

Clean List Script (clean\_list.sh) – Test and Verification Guide

Field	Value
Project	Clean List Shell Script (clean_list.sh)
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Environment	Ubuntu 22.04 (VirtualBox)
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1. Script Functionality Specification

The clean\_list.sh script processes a variable number of input list arguments (separated by spaces or colons), performs cleaning, and outputs a single colon-delimited string.

Core Features:

- **Deduplication and Order Preservation:** Removes duplicate entries while preserving the order of first appearance.
- **Special Colon Patterns:**
  - A colon at the beginning (:) is replaced by . (current directory).
  - A double colon (::) is replaced by :: (insert current directory).
  - A colon at the end (:) is replaced by . (current directory).
- **Constraint:** The script does **not** use temporary files for processing.

2. Verification Steps

Step 1: Preparation

Place both the main script (clean\_list.sh) and the automated validation script (grade\_clean\_list.sh) in the same directory.

\$ chmod +x clean\_list.sh

\$ chmod +x test\_suite\_clean\_list.sh

Step 2: Automated Validation

Run the full test suite:

\$ ./test\_suite\_clean\_list.sh ./clean\_list.sh

Test Suite Results (23 Tests)

Test ID	Test Focus	Status
T1–T6	Basic Input / Special Colon Handling	Passed
T7–T12	Special Cases (Leading, Trailing, Double Colon)	Passed
T13–T17	Deduplication (Space/Colon)	Passed
T18–T20	Complex Ordering & Deduplication	Passed
T21–T23	Edge Cases (Special Chars, Empty Input)	Passed

Manual Sanity Check

Command	Expected Output	Status
./clean_list.sh a b c	a:b:c	Verified
./clean_list.sh /bin:/usr/bin:/bin	/bin:/usr/bin	Verified
./clean_list.sh :/bin:/usr/bin:/bin::/etc:/usr/bin:/bin:	::/bin:/usr/bin:::/etc	Verified

Final Test Result Summary (Ubuntu Linux)

```
sanjeet@sanjeet-VirtualBox:~/LinuxProgramming/scripting/cleanlist$ ./test_suite_clean_list.sh ./clean_list.sh
Testing script: ./clean_list.sh
Total possible points: 100
=====
BASIC FUNCTIONALITY TESTS
Tests ability to handle basic colon/space conversion and simple input/output

SPECIAL CASES TESTS
Tests the three critical special cases: leading :, trailing :, and :: conversions

DEDUPLICATION TESTS
Tests removal of duplicate elements while preserving first occurrence

ORDER PRESERVATION TESTS

EDGE CASES TESTS
Tests unusual inputs and robustness (minimal weight)

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GRADING SUMMARY
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Category: special_cases - Leading :, trailing :, and :: conversions
  Tests: 6/6 (100%)
  Points: 35/35
Category: basic - Basic input/output conversion (colon/space handling)
  Tests: 6/6 (100%)
  Points: 15/15
Category: order_preservation - Maintaining original element order during processing
  Tests: 3/3 (100%)
  Points: 15/15
Category: edge_cases - Unusual inputs and robustness
  Tests: 3/3 (100%)
  Points: 5/5
Category: deduplication - Removing duplicates while preserving first occurrence
  Tests: 5/5 (100%)
  Points: 30/30

OVERALL RESULTS:
Tests Passed: 23/23 (100%)
Tests Failed: 0/23
Points Earned: 100/100
Letter Grade: A

REQUIREMENT CHECKS:
```