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| **System** | Junk script (Bash coursework) |
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| **Date** | 27/10/2017 |
| **Before** | Create three files named file1, file2, file3, and file4 for testing, note the size of the files in KB.  *Note: commands to be typed are highlighted in yellow.*   * cd <PROGRAM DIRECTORY> * ls > file1 * ls > file2 * ls > file3 |

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| **Test** | 001 |
| **Description** | Remove junk dir and test script creates it |
| **Input** | * rm -r ~/.junkdir * Run cd ~/.junkdir and check that .junkdir does not exist * Run ./junk.sh * Press 7 to exit * Run cd ~/.junkdir again |
| **Expected** | * The message “Created junk directory '/home/<USER>/.junkdir'” was displayed during program execution * The directory .junkdir now exists |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-10-15.png |

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| **Test** | 002 |
| **Description** | Test that selecting exit option exists program |
| **Input** | * ./junk.sh * Type 7 and press enter |
| **Expected** | * The program exits cleanly. |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-11-08.png |

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| **Test** | 003 |
| **Description** | Test that interrupting process displays correct message. |
| **Input** | * ./junk.sh * Enter ctrl+c |
| **Expected** | Message displayed:  “Total junk files: 0  Exiting...”  *Note: number of files depends on number in junk dir* |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-13-27-3.png |

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| **Test** | 004 |
| **Description** | Test that junk script moves single file to junkdir |
| **Input** | * ls * ls ~/.junkdir * ./junk.sh file1 * ls * ls ~/.junkdir |
| **Expected** | * File1 is in the current directory but not in the junk directory * After junking the following message is displayed: “Junk: 1 file(s) moved to junk directory!” * The file ‘file1’ has been moved to the .junkdir   *Note: you may get a warning about junk directory size* |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-17-42-4.png |

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| **Test** | 005 |
| **Description** | Test that junk script displays appropriate warning when junk directory goes over 1k in size |
| **Input** | ./junk.sh file2 |
| **Expected** | Message displayed:  “Warning: junk directory size greater than 1KB (12KB)”  *Note: size may vary depending on files used* |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-20-05-5.png |

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| **Test** | 006 |
| **Description** | Test that junk script with missing file displays appropriate value |
| **Input** | ./junk.sh file5 |
| **Expected** | Message displayed:  “Error: source file 'file5' does not exist” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-20-34-6.png |

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| **Test** | 007 |
| **Description** | Test that junk script with directory displays appropriate message |
| **Input** | * mkdir temp\_dir * ./junk.sh temp\_dir * rm -r temp\_dir |
| **Expected** | Message displayed:  “Error: 'temp\_dir' is a directory” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-21-46-7.png |

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| **Test** | 008 |
| **Description** | Test that junk script with file that cannot be read displays appropriate message |
| **Input** | * chmod 000 file3 * ./junk.sh file3 * chmod 644 file3 |
| **Expected** | Message displayed:  “Error: source file 'file3' is not readable” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-23-05-8.png |

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| **Test** | 009 |
| **Description** | Test that junkdir not being writable displays appropriate error message |
| **Input** | * chmod 444 ~/.junkdir * ./junk.sh file3 * chmod 755 ~/.junkdir |
| **Expected** | Message displayed:  “Error: destination directory '/home/<USER>/.junkdir' not writable” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-23-48-9.png |

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| **Test** | 010 |
| **Description** | Test that file already existing in junk directory displays appropriate error message |
| **Input** | * ls > file1 * ./junk.sh file1 |
| **Expected** | Message displayed:  “Error: destination file '/home/<USER>/.junkdir/file1' already exists” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-25-24-10.png |

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| **Test** | 011 |
| **Description** | Test that junk script moves multiple files to junkdir |
| **Input** | * ls > file4 * ./junk.sh file3 file4 * ls ~/.junkdir |
| **Expected** | The following message is displayed: “Junk: 2 file(s) moved to junk directory!”  The files ‘file1’ ‘file2’, ‘file3’, and ‘file 4’ are displayed in the .junkdir |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-28-46-11.png |

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| **Test** | 012 |
| **Description** | Test that recover switch moves file back from junkdir |
| **Input** | * ./junk.sh -r file1 * ls * ls ~/.junkdir |
| **Expected** | * The following message is displayed: “File 'file1' recovered” * The file ‘file1’ is displayed in current directory * The file ‘file1’ has disappeared from junkdir |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-31-32-12.png |

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| **Test** | 013 |
| **Description** | Test that recover with prompt moves file back from junkdir |
| **Input** | * ./junk.sh * Select 2 from menu * Type ‘file2’ and press enter * Select 7 to exit * ls * ls ~/.junkdir |
| **Expected** | * The following message is displayed: “File 'file2' recovered” * The file ‘file2’ is displayed in current directory * The file ‘file2’ has been removed from junkdir |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-32-53-13.png |

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| **Test** | 014 |
| **Description** | Test that recovering file when file does not exist displays appropriate error |
| **Input** | ./junk.sh -r file5 |
| **Expected** | Message displayed:  “Error: source file '/home/<USER>/.junkdir/file5' does not exist” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-33-22-14.png |

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| **Test** | 015 |
| **Description** | Test that recover with directory displays appropriate message |
| **Input** | * mkdir ~/.junk\_dir/temp\_dir * ./junk.sh -r temp\_dir * rm -r ~/.junk\_dir/temp\_dir |
| **Expected** | Message displayed:  “Error: '/home/<USER>/.junkdir/temp\_dir' is a directory” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-34-28-15.png |

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| **Test** | 016 |
| **Description** | Test that recover with file that cannot be read displays appropriate message |
| **Input** | * chmod 000 ~/.junkdir/file3 * ./junk.sh -r file3 * chmod 644 ~/.junkdir/file3 |
| **Expected** | Message displayed:  “Error: source file '/home/<USER>/.junkdir/file3' is not readable” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-36-07-16.png |

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| **Test** | 017 |
| **Description** | Test that recover when destination directory not writable displays appropriate error message |
| **Input** | * chmod 444 . * ./junk.sh -r file3 * chmod 755 . |
| **Expected** | Message displayed:  “Error: destination directory '.' not writable” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-38-20-17.png |

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| **Test** | 018 |
| **Description** | Test that recover when file already exists displays appropriate error |
| **Input** | * ls > ./junkdir/file3 * ./junk.sh -r file3 |
| **Expected** | Message displayed:  “Error: destination file './file3' already exists” |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-40-27-18.png |

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| **Test** | 019 |
| **Description** | Test that list switch (-l) lists contents of junkdir |
| **Input** | * ./junk.sh -l * ls -l ~/.junkdir |
| **Expected** | The following output is displayed:  Junk directory list: 2 file(s)  Name KB Type  ---------- ----------- ----------  file3 4 ASCII text  file4 4 ASCII text  That matches the output of ls:  total 8  -rw-r--r-- 1 alex alex 81 Oct 24 08:02 file3  -rw-r--r-- 1 alex alex 81 Oct 24 08:27 file4  *Note: the bytes in files may vary depending on the files used* |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-41-24-19.png |

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| **Test** | 020 |
| **Description** | Test that list menu option lists contents of junkdir |
| **Input** | * ./junk.sh * Select 1 from menu and press enter * Select 7 to exit * ls -l ~/.junkdir |
| **Expected** | The following output is displayed:  Junk directory list: 2 file(s)  Name KB Type  ---------- ----------- ----------  file3 4 ASCII text  file4 4 ASCII text  That matches the output of:  total 8  -rw-r--r-- 1 alex alex 81 Oct 24 08:02 file3  -rw-r--r-- 1 alex alex 81 Oct 24 08:27 file4  *Note: the bytes in files may vary depending on the files used* |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-42-55-20.png |

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| **Test** | 021 |
| **Description** | Test that delete option interactively deletes files |
| **Input** | * Create a file1 if it doesn’t exist ls > ~/.junkdir/file1 * ./junk.sh * Select option 3 and press enter * Enter ‘y’ when asked to delete file1 * Enter ‘n’ when asked to delete file3 * Enter ‘x’ when asked to delete file4 * Enter ‘n’ when asked to delete file3 again * Enter 7 to exit * ls ~/.junkdir |
| **Expected** | * The file ‘file1’ should be removed from junkdir * The file ‘file3’ should still be present in junkdir * The message ‘Invalid input’ should be displayed for ‘x’ * The file ‘file4’ should remain in junkdir * The message “Deleted 1 file(s)” should be displayed before exit of script |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 08-47-03-21.png |

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| **Test** | 022 |
| **Description** | Test that delete switch (-d) interactively deletes files |
| **Input** | * ./junk.sh -d * Enter ‘y’ when asked to delete file2 * Enter ‘y’ when asked to delete file3 * ls ~/.junkdir |
| **Expected** | * The message “Deleted 2 file(s)” should be displayed * The file ‘file2’ should be removed from junkdir * The file ‘file3’ should be removed from junkdir |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 09-13-01-22.png |

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| **Test** | 023 |
| **Description** | Test that delete with write-protected file still deletes |
| **Input** | * ls > ~/.junkdir/file3 if it does not exist * chmod 000 ~/.junkdir/file3 * ./junk.sh -d * Press ‘y’ when asked to delete ‘file3’ * ls ~/.junkdir |
| **Expected** | * The message “Deleted 1 file(s)” should be displayed * The file ‘file3’ should be removed from junkdir |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 09-15-54-23.png |

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| **Test** | 024 |
| **Description** | Test that total menu option shows list of total files for all users, for this test we will add a user called test, create their junk directory, and add a file |
| **Input** | * sudo adduser -q test * sudo mkdir /home/test/.junkdir * sudo cp file1 /home/test/.junkdir * ./junk.sh * Enter option 4 * Enter 7 to exit |
| **Expected** | The message “Total junk directory size for 2 user(s): 12KB”  *Note: the actual byte size will vary based on files in user directories and their sizes* |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 09-21-40-24.png |

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| **Test** | 025 |
| **Description** | Test that total switch (-t) shows list of total files for all users |
| **Input** | * ./junk.sh -t * sudo deluser test * sudo rm -r /home/test |
| **Expected** | The message “Total junk directory size for 2 user(s): 12KB”  *Note: the actual byte size will vary based on files in user directories and their sizes* |
| **Actual** | As expected |
| **Screen** | C:\Users\alexm\AppData\Local\Microsoft\Windows\INetCache\Content.Word\Screenshot from 2017-10-24 09-22-49-25.png |

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| **Test** | 026 |
| **Description** | Test that watch script is started from menu option |
| **Input** | * ./junk.sh * Type 5 and press enter |
| **Expected** | The watch command for the junkdir is displayed.  *Note: press ctrl+c to exit* |
| **Actual** | As expected |
| **Screen** | Screenshot from 2017-10-27 11-18-32-26 |

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| **Test** | 027 |
| **Description** | Test that watch script is started from switch (-w) |
| **Input** | ./junk.sh -w |
| **Expected** | The watch command for the junkdir is displayed.  *Note: press ctrl+c to exit* |
| **Actual** | As expected |
| **Screen** | Screenshot from 2017-10-27 11-18-51-27 |

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| **Test** | 028 |
| **Description** | Test that watch script can be killed with the kill menu option |
| **Input** | * Run ./junk.sh -w in first terminal * In second terminal run: ./junk.sh * Type 6 and press enter * Type 7 and press enter to exit |
| **Expected** | * The watch command running in the first terminal is stopped and you are returned to the prompt. * In the second terminal the message is displayed: “Stopping watch.sh script (PID: <PID>)” |
| **Actual** | As expected |
| **Screen** | Screenshot from 2017-10-27 11-19-43-28 |

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| **Test** | 029 |
| **Description** | Test that watch script can be killed with a switch (-k) |
| **Input** | * Run ./junk.sh -w in first terminal * In second terminal run: ./junk.sh -k |
| **Expected** | * The watch command running in the first terminal is stopped and you are returned to the prompt. * In the second terminal the message is displayed: “Stopping watch.sh script (PID: <PID>)” |
| **Actual** | As expected |
| **Screen** | Screenshot from 2017-10-27 11-21-32-29 |

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| **Test** | 030 |
| **Description** | Test that watch script updates correctly when file added. For this test start two terminal windows and run ./junk.sh -w in the first one. Make sure junkdir is empty (rm \* ~/.junkdir). |
| **Input** | echo “file1” > ~/.junkdir/file1 |
| **Expected** | The watch script updates the message “- file1 (added)” is displayed |
| **Actual** | As expected |
| **Screen** | Screenshot from 2017-10-27 11-28-42-30 |

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| **Test** | 031 |
| **Description** | Test that watch script updates correctly when second file added. |
| **Input** | echo “file2” > ~/.junkdir/file2 |
| **Expected** | The watch script updates the message “- file2 (added)” is displayed |
| **Actual** | As expected |
| **Screen** | Screenshot from 2017-10-27 11-29-59-31 |

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| **Test** | 032 |
| **Description** | Test that watch script updates correctly when files are modified. |
| **Input** | echo “changed” > ~/.junkdir/file1 |
| **Expected** | The watch script updates with the message:  - file1 (modified)  - file2 (unmodified) |
| **Actual** | As expected |
| **Screen** | Screenshot from 2017-10-27 11-31-58-32 |

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| **Test** | 033 |
| **Description** | Test that watch script updates correctly when files are modified. |
| **Input** | echo “changed” > ~/.junkdir/file1 |
| **Expected** | The watch script updates with the message:  - file1 (modified)  - file2 (unmodified) |
| **Actual** | As expected |
| **Screen** | Screenshot from 2017-10-27 11-33-35-33 |

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| **Test** | 034 |
| **Description** | Test that watch script ignored directories |
| **Input** | mkdir > ~/.junkdir/test |
| **Expected** | The watch script updates with the message:  - file2 (unmodified) |
| **Actual** | As expected |
| **Screen** | Screenshot from 2017-10-27 11-35-57-34 |