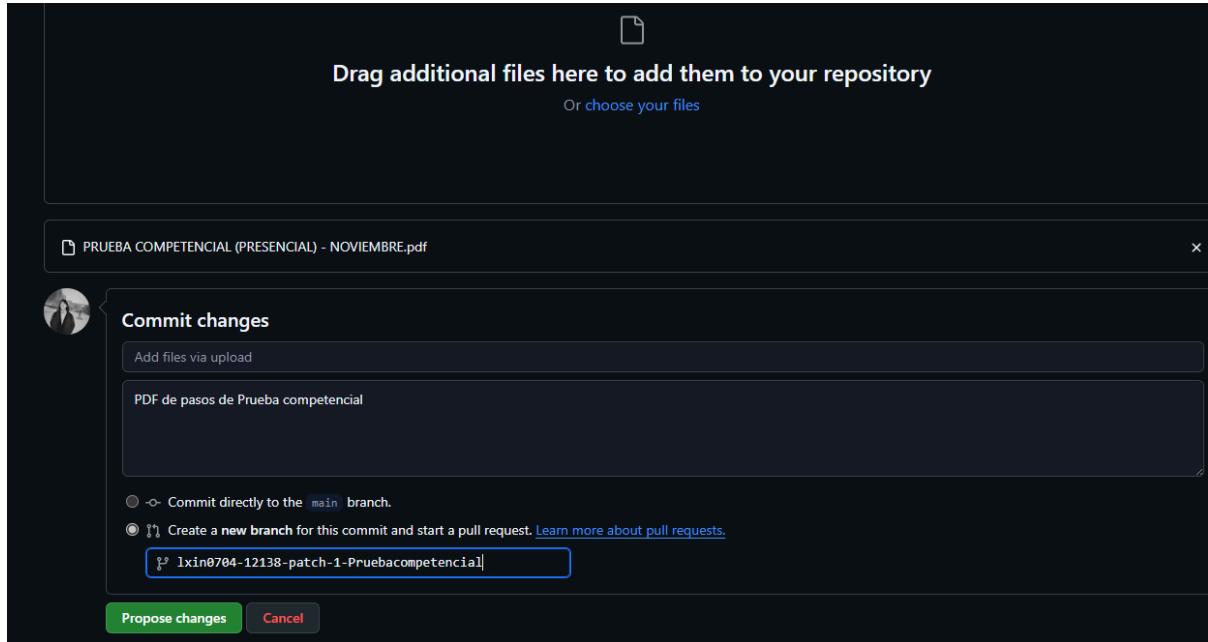
```
li@uss:~/starfleet-prueba-competencial-LiXinyuan$ git push -u origin main
Username for 'https://github.com': lxin0704-12138
Password for 'https://lxin0704-12138@github.com':
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Compressing objects: 100% (7/7), done.
Writing objects: 100% (7/7), 2.98 KiB | 2.98 MiB/s, done.
Total 7 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/lxin0704-12138/starfleet-prueba-competencial-LiXinyuan.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.
```

The screenshot shows a GitHub repository page for 'starfleet-prueba-competencial-LiXinyuan'. The repository has 1 branch and 0 tags. The main file listed is 'Examen\_2025\_11\_18' with 1 commit. The README file contains the following text:  
Examen del cadate:Li Xinyuan ID Grupo:12138 Saludo LCARS:"Todos los sistemas operativos." Fecha: 2025/11/18

登录 Git Hub 网站，打开创建的容器，选择上传文件(上传pdf文件，截图... )

The screenshot shows the same GitHub repository page. A red arrow points to the 'Upload files' option in the 'Add file' dropdown menu. The README file content is identical to the previous screenshot.

上传文件后，可以写对文件的描述和选择创建分支。完成后点击 Propose change



点击 Create pull request

