

Mid Term Exam

Requirements

- Complete all of the tasks defined below.
- Copy/Pasting (Plagiarism) from your classfellow will not be tolerated and will result in cancellation of your task.
- It is highly recommended that you use [Notion.so](#) to create your final report.
- Each task must be solved in order.
- At the top of each file, following **MUST** be specified in the following manner:

```
Name: <Full-Name>
RollNumber: <Roll-Number>
Course: <Course-Name>
Date: <Date-of-Submission> (DD/MM/YYYY)
TotalQuestions: <Total-Questions>
AttemptedQuestions: <Number-of-questions-attempted>
---
```

⇒ *This structure has to be followed by each student, if not; it may result in slight deduction of marks from the exam/quiz/assignment. Example at: [DRIVE](#)*

Submission Requirements

For the examinations, you are required to submit all the scripts and a single report in .PDF format

```
<course-code>-<batch|section>-<roll_number>-MIDTERM-EXAM.pdf
## Example:
CY102L-F23-A-231521-MIDTERM-EXAM.pdf
```

The scripts written for the questions must be named properly and then zipped

```
<course-code>-<batch-section>-<roll-number>-MIDS.zip
## Example:
CY102L-F23-A-231521-MIDTERM-EXAM.zip
```

⇒ *Any other file name will not be considered.*

Rules:

- Use of **ChatGPT** is **PROHIBITED**.
 - **Google CAN** be used but is highly recommended that you make use of `man` page.
 - Attempting to copy from one another will result in cancellation of your Exam and will also result in Unfair Means (**UFM**) case..
 - The question might have multiple parts and each part must be solved in order to ensure the completion of this question. Each sub-part must be specified in the final report and then screenshots must be attached properly.
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Question 1:

- Create a new user called `ashfaq`. Set its home directory to be `/opt/ashfaq` and set its shell to be `/bin/sh`
- Create another user called `nadeem`. Set everything to default value.
- Create a new group called `seniors`.
- Add user `ashfaq` to `seniors`.
- Create a new file called `my-friend` and a few names inside this file
- Now, change the owner, group and permissions to match the following:

```
-rwxrw-r-- 1 ashfaq seniors 22 Nov  1 02:01 my-friend
```

- Switch to user `nadeem`. Can you read the file? Give a single line explanation of why you can or cannot read the file

Question 2:

- As a system administrator, you are tasked with extracting the IP Address of a network interface. Using pipes, write a simple bash script that will prompt the user to enter an interface name and then extract the IP Address of that specific interface.

HINT: inet.

```
→ ~ ./get-ip.sh
Enter interface: lo
IP of lo is: 127.0.0.1
→ ~
```

Question 3:

On a day-to-day basis, I want to check whether I have read and write access to a certain file, or not. To automate things, I want you to write a bash script that will take arguments from the command line, and check if the file name that is passed is readable/writable. The script will follow the following syntax:

```
./check-perms.sh <mode> <file-name>
```

That is, the first argument (`$1`) that is passed to the script will check whether the user want to check if they have read permission or write permission. Following are the valid two mode:

```
r
w
```

Where `r` stand for read and `w` stands for write. In case anything else is passed, make sure you show an error message.

The next argument, that is passed is (`$2`), will be the file name. Make sure you also check if the file exists or not, then after that check if it's readable/writable.

Example:

```
./check-perms.sh r main.sh
```

```
→ ~ ./check-perms.sh
No arguments provided!
→ ~ ./check-perms.sh a
No file name provided!
→ ~ ./check-perms.sh a /bin/bash
Invalid mode. Only r and w allowed.
→ ~ ./check-perms.sh r /bin/bash
/bin/bash is readable!
→ ~ ./check-perms.sh r /bin/
/bin/ is not a file.
→ ~ ./check-perms.sh w /bin/bash
/bin/bash is writable!
→ ~
```

HINT: In order to *end* the script use `exit`.

Question 4:

Part-A:

Download the following file in your VMs (using `wget`)

<https://raw.githubusercontent.com/v0re/dirb/master/wordlists/small.txt>

Using a simple `FOR` loop or a `while` loop. Extract all the words from the file that are of 3 characters, store them in a file called `3.txt`.

Also, add the screenshot of the following command:

```
wc 3.txt
```

Part-B:

Create a new file called `numbers.txt`, store the number as follows in the file:

```
1 2 3 4 5 6 7 8
```

Then, add all of these numbers that are read from the file, calculate their and then tell whether their sum is even or odd.

Final Deliverables

The following must be uploaded to GCR as the final deliverables:

- A Final Exam Report (See **Requirements** for file name/format)
- A Zip file containing all the scripts you wrote for the exam.

Good Luck!
