Informatics for Astronomers - WS2019

Miguel Verdugo, Gerald Mosenlechner, Roland Ottensamer, Leopold Haimberger

Exercise sheet 4 - Linux and scripts

Your preparation of exercises should include two aspects:

(1) Try to present exercises in a way that everyone can follow (even if that person didn't do the exercise at all), so please explain all the (vital) parts of your solution in a slow and comprehensive way.

(2) Try to also include some background information where applicable, and/or explain the possible context/motivation for the given exercise.

Please strive for that in all exercises to come. From now on this will also be part of the assessment.

---

1. Take the calculator script from last exercise and try to improve it. After you start the script, it should prompt the user to select from a list of mathematical operators and store the selection in a variable (use the 'read' command). It should then use if-conditionals in order to return the correct result. You can look up the precise syntax if you're not sure, it's something like:

```
if [ "$CHOICE" == "y" ]; then
...
elif [ "$CHOICE" == "n" ]; then
...
else
...
fi
```

2. Look up the different classifications for state-machines. How do they differ?
3. Take the traffic light example from the lecture and try implement it as a bash script that loops the cycle n times (with a for-loop) and indefinitely (using a while-loop). Store the color of the light in a variable and check its current status before switching.
4. Explain the difference between an interpreted and a compiled programing language.
5. What does the 'Global Interpreter Lock' do and why is it needed. What are its drawbacks.