CSE 1310 – Gieser – HW1

Intro to Linux, ASCII, Bases

1. (24 points, 0.5 per blank) Create a Linux Command Cheat Sheet with the 12 commands from class and at least 8 additional more commands of your choosing that you think are important. Use a table with the following format.

Name	**What it does**	**Example with output**
man	It provides a manual for the possible commands that can be executed. It explains them in detail.	$ man man This command provides a detailed page of the command "man." It shows name, description, synopsis, examples, overview, defaults, options, exit status, environment, files, history, and see also.
ls	It lists information about the files (the current directory by default). It also sorts entries alphabetically, if no specific sorting is established	$ ls -r This command sorts directories and files in a reverse order
cd	It allows you to change directories. Basically, it lets you move around the file system.	$ cd ~/Desktop This command will take you to your user's Desktop directory.
pwd	It prints full file path to where you are. Basically, it lets you know in which directory you are located.	$ pwd When in the Desktop directory it will show "~/Desktop"
clear	It clears the terminal screen. However, it isn't a true clear.	$ clear As it's been described, it clears the screen from all the coding/commands that has been done.
mkdir	It creates directories. Basically, makes a folder.	$ mkdir images This command will create a directory/folder called "images"
rmdir	It removes or deletes directories (only those that are empty however)	$ rmdir images This command will delete/remove my previous created directory called "images"
mv	It moves files to a different directory or can rename a file or directory.	$ mv images images2 This command will rename the directory/folder "images" to "images2"
cp	It will make a copy of a file.	$ cp images2 images3 This command will make a copy of the directory called "images2" and will proceed to name it "images3"
rm	It will remove or delete a file in a directory. It can also remove a directory.	$ rm file01 This command will delete the file named "file01"

cat	*"Concatenate"* – It helps cerates files, show file contents, merge files, and concatenate files.	$ cat file01
		This command will show the contents of "file01"
		$ cat >NewFile.txt

		This command will create a file called "NewFile.txt" and will wait for an input from the user, text.
more	It displays more content of a file on a full screen. It isn't limited to text files, but the output is always a scrollable banner.	$ more NewFile.txt This command will display on screen any text that was written in the file named "NewFile.txt"
history	It provides a list of past commands that have been typed in the current terminal session.	$ history This command will show a numbered list of all the previous commands that have been executed during the current session. Ex: 1. $ man man 2. $ ls -r 3. $ cd ~/Desktop 4. … 5. …
touch	This command allows you to create a blank new file, as well as change and modify timestamps of a file.	$ touch -a TestFile This command will update the timestamps of the file called "TestFile" but if it doesn't exist, it will create said file.
locate	This command is the easiest one to locate a file within the entire system.	$ locate -i newfile This command will search for any file with the "newfile" word in it and will display its location. The -i will make the search case-insensitive.
grep	This command lest you search through all the text in a given file.	$ grep hello NewFile.txt This command will search for the word "hello" in the file and will proceed to display the lines that contain said word.
echo	This command allows display a line of text on standard output and it also moves data into a file.	$ echo -e 'This is a command test' >> NewFile.txt This command will add the text "This is a command test" to the file called NewFile.txt
df	This command is used to display the amount of free disk space available. If a specific file isn't typed, it displays the free space on the entire file system.	$ df This command will provide a detailed page of the entire file system. It will show filesystem, size, used, available, percentage used, and mounted on.

tar	This command can be used to create compress and uncompressed types of tar archives. It also has more varied uses.	$ tar -cvf ____
		This command will create a .tar archive
		$ tar -tvf ____
		This command will uncompress a .tar archive

sudo	It allows you to execute commands with the privileges of another user. Basically, you can execute commands as a System Administrator.	$ sudo shutdown 2 This command will give you permission to shutdown the terminal after 2 minutes, something a regular user cannot do.

2. (18 points, 1 point per blank) Fill in the following table by giving the binary, decimal, and hexadecimal values to the ASCII Characters.

ASCII Character	Binary	Decimal	Hexadecimal
H	01000111	72	48
e	01100101	101	65
l	01101100	108	6C
l	01101100	108	6C
o	01101111	111	6F
(space)	00100000	32	20

3. (18 points, 1 point per blank) Fill in the following table by completing the missing columns

ASCII Character	Binary	Decimal	Hexadecimal
W	01010111	87	57
o	0110 1111	111	6F
r	01110010	114	72
l	01101100	108	6C
d	01100100	100	64
!	0010 0001	33	21

4. Convert 2124 from decimal (base 10) to the following bases. Show your work.

A) (4 points) Binary (base 2)

Divide by 2	Quotient	Reminder
2124/2	1062	0
1062/2	531	0
531/2	265	1
265/2	132	1
132/2	66	0
66/2	33	0
33/2	16	1
16/2	8	0
8/2	4	0
4/2	2	0
2/2	1	0
1/2	0	1

Built Backwards: 100001001100

B) (4 points) Hexadecimal

Divide by 16	Quotient	Reminder
2124/16	132	12
132/16	8	4

8/16	0	8

Built Backwards: $84C_{16}$

12 = C

4 = 4

8 = 8

C) (7 points) Base 7

Divide by 7	Quotient	Reminder
2124/7	303	3
303/7	43	2
43/7	6	1
6/7	0	6

Built Backwards: 6123_7

5. Convert the following numbers from their current base to decimal (base 10). Show your work.

A) (4 points) $0001\ 0011\ 1100\ 0101_2$

0	0	0	1	0	0	1	1	1	1	0	0	0	1	0	1
2^15	2^14	2^13	2^12	2^11	2^10	2^9	2^8	2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
0	0	0	4096	0	0	512	256	128	64	0	0	0	4	0	1

Add the quantities: 4096 + 512 + 256 + 128 + 64 + 4 + 1 = 5061

B) (4 points) $203B_{16}$

2	0	3	B
16^3	16^2	16^1	16^0
2(16^3)	0(16^2)	3(16^1)	9 (16^0)
8192	0	48	11

B → 11

Add Quantities: 8192 + 0 + 48 + 11 = 8251

C) (7 points) 4111_9

4	1	1	1
9^3	9^2	9^1	9^0
4(9^3)	1(9^2)	1(9^1)	1(9^0)
2916	81	9	1

Add Quantities: 2916 + 81 + 9 + 1 = 3007

6. (10 points) Convert $2B7_{13}$ to base 5. Show your work.

2	B	7
13^2	13^1	13^0
2(13^2)	11(13^1)	7(13^0)
338	143	7

$B_{13} \rightarrow 11$

AS A DECIMAL = 338 + 143 + 7 = 488

488/5	97	3
97/5	19	2
19/5	3	4
3/5	0	3

Built Backwards: 3423_5