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
```

Explanation :-

The first line defines the variable space_free.

The df command is used to display the used and available disk space of the system.

Use the awk command to extract the fifth column of the output. This represents the percentage of disk space used.

The sort command sorts the values in ascending order

tail -n 1 extracts the last value

sed removes the percent sign from the values.

We then use a case statement to match the value of space_free against a series of patterns and execute the appropriate code block based on the first match.
For example, [1-5]* matches any value starting with a digit from 1 to 5.

The echo command prints a message to the terminal based on the value of space_free.
For example, if the value is between 6 and 7, return "May cause problems in the near future".

;; The last symbol in each code block marks the end of the case statement.

The last *) case runs if the value of space_free is not between 1 and 9 and prints a message that something is wrong.