

ComS417 Assignment 3

Question 1:

First 5 test frames of *sort.tsl.tsl*:

Test Case 1 (Key = 1.1.1.1.1.1.1.)

help : on
version : on
order : numeric
check : yes
unique : yes
file_contents : sorted_alphabetically
duplicates : yes

Test Case 2 (Key = 1.1.1.1.1.1.2.)

help : on
version : on
order : numeric
check : yes
unique : yes
file_contents : sorted_alphabetically
duplicates : no

Test Case 3 (Key = 1.1.1.1.1.2.1.)

help : on
version : on
order : numeric
check : yes
unique : yes
file_contents : sorted_numerically
duplicates : yes

Test Case 4 (Key = 1.1.1.1.1.2.2.)

help : on
version : on
order : numeric
check : yes
unique : yes
file_contents : sorted_numerically
duplicates : no

Test Case 5 (Key = 1.1.1.1.1.3.1.)

help : on
version : on
order : numeric

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check : yes
unique : yes
file_contents : unsorted
duplicates : yes

Last 5 test frames of *sort.tsl.tsl*:

Test Case 380 (Key = 2.2.4.2.2.1.2.)

help : off
version : off
order : reverse
check : no
unique : no
file_contents : sorted_alphabetically
duplicates : no

Test Case 381 (Key = 2.2.4.2.2.2.1.)

help : off
version : off
order : reverse
check : no
unique : no
file_contents : sorted_numerically
duplicates : yes

Test Case 382 (Key = 2.2.4.2.2.2.2.)

help : off
version : off
order : reverse
check : no
unique : no
file_contents : sorted_numerically
duplicates : no

Test Case 383 (Key = 2.2.4.2.2.3.1.)

help : off
version : off
order : reverse
check : no
unique : no
file_contents : unsorted
duplicates : yes

Test Case 384 (Key = 2.2.4.2.2.3.2.)

help : off

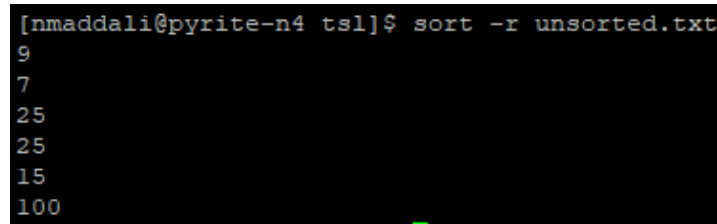
```
version    : off
order      : reverse
check      : no
unique     : no
file_contents : unsorted
duplicates : no
```

- a. Using Test Case 384, the test frame specifies the following parameters for the *sort* command: help and version turned off, order is set to reverse, check is not specified, no uniqueness check performed, the input file is unsorted, and duplicates are not handled specially.

unsorted.txt:

```
25
7
100
15
25
9
```

Running this command produces this result:



```
[nmaddali@pyrite-n4 tsl]$ sort -r unsorted.txt
9
7
25
25
15
100
```

- b. *sort.refined.tsl* had 98 test frames generated. In *sort.refined.tsl* the reduction in the number of test frames suggests a refinement or consolidation of test cases, focusing on more meaningful or essential scenarios for testing. Test cases 1 and 2 in *sort.refined.tsl* are specifically for testing the *help* and *version* options. Test cases 3 in *sort.refined.tsl* and further don't consider *help* and *version* options explicitly. Instead, they focus on various combinations of sorting options without considering the help and version flags.

First 5 test frames of *sort.refined.tsl*:

Test Case 1 <single>
 help : help_on

Test Case 2 <single>
 version : version_on

Test Case 3 (Key = 0.0.1.1.1.1.1.)
 help : <n/a>
 version : <n/a>
 order : numeric
 check : yes

unique : yes
file_contents : sorted_alphabetically
duplicates : yes

Test Case 4 (Key = 0.0.1.1.1.1.2.)

help : <n/a>
version : <n/a>
order : numeric
check : yes
unique : yes
file_contents : sorted_alphabetically
duplicates : no

Test Case 5 (Key = 0.0.1.1.1.2.1.)

help : <n/a>
version : <n/a>
order : numeric
check : yes
unique : yes
file_contents : sorted_numerically
duplicates : yes

Last 5 test frames of *sort.refined.tsl*:

Test Case 94 (Key = 0.0.4.2.2.1.2.)

help : <n/a>
version : <n/a>
order : reverse
check : no
unique : no
file_contents : sorted_alphabetically
duplicates : no

Test Case 95 (Key = 0.0.4.2.2.2.1.)

help : <n/a>
version : <n/a>
order : reverse
check : no
unique : no
file_contents : sorted_numerically
duplicates : yes

Test Case 96 (Key = 0.0.4.2.2.2.2.)

help : <n/a>
version : <n/a>

order : reverse
check : no
unique : no
file_contents : sorted_numerically
duplicates : no

Test Case 97 (Key = 0.0.4.2.2.3.1.)

help : <n/a>
version : <n/a>
order : reverse
check : no
unique : no
file_contents : unsorted
duplicates : yes

Test Case 98 (Key = 0.0.4.2.2.3.2.)

help : <n/a>
version : <n/a>
order : reverse
check : no
unique : no
file_contents : unsorted
duplicates : no

Question 2:

- For *cit-sort-input.txt*, the TCount value is 66, so there are 66 combinations generated for this file.
For *cit-sort-input-3way.txt*, the TCount value is 164, so there are 164 combinations generated for this file.
- Output from *cit-sort-input.txt*:

```
t  k  v  TCount
2  5  13  66

4  2  2  3  2

0  1  2  3
4  5
6  7
8  9  10
11 12

12
0  5  7  9  11
1  4  6  9  12
0  4  6  8  12
3  5  6  8  12
3  4  7  10 11
2  4  6  10 11
1  5  6  10 12
2  5  6  9  12
0  4  7  10 11
1  4  7  8  11
3  5  7  9  12
2  5  7  8  11
```

c. TSL -> CIT

Parameters:

order (numeric 0, default (alpha) 1, random 2, reverse 3)

check (yes 4, no 5)

unique (yes 6, no 7)

Environments:

file-contents (sorted_alphabetically 8, sorted_numerically 9, unsorted 10)

duplicates (yes 11, no 12)

1. 0 5 7 9 11 = numeric, no, no, sorted_numerically, yes
2. 1 4 6 9 12 = default (alpha), yes, yes, sorted_numerically, no
3. 0 4 6 8 12 = numeric, yes, yes, sorted_alphabetically, no
4. 3 5 6 8 12 = reverse, no, yes, sorted_alphabetically, no
5. 3 4 7 10 11 = reverse, yes, no, unsorted, yes
6. 2 4 6 10 11 = random, yes, yes, unsorted, yes
7. 1 5 6 10 12 = default (alpha), no, yes, unsorted, no
8. 2 5 6 9 12 = random, no, yes, sorted_numerically, no
9. 0 4 7 10 11 = numeric, yes, no, unsorted, yes
10. 1 4 7 8 11 = default (alpha), yes, no, sorted_alphabetically, yes
11. 3 5 7 9 12 = reverse, no, no, sorted_numerically, no
12. 2 5 7 8 11 = random, no, no, sorted_alphabetically, yes

Question 3:

a. I have 448 test frames generated in the firefox.tsl.tsl file

b. firefox.tsl

#tsl for firefox

Parameters:

default_search_engine:

google.

amazon.com.

bing.

duckduckgo.

ebay.

wikipedia.

tab_options:

open_in_new_tab:

on.

off.

cycle_through_tabs:

on.

off.

switch_immediately:

on.

off.

confirm_closing_multiple:

on.
off.
update preference:
automatic.
manual.
performance_settings:
yes.
no.

First 5 test frames of *firefox.tsl.tsl*:

Test Case 1 (Key = 1.1.1.1.1.1.1.)

default_search_engine : google
open_in_new_tab : on
cycle_through_tabs : on
switch_immediately : on
confirm_closing_multiple : on
update preference : automatic
performance_settings : yes

Test Case 2 (Key = 1.1.1.1.1.1.2.)

default_search_engine : google
open_in_new_tab : on
cycle_through_tabs : on
switch_immediately : on
confirm_closing_multiple : on
update preference : automatic
performance_settings : no

Test Case 3 (Key = 1.1.1.1.1.2.1.)

default_search_engine : google
open_in_new_tab : on
cycle_through_tabs : on
switch_immediately : on
confirm_closing_multiple : on
update preference : manual
performance_settings : yes

Test Case 4 (Key = 1.1.1.1.1.2.2.)

default_search_engine : google
open_in_new_tab : on
cycle_through_tabs : on
switch_immediately : on
confirm_closing_multiple : on
update preference : manual

performance_settings : no

Test Case 5 (Key = 1.1.1.1.2.1.1.)

default_search_engine : google
open_in_new_tab : on
cycle_through_tabs : on
switch_immediately : on
confirm_closing_multiple : off
update_preference : automatic
performance_settings : yes

Last 5 test frames of *firefox.tsl.tsl*:

Test Case 444 (Key = 7.2.2.2.1.2.2.)

default_search_engine : wikipedia
open_in_new_tab : off
cycle_through_tabs : off
switch_immediately : off
confirm_closing_multiple : on
update_preference : manual
performance_settings : no

Test Case 445 (Key = 7.2.2.2.2.1.1.)

default_search_engine : wikipedia
open_in_new_tab : off
cycle_through_tabs : off
switch_immediately : off
confirm_closing_multiple : off
update_preference : automatic
performance_settings : yes

Test Case 446 (Key = 7.2.2.2.2.1.2.)

default_search_engine : wikipedia
open_in_new_tab : off
cycle_through_tabs : off
switch_immediately : off
confirm_closing_multiple : off
update_preference : automatic
performance_settings : no

Test Case 447 (Key = 7.2.2.2.2.2.1.)

default_search_engine : wikipedia
open_in_new_tab : off
cycle_through_tabs : off
switch_immediately : off

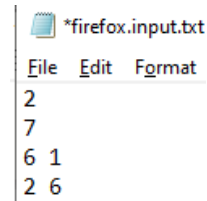
confirm_closing_multiple : off
update_preference : manual
performance_settings : yes

Test Case 448 (Key = 7.2.2.2.2.2.2.)

default_search_engine : wikipedia
open_in_new_tab : off
cycle_through_tabs : off
switch_immediately : off
confirm_closing_multiple : off
update_preference : manual
performance_settings : no

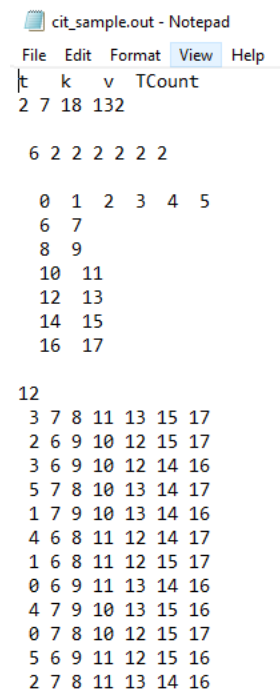
Question 4:

a. firefox.input.txt:



```
*firefox.input.txt
File Edit Format
2
7
6 1
2 6
```

Output:



```
cit_sample.out - Notepad
File Edit Format View Help
t k v TCount
2 7 18 132

6 2 2 2 2 2

0 1 2 3 4 5
6 7
8 9
10 11
12 13
14 15
16 17

12
3 7 8 11 13 15 17
2 6 9 10 12 15 17
3 6 9 10 12 14 16
5 7 8 10 13 14 17
1 7 9 10 13 14 16
4 6 8 11 12 14 17
1 6 8 11 12 15 17
0 6 9 11 13 14 16
4 7 9 10 13 15 16
0 7 8 10 12 15 17
5 6 9 11 12 15 16
2 7 8 11 13 14 16
```

b. TSL -> CIT

Parameters:

default_search_engine (google 0, amazon.com 1, bing 2, duckduckgo 3, ebay 4, wikipedia 5)
open_in_new_tab (on 6, off 7)
cycle_through_tabs (on 8, off 9)

switch_immediately (on 10, off 11)
confirm_closing_multiple (on 12, off 13)
update preference (automatic 14, manual 15)
performance_settings (yes 16, no 17)

1. 3 7 8 11 13 15 17 = duckduckgo, off, on, off, off, manual, no
2. 2 6 9 10 12 15 17 = bing, on, off, on, on, manual, no
3. 3 6 9 10 12 14 16 = duckduckgo, on, off, on, on, automatic, yes
4. 5 7 8 10 13 14 17 = wikipedia, off, on, on, off, automatic, no
5. 1 7 9 10 13 14 16 = amazon.com, off, off, on, off, automatic, yes
6. 4 6 8 11 12 14 17 = ebay, on, on, off, on, automatic, no
7. 1 6 8 11 12 15 17 = amazon.com, on, on, off, on, manual, no
8. 0 6 9 11 13 14 16 = google, on, off, off, off, automatic, yes
9. 4 7 9 10 13 15 16 = ebay, off, off, on, off, manual, yes
10. 0 7 8 10 12 15 17 = google, off, on, on, on, manual, no
11. 5 6 9 11 12 15 16 = wikipedia, on, off, off, on, manual, yes
12. 2 7 8 11 13 14 16 = bing, off, on, off, off, automatic, yes

c. Base:

- default_search_engine: ebay
- open_in_new_tab: off
- cycle_through_tabs: off
- switch_immediately: off
- confirm_closing_multiple: off
- update preference: manual
- performance_settings, yes

engine	open	cycle	switch	confirm	update	performance
ebay	Off	Off	Off	Off	Manual	Yes
Ebay	On	off	off	off	manual	Yes
Ebay	Off	on	off	Off	Manual	Yes
Ebay	Off	Off	On	Off	Manual	Yes
Ebay	Off	Off	Off	On	Manual	Yes
Ebay	Off	Off	Off	Off	automatic	Yes
ebay	Off	Off	Off	off	manual	No
google	Off	Off	Off	Off	Manual	Yes
Amazon.com	Off	Off	Off	Off	Manual	Yes

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bing	Off	Off	Off	Off	Manual	Yes
duckduckgo	off	off	off	off	manual	Yes
wikipedia	off	off	off	off	manual	Yes