

Surname, Name:

Section:

Student No:

**Closed Book, closed note exam. You are required to write down commands with necessary arguments and options; and make sure that they work. Your script and output should match. Give the best result that you can give! Each question worths 3 points unless otherwise stated. Over 100 points is bonus.**

Unless otherwise stated for question k, your answers as command must be in k.sh and output should in k.txt both should be in Answers directory.

SIGNATURE

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Time of Submission:

**Prelude:** Before solving questions you should:

- issue command `history -c`
- let NAME be your FirstLast name as ascii (MAkgul, ASOzgur, LMessi, LionelMessi) (do not use Turkish Characters, ı ğ ş ç ü ö )
- create NAME and NAME/Answers directories `mkdir -p ~/NAME/Answers`
- script NAME/Answers/NAME.Log
- touch NAME/Answers/Your-Full-Name
- download the questions file and unzip it in NAME Directory, ( maintaining directory structure), unzip file-path  
`cd ~/NAME` or simply `cd; cd NAME`  
 use one of the commands  
`rsync -av std.ctis.bilkent.edu.tr::data .`  
`wget http://lab4t/download/LabM2.zip`  
`wget http://liste.ctis.bilkent.edu.tr/courses/166/LabM2.zip`  
`unzip -K LabM2`
- `mkdir -p ~/NAME/Answers/Dir{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15}`
- **Your working directory will be LabM, files that you operate on will be in LabM. Your answers will be written under NAME; shell scripts and solution files under NAME/Answers; you need to redirect selected output to NAME/Answers directory. Also commands that you use should be saved/copied under Answers. You can collect commands under cevaplar.sh provided you include question numbers For some questions, you may work directly in NAME/Answers. Try to answers questions with one line commands if possible. In some questions, you may use more than one line of commands. Remember all new files will end up at Answers. Output of question k should be in k.txt in Answers, unless otherwise specified. You should save history file, when you finish. You can copy History file as History.sh and edit by adding question numbers . Please keep original history file as is.**
- **When you finish** (that is when exam ends), you will zip NAME directory with commands  
`cd ; history > NAME/Answers/History;` (modify a copy as History.sh);  
`cd ; zip -ry NAME NAME`
- upload NAME.zip

1. copy everything in LabM into Dir1 with `rsync` . term LabM will not be copied but everything inside it (recursively).
2. copy everything in the current directory into Dir3 using `tar` without using any explicit tar file, if possible. You can use an explicit tar file, but you will loose credit.
3. copy everything in LabM into Dir5 with `cpio` with using an auxiliary `cpio` file. Keep the auxiliary file in Answers directory.
4. find all files/directories which are installed with python; and find all program's related with with program python
5. Find list of all \*.txt files which are older than aa.txt
6. combine all \*.txt files within LabM hierarchy
7. find all files with suffix .gz, bz2 or .xz within LabM hierarchy and copy them into Dir4 while retaining directory structure
8. In a single command create directories A B C E each containing F, H, J, K and each of which containing 1 2 3 4 , each of which containing X Y and Z in directory Answers (we need to see directory and corresponding command). Also in a single command create empty files f.txt in F's, y.txt in Y's and 4.txt in 4's.
9. Consider all files with name \*.txt in the current directory: including sub directories  
- determine all lines among all files which contains string ayse or elif, case insensitive
10. Consider all files in the current directory: including sub directories  
- determine all lines among all files which contains string ayse or elif, case insensitive
11. Consider all \*.txt files in LabM (on the surface) determine **lines** of these files which contains **elif** and **ayse** case insensitive on a line, (under 11.txt)
12. find all \*.txt files within LabM hierarchy and put these files in TXT1.zip
13. find all \*.txt files within LabM hierarchy and put these files in TXT1.tar.gz
14. find all \*.txt files within LabM hierarchy and put these files in TXT1.cpio
15. Extract contents of AB.tar.xz into Dir6 without using `gzip`, `bzip2`, `xz` and their derivatives like `zcat`;, `bzcat` etc, i.e just `tar` with suitable options only You issue commands within LabM.
16. Find lines in Dene1.txt.xz containing string elif and ayse case insensitive without using `xz` and `xzcat` directly
17. Copy ABC and Data directories into Dir11 and compress all ordinary files in Dir11 with `xz`
18. Add execute permissions for file **exec.SH** to all, remove write from others, add to suid property to owner; all in a single statement, and use symbolic method (Do these after copying into Answers)
19. Consider Dene.txt, remove first 30 lines and last 20 lines obtaining DENE.TXT. Do not use information about size of Dene.txt, just assume it has more than 60 lines in it. We need to see original line numbers. Just use filters. you may use `tac` .

20. Given a.txt, we want to determine the lines containing strings Net or Fox and put them in files 20-1.txt, 20-2.txt and 20-3.txt . How would you do it using: (each **2** )

**grep:**

**sed:**

**awk:**

21. Given a.txt, we want to determine lines containing neither Net nor Fox and put them in a files 21-1.txt, 21-2.txt, and 21-3.txt. How would you do it using: (each **2** )

**grep:**

**sed:**

**awk:**

22. Given a.txt, we want to determine the lines containing **word** Net and put them in files 22-1.txt, 22-2.txt and 22-3.txt How would you do it using:(each **2** )

**grep:**

**sed:**

**awk:**

23. **Sed.** Given A.txt we want to: (**2 pts each** )

- replace all strings Net with Internet between first line and line containing string FILIZ. Give command and write new file as Answers/B1.txt

- Consider lines with strings FILIZ and FATMA. On lines between them insert to the beginning of the line string "BASLA ". Give command and write file as Answers/B2.txt

- Consider the line containing FATMA. Add lines "LINE 1" and "LINE 2" after it. Give commands and write file as Answers/B3.txt

24. Run the following commands in succession: (**2 pts each** )

i) run uyu-1.sh in the background

ii) run uyu-2.sh in the foreground and then suspend it

iii) run uyu-3.sh in the background

iv) run uyu-4.sh in the foreground and then suspend it

v) kill uyu-2.sh

vi) put uyu-1.sh in the foreground and kill it

vii) run uyu-4.sh in the background

25. Given data.txt, i) compute sum of the four grades for each student and write as student name sum, ii) compute class average of sum values;

write every thing into 25.txt put awk commands into file Awk.25 **5 pts**

26. Consider elma.txt. each line contains fruit-city-kg-TL information of a transaction. Find an Awk script to compute: **5 pts**
- total amount sold as kg for each fruit, script in Awk-26-1 and output in 26-1.txt
  - total amount sold as TL for each city, script in Awk-26-2 and output in 26-2.txt
27. Write down a shell script that takes an arbitrary number of integer arguments . Compute sum of its terms and print number of terms, each term on a separate line, and total sum; script in *sum.sh* and output in 27.txt **5 pts**
28. **If you remember your user-name and passwd on std machine, use /home/user/Project.** You have accounts on std with home as /home/ctisx; and lab machine that you are working. You have **Project** directory at /home/ctisx/Project on std and NAME/Answers/Project on the lab machine. The Project directories were identical, but you have added some files, changed some, and deleted some files on std machine. Assume you have passwd cTis1357xyZ on std and debian7ctis on lab. How can you make Project in lab identical with the one on std ? Give full command(s) with passwd, and apply them **5 pts**
29. File note.txt contains in each line name of the student, midterm1, midterm2 and final points. Weights are respectively, %30, %30 and %40. Students with weighted average greater than 80 will get A, and less than 40 will get F. Write an Awk script which will list students with A and F and at the end will print number of total students, with A and with F. (**5 pts**)
30. i) You want to run Temizle.sh every Wednesday and Sunday, at 2:25. **2**
- ii) You want to run Backup.sh at 1:00 first day of every month **2**
- Write down necessary commands and give configuration details
31. Given turing.txt determine unique words. Remove punctuation such as . : ; ? [ ] ( ) . is. No upper case. You can leave & as is. You can only use filters **5**
32. Consider all \*.txt files in LabM (on the surface) determine **files** which has lines containing **elif** and **ayse** case insensitive on a line, (under 32.TXT) **5**