

# CS2211a Assignment 1

Issued on: Thursday, September 24, 2015

Due by: 11:55 pm on Thursday, October 1, 2015

- For this assignment, only electronic submission at owl.uwo.ca is required.
- ONLY use **Courier New (size 11 pts)** font.
- Leave one empty line followed by a line of “\$” after each question
- Leave one empty line followed by a line of “%” between the answer of each two subsections 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, (including the prompt), please make them **BOLD**.

Your submission should look like that:

Q1(a)

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

Write here your answer.

%%%%%%%%%%%%%%%%%%%%%%%%%

Q1(b)

Write here your answer.

Write here your answer.

\$

Q2(a)

Write here your answer.

Write here your answer.

Write here your answer.

%%%%%%%%%%%%%%%%%%%%%%%%%

Q2(b)

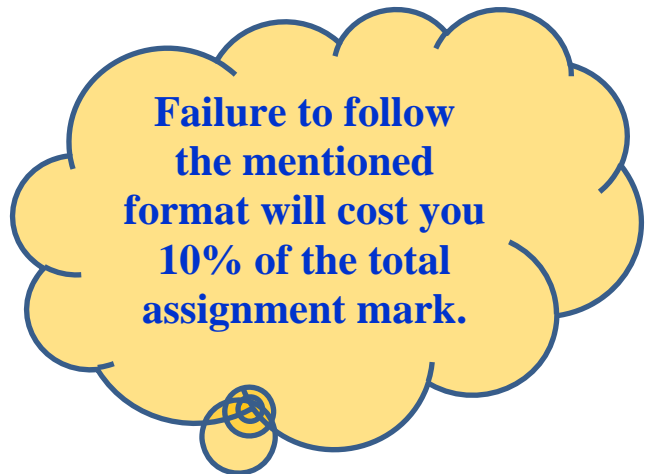
Write here your answer.

Write here your answer.

\$

and so on

- 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/**

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

- (a) (2 marks) whose names that are of length exactly 17 characters
- (b) (2 marks) whose names that have a **z** as the second letter
- (c) (2 marks) whose names that end with **i** or **j**
- (d) (3 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)
- (e) (3 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)

You must include in your report the **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 Unix commands:

- (a) (2 marks) Go to your home directory and create a directory called **public\_html** under your home directory
- (b) (2 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 text 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 can not you see such information when executing **ls public\_html**? Fully explain the reason.

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 command

### **QUESTION 3 (12 marks)**

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

- (a) (2 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 (finger userID)** and show what you will get (long format).
- (c) (1 mark) Create and edit a text 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) (4 marks) Did you see a different between the (b), (e) and (g) 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 text file called **File1**
- (c) (2 marks) under **Dir1**, *create* two directories called **Dir3** and **Dir4**
- (d) (2 marks) under **Dir3**, *create* a text file called **File3**
- (e) (2 marks) under **Dir4**, *create* three text files called **File4**, **File5** and **File6**
- (f) (2 marks) under **Working-Area** directory, *create* **Dir2**, a symbolic link that points to **Dir1/Dir4** directory

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 text 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 ~/letter2.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?