1)locate vs find

| **Feature** | **locate** | **find** |
| --- | --- | --- |
| **Speed** | Very fast (uses pre-built database) | Slower (scans filesystem in real-time) |
| **Data source** | Searches in database (index) | Searches live filesystem directly |
| **Freshness** | May be outdated unless database is updated | Always up to date |
| **Flexibility** | Mainly searches by file name | Very flexible (name, type, size, time, permissions, etc.) |
| **Find by file name** | locate notes.txt | find / -name "notes.txt" |
| **Find all .txt files** | locate "\*.txt" | find / -type f -name "\*.txt" |
| **Find modified files within 1 day or size >100MB** | Not supported | find /var/log -type f -mtime -1  or  find / -type f -size +100M |

**--locate ahmed.txt**

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--find file.txt

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2)

**dpkg vs apt**

| **Aspect** | **dpkg** | **apt** |
| --- | --- | --- |
| **Level** | Low-level package manager | High-level package manager |
| **How it works** | Works directly with .deb files | Built on top of dpkg, works with repositories |
| **Dependencies** | Does **not** resolve or fetch dependencies automatically | Automatically resolves and installs dependencies |
| **Typical use** | Local package management | Online + local package management |

**dpkg -i file.deb**

* Installs a .deb file locally only.
* Does not resolve dependencies.
* If dependencies are missing, you need to fix them manually with:

sudo apt-get install -f

**apt install ./file.deb or apt install package\_name**

* Installs either from a local .deb file or from the online repositories.
* Automatically resolves and installs alldependencies

**apt install cowsay**

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**wget the file.deb**

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**dpkg install**

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3)

**rpm vs yum**

| **Aspect** | **rpm (Red Hat Package Manager)** | **yum (Yellowdog Updater, Modified)** |
| --- | --- | --- |
| **Level** | Low-level package manager | High-level package manager |
| **Works with** | Individual .rpm files | Package repositories + .rpm packages |
| **Dependencies** | No dependency resolution (must be handled manually) | Automatically resolves and installs dependencies |
| **Updates** | Cannot update the whole system | Can update all packages from repositories |
| **Repository support** | No repository support | Full repository support |