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
    altname 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
    altname 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

```
┌─ li@uss: ~          ×    +  ∨                                                    ─   □   ×
│                                                                         │
│      ┌──┐  RECORDATORIOS DE FLOTA                                       │
│      │B1│  No ejecutes comandos como root sin pensar dos veces.         │
│      │B2│  Los logs lo ven TODO.                                        │
│      │B3│  Backups diarios, drama cero.                                 │
│      └──┘                                                               │
│_____ FIN DEL CANAL DE ESTATUS _____│
                            .-=========-.
                            \'-======-'/
                            _-| __  |-_
             _____-'|  |_|  |'-_____
            /  ___        /  |       |  \        ___  \
           /__/   _____/   |       |   _____/   \__\
           \_/ \_/       \_|_|       |_|_/       \_/ \_/
           /_/ /_/                     \_\ \_\
                      USS COMPETENCIAL
                 "Larga vida y prosperidad"
NOTAS DEL INGENIERO:
sudo find / -iname "archivo.txt"
sudo grep -R "texto" / 2>/dev/null


_____
IMPORTANTE
MENSAJE FLOTA ESTELAR: Tu primera misión es la 47-A


li@uss:~$ │
```

安装 netdiscover

```
li@uss:~$ sudo apt install netdiscover
Leyendo lista de paquetes...  Hecho
```

- 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.

编辑 MOTD 文件

- 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 -tulnp           │
│   │ 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»     │
└───────────────────────────────────────────────────────────────────┘
```

登录

```
┌═══════════════════════════════════════════════════════════════════┐
│ ▇▇  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 -tulnp           │
│   │ 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»     │
│                                                                     │
│   ┌─────────────────────────────────────────────────────────────┐ │
│   │ COMPUTADORA DE A BORDO:                                       │ │
│   │                                                               │ │
│   │ » Credenciales vulcanas aceptadas.                            │ │
│   │ » Lógica confirmada.                                          │ │
│   │ » Núcleo warp estable.                                        │ │
│   │                                                               │ │
│   │ Próxima acción sugerida:                                      │ │
│   │    - Revisar anomalías en el sector /var/log                  │ │
│   │    - Comprobar integridad de escudos (firewall / ssh)         │ │
│   └─────────────────────────────────────────────────────────────┘ │
│                                                                     │
│   ▇   RECORDATORIOS DE FLOTA                                        │
│   │ B1   No ejecutes comandos como root sin pensar dos veces.       │
│   │ B2   Los logs lo ven TODO.                                      │
│   │ B3   Backups diarios, drama cero.                               │
│                                                                     │
│_____ FIN DEL CANAL DE ESTATUS _____│
└═════════════════════════════════════════════════════════════════════┘
                          .-=========-.
                          \'-======-'/
                           -| __ |-
              _____.-'| |_| |'-._____
     /  ____   ____      \  |   |  /      ____   ____  \
    /__/ /__/  \_____|   |_/_____/___/  \\__\___\
       /_/  /_/  \_\         \_\  \_\
                     USS COMPETENCIAL
                  "Larga vida y prosperidad"
```

编辑 MOTD 文件

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: 8.0.43-0ubuntu0.24.04.2 (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
<?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


```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>
```


Panel de Diagnóstico de Ingeniería - USS Enterprise NCC-1701-D

Estado Apache: active
Estado MySQL: inactive
Versión PHP: 8.3.6
Versión Docker: Docker version 29.0.2, build 8108357
Versión Kernel: 6.8.0-87-generic
Tiempo Activo: up 1 hour, 35 minutes

在浏览器里访问 http://IP/telemetry_panel.html

5.

创建Git hub仓库并初始化

https://github.com/

- mkdir starfleet-prueba-competencial-LiXinyuan

- git init

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                                              README.md *
Examen del cadate: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-pru
eba-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'.
```
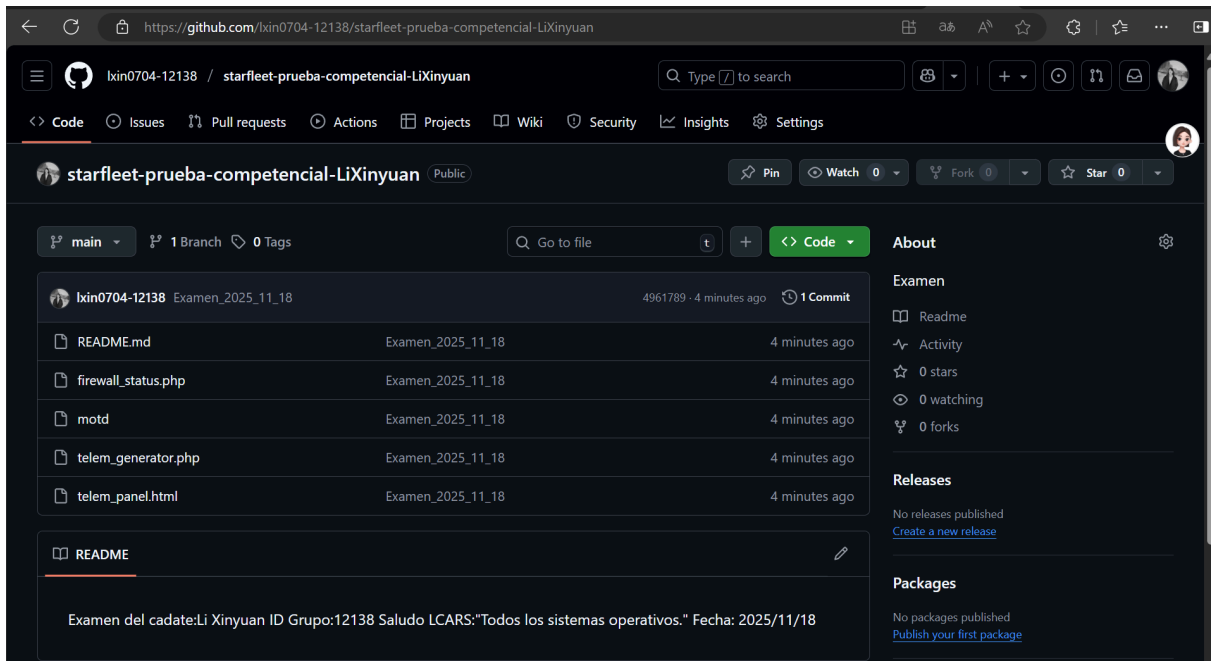
登录 Git Hub 网站，打开创建的容器，选择上传文件（上传pdf文件，截图...）
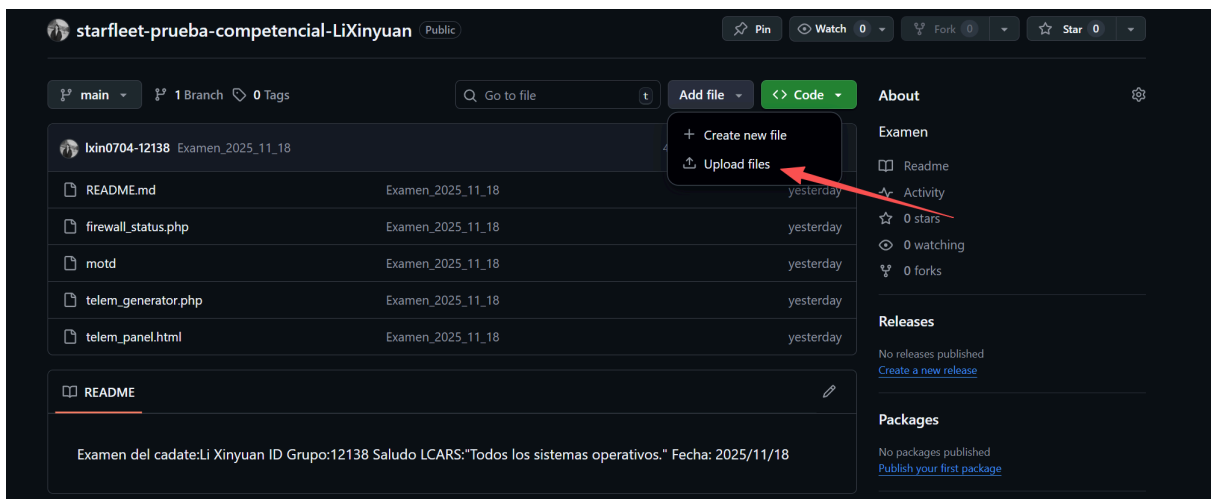
上传文件后，可以写对文件的描述和选择创建分支。完成后点击 Propose change

点击 Create pull request