

### Question 1: Explain this following bash script:

```
#!/bin/bash
space_free=$( df -h | awk '{ print $5 }' | sort -n | tail -n 1 | sed 's/%//' )
case $space_free in
[1-5]*)
echo Plenty of disk space available
;;
[6-7]*)
echo There could be a problem in the near future
;;
8*)
echo Maybe we should look at clearing out old files
;;
9*)
echo We could have a serious problem on our hands soon
;;
*)
echo Something is not quite right here
;;
esac
```

Answer:

- The script should be run using the Bash shell, according to the "shebang" in the first line `#!/bin/bash`.
- The percentage of system free disc space is set in the variable "space\_free" by the script. The "df -h" command, which displays disc consumption in a human-readable format, is used to accomplish this.
- The "awk" command is piped into the output of this programme to retrieve the fifth column (the percentage of available space).
- The output of the "awk" command is used to sort the percentages by their numerical values using the "sort -n" command.
- The result of "sort" is passed into the "tail -n 1" command, which selects the last (i.e., highest) percentage in the list.
- The "sed 's/%//'" command is used to remove the percent sign from the end of the percentage after the output of "tail" has been piped into it.
- The script then checks the value of "space\_free" and prints the appropriate message using a "case" statement:
  - The script prints "Plenty of disc space available" if "space\_free" is between 1% and 5%.
  - The script prints "There could be a problem in the near future" if "space\_free" is between 6% and 7%.
  - The script prints "Maybe we should look at clearing out old files" if "space\_free" starts with an 8 (i.e., is between 80% and 89%).
  - The script prints "We could have a serious problem on our hands soon" if "space\_free" starts with a 9 (i.e., is between 90% and 100%).
  - The script prints "Something is not quite right here" if "space\_free" doesn't fit any of the aforementioned patterns.
- The "esac" keyword marks the end of the "case" statement.