Scripting Lesson 7: HomeWork

Course	DevOps Engineering
Topic / Session number	Scripting / Lesson 7
Objectives / Goals	1. Homework for Scripting Lesson 5 2. Homework for Scripting Lesson 6

★ Objective 1: Homework for Scripting Lesson 5

monitor.sh

In this homework, you must create a script that checks memory in use, CPU utilization, and occupied storage.

1. Create 3 functions for each metric (each of them should be expressed in percentage):
   a. `memory` - checks the percentage of memory currently in use (ignore swap memory).
   b. `cpu` - checks CPU utilization.
   c. `storage` - checks what percentage of the root filesystem (the one mounted at `/`) is occupied.
2. Define variables/threshold for each metric, e.g., `mem_threshold=60`, `cpu_threshold=50` and `storage_threshold=65`. Compare the utilization to the treshold and print messages accordingly, e.g.: “Memory ok (55%).” or “Warning, high memory utilization (78%)”.
3. Test the script and make sure it’s working as expected by using tools like `stress`.

> 💡 **Hint:**
>
> - Check how to return values from bash functions
> - There is no built-in tool to directly display only these specific metrics. You will need to use some monitoring commands and extract the required data using `awk`, `sed` or a similar tool.
> - You could use `mpstat` for checking the CPU utilization.
> - Bash does not support floating point division natively. If you need floating point division, you could make use of `awk`.
>   Example:
>
>   ```
>   $ awk 'BEGIN {print 10 / 4}'
>   2.5
>   ```
>
>   You should round your result before comparing to the threshold:
>
>   ```
>   $ echo 2.5 | awk '{print int($1 + 0.5)}' # Mimick rounding by adding 0.5
>   3
>   ```
> - You can use `fallocate` for creating an arbitrarily large file to test storage monitoring.

Recommended materials:

- Comparing Numbers | HackerRank
- Cut #2 | HackerRank

- More on Conditionals | HackerRank

★ Objective 2: Homework for Scripting Lesson 6

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1. Install PyCharm Community Edition on your computer
2. Run a simple Hello World code on PyCharm:

```
print('Hello World')
```

Recommended materials:

- Python If-Else | HackerRank
- Arithmetic Operators | HackerRank
- Python: Division | HackerRank

Practice correct typing using all fingers:

- Typing Lessons | Short Paragraphs - Typing.com
- Monkeytype | A minimalistic, customizable typing test
