Shopping List Test Plan

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| Test # | Menu Option | Input (KEY) | Output | Remarks |
| 1 | **A—print by name** | None | Print by name as a table with 5 columns. | Print list name by alphabetical order |
| 2 | **B—print indented tree** | None | Print indented tree | Display indented tree |
| 3 | **C—print list by hash table** | None | List printed with hash table with 5 columns. | Barcode/ list name/ original price/ sale price/ end of sale date |
| 4 | **E—insert product** | (814916011865)  885909454549  iPad3  499.99  (500.00)  439.99  (2/29/2011)  (6/31/2012)  12/24/2012 | New product iPad3 added | New item:  885909454549 iPad3 $499.99 $439.99 12/24/2012  added    \*(bracket) means input that will cause error |
| 5 | **A—print by name** | None | Print shopping list with new added product | Print shopping list with new added product |
| 6 | **C — print list by hash table** | None | Print shopping list with new added product | New added product at home address 19, second node. |
| 7 | **F---search by name** | kindle | Find item in shopping list | Find kindle in list:  814916011865 kindle $139.00 $129.00 11/29/2012 |
| 8 | **F— search by name** | Garmin GPS | Find same name items in shopping list | Find Garmin GPS in list:  999992711608 Garmin GPS $239.99 $136.65 12/05/2012  753759978501 Garmin GPS $119.99 $ 89.99 12/25/2012 |
| 9 | **F— search by name** | xbox | Not find in shopping list | xbox is not in shoppinglist |
| 10 | **G—**  **Search by barcode** | 762111614902 | Found: Starbucks French Roast | First item in the hash table: Home Address = 1, single linked list second node |
| 11 | **G—**  **Search by barcode** | 756380076690 | Found: Meridian LED | Last item in the hash table: Home Address = 1, single linked first node |
| 12 | **G—**  **Search by barcode** | 719192177192 | Found: LG 42LD520 TV | Search for an item in the middle of the hash table, first node in the linked list |
| 13 | **G—**  **Search by barcode** | 886059145523 | Found: Nike shoes | Search for an item in the middle of the hash table, second node in the linked list |
| 14 | **G—**  **Search by barcode** | 619659069131 | Found: Sandisk 64GB | Search for an item in the middle of the hash table, last node in the linked list |
| 15 | **G—**  **Search by barcode** | 619659069131 | Found: Sandisk 64GB | Searched time++, has higher access. It moves to the first node of the linked list |
| 16 | **C—print list by hash table** | None |  | To check 619659069131 item moves first node of the linked list |
| 17 | **F— search by name** | Samsung S3 | Found | Searched time++ It moves to the second node of the linked list |
| 18 | **F— search by name** | Samsung S3 | Found | Searched time++ It moves to the first node of the linked list |
| 19 | **C—print list by hash table** | None |  | To check Samsung S3 item moves first node of the linked list |
| 20 | **G—**  **Search by barcode** | 044406040090 | Not Found | Home Address = 20, but linked list is empty |
| 21 | **G—**  **Search by barcode** | 044406040091 | Not Found | Home Address = 45, linked list has one node. |
| 22 | **G—**  **Search by barcode** | 044406040099 | Not Found | Home Address = 1, linked list has two nodes. |
| 23 | **H—delete by name** | Beats | Delete item | Delete item with only right subtree. |
| 24 | **H—delete by name** | Norpro Taco Press | Delete item | Delete item with only left subtree. |
| 25 | **H—delete by name** | Card Reader | Delete item | Delete item with both subtrees. |
| 26 | **H—delete by name** | Garmin GPS | Delete 2 items | Delete items with same names which one of them is leaf.  1: 999992711608 Garmin GPS $239.99 $136.65 12/05/2012  2: 753759978501 Garmin GPS $119.99 $ 89.99 12/25/2012  Both deleted. |
| 27 | **C—print list by hash table** | None | Print list with hash table without deleted item | Print name without  050644577086 Beats $199.99 $189.99 11/25/2012  028901010614 Norpro Taco Press $ 6.71 $ 0.00 11/22/2012  044406040093 Card Reader $ 2.15 $ 0.01 11/31/2012  999992711608 Garmin GPS $239.99 $136.65 12/05/2012  753759978501 Garmin GPS $119.99 $ 89.99 12/25/2012 |
| 28 | **B—print indented tree** | None | Print updated indented tree | Display updated indented tree |
| 29 | **I—delete by barcode** | 718103153164 | Delete first item first node in the hash table | 718103153164 Osgood chair $149.99 $ 99.99 12/05/2012  deleted! |
| 30 | **I—delete by barcode** | 036725236677 | Delete middle item last node in the hash table | 036725236677 Samsung HDTV $648.00 $599.00 01/01/2013 |
| 31 | **C—print list by hash table** | None | Print list with hash table without deleted item | Print name without  718103153164 Osgood chair $149.99 $ 99.99 12/05/2012  036725236677 Samsung HDTV $648.00 $599.00 01/01/2013 |
| 32 | **A—print by name** | None | Print indented name without deleted item | Print updated BST without deleted items |
| 33 | **D—**  **Print total cost and saving** | None | Print total cost and total saving | Your shopping cart:  Total Cost : $ 5400.95  Total Saving : $ 911.89 |
| 34 | **K- Efficiency** | None | Load factor  Longest linked-list  Total nodes  Collision amount  Average of nodes | Load Factor is 27.9%  The longest linked-list has 3 nodes  Total nodes : 24.0  Collsion amount: 17.0  average of nodes is: 1.41 |
| 35 | **J—best deal** | None | Show best deal product and save percentage | Best Deal is:  619659069131 Sandisk 64GB $ 89.00 $ 34.99 11/30/2012  Save : 60.7% |
| 36 | **S- save searched item** | searched.txt | Save searched file into searched.txt | Please enter the output file name <xxx.txt>: searched.txt  save to file searched.txt finished! |
| 37 | **Q--Exit** | None | No memory leak!!! | All the data stored in BST/hash table will be automatically saved to file to list.txt  Please enter the output file name <xxx.txt>: list.txt  save to file list.txt finished!  No Memory Leak!!!  End Shopping List  List information is saved in your folder.  Thank you for using our product. |

Collision resolution method: self-adjusted linked list.