Final 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>
---

# Flags
<all the flags submitted>
```

⇒ 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.
- The exam will be hosted on http://cy102l.kozow.com/ and each user will have their own instance.

Question-1:

Write a simple bash script called `q1.sh` that resides in `/home/cy102l/question-1` that does the following when invoked:

- Creates a new user called `ashfaq`
- Sets and creates the home directory of `ashfaq`: `/usr/share/ashfaq`
- Sets the shell of ashfaq to be `/bin/bash`

Question-2:

Building upon question-1, I have already added user: `ashfaq` and set it's home directory to `/usr/share/ashfaq`

Write a simple bash script called `q2.sh` that resides in `/opt/` that does the following when invoked:

- Creates a group called `cats`

- Adds `ashfaq` to `cats` and `sudo`
- Creates another user called `bajwa`
- Add `bajwa` to `cats`
- Creates another group called `goats`
- Adds `ashfaq` to `goats`
- Creates a new file called `/opt/posted` and add your roll number (ONLY your roll number in the file.)
- Change the owner of this file to `bajwa` and group to `goats`

Question-3:

Write a simple bash script called `ip-checker.sh` that resides in `/home/cy102l/` that does the following:

- Extract the ip address of an interface.
- The interface will be passed as input from command-line i.e. arguments (`$1`)

> MAKE SURE TO NOT PRINT ANYTHING. `checker` will perform an exact match.

Question-4:

Write a simple bash script called `find_occurances.sh` that resides in `/home/cy102l/` that does the following:

- Reads in data from `/opt/random-data.txt`
- Iterates over the content, and counts the number of three-lettered word in each file.
- Prints the number to be matched by `checker`

> Make sure to only print the number of occurances, and nothing else.

Question-5:

Write a simple bash script called `even_odd.sh` that resides in `/usr/share/` that does the following:

- Reads in a number from command line argument (`$1`)
- Prints whether the number is even or odd.

> Make sure to only print either `even` or `odd`. Any other output will automatically be discarded and won't give the flag.

Question-6:

Building upon question-5, write a bash script called `looper.sh` that resides in `/usr/share` that does the following:

- Reads in 2 numbers from the command line arguments:
  - Loop Start
  - Loop End
- Print out all the numbers in the following format:

```
12:even
17:odd
19:odd
18:even
```

- Store the output to `/opt/data.log`

Question-7:

Set an environment variable with name `ashfaq` and value `nadeem` and then run `checker` to get a free flag.

Question-8:

Create a file called `/opt/test`. Give it the following permissions:

```
r-x-wxrwx
```

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.
- A single .txt file containing all the found flags.

Good Luck!
