Introduction to Linux

Cybersecurity
Linux 1 Day 1

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Today’s Objectives

By the end of class, you will be able to:

- [ ] Name at least 3 major Linux distributions and explain their use cases.
- [ ] Create files and folders.
- [ ] Articulate the purpose of the major directories on Linux filesystems.
- [ ] Use apt to install packages.

Linux History and Distributions

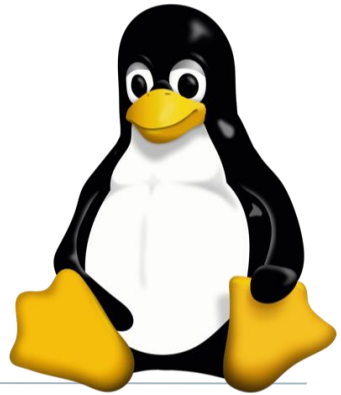
Linux Basics

In 1991, CS student Linus Torvalds purchased a new computer but he didn't like the DOS operating system and proprietary limitations of Minux.

Linux is open source:

- program code is open to the public
- Not always free, but you can see and edit code and redistribute as your own

Initially it was command-line only: headless servers because they don't have a monitor ("head")



Activity: Linux History and Distros

In this activity, you will work in pairs to research and answer questions about Linux.

Instructions sent via Slack.

Suggested Time:
15 Minutes

Times Up! Let’s Review.

Linux History and Distros

Re-Introducing the CLI

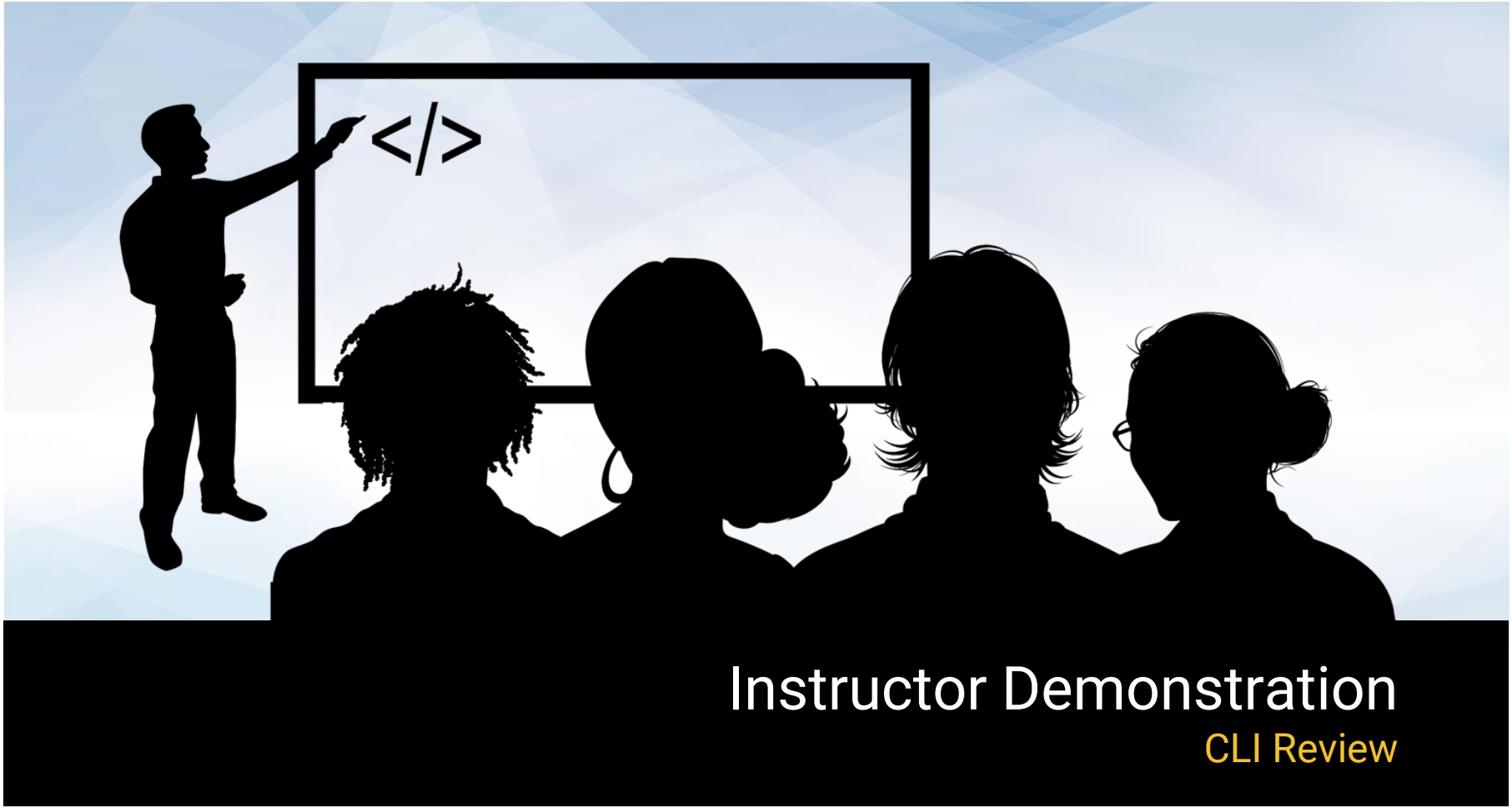
Linux CLI Review

Today, we'll review:

- Creating, moving, and listing files and directories
- Creating, extracting and listing the contents of tarballs.

The main task involved with managing files are:

- Navigating directories
- Listing files
- Creating files
- Copying and moving files



Instructor Demonstration

CLI Review

Activity: Getting Comfy with the CLI

In this activity, you will use terminal to perform basic task like creating and removing files, extracting archives and cutting up and archiving files.

Instructions sent via Slack.

Suggested Time:
15 Minutes

Times Up! Let’s Review.

Getting Comfy with the CLI

Processes

Processes and Programs

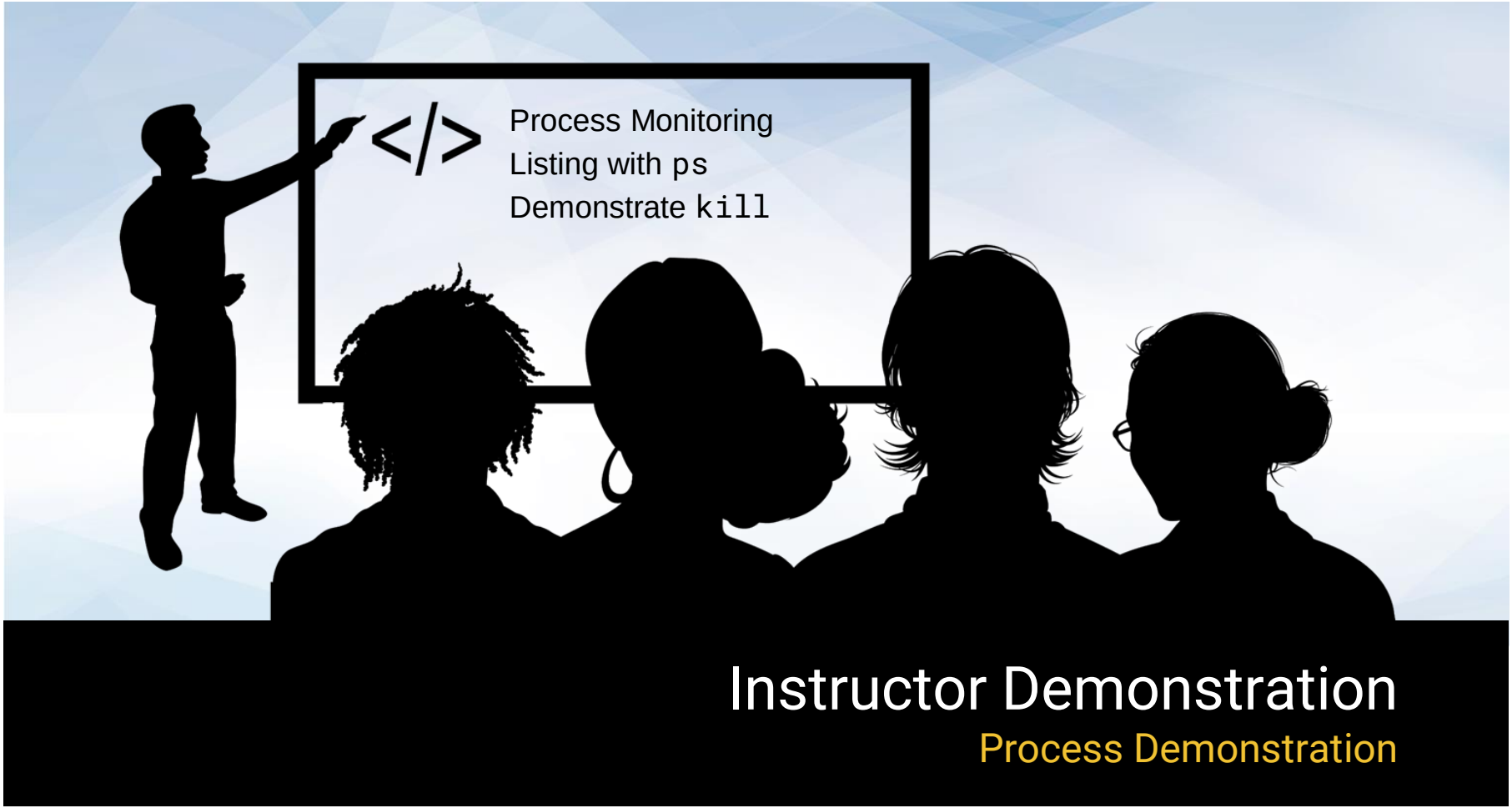
Processes are *subtly* different from a program.

Programs are executable files that an operating system knows how to find and run. (Commands like ls and cat)

When you run `ls`, the operating system has to:

- Load the code within the ls program into memory
- Read and execute the code with the CPU
- Clean up after the program finished running (free up memory, remove temporary files, etc.)

A process is the running code, **plus** the resources needed to do the job (memory, disk space, etc.)



Instructor Demonstration

Process Demonstration

Activity: Monitoring Processes

In this activity, you will use top to monitor processes, use kill to stop processes, and research signal flags used with the kill command.

Instructions sent via Slack.

Suggested Time:
10 Minutes

Times Up! Let’s Review.

Monitoring Processes

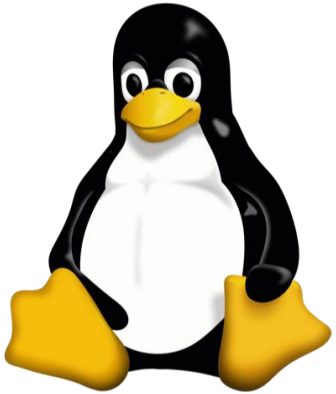
Important Directories in Linux

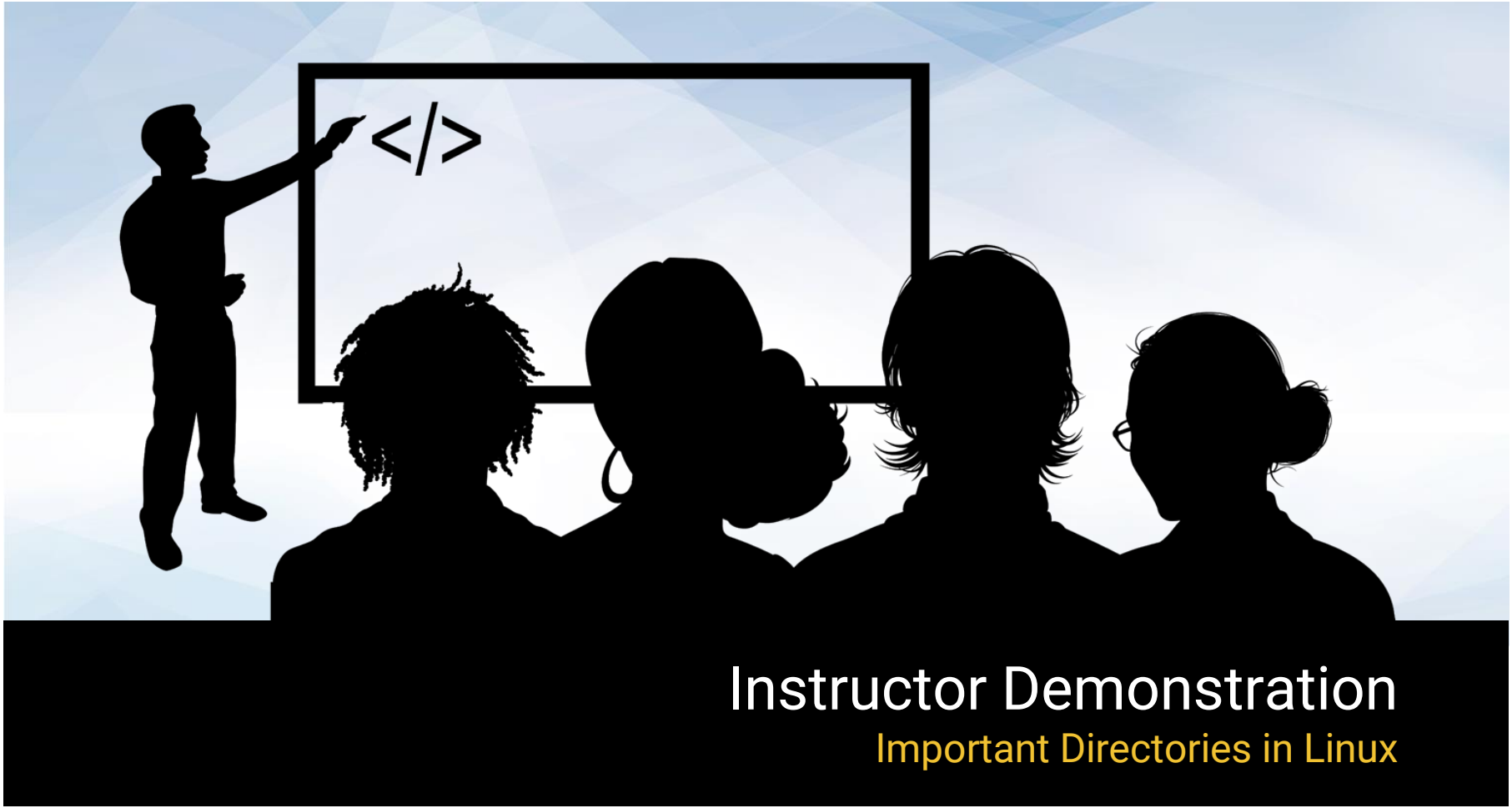
Important Directories in Linux

Linux has several useful directories that keep track of applications, personal data, and applications.

Understanding these directories is important because we will often need to:

- Check log files
- Understand where other users keep files
- Determine where different types of files are likely to be found on servers we administer / secure.





Instructor Demonstration

Important Directories in Linux

Activity: Linux Landmarks

In this activity, you will use top to monitor processes, use kill to stop processes, and research signal flags used with the kill command.

Instructions sent via Slack.

Suggested Time:
15 Minutes

Times Up! Let’s Review.

Linux Landmarks

Take a Break!

Nano

Nano

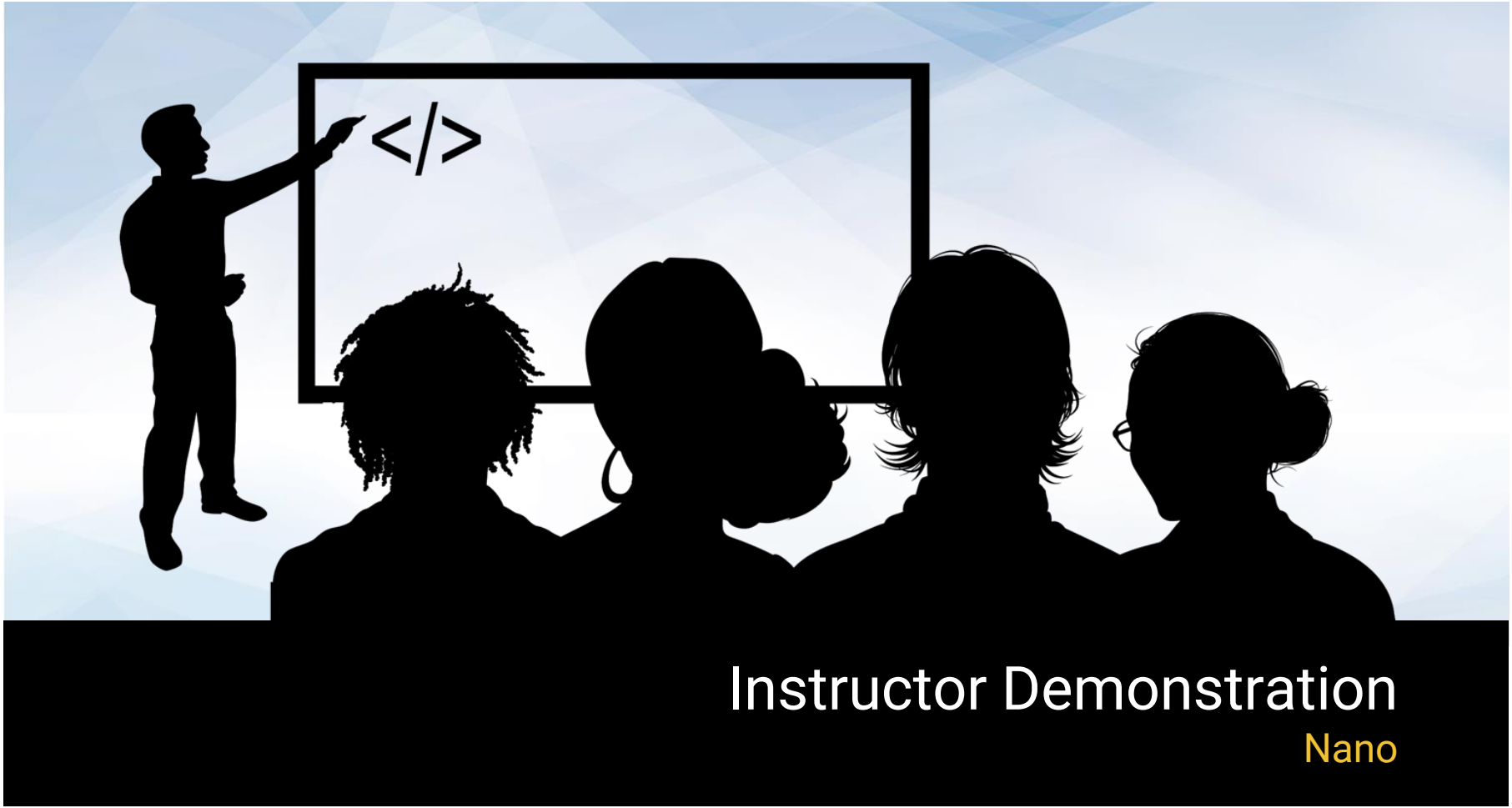
Now that we know where our directories are, we can look into how to make changes and add new files.

Being able to edit files on the command line is essential for any serious Linux user.

Nano is a simple text-editor, pre-built into your Linux instance.

Nano is quicker than opening up other programs

Available in non-GUI environments



Instructor Demonstration

Nano

Activity: Nano nano

In this activity, you will learn how to use Nano, a simple text editor.

Instructions sent via Slack.

Suggested Time:
15 Minutes

Times Up! Let’s Review.

Nano nano

Installing Packages

Installing Packages

Just like Windows and Apple machines, we are able to enhance our Linux experience and download additional tools and programs via packages.

Installing packages is a simple process using one commands:

```
apt-get install <package_name>
```

Personal Package Archives (PPAs)are Linux repositories that it connects to find the **<package_name>.**

Activity: Installing Packages

In this activity, you will combine you knowledge of nano and package management to install cowsay and fortune.

Instructions sent via Slack.

Suggested Time:
15 Minutes

Times Up! Let’s Review.

Installing Packages

Today’s Objectives

By the end of class, you will be able to:

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