CS2211a Assignment 1

Issued on: Thursday, September 18, 2014

Due by: 11:55 pm on Thursday, September 25, 2014

- For this assignment, ***only electronic submission*** at owl.uwo.ca is required.
- ONLY user ***Courier New*** font.
- Leave ***one empty line*** and ***a line of "$"*** between the answer of each question.
- Leave ***one empty line*** and ***a line of "%"*** between the answer of each subsection in each question.
- ***Write the question number in a separate line followed by an empty line.***
- *When you cut-and-paste any Unix command or Unix output, please make them* ***BOLD***

Your submission should look like that:

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Q1(a)

Write here your answer. ls /faculty/elsakka Write here your answer.
Write here your answer.
Write here your answer.

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Q1(b)

Write here your answer.
Write here your answer.
Write here your answer.

$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$$

Q2(a)

Write here your answer.
Write here your answer.
Write here your answer.

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and so on

Failure to follow the above format may cost you 10% of the total assignment mark.

- Late assignments are strongly discouraged
  - 10% will be deducted from a late assignment (up to 24 hours after the due date/time)
  - After 24 hours from the due date/time, late assignments will receive a zero grade.

QUESTION 1 (12 marks)

On gaul, change your working directory to **/bin/**

(a) (2 marks) Executing *pwd* command. What will you get? Explain why you did not get **/bin/** as the output.

(b) Use only the *ls* Unix command to display the following ***file names*** in the **/bin/** directory:

I. (2 marks) whose names that are of length exactly 15 characters

II. (2 marks) whose names that have a **z** as the second letter

III. (2 marks) whose names that end with **i** or **j**

IV. (2 marks) whose names that begin with an uppercase letter (do ***not*** display any of the directory contents, if any—you may want to read the *ls* man pages to know how to do so)

V. (2 marks) whose names that begin with an uppercase letter other than **D**, or **M** (do ***not*** display any of the directory contents, if any—you may want to read the *ls* man pages to know how to do so)

In part (b), you must include in your report ***Unix command that you used in each part*** and the ***results that you got*** when executing the command (i.e., the list of required file names).

QUESTION 2 (12 marks)

On gaul, accomplish the following tasks using one or two one-line Unix commands:

(a) (1 mark) *Go to* your home directory and *create* a directory called **public_html** under your home directory

(b) (1 marks) Display the permissions of **public_html**

(c) (1 mark) change your working directory to **public_html**

(d) (1 mark) using **touch** command, create a file called **abc** under the **public_html** directory

(e) (1 mark) change your working directory one level up

(f) (1 mark) change the **public_html** permission to 300

(g) (4 marks) Why ***can*** you see information about **abc** when executing **ls public_html/abc** but ***not*** when executing **ls public_html**? Fully explain the reason.

(h) (2 marks) What is the minimum that you should do to let both **ls public_html/abc** and **ls public_html** behave the same way?

You must include in your report ***all Unix commands that you used in each part***.

QUESTION 3 (12 marks)

On gaul, accomplish the following tasks using one or two one-line Unix commands:

(a) (1 marks) Display a list of all hidden files in your home directory (do ***not*** display any of the hidden directory contents—you may want to read the *ls* man pages to know how to do so) ***sorted in reverse lexicographical (alphabetical) order*** of file names that **end with letters *rc*** —you may want to read the *sort* man pages to know how to do so.

(b) (1 mark) Use the **finger** command to find yourself on **obelix** and show what you will get.

(c) (1 mark) Create and edit a file in your home directory called **.plan** outlining some of your plans.

(d) (1 mark) Change the permissions of **.plan** to make it readable to everyone.

(e) (1 mark) Use the **finger** command again to find yourself on **obelix** and show what you will get.

(f) (1 mark) Change the permissions of **.plan** file to 600

(g) (1 mark) Use the **finger** command for one more time to find yourself on **obelix** and show what you will get.

(h) (5 marks) Did you see a different between the (c), (f) and (h) outputs? Explain

You must include in your report ***all Unix commands that you used in each part*** and the ***results that you got, if any,*** when executing the commands.

QUESTION 4 (20 marks)

On gaul, accomplish the following tasks using Unix commands:

(a) (2 mark) *Go to* your home directory and *create* a directory called **Working-Area** under your home directory
(b) (2 marks) under **Working-Area** directory, *create* a sub-directory called **Dir1** and a regular file called **File1**
(c) (2 marks) under **Dir1**, *create* two directories called **Dir3** and **Dir4**
(d) (2 marks) under **Dir3,** *create* a regular file called **File3**
(e) (2 marks) under **Dir4**, *create* three regular files called **File4**, **File5** and **File6**
(f) (2 marks) under **Working-Area** directory, *create* **Dir2**, a symbolic link that points to **Dir1/Dir4**

Set the permissions of:

(g) (2 marks) **Working-Area** to give all permissions to the owner user, and none to others and group users
(h) (2 marks) **Dir3** to give all permissions to the owner user, while read and execute to group users, and none to others
(i) (2 marks) **File3** to give read and execute permission to others and group users, as well as all permissions to the owner
(j) (2 marks) **File5** to give execute permission alone to others and group users, as well as read and execute permission to the owner user

You must include in your report *all Unix commands that you used*.

QUESTION 5 (16 marks) *to be performed on gaul*

(a) (2 marks) *Go to* your home directory and *create* a file called **letter.txt**. Write at least 12 lines in this file, where each line will have just a number from the list {01, 02, 03, … , 11, 12} in this order.
(b) (2 marks) Display the content of **letter.txt.**
(c) (2 marks) What does the command **tail -3 ~/letter.txt** do and what does the command **tail +3 ~/letter.txt** do?
(d) (2 marks) What does the command **head -3 ~/letter.txt** do and what does the command **head +3 ~/letter.txt** do?
(e) (2 marks) What does the command **who | tee ~/letter.txt | wc -l** do?
(f) (2 marks) Give the Unix command that shows the calendar for *November, 1955*
(g) (2 marks) Explain the difference between **cat < letter.txt** and **cat letter.txt**.
(h) (2 marks) What does **echo cat** command do and what does **cat echo** command do?

You must include in your report ***all Unix commands that you used in each part*** and the ***results that you got, if any,*** when executing the commands.

QUESTION 6 (9 marks) *to be performed on gaul*

(a) (3 marks) Assume that you are in your home directory and there is a directory called **courses/** under your home directory. Give *one* Unix command that copy all the files and directories under the **courses/** directory to your home directory. ***Explain whatever copying options to be used, if any.***
(b) (3 marks) Give *one* Unix command to accomplish the same task as in (a), assuming that your current working directory is not your home directory
(c) (3 marks) Give *one* Unix command that will change the permission of all files and directories under **courses/** to only allow the owner to read/write/execute, but not anyone else

QUESTION 7 (19 marks) *to be performed on gaul*

(a) (3 marks) Briefly explain (with examples) the Unix *absolute pathname* and *relative pathname*.
(b) (1 mark) What is the **./** directory?
(c) (1 mark) What is the **../** directory?
(d) (1 mark) What is the ~/ directory?
(e) (3 marks) The Unix command **rmdir abc_dir** fails with the message saying that the directory is not empty. On running **ls abc_dir**, no files are displayed. Why did the **rmdir** command said it is not empty?
(f) (3 marks) The Unix command **cp file1 backup/file1.bak** did not work even though all files exist. Name three possible reasons for such failure.
(g) (3 marks) Run the **tty** Unix command, and note the device name of your terminal. Now, use this device name (say, **/dev/pts/6**) in the Unix command **cp ~/.login /dev/pts/6**. What do you observe? Explain.
(h) (4 marks) If **umask** shows the value (i) **000**, (ii) **002**, what implication does it have from the security view point?