Question 1: Explain this following bash script:

```bash
#!/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:

This script is used to identify the highest percentage of disk usage and display the corresponding message based on the disk usage.

This program will not produce the intended result because the regular expressions used with the case esac patterns are incorrect.

Example- Pattern 1 i.e. [1-5]* will capture numbers from 1 to 5, 10-58

Unintentionally it will also capture 100. However numbers 0, 6-9 will be skipped.

For Pattern 2, numbers 6, 7, 60-79 will be captured. Here 6 and 7 are captured unintentionally.

For Pattern 3, numbers 8, 80 -89 will be captured. Here 8 is captured unintentionally.

For Pattern 4, numbers 9, 90-99 will be captured. Here 9 is captured unintentionally.

For Pattern 5, Anything will be captured as part of * .