**Sh💩tty first drafts**

Support model diagrams, slides, and handouts from class and elsewhere. Use when stuck on things like:

* How can I organize this 💩?
* How do I support this 💩?
* How do I contextualize this 💩 in a background?
* Have I covered all the 💩 evenly?
* **Definitions**
* Virtual Machines
* Ubuntu Linux

Here’s your research report with the necessary details filled in:

**How to Install Ubuntu Linux as a Virtual Machine on a Windows 10/11 Using VMware Workstation Pro**

**Introduction**

The purpose of this research report is to provide a structured guide on how to install and configure Ubuntu Linux as a virtual machine on Windows 10/11 using VMware Workstation Pro. This report aims to highlight the benefits of virtualization for students and IT professionals who require a Linux environment without modifying their primary operating system.

The scope of this report includes an overview of virtualization, the benefits of using VMware Workstation Pro, step-by-step installation instructions, and a comparison of alternative solutions. The limitations of this report include time constraints, lack of primary user feedback, and the exclusion of other virtualization software such as VirtualBox.

The methodology used in this research includes literature reviews of existing documentation, online technical guides, and industry best practices. This report assumes that the reader has a basic understanding of operating systems and access to a compatible Windows 10/11 computer.

**Background**

According to [Source, YEAR], virtualization is a technology that allows users to run multiple operating systems on a single physical machine, improving efficiency and flexibility (p.). This topic is relevant because many students and professionals require Ubuntu Linux for software development, cybersecurity, and IT coursework but cannot install it as a primary OS due to hardware or administrative restrictions [Source, YEAR].

For example, students using university lab computers may not have permission to install Ubuntu directly on their machines. Virtualization provides a solution by allowing users to create a Linux environment within Windows without making permanent changes to the system [Source, YEAR].

**Problem Analysis**

**Explanation of the Problem**

The main issue explored in this report is the difficulty students face in accessing Ubuntu Linux without dual-booting or modifying their primary system. This problem affects students, developers, and IT learners who need Ubuntu for coding, networking, or cybersecurity courses but lack the ability to install it directly on their devices.

Without an easy and efficient method to use Ubuntu, users may face issues such as:

* Limited access to Linux-only tools and software.
* Inconvenience of switching between operating systems via dual-booting.
* The risk of losing data due to improper partitioning during installation.

**Possible Solutions**

**Solution 1: Dual Booting Ubuntu and Windows**

* **What it is:** Dual booting allows a user to install both Windows and Ubuntu on separate partitions, selecting the OS at startup.
* **Pros:**
  + Provides full access to system resources for both operating systems.
  + Offers a native Ubuntu experience without virtualization overhead.
* **Cons:**
  + Requires partitioning the hard drive, which can lead to data loss if done incorrectly.
  + Switching between OSes requires a reboot, reducing workflow efficiency.
  + May not be permitted on university or work computers.
* **Relevant audience:** Advanced users and those who need full Linux functionality for development.

**Solution 2: Running Ubuntu as a Virtual Machine using VMware Workstation Pro**

* **What it is:** VMware Workstation Pro allows users to run Ubuntu within Windows as a virtual machine, creating an isolated environment for Linux applications.
* **Pros:**
  + No need to modify the primary OS or partition the hard drive.
  + Allows for quick switching between Windows and Ubuntu without rebooting.
  + Easy to set up and delete without affecting the host system.
* **Cons:**
  + Requires more RAM and CPU resources compared to a native installation.
  + Some hardware-intensive applications may not perform optimally in a virtualized environment.
* **Relevant audience:** Students, developers, IT professionals, and those who need temporary Linux access without modifying their main system.

**Proposed Solution**

The most effective solution to this issue is **installing Ubuntu Linux as a virtual machine using VMware Workstation Pro**.

**Key Benefits:**

* **Flexibility:** Users can run Ubuntu alongside Windows without rebooting.
* **Security:** The virtual machine runs in an isolated environment, protecting the host system.
* **Ease of Use:** VMware provides an intuitive setup process with built-in support for Linux distributions.

**Potential Objections & Counterarguments:**

* **Objection:** Virtual machines consume more resources than a native installation.
  + **Counterargument:** Modern PCs with sufficient RAM and CPU power can handle virtualization efficiently.
* **Objection:** Some users may find VMware Workstation Pro too complex.
  + **Counterargument:** The setup guide provided in this report simplifies the installation process, making it accessible to beginners.

**Discussion**

* **Patterns:** The research highlights that virtualization is the most accessible method for running Ubuntu on Windows without making permanent system changes.
* **Implications:** If students adopt this approach, they can efficiently complete Linux-based coursework while keeping their primary OS intact.
* **Alternative Perspectives:** While this report recommends VMware Workstation Pro, some argue that **Oracle VirtualBox** is a free alternative with similar functionality [Source, YEAR]. However, VMware offers better performance and advanced features for professional use.

**Conclusion**

This report has examined the challenges of using Ubuntu Linux without modifying a Windows system and explored possible solutions, including dual-booting and virtualization. The best course of action is **using VMware Workstation Pro to create an Ubuntu virtual machine**, as it provides an efficient, secure, and flexible solution for students and IT professionals.

Future research should explore **performance optimizations for virtual machines** and **comparisons between VMware and other virtualization tools** to further improve Linux usability on Windows systems.

**References**

[List all sources in APA format]

Let me know if you need any tweaks or additions! 🚀