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Programming Section: 4

HW3: Practice Cmds 1

On my honor, as a Carnegie-Mellon Africa student, I have neither given nor received unauthorized assistance on this work.

Using the files under dirtree from the tar file downloaded (and best if you do it after completing Practice Paths 2), answer the following questions. Also describe the techniques and commands you used to determine the answers (so each questions has 2 answers):

1. What file(s) tell you about water?

Answer:

dirtree/sdira/ssdir2/sbdir2/file22

dirtree/sdirb/ssdir3/sbdir3/sbdir3/fileA3

dirtree/sdirb/ssdir4/sbdir4/sbdir4/fileB4

grep -ir 'water' dirtree | sed -e 's/:.*//' | sort -u => searching recursively ignoring case from dirtree the files containing word water then pick only the filenames and then pick only unique ones

2. What file(s) tell you about colors?

Answer: dirtree/sdira/ssdir2/sbdir2/file2

grep -ir 'color' dirtree/ | sed -e 's/:.*//' | sort -u => Search recursively ignoring case from dirtree for files containing word 'color' then pick only the unique filenames.

3. What is Cathy's favorite color?

Answer: **Blue**

grep -ir 'cathy' dirtree/ | grep -i 'color' => search recursively for Cathy then search for the color in results

4. What file(s) tell you about your CMU-Africa?

Answer:

dirtree/sdira/ssdir1/sbdir1/file1

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA1

dirtree/sdirb/ssdir4/sbdir4/sbd4/fileB1

grep -ir 'CMU-Africa' dirtree/ | sed -e 's/.*//' | sort -u => Search recursively ignoring case from dirtree for files containing 'CMU-Africa' then pick only the unique filenames.

5. How many different colors are mentioned in the files?

Answer: **Two**

grep -ir 'color' dirtree/ => Search recursively ignoring case from dirtree for files containing 'color' then figure out color names.

6. How many types of water are mentioned in the files?

Answer: **Four => Ocean, river, lake, sea**

grep -ir 'water' dirtree => Search recursively ignoring case from dirtree for files containing 'water' then figure out water types.

7. Show the lines from all the files under dirtree/sdirb/ssdir3/sbdir3/sbd3/ that have a c.

Answer:

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA1:1:Bruce Krogh was the first Director of CMU-Africa.

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA1:2:When it first opened, CMU-Africa was call Carnegie-Mellon Rwanda.

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA4:1:Carnegie Mellon University Africa was established in 2011.

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA4:2:The first graduating class was in 2013.

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA4:3:The campus at the Kigali Innovation Center was opened starting for Orientation in August of 2019.

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA2:1:Don't ever copy code! Not from another student, a TA, or a graduate, and never from the Internet!

grep -inr 'c' dirtree/sdirb/ssdir3/sbdir3/sbd3 => Search recursively ignoring case from dirtree for files containing 'c' then lines will be shown with the lines number using this command.

8. How many files under the dirtree directory have a capital letter in their name?

Answer: **Eight**

find dirtree/ -name "[A-Z]*" | sort -u | wc -l => Find all filenames under dirtree containing capital letter, pick unique ones, then count them.

9. How many files in the dirtree/sdirb/ssdir4/sbdir4/sbd4/ directory contain a capital letter?

Answer: **Three**

grep -r [A-Z] dirtree/sdirb/ssdir4/sbdir4/sbd4/ | cut -f1 -d: | sort -u | wc -l => Find all filenames only under the above given directory containing capital letter, pick unique ones, then count them.

10. What files in dirtree/sdirb/ssdir3/sbdir3/sbd3/ contain an f or an F. Give the command to run from the dirtree directory (in other words, cd to dirtree and run it from there).

Answer:

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA1

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA2

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA3

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA4

grep -r [Ff] dirtree/sdirb/ssdir3/sbdir3/sbd3/ | cut -f1 -d: | sort -u => Search recursively for all files under the above given directory containing capital or small F then take only unique ones.

11. How many files are in / (the root directory)?

Answer: **Twenty-seven**

ls -a / | wc -l => list and count all files

12. What are the regular files (i.e. not directories) under dirtree?

Answer:

dirtree/sdira/ssdir1/sbd1/file2

dirtree/sdira/ssdir1/sbd1/file1

dirtree/sdira/ssdir2/sbd2/file2

dirtree/sdira/ssdir2/sbd2/file22

dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA1
dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA4
dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA3
dirtree/sdirb/ssdir3/sbdir3/sbd3/fileA2
dirtree/sdirb/ssdir4/sbdir4/sbd4/fileB1
dirtree/sdirb/ssdir4/sbdir4/sbd4/fileB2
dirtree/sdirb/ssdir4/sbdir4/sbd4/fileB3
dirtree/sdirb/ssdir4/sbdir4/sbd4/fileB4

find dirtree/ -name "*" -type f => Find only files with type file under dirtree.

13. How many directories are under dirtree?

Answer: **Twelve**

find dirtree/ -name "*" -type d | grep -v '.*\/\$' | wc -l => Find all filenames of type directory, under dirtree, remove the current directory and then count them.

14. What does this command give you (explain in English too):

ls -R dirtree | grep -v : | sort -u

Super tricky ... try it. What is does this command do? Note: it is on one line, even if HTML is formatting it on two.

Answer: **It lists recursively the dirtree; then search and matches the lines with no colon (:); then uniquely sorts the results. i.e., it returns the sorted unique lines with no colon in them.**

ls -R dirtree | sed -e 's/.*\///g' -e 's:/' | sort -u

Answer: **It lists recursively the dirtree contents, from results then substitute anything (zero or more characters) that is in front of a forward slash with nothing globally; then substitute the first colon with nothing; then sort only unique lines i.e., it gives the directory tree of the dirtree in details.**

Hint: For the complicated ones, try each part separately first. So do the first part, up to the pipe. Then add up to the next pipe, ...