CITS5501 Week 6 exercise

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Scenario

You have just started working for a company that is developing a miniature display that clips onto spectacles or a cap brim and allows the user to watch YouTube videos (controlled via voice commands) while performing other tasks.

The product requires both hardware and software to be developed. It is part-way through development, and is scheduled to be released in 12 months' time.

One software component of the system – the *voice command interpreter* – is responsible for analysing the user's spoken commands and passing them on to other components in the system (e.g. for displaying videos). There are roughly a dozen different voice commands (including commands like "start video", "pause video", "search for video", and so on) and some of the commands can take several "arguments" (e.g. after specifying "search for video", the user can supply several keywords to search for).

As the company is small (fewer than 10 people), your role includes both software development and testing responsibilities.

Answer the following questions relating to this scenario.

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1. Currently, if the user makes an error when articulating a command to the device (or the device picks up surrounding noise and interprets it incorrectly as a command), an exception trace is printed to the display and the device must be reset.

   A colleague of yours working on the voice command interpreter argues that this is acceptable, since it is a precondition of the methods in the interpreter that commands provided fall into a specified list (e.g. "start video", "pause video", "search for video"), potentially with correct "arguments" after the command.

   Is your colleague correct? Briefly explain why or why not, justifying your answer. (400 words or less)

2. You are given a specification for the voice command interpreter component. Testing it thoroughly is important, since users may become annoyed if they give a command and it isn't carried out.

You would therefore like to come up with a list of tests, and some measure of how thoroughly they "cover" the functionality of the voice command interpreter.

For this purpose, briefly explain how you might model the component (for instance, as a function, a graph, a set of logic expressions, etc.) If there are multiple possible ways, give what you believe to be the best or most applicable way.) Additionally, what measure of coverage would you use? Ensure you justify your answer.
(400 words or less)

Marks

This workshop exercise is worth 5% of your final grade, and is marked out of 10 (5 marks for each questions). All work is to be done individually.

Assessment

An assessment rubric for the exercise is available here.