## Section 1: Conditional Statements (Real-time Scenarios)

1. Q1. Log Monitoring: Check if /var/log/app/app.log exceeds 500 MB. If yes, archive and recreate the file; otherwise, print status.
2. Q2. Service Status Checker: Verify nginx, mongodb, and redis services. Log any service down to /tmp/service\_status.log.
3. Q3. File Integrity Check: Ensure /etc/passwd, /etc/hosts, and /etc/fstab exist and are not empty. Alert if missing or empty.
4. Q4. Disk Space Alert: Monitor disk usage of / and /var. If usage >80%, alert and log to /tmp/disk\_alert.log.
5. Q5. User Login Tracker: Accept username input and check if user is logged in; show login time or status message.

## Section 2: Loops (Real-time Scenarios)

1. Q6. Directory File Count: Loop through /var/www/ and count files per directory.
2. Q7. Backup Rotation: Delete backup files older than 7 days from /opt/backups/ and log deleted files.
3. Q8. Application Log Search: Read keywords from a file and search in /var/log/app.log, count occurrences per keyword.
4. Q9. CPU Usage Monitoring: Monitor CPU every 10s for 1 minute; stop if usage >85%.
5. Q10. Server Health Report: Every hour, log CPU, memory, disk usage for 6 hours.

## Section 3: Combined Logic (Conditional + Loop)

1. Q11. Database Connection Retry: Attempt MySQL connection up to 5 times; exit if all fail.
2. Q12. Web Application Health Check: Retry 3 times accessing https://app.example.com; email if all fail.
3. Q13. Log File Cleaner: Compress and archive logs older than 3 days from /var/logs/app/.
4. Q14. Process Auto-Restarter: Continuously monitor 'payment-service'; restart and log when stopped.
5. Q15. Configuration Drift Detector: Compare /etc/app/config.conf and /opt/backup/config.conf; alert on mismatch.
6. Q16. Environment Validator: Check for 4 GB RAM, 20 GB free /var space, and binaries docker, curl, git.
7. Q17. Auto-Archive Tool: Archive project folders in /opt/projects/ not modified in 30 days.
8. Q18. Log Analyzer with Loop: Count .log files under /var/logs/app/ containing 'ERROR'.
9. Q19. API Response Validator: Send 5 curl requests to an API; alert if any non-200 response.
10. Q20. Automated Cleanup: Delete /tmp/ files older than 2 days excluding .lock files; log deletions.