Here is a **complete and sentence-by-sentence study note breakdown** of the document **“129. Linux Navigation Notes.docx”**, written in a detailed bullet-point format. This document teaches Linux terminal navigation and file system understanding—aligned with **CompTIA A+ 220-1102 Objective 1.8**.

**🧭 Study Notes – Linux Navigation (Terminal Environment)**

**🔧 Tools Used**

* **ls** – List directory contents
* **pwd** – Print working directory (shows where you are)
* **cd** – Change directory

**📂 Using ls (List Directory)**

* ls lists **names of files and directories**.
* It uses **color coding**:
  + **Blue** = directory
  + **White** = regular file
* Example: All blue names mean you’re looking at directories.

**📁 Navigating with cd (Change Directory)**

* cd is used to **move between directories**.
* Syntax: cd directory-name
  + Example: cd Desktop moves you into the Desktop folder.

**🧭 pwd – Print Working Directory**

* The **tilde ~** represents your **home directory**.
* Example path: ~/Desktop = Desktop inside your home directory.

**🖥️ Understanding the Command Prompt Structure**

* Prompt parts:
  + **Username and hostname** (left side, green)
    - Example: diontraining@ubuntu
  + **Current directory** (right side, blue)
    - Example: ~/Desktop
  + **Dollar sign $** – Standard user shell prompt symbol

**⚙️ ls -la – List All with Details**

* Shows **hidden files** (those beginning with .).
* Includes:
  + Permissions
  + Number of links
  + Owner
  + Group
  + File size
  + Last modified date
  + File/directory name
* Two special entries:
  + . = current directory
  + .. = parent directory

**🔁 Directory Navigation Shortcuts**

| **Command** | **Description** |
| --- | --- |
| cd . | Stay in the current directory |
| cd .. | Move up one directory level |
| cd ../.. | Move up two levels |

**🔒 File Permission Strings**

* Format: drwxr-xr-x
  + **1st character**:
    - d = directory
    - - = file
  + Next 3 sets of letters (user, group, others):
    - r = read
    - w = write
    - x = execute
* Example:
  + drwxr-xr-x = Directory with full permissions for user, read-execute for group and others
* Column breakdown:
  + **1st column**: permissions
  + **2nd**: number of hard links
  + **3rd**: owner (e.g., diontraining)
  + **4th**: group
  + **5th**: file size
  + **6th+**: last modification time and file name

**🧪 Identifying Hidden Files**

* Hidden files/folders start with a **dot (.)**.
  + Examples: .bashrc, .bash\_logout, .profile
* Hidden directories may include:
  + .cache, .config, .gnupg, .local, .ssh

**📂 Creating Folders & Files**

* Create folder: mkdir folder1
* Create subfolder: mkdir folder1/folder2
* Navigate: cd folder1/folder2
* Create files:
  + touch file1.txt
  + touch file2.txt

**🔄 Going Up & Down Directory Trees**

* Use cd ../.. to go up two levels.
* You can list contents of a specific path using:
  + ls folder1/folder2

**📌 Accessing Root File System**

* To list contents at the top (/) level:
  + ls /
* Add -la for detailed view:
  + ls -la /

**🎨 File and Folder Colors**

| **Color** | **Meaning** |
| --- | --- |
| Dark blue | Directory |
| Light blue | Symbolic link |
| White | Regular file |
| Green | Sticky directory (writeable by all users) |

* Example:
  + /lib → symbolic link to /usr/lib
  + /swapfile → file used as virtual memory (white)
  + /tmp → sticky directory (green)

**📁 The /dev Directory – Devices**

* cd /dev to access system devices.
* ls here lists **device files**, not standard folders.

**🖨️ TTY Devices – Teletype Terminals**

* TTY = **Teletypewriter**
* Devices: tty, tty0 to tty9
* Command: tty shows which one you’re using
  + Output example: /dev/pts/0 (pseudo-terminal session)

**💾 Storage Devices – /dev/sda**

* sda = first storage device
* sda1, sda2, sda5 = partitions on the same device
* These correspond to volumes (similar to C:\ or D:\ on Windows)
  + /dev/sda1 is like a drive letter
* To interact with them, you refer to /dev/sda1, etc.

**📌 Recap: Core Navigation Commands**

| **Command** | **Use** |
| --- | --- |
| ls | List files and folders |
| ls -la | List all, including hidden, with details |
| cd [folder] | Change to folder |
| cd .. | Go up one directory |
| pwd | Show current path |
| mkdir [folder] | Create folder |
| touch [file] | Create file |
| tty | Show current terminal (TTY) |
| ls / | View root directory contents |
| ls /dev | View hardware devices |

**🎯 CompTIA A+ 220-1102 Relevance (Objective 1.8)**

You are expected to:

* Understand **basic Linux terminal navigation n**.
* Know how to **list, view, create, and navigate** through files and directories.
* Interpret **file permissions and ownership**.
* Recognize **TTYs, hidden files**, and **Linux volume naming** (e.g., /dev/sda1).

Would you like a:

* **Cheat sheet for Linux commands**?
* **Visual map of the Linux file system hierarchy**?
* **Quiz on Linux file navigation**?

Let me know how you'd like to reinforce this!