

**Xavier University - Ateneo de Cagayan**

**Clinic Admission**

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**Submitted to:**

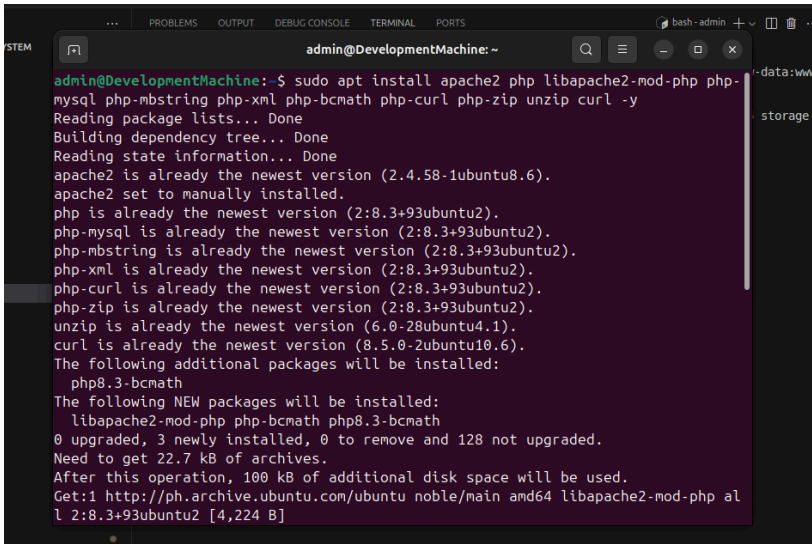
Mr. Ian Alquitela

## Testing and Quality Assurance

### a. Deployment of Application on the configured Server

In the previous milestone, we focused on ensuring that the clinic scheduling system is stable, maintainable, and accessible in a simulated production environment. The system was deployed on an **Ubuntu virtual machine** configured with **PHP**, **MySQL**, and **Composer**. Both the Admin and Student Laravel applications were cloned into the server and properly installed using Composer. After configuring the `.env` files with the correct database credentials, the system was successfully migrated and seeded. File permissions were then set for the `storage/` and `bootstrap/cache/` directories to prevent write-related errors, which allowed Laravel to execute properly during runtime.

Initially, the application was run locally using `php artisan serve` to verify that both projects were functioning as expected. To simulate a production-ready environment, Apache was installed on the Ubuntu VM.



```
admin@DevelopmentMachine: ~  
admin@DevelopmentMachine:~$ sudo apt install apache2 php libapache2-mod-php php-  
mysql php-mbstring php-xml php-bcmath php-curl php-zip unzip curl -y  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
apache2 is already the newest version (2.4.58-1ubuntu8.6).  
apache2 set to manually installed.  
php is already the newest version (2:8.3+93ubuntu2).  
php-mysql is already the newest version (2:8.3+93ubuntu2).  
php-mbstring is already the newest version (2:8.3+93ubuntu2).  
php-xml is already the newest version (2:8.3+93ubuntu2).  
php-curl is already the newest version (2:8.3+93ubuntu2).  
php-zip is already the newest version (2:8.3+93ubuntu2).  
unzip is already the newest version (6.0-28ubuntu4.1).  
curl is already the newest version (8.5.0-2ubuntu10.6).  
The following additional packages will be installed:  
  php8.3-bcmath  
The following NEW packages will be installed:  
  libapache2-mod-php php-bcmath php8.3-bcmath  
0 upgraded, 3 newly installed, 0 to remove and 128 not upgraded.  
Need to get 22.7 kB of archives.  
After this operation, 100 kB of additional disk space will be used.  
Get:1 http://ph.archive.ubuntu.com/ubuntu noble/main amd64 libapache2-mod-php al  
l 2:8.3+93ubuntu2 [4,224 B]
```

Figure 1. Installation of apache

Virtual host configuration files were created for both `admin.local` and `student.local`, each pointing to its respective Laravel project's `public/` directory. The default Apache site was disabled to avoid conflicts, and the custom virtual host files were enabled using `a2ensite`. The `/etc/hosts` file was updated in both the VM and the host PC, allowing each domain to resolve correctly in the browser. As a result, both Laravel applications were successfully accessed from the host PC using `http://admin.local` and `http://student.local`.

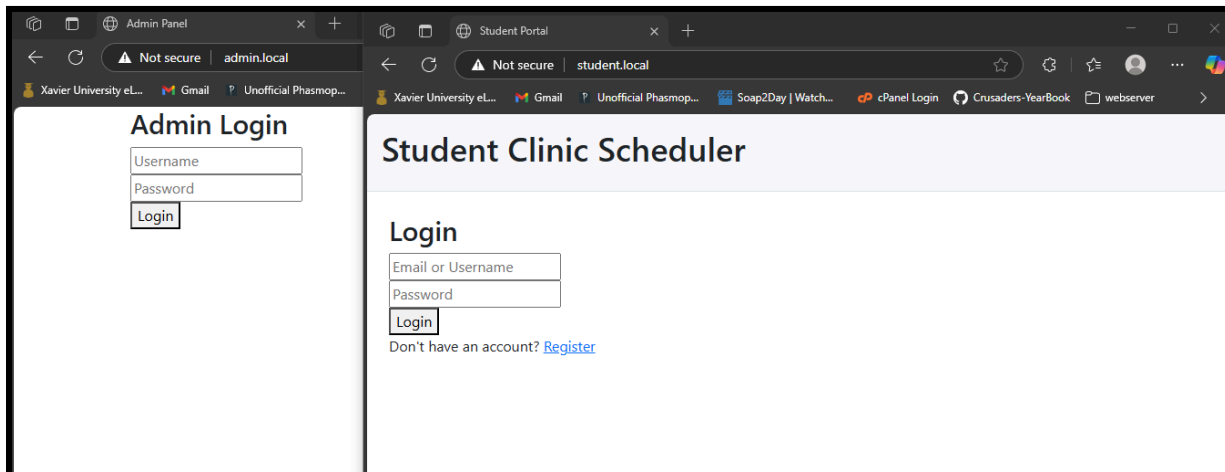
```

admin@DevelopmentMachine:/var/www$ sudo cp -r /home/admin/clinic_dev/Clinic-Appointment-System/student /var/www/student
admin@DevelopmentMachine:/var/www$ sudo cp -r /home/admin/clinic_dev/Clinic-Appointment-System/admin /var/www/admin
admin@DevelopmentMachine:/var/www$ sudo nano /etc/apache2/sites-available/admin.conf
admin@DevelopmentMachine:/var/www$ sudo nano /etc/apache2/sites-available/student.conf
admin@DevelopmentMachine:/var/www$

admin@DevelopmentMachine:/var/www$ sudo a2ensite admin
Enabling site admin.
To activate the new configuration, you need to run:
  systemctl reload apache2
admin@DevelopmentMachine:/var/www$ sudo a2ensite student
Enabling site student.
To activate the new configuration, you need to run:
  systemctl reload apache2
admin@DevelopmentMachine:/var/www$ sudo a2enmod rewrite
Enabling module rewrite.
To activate the new configuration, you need to run:
  systemctl restart apache2
admin@DevelopmentMachine:/var/www$ sudo systemctl reload apache2

```

**Figure 2. Enabling virtual host config files using a2ensite**

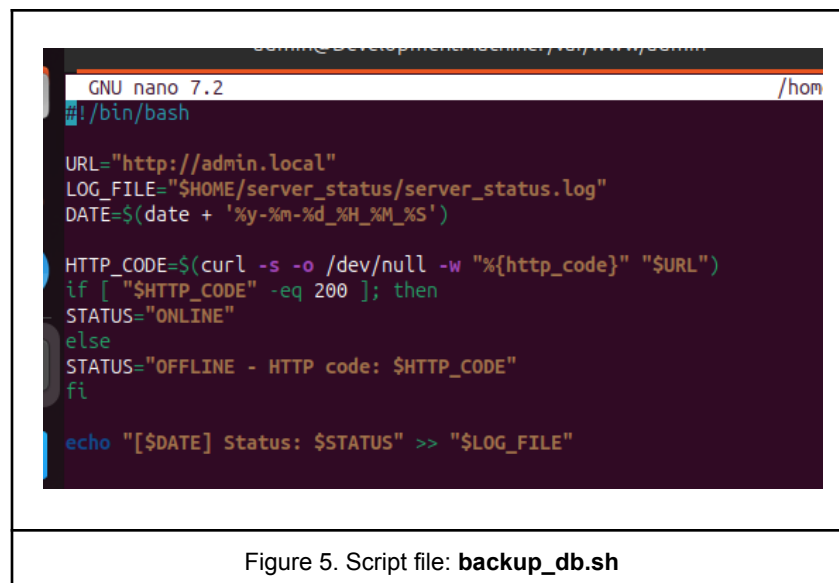


**Figure 3. Accessing laravel applications in the host PC**

To automate administrative tasks and improve system reliability, we implemented Bash scripts for daily database backups and periodic uptime monitoring. The backup\_db.sh script creates a timestamped backup of the MySQL database and logs each backup in a log file located at ~/db\_backups/backup.log.



This script is scheduled to run automatically every day at 1:00 AM using a cron job. In addition, we created a script named `check_web.sh`, which checks if the Laravel application is online by sending an HTTP request to the server every 10 minutes. The script logs the status code to `~/server_status.log` to help detect downtime or network issues. This script is also scheduled using cron.



Monitoring and logging at both the application and system levels has also been implemented, by using Laravel's built-in logging system, actively capturing application-level events and errors using `Log::info()` and `Log::error()` statements integrated into business process controllers. Additionally, System administrators can access and review the most recent log entries from both the Admin and Student systems directly through the web interface. This feature enhances visibility into application behavior and aids in faster debugging and maintenance.

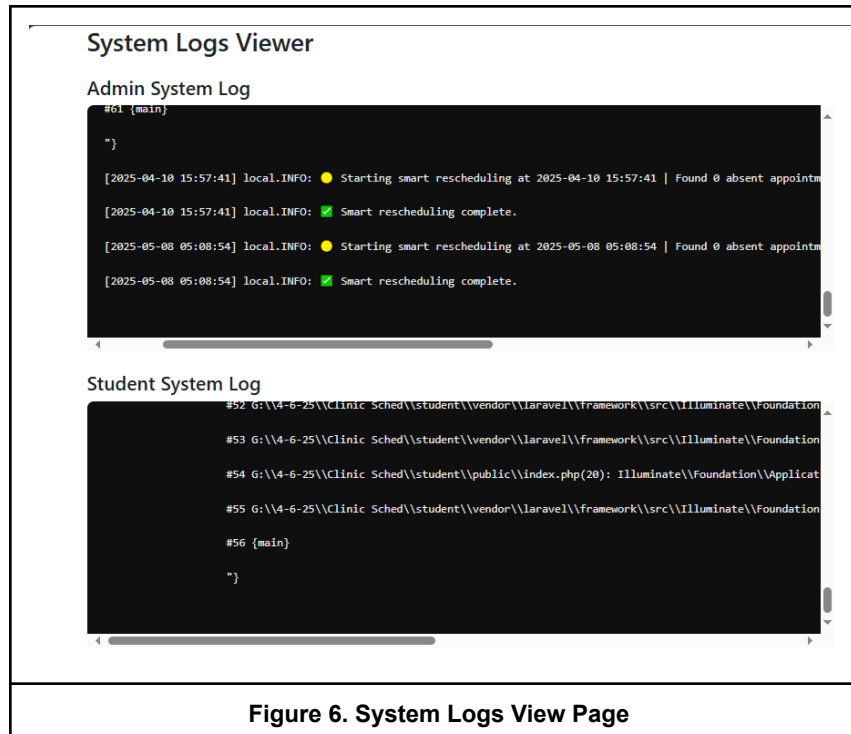


Figure 6. System Logs View Page

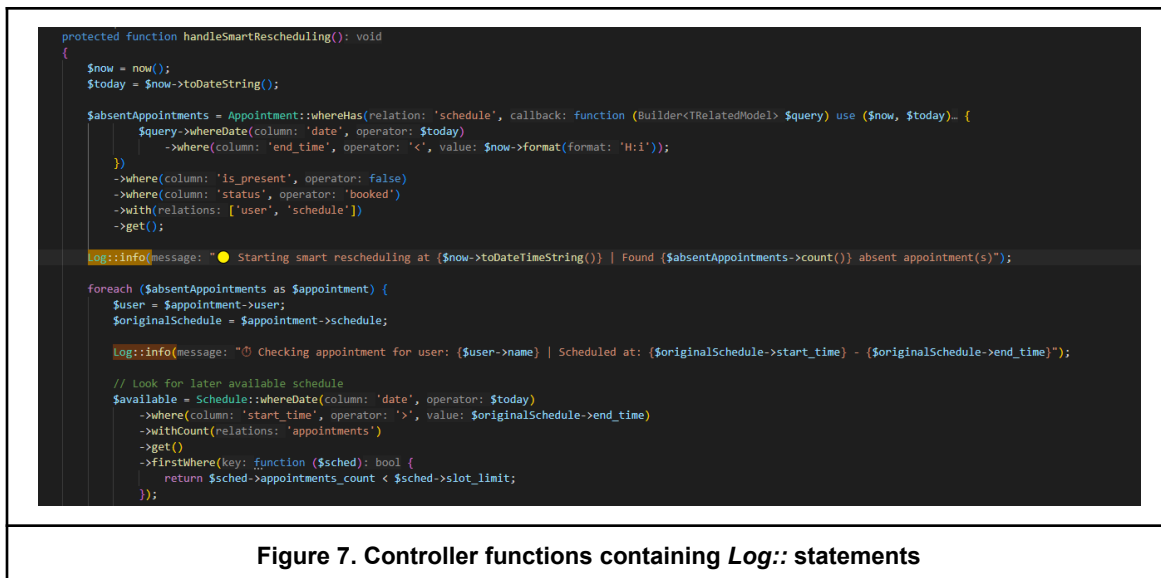


Figure 7. Controller functions containing `Log::` statements

## b. Testing

### Student Side

## Student Clinic Scheduler

### Login

Don't have an account? [Register](#)

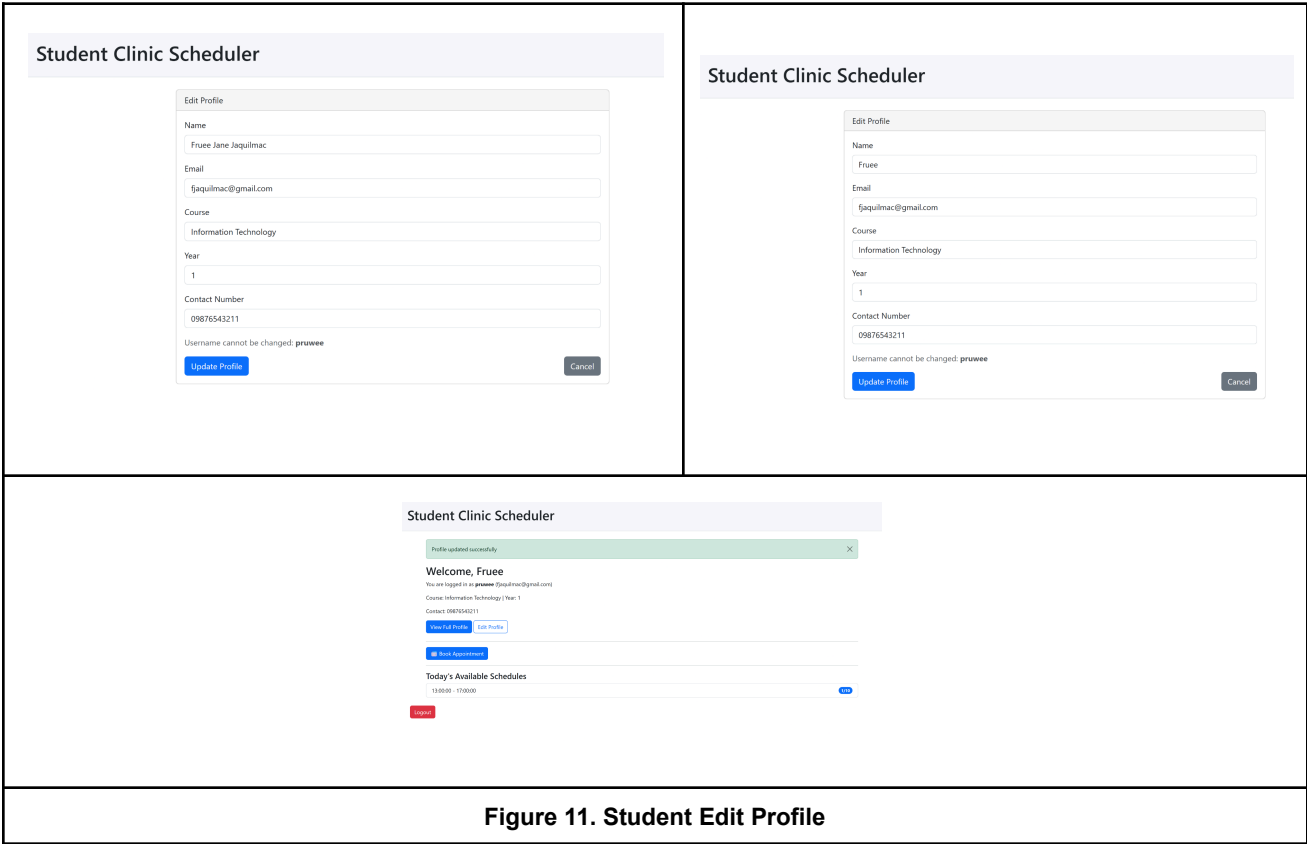
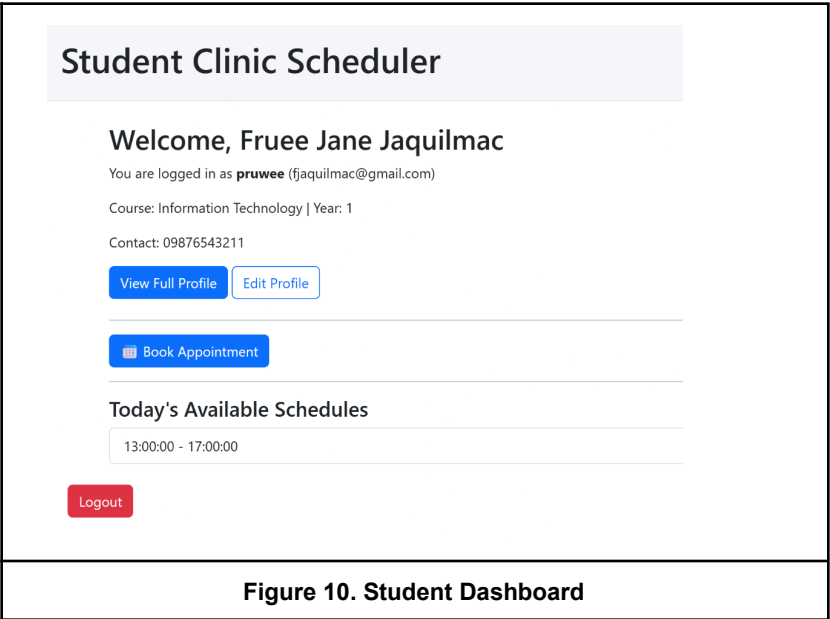
**Figure 8. Student Login**

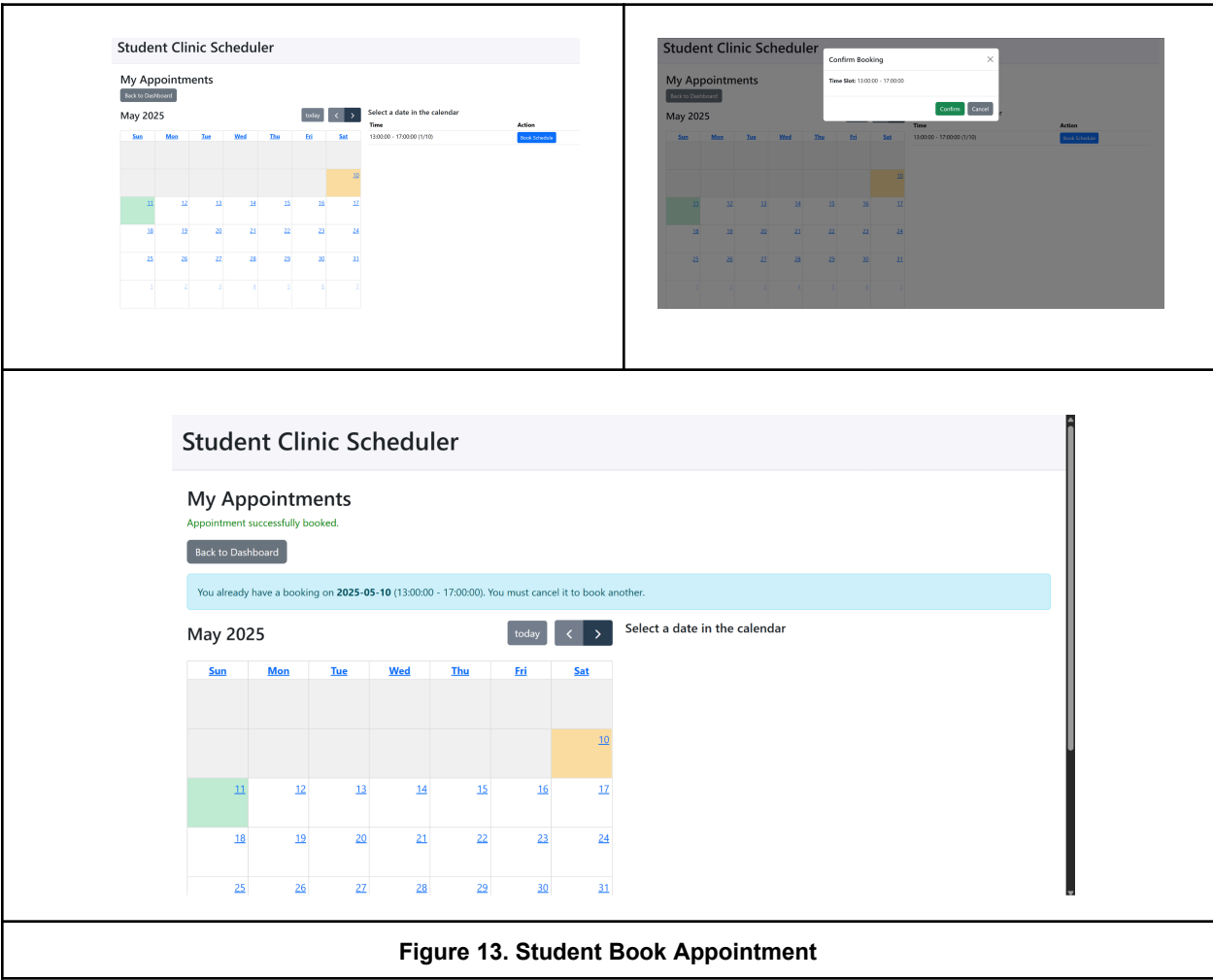
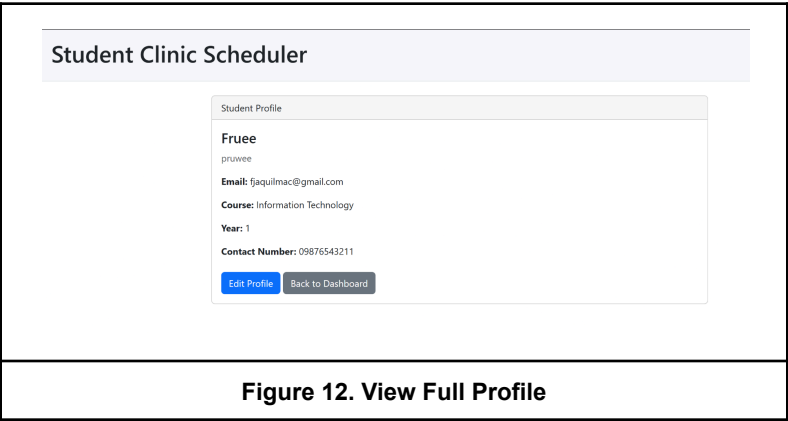
## Student Clinic Scheduler

### Register

Already registered? [Login here](#)

**Figure 9. Student Register**







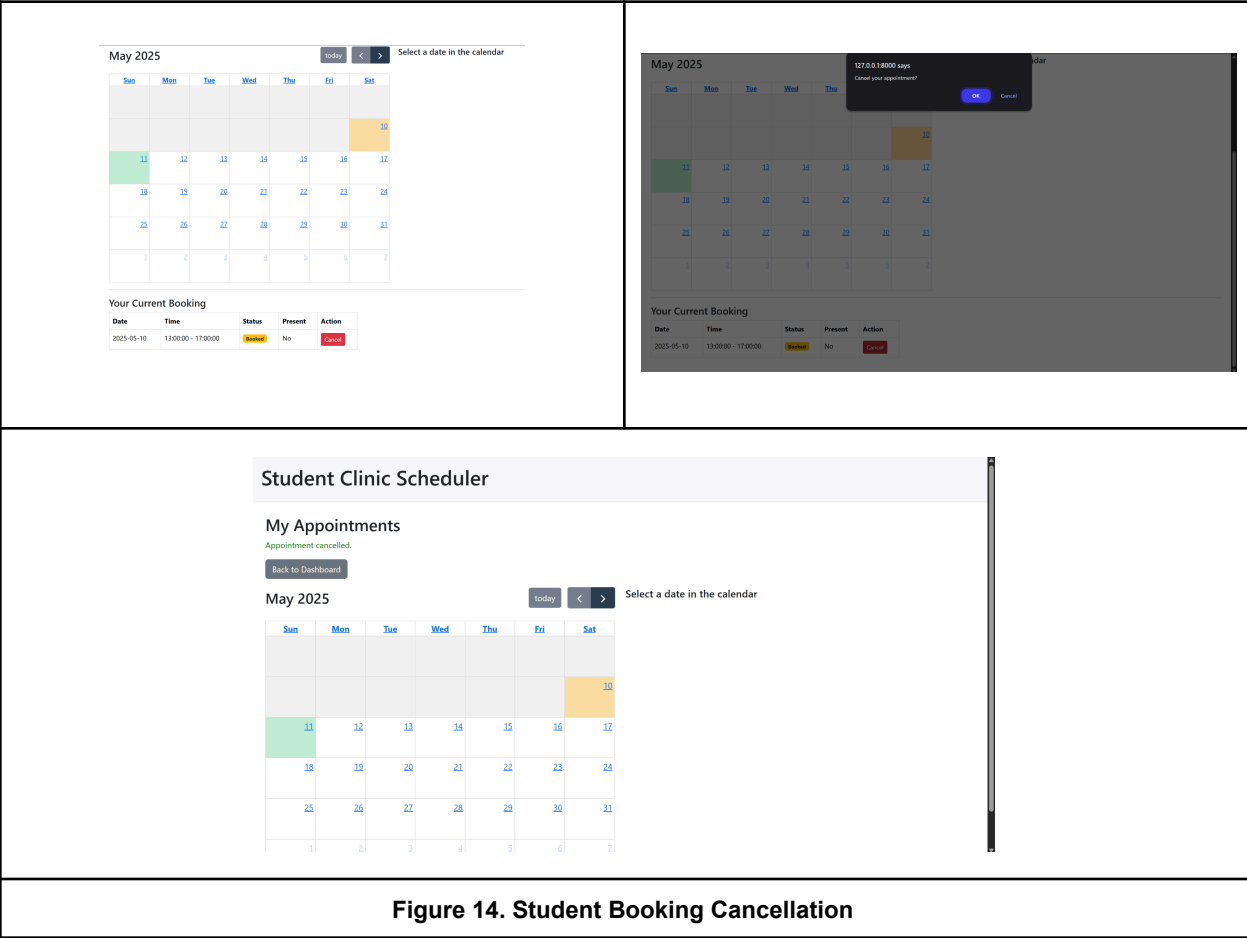
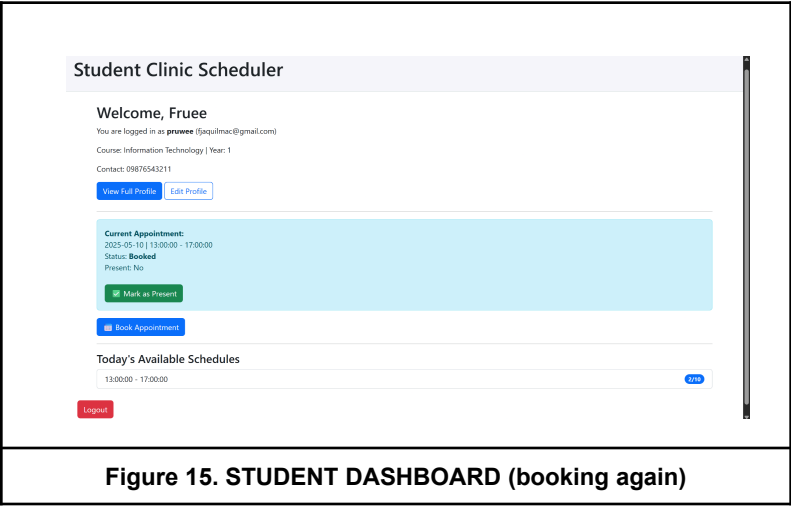
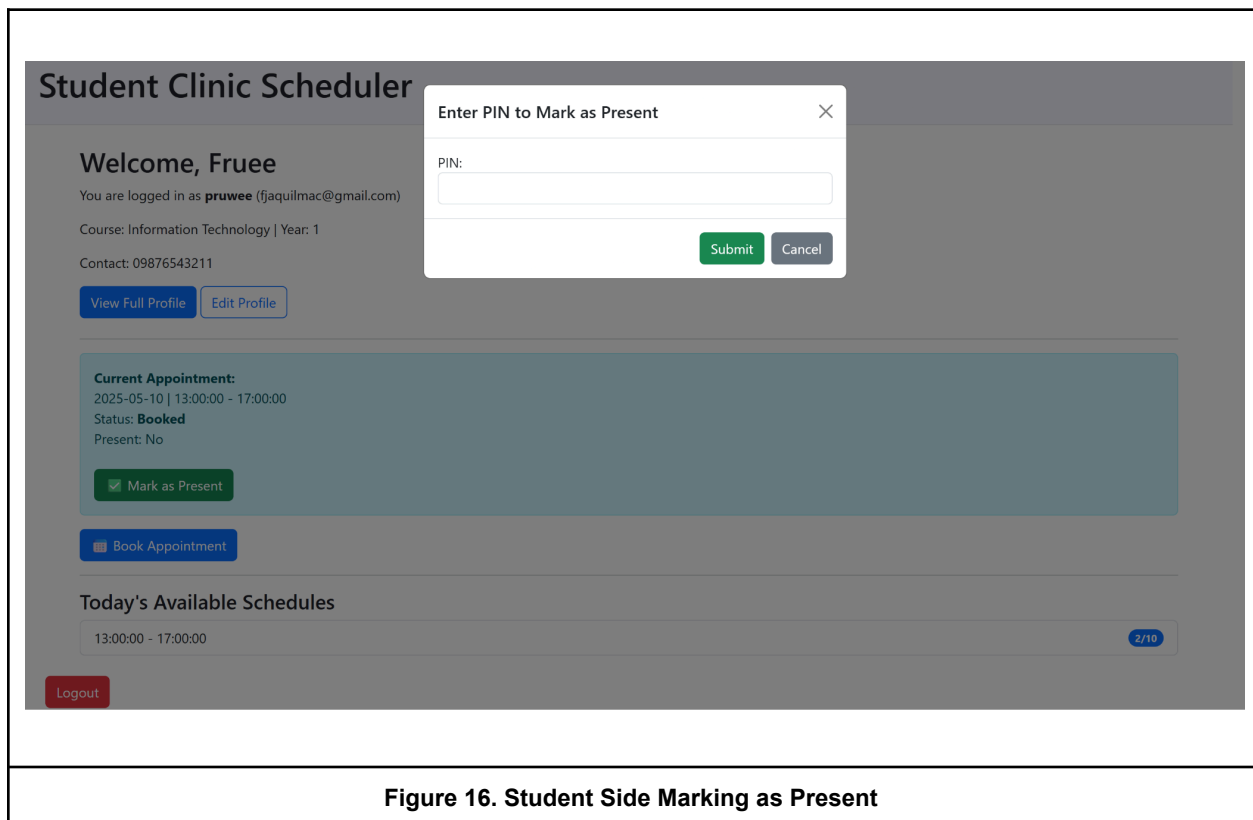


Figure 14. Student Booking Cancellation





The “Mark as Present” button will show a pop-up. You can obtain the PIN from the clinic itself when you show up from your appointment.

## Admin Side

### Admin Login

Login

**Figure 17. Admin Login Page**

ADMIN DASHBOARD: You can see from the screenshot the appointment made by Fruee

### Welcome, Clinic Admin

You are logged in as **clinicadmin**.

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#### Manage System

[Go to Schedule Management](#)

[+ Make Appointment for Student](#)

[View Appointments](#)

[View Student Accounts](#)

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#### Appointments Today (May 10, 2025)

Student	Time	Status	Present
Carylle	13:00:00 - 17:00:00	Booked	No
Fruee	13:00:00 - 17:00:00	Booked	No

---

#### PIN Codes

These are valid for the current hour:

- **Attendance PIN:** 090481
- **Slot Limit Override PIN:** 066313

Logout

**Figure 18. Admin Dashboard**

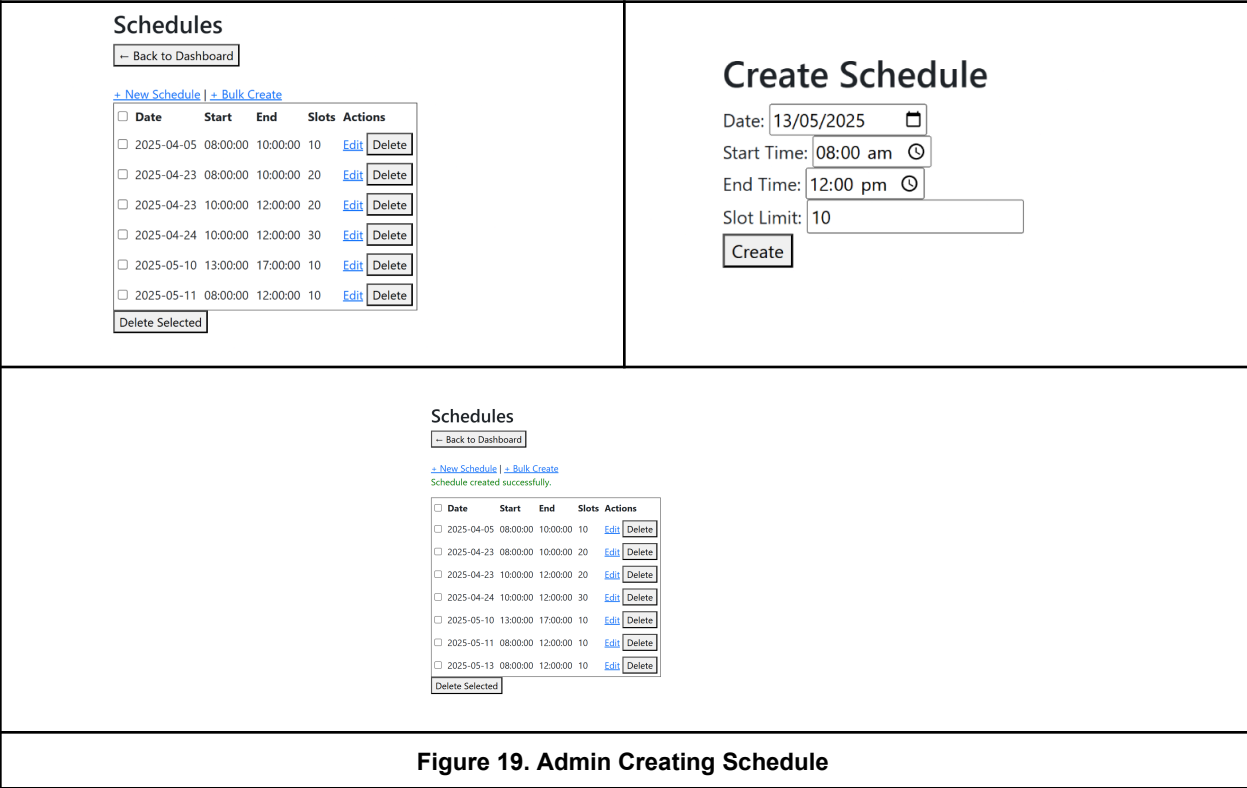
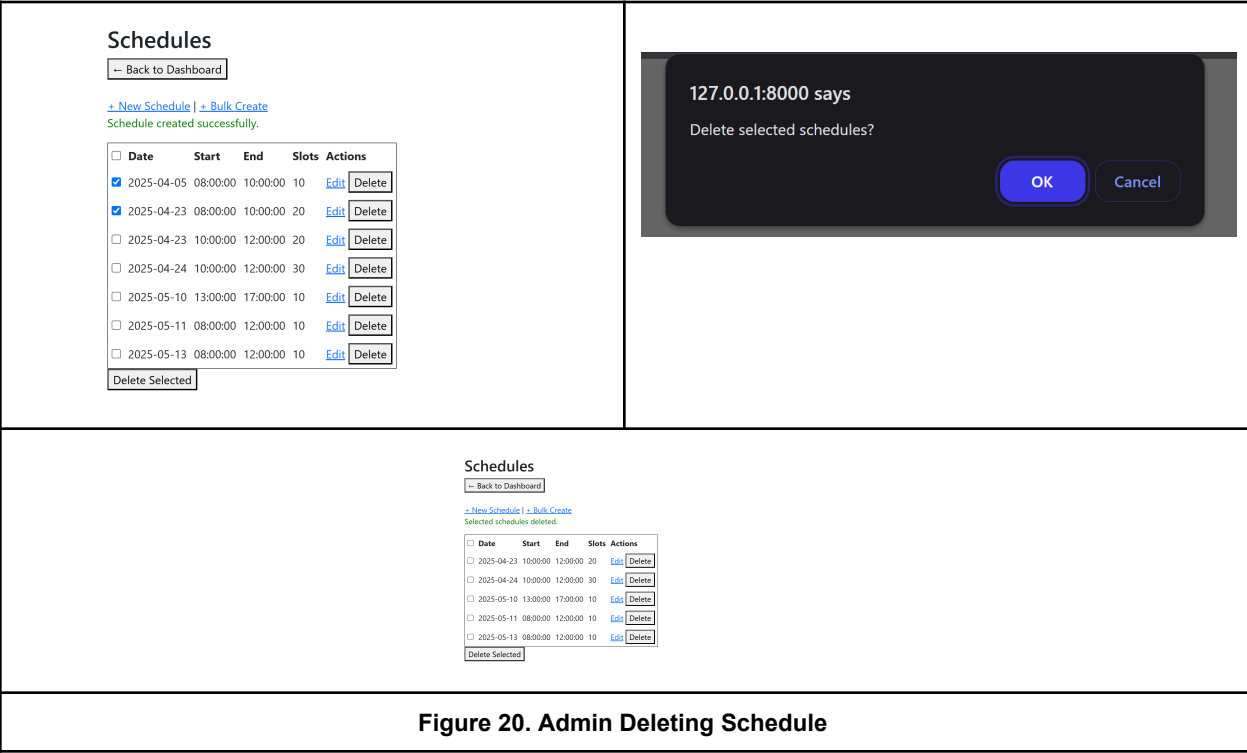


Figure 19. Admin Creating Schedule



Schedules

← Back to Dashboard

+ New Schedule | + Bulk Create

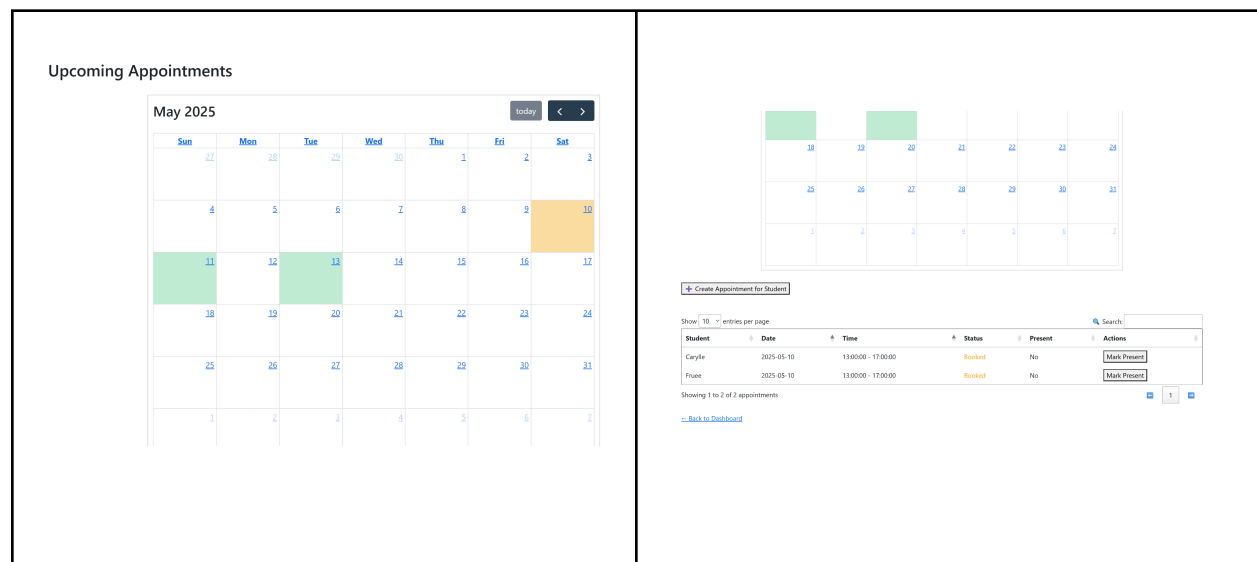
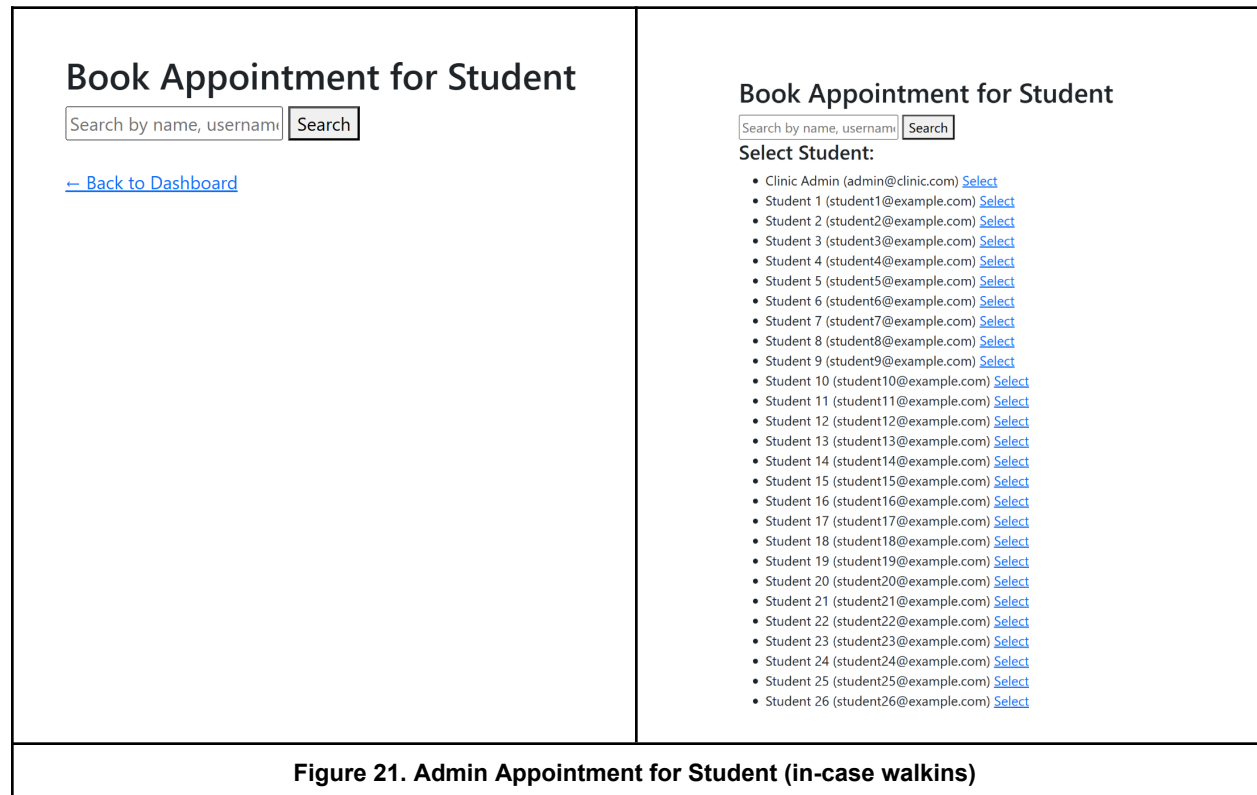
Selected schedules deleted.

<input type="checkbox"/>	Date	Start	End	Slots	Actions
<input type="checkbox"/>	2025-04-23	10:00:00	12:00:00	20	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/>	2025-04-24	10:00:00	12:00:00	30	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/>	2025-05-10	13:00:00	17:00:00	10	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/>	2025-05-11	08:00:00	12:00:00	10	<a href="#">Edit</a> <a href="#">Delete</a>
<input type="checkbox"/>	2025-05-13	08:00:00	12:00:00	10	<a href="#">Edit</a> <a href="#">Delete</a>

Delete Selected

Figure 20. Admin Deleting Schedule

You can search or you can click on the “Search” button to view full list of all students who booked for an appointment



### Student Accounts

[← Back to Dashboard](#)

Search by name, username, email, cours

Search

Name	Username	Email	Course	Year	Actions
Carylle	Kat	ktoyogon@gmail.com	BSIT	3	<a href="#">View Details</a>
Fruee	pruwee	fjaquilmac@gmail.com	Information Technology	1	<a href="#">View Details</a>
Madison	Maddy	mmorgan@gmail.com	Nursing	1	<a href="#">View Details</a>
Student 1	student1	student1@example.com	BSIT	3	<a href="#">View Details</a>
Student 2	student2	student2@example.com	BSIT	3	<a href="#">View Details</a>
Student 3	student3	student3@example.com	BSIT	3	<a href="#">View Details</a>
Student 4	student4	student4@example.com	BSIT	3	<a href="#">View Details</a>
Student 5	student5	student5@example.com	BSIT	3	<a href="#">View Details</a>
Student 6	student6	student6@example.com	BSIT	3	<a href="#">View Details</a>
Student 7	student7	student7@example.com	BSIT	3	<a href="#">View Details</a>
Student 8	student8	student8@example.com	BSIT	3	<a href="#">View Details</a>
Student 9	student9	student9@example.com	BSIT	3	<a href="#">View Details</a>
Student 10	student10	student10@example.com	BSIT	3	<a href="#">View Details</a>
Student 11	student11	student11@example.com	BSIT	2	<a href="#">View Details</a>

Figure 22. Admin View Appointments

### c. Maintenance

We have successfully expanded our system-level performance monitoring by implementing an additional Bash script that records **RAM usage, disk space utilization, and the status of the Apache service** on an hourly basis, which then automatically logs these metrics into a dedicated log file, which are then integrated into the system's admin interface, allowing administrators to conveniently monitor performance and identify potential issues early on.

```
GNU nano 7.2 /home/admin/health_check.sh
#!/bin/bash

DATE=$(date +%Y-%m-%d %H:%M:%S)
LOG_FILE="/home/admin/clinic_dev/Clinic-Appointment-System/admin/storage/logs/system_health.log"

MEMORY=$(free -h | grep Mem | awk '{print $3 " used / " $2 " total"}')
DISK=$(df -h / | tail -1 | awk '{print $5 " used"}')

APACHE_STATUS=$(systemctl is-active apache2)

echo "[$DATE] Memory: $MEMORY | Disk: $DISK | Apache: $APACHE_STATUS" >> $LOG_FILE
```

Figure 23. Script file: health\_check.sh

#### System Health Log

```
[2025-05-08 05:58:31] Memory: 3.2Gi used / 3.8Gi total | Disk: 30% used | Apache: active
[2025-05-08 05:58:34] Memory: 3.2Gi used / 3.8Gi total | Disk: 30% used | Apache: active
[2025-05-08 05:58:35] Memory: 3.2Gi used / 3.8Gi total | Disk: 30% used | Apache: active
```

Figure 24. System health logs viewer