🟦 `main_menu`

📌 Purpose:

Displays the main interface with three options:

- User Sessions
- Sudo Commands
- Export Logs

🛠 Commands Used:

- `dialog --menu` – Creates the main menu interface.
- `exec 3>&1`, `2>&1 1>&3` – Redirects output to capture dialog input.
- `case` – Handles user selections.
- `clear`, `exit` – Clears screen and exits if user cancels.

🔍 Flags:

- `--backtitle` – Background title of dialog box.
- `--title` – Main title of menu.
- `--clear` – Clears the screen before showing dialog.
- `--cancel-label` – Renames “Cancel” to “Exit”.
- `--menu` – Shows a menu with options.

🟦 `user_sessions_menu`

📌 Purpose:

Displays a submenu for user and system activity info.

📋 Options:

1. Total number of users – `get_total_users`
2. Currently logged in users – `show_logged_in_users`
3. Session time per user – `show_session_time`
4. CPU utilization – `show_cpu_utilization`
5. Memory utilization – `show_memory_utilization`
6. Network utilization – `show_network_utilization`
7. User command history – `list_user_commands`

🛠 Commands Likely Used Inside:

- `who`, `users`, `w`, `uptime` – User info
- `ps`, `top`, `vmstat`, `free` – CPU/Memory
- `ifconfig`, `ip`, `netstat` – Network
- `history`, `.bash_history` – Command logs

🔍 Flags (used in dialog like above):

Same as `main_menu` (with menu option labels changed)

🟦 `sudo_commands_menu`

📌 Purpose:

Shows sudo usage details.

📋 Options:

1. Raw sudo commands – `show_sudo_commands`
2. Structured sudo commands by user – `show_structured_sudo`

🛠 Commands Likely Used Inside:

- `grep 'sudo' /var/log/auth.log` – Shows sudo logs
- `awk`, `cut`, `sort`, `uniq` – Format and group logs

🟦 `get_total_users`

📌 Purpose:

Counts total users on the system.

🛠 Commands:

- `cut -d: -f1 /etc/passwd` – Lists usernames
- `wc -l` – Counts them

🟦 `show_logged_in_users`

📌 Purpose:

Displays currently logged-in users.

🛠 Commands:

- `who` – Shows current sessions
- `users` – Short list of usernames
- `w` – Detailed session info

🟦 `show_session_time`

📌 Purpose:

Shows how long each user has been logged in.

🛠 Commands:

- `who -u` – Shows login time and idle time
- `last` – Historical logins

🟦 `show_cpu_utilization`

📌 Purpose:

Shows current CPU usage.

🛠 Commands:

- `top -bn1 | grep "Cpu"` – Real-time CPU info
- `vmstat` – System performance summary

🔍 Flags:

- `-b` – Batch mode (no interactive display)
- `-n1` – One iteration

🟦 `show_memory_utilization`

📌 Purpose:

Displays RAM usage.

🛠 Commands:

- `free -h` – Human-readable memory usage
- `vmstat` – Memory and process info

🔍 Flags:

- `-h` – Human readable format (MB/GB)

🟦 `show_network_utilization`

📌 Purpose:

Shows network usage stats.

🛠 Commands:

- `ifconfig` or `ip addr` – Network interface info
- `netstat -i` – Network interface stats
- `sar -n DEV` – Per-device network usage (if available)

🟦 `list_user_commands`

📌 Purpose:

Lists user command history.

🛠 Commands:

- `cat ~/.bash_history` – User's history file
- `history` – Shows current session history

- `grep`, `less` – Filter or scroll

🟦 `show_sudo_commands`

📌 **Purpose:**

Shows all sudo commands from logs.

🛠 **Commands:**

- `grep 'sudo' /var/log/auth.log` – Filters sudo entries

🟦 `show_structured_sudo`

📌 **Purpose:**

Groups sudo usage by user.

🛠 **Commands:**

- `grep 'sudo' /var/log/auth.log | awk '{print $1}' | sort | uniq -c` – Groups and counts sudo usage per user

🟦 `export_logs`

📌 **Purpose:**

Exports session or sudo logs to a file.

🛠 **Commands (expected):**

- `cp`, `echo`, `cat`, `>` – To write logs to `.txt` or `.log` file
- `tar`, `zip` – To compress exported logs (optional)