Shell scripting practice questions

Basic

1. **Print "Hello, World!"**
   - **Explanation:** A simple script using `echo` to print text.
   - **Hint:** Use `echo` followed by the message.
2. **Check if a file exists**
   - **Explanation:** Uses `-f` to verify the existence of a file.
   - **Hint:** Use an `if` condition with `test -f filename`.
3. **Display current date and time**
   - **Explanation:** Uses the `date` command.
   - **Hint:** Run `date` in a script.
4. **Print numbers from 1 to 10**
   - **Explanation:** A loop prints numbers sequentially.
   - **Hint:** Use `for i in {1..10}` or `seq`.
5. **User input for greeting**
   - **Explanation:** Takes user input and prints a greeting.
   - **Hint:** Use `read` for input.

Intermediate

1. **Read a file line by line**
   - **Explanation:** Uses `while read line`.
   - **Hint:** Loop through `cat filename`.
2. **Count files in a directory**
   - **Explanation:** Uses `ls` and `wc -l`.
   - **Hint:** `ls | wc -l`.
3. **Find and delete empty files**
   - **Explanation:** Uses `find` with `-empty` and `rm`.
   - **Hint:** `find . -type f -empty -delete`.
4. **Palindrome check**
   - **Explanation:** Reverses a string and compares.
   - **Hint:** Use `rev` and `if` condition.
5. **Factorial of a number**
   - **Explanation:** Uses a loop or recursion.
   - **Hint:** `expr` for calculations.
6. **Extract data from CSV**
   - **Explanation:** Uses `cut` or `awk` for extraction.
   - **Hint:** `awk -F, '{print $1}' file.csv`.

7. **Compress .txt files**
    - **Explanation:** Uses tar to bundle files.
    - **Hint:** tar -czf backup.tar.gz *.txt.
8. **Monitor system usage**
    - **Explanation:** Uses top or vmstat.
    - **Hint:** while true; do top; sleep 10; done.
9. **Replace a word in a file**
    - **Explanation:** Uses sed.
    - **Hint:** sed 's/old/new/g' filename.
10. **Sort a file's contents**
    - **Explanation:** Uses sort.
    - **Hint:** sort filename.

Advanced

1. **Automate directory backup**
    - **Explanation:** Uses rsync or tar.
    - **Hint:** Automate with cron.
2. **Interact with an API**
    - **Explanation:** Uses curl and jq.
    - **Hint:** curl -s URL | jq '.'.
3. **Create user accounts from CSV**
    - **Explanation:** Uses useradd with a loop.
    - **Hint:** Read file and useradd.
4. **Terminate high CPU usage processes**
    - **Explanation:** Uses ps, awk, and kill.
    - **Hint:** ps -eo pid,%cpu | awk.
5. **Schedule system maintenance**
    - **Explanation:** Uses cron jobs.
    - **Hint:** crontab -e to edit schedules.