Linux in E-Learning System (Moodle, Edubuntu)

Introduction Group 5

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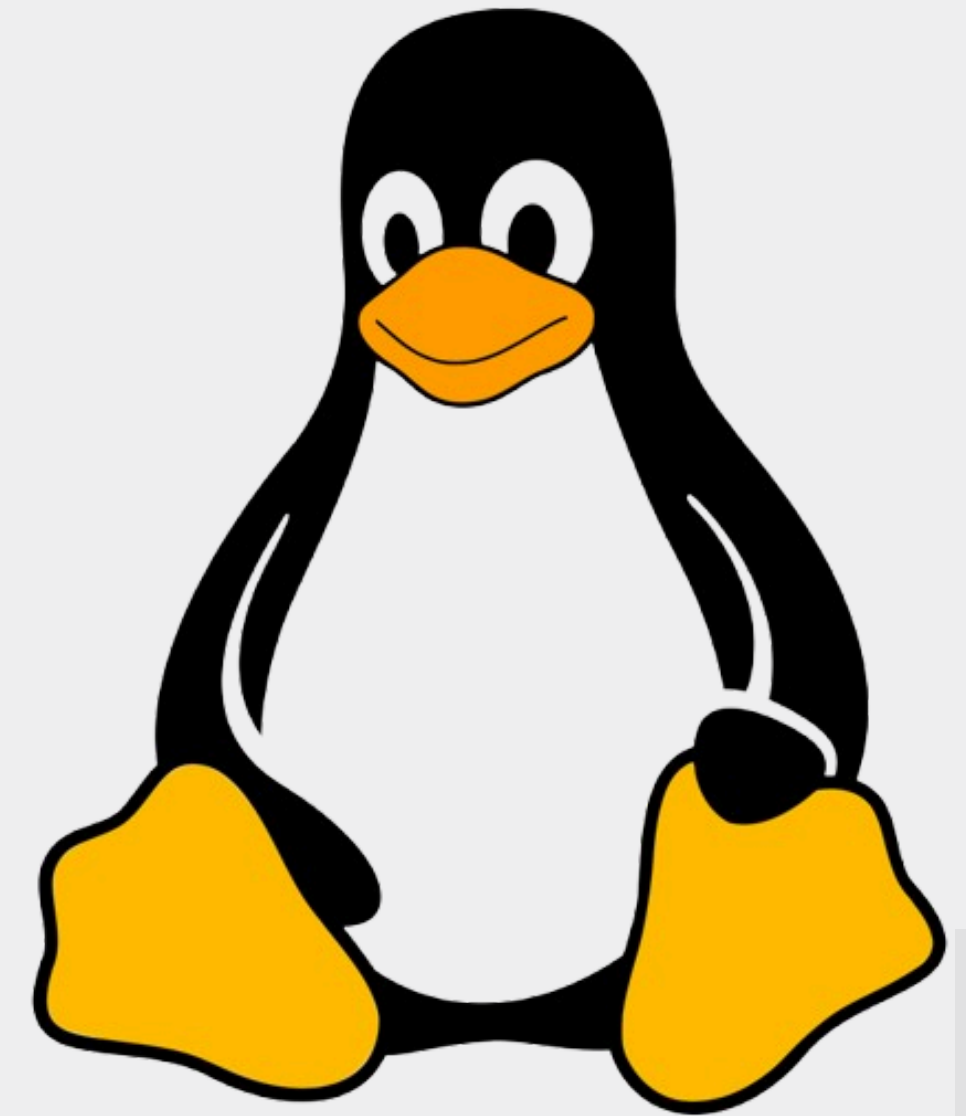

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What is Linux?

Linux is a free and open-source operating system based on the Unix architecture, known for its stability, security, and flexibility.
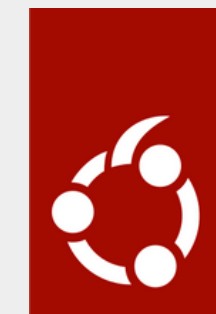
The Role of Linux in E-Learning

1. **Acts as a reliable server platform for hosting Learning Management Systems such as Moodle.**
2. **Ensures security and protects sensitive student and institutional data.**
3. **Provides high stability and low operational costs for educational institutions.**
4. **Supports open-source integration, such as Nextcloud, Jitsi, and other collaborative tools.**

Linux Distributions for Education

1. **Edubuntu**
   - **Ubuntu version for schools and classrooms.**
   - **Includes learning apps (GCompris, TuxMath, TuxPaint).**
   - **Easy for teachers and students to use.**

2. **Ubuntu**
   - **Commonly used to host Moodle.**
   - **Stable, secure, and well-supported.**
   - **Works with Apache, PHP, and MySQL.**

3. **Debian / CentOS (Rocky Linux)**
   - **Debian: very stable, base of Ubuntu.**
   - **CentOS/Rocky: used for large Moodle servers.**

What is E-Learning?

E-learning is a learning system that uses digital technology and the internet to deliver educational content anytime and anywhere.
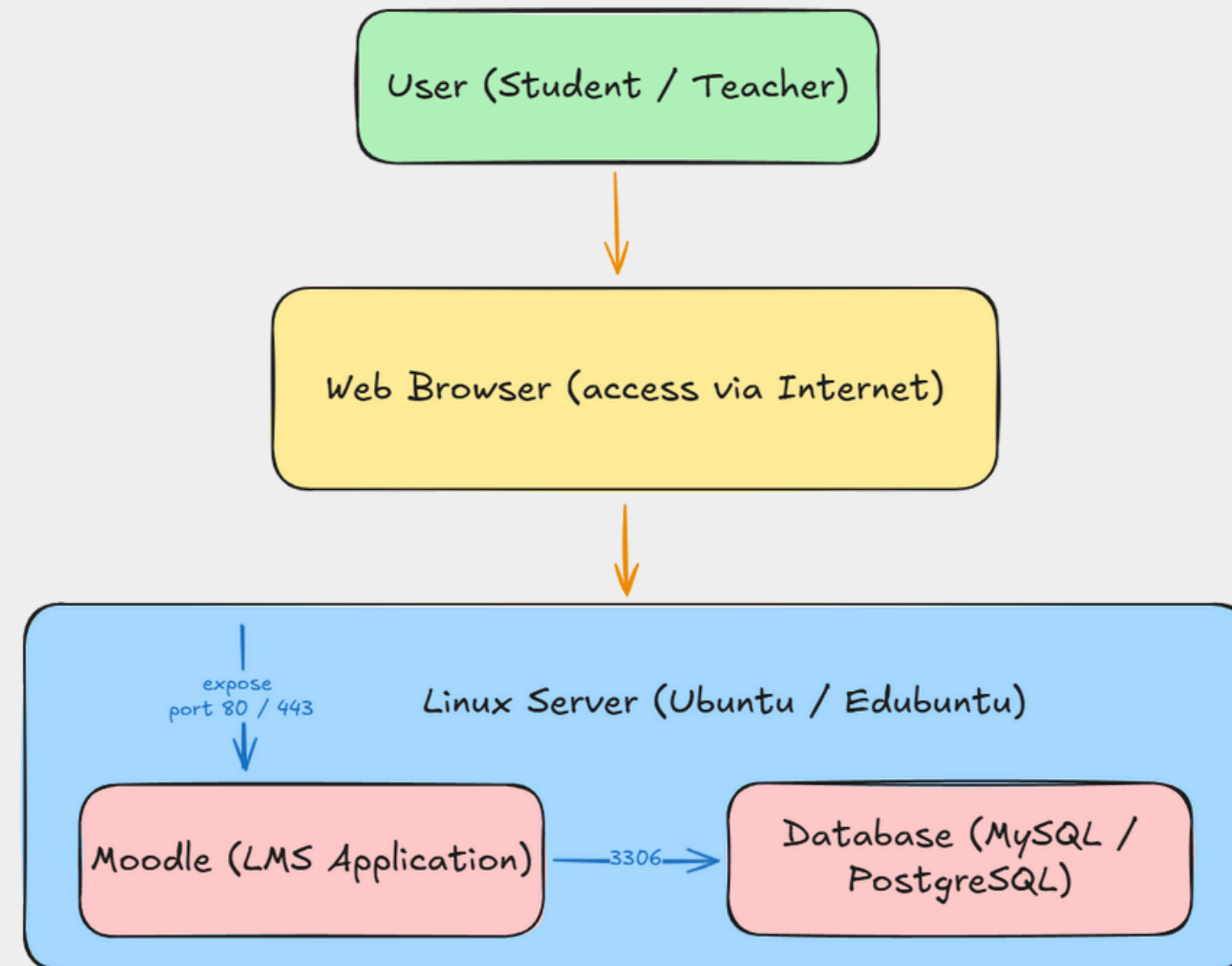
What is LMS (Learning Management System)?

An LMS is a software platform used to plan, deliver, and manage online learning content and activities.

- **It helps teachers create courses, track student progress, and manage assessments.**
- **Examples: Moodle, Google Classroom, Canvas, Edmodo.**

E-Learning System Architecture using Linux Server

User (Student / Teacher)

Web Browser (access via Internet)

Linux Server (Ubuntu / Edubuntu)

expose
port 80 / 443

Moodle (LMS Application) ——3306——▶ Database (MySQL / PostgreSQL)

🌐 Public access: Moodle (Web App only)*
🔒 Private access: Database (internal only)*

What is Moodle?

Moodle is an open-source Learning Management System (LMS) built using PHP and MySQL, often hosted on Linux servers.
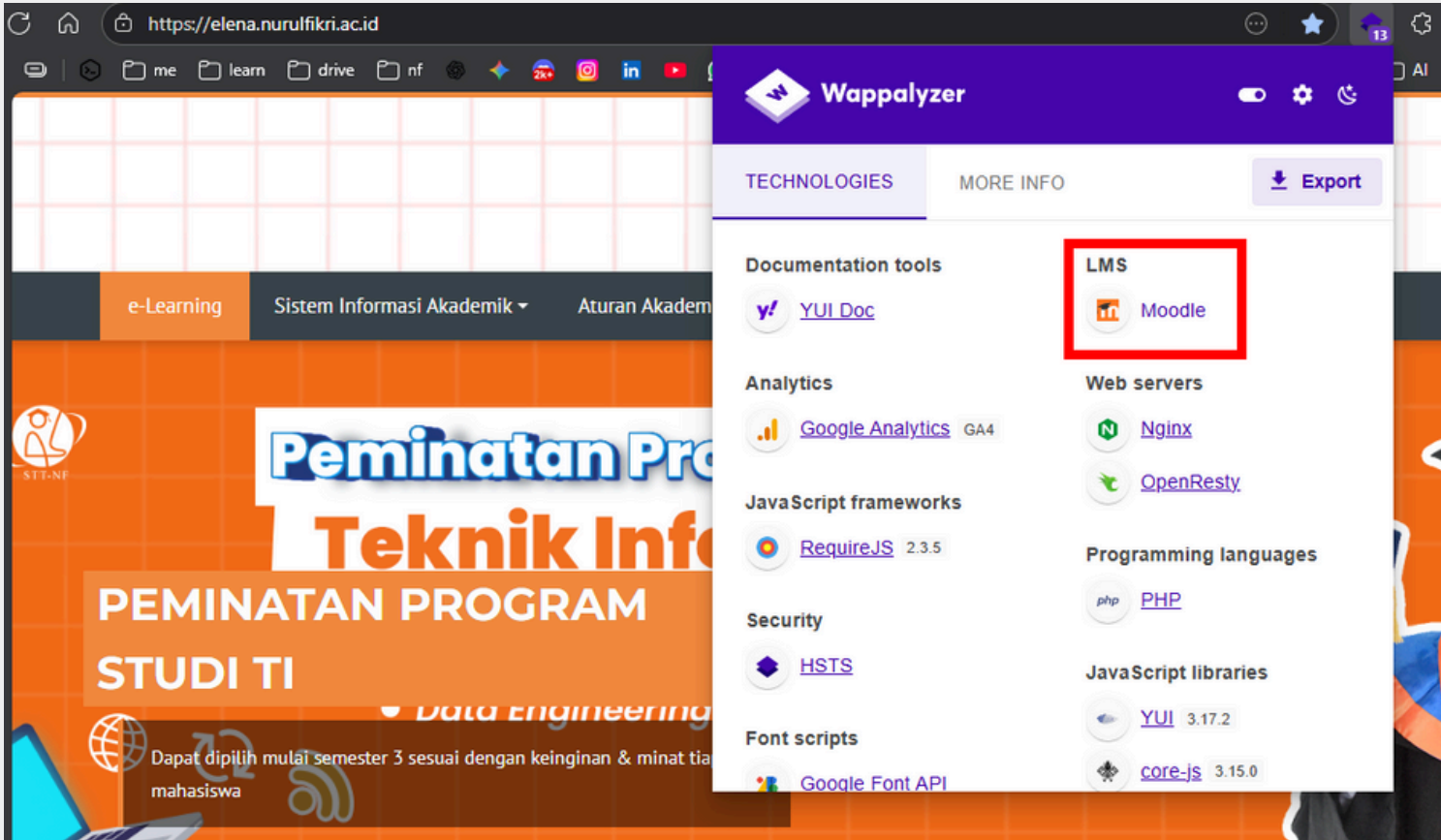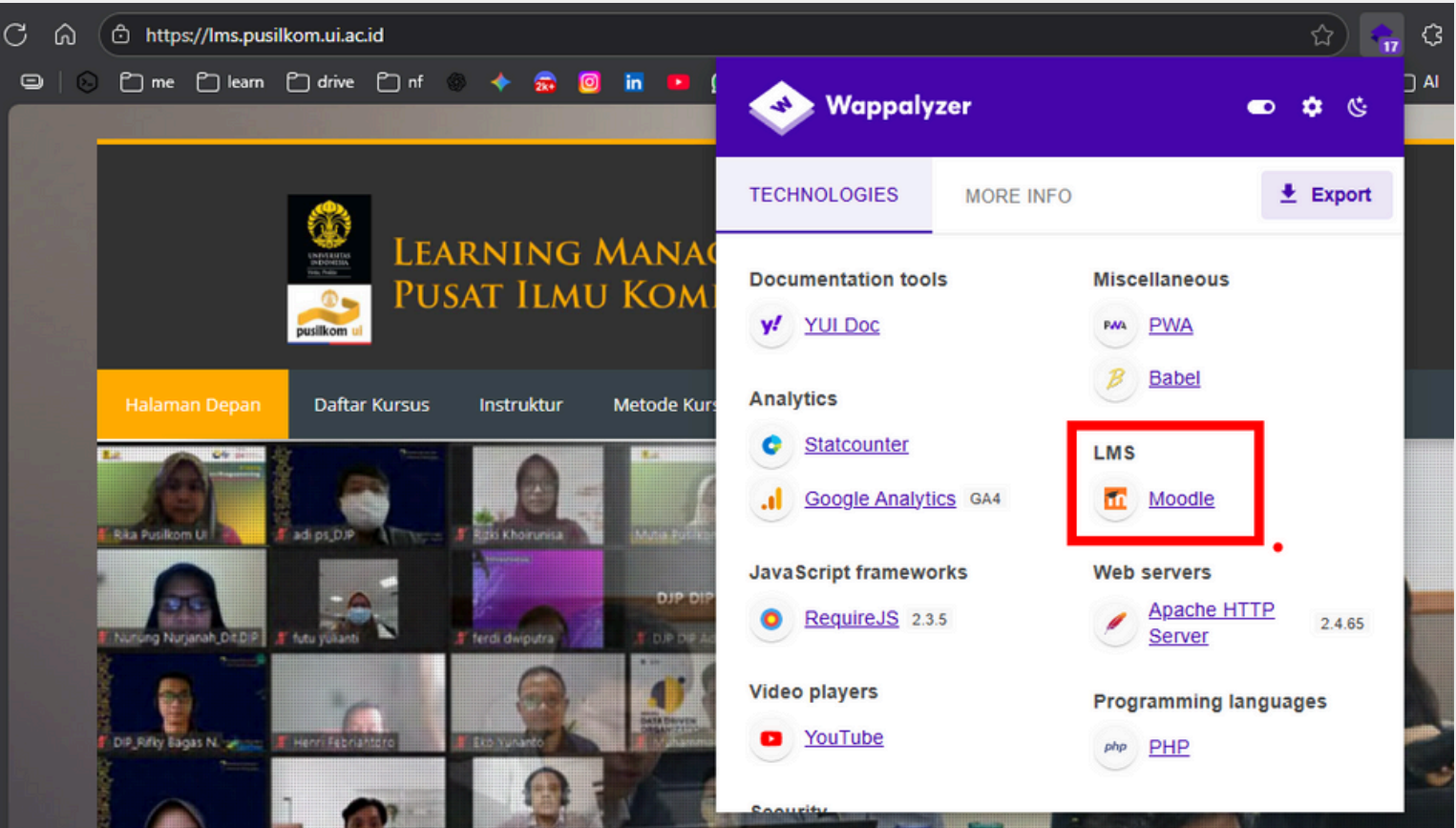
- **Supports quizzes, assignments, grading, and discussions**
- **Used by schools and universities globally**
- **Best performance when hosted on Linux (Ubuntu, Debian, CentOS)**

Moodle is one of the most popular open-source LMS platforms, and it runs very well on Linux systems.

Case Study Moodle

Moodle servers on Ubuntu are used by many universities worldwide, including Universitas Indonesia, STT Nurul Fikri (eLena), The Open University, and the University of Cambridge.

There are now over 160,000 Moodle sites in 241 countries worldwide. (Moodle.org, 2024)

What is Edubuntu?

Edubuntu is a Linux Operating System (OS) based on Ubuntu that is specifically developed for educational environments. Edubuntu functions as a stable and secure platform for accessing and managing e-learning content.

Case Study Edubuntu

Republic of Macedonia – "Computer for Every Child" Project (2007) Over 180,000 school computers installed with Edubuntu 7.04 for nationwide education. (Source: Ubuntu.com Official Blog)

Yorktown High School, Virginia, USA Runs Edubuntu + LTSP (Linux Terminal Server Project) in its computer lab. (Source: Ubuntu Wiki – Edubuntu Installations)

Vassalboro Community School, Maine, USA Fully switched to Edubuntu for classroom and student use. (Source: Ubuntu Wiki)

Saint Stephen's Armenian Elementary School, Massachusetts, USA Uses Edubuntu LTSP lab setup for multi-user learning environment. (Source: Ubuntu Wiki)

SchoolNet Namibia (Africa) Adopted Edubuntu & other Linux distros for low-cost educational computing in rural schools. (Source: Wikipedia – SchoolNet Namibia)

Advantages of Using Linux in E-Learning

1. **Free and open-source (no license fees)**
2. **Secure and reliable for 24/7 operation**
3. **Scalable for large student bases**
4. **Compatible with open-source software (Moodle, Apache, MySQL)**

Challenges of Linux in E-Learning

1. **Requires skilled administrators**
2. **Less support for proprietary software**
3. **Initial setup & server management may be complex**

Summary

Linux provides a strong, cost-effective, and secure foundation for E-Learning systems such as Moodle and Edubuntu. Its open-source nature makes it ideal for schools and universities around the world.

Q&A