SWiN BUR NE

SWINBURNE UNIVERSITY
OF TECHNOLOGY

4.2P GR7

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101100655 | LACHLAN BURNS
102095118 | JAYDEN MCQUEEN
102079989 | DAVID STARE

Naurin Afrin | Friday 12.30

SWE30010 Development Project 2: Design,
planning and Management

Project Proposal: *PHP-SRePS*

In this project quality is defined by the software's Functionality, Reliability, Usability, Efficiency, Maintainability and Portability.

In regard to a Scrum approach, measuring quality would involve a high level review of the sprints followed by a low level review of the code which would address errors in the code, readability of the code, integrated testing and performance testing.

From the results of low-level testing we would classify each point and feature of the software to.

- No action
- Refer for repair
- Reconsider overall design

Definition of 'Done'

The product will be considered 'done' when the software is in a state where it can be deployed while being considered 'high quality'. The quality will be determined through test cases where the program will be given specific initial conditions and compute outputs accordingly. These outputs from the program will be compared to known results of the initial conditions to check the program is functioning correctly. Ideally the program should pass all tests to ensure complete functionality. However, a more practical approach would be to ensure that the quantity of failed cases is less than or equal to 5% of the total test cases created.

Quality Management

The quality of the software is determined through the product quality model: ISO/IEC 25010. This model outlines 8 key characteristics of a product that need consideration during the development process which include: functionality suitability (fs), performance efficiency (pe), compatibility (c), usability (u), reliability (r), security (s), maintainability (m) and portability (p). By developing software with these characteristics and accommodating the needs of the client (outlined in the scope in 2.2P), the software can be deemed 'high quality'.

Below are some points of a quality control checklist that relate to the client's needs and the above characteristics:

No.	MSCW*	Characteristics of the ISO/ICE 25010 Model	Requirements of the Software	Methods to ensure the software's functions are reliable
[1]	M	Fs, u	Generate monthly sales reports which can be in CSV format	Test cases which can verify the conversion is in the right format
[2]	M	Fs, u	User-friendly graphical interface	Present the interface to people outside of the development team to ensure it is easy to follow. Adoption should not exceed 15 minutes.
[3]	M	Fs, m	Record, edit, and view sales data for pharmaceutical products	Develop tests with edge cases that have known results, to ensure the same result is obtained through the program
[4]	M	Fs, u	Generate alerts for low stock	Tests where stock is set to be intentionally low in order to determine if an appropriate alert is shown
[5]	M	Fs, u, m	The program can perform predefined mathematical operation on existing data to predict monthly sales for items based on previous sales	Develop tests with normal and edge cases with a previously known result to ensure the program predicts accurately
[6]	M	Fs, pe, u, r, s, m, p	Fully workable application and database system	Test the program on different machines (of the same operating system) to a 90% success rate using unit/integration/system tests
[7]	M	Fs, u, m, r	Display Items that are in demand	Develop test cases where items are set intentionally high, in order to determine if the appropriate items are displayed
[8]	M	Fs, u, m, r	Display stock numbers of all items in store	Test cases where the display command is executed, and all appropriate items are displayed
[9]	W	Pe, m, r, s	Online/Cloud database	Test cases to ensure the data is stored without corruption and effectively
	C	Fs, r, s	Login system with different permissions	Test cases where users with varying permissions attempt to access unauthorized data and are rejected
	W	u, m, r, c, p	Mobile access	Test cases where the program is run on mobile devices to ensure it has the same effectiveness and user-friendliness as its Windows version
	S	Pe, m, r, s	Backups/redundant storage	Test cases to ensure the backup storage contains the same data as the primary storage (without corruption)
	C	Fs, s	Data encryption	Data cannot be accessed by undesired personnel
	M	Fs	Local storage	The program can take input and store it in local storage
	S	Pe	Low resource demand	RAM used while running: <100MB & Executable file is less than 50MB in size
	S	r	Exception Handling	Display appropriate error messages when required
	S	p	Portable system	The program contains 1 executable file and is supposed to run on its own without any third-party library installed

M	**Fs**	Report History	Previous records can be viewed in manageable quantities, and as far back as the history goes.
C	**u**	Data Visualisation	Graphs generated are clear and easy to understand
S	**m, r**	Full refactoring to ensure optimized code.	Upon completion of refactoring, the team will check over and approve the optimisations.
C	**m**	Documentation	A full, detailed operations manual must be developed and appropriate commenting standards should be used
S	**Fs, u**	Startup	Product must be able to run on a desktop computer, with an executable file to launch the program.

*MoSCoW represents MUST, SHOULD, COULD, and WON'T

Reflection

101111372 | JAKE SCOTT
The three design possibilities proposed by our group members can be summarised as 'all online', 'data online & UI local', and 'all offline'. After a short discussion we agreed that we didn't have enough experience for a fully online java-based project, and that an online database - while better for the average client - might actually be worse for a small pharmacy (especially since they tend to use very old computer systems) - so we decided that a fully local solution would be the best option.

102259710 | TIEN PHU NGO
After the weekly team discussion choosing between Java web services and C#, the team agreed on using C#/WinForms as the main language for the product since all the team members have at least some experience with C#. We also decided that the project will only run from data stored locally rather than using a third-party DBMS which requires an internet connection. I am totally happy with the team's decision, everything is going as planned and we are on track to start the next phase soon.

101100655 | LACHLAN BURNS
After discussing our individual 3.1 tasks and analysing both the online and desktop application options, the group decided to opt for the desktop-based application with local storage. This was the obvious choice as most members in the group had little experience with web-based applications and we also agreed that having a locally stored database was more suited to PHP's needs. I believe the group is now well on track to begin programming the software for PHP.

102095118 | JAYDEN MCQUEEN
Upon compiling our individual ideas together, we could separate three main design proposals; an all online web application, an idea which has both an online database and desktop application, and a desktop application with a storage solution that is entirely local. As a group, we decided to go ahead with the entirely offline solution, as we believe it will be easier to create, given our current skills and preferences in programming. I agree with the group that this solution would be the best to develop. Jake said that he knows from experience that pharmacies generally use older computer systems, so an entirely offline solution (without needing the internet) would be best for the client. I am quite happy with the group progress this week, as everyone has completed all their agreed to work on time, and everyone attending the two meetings this week.

101131147 | MONIQUE KUHN
The team was timely in their week 3 submissions, allowing for effective group discussion and project progression. The ideas generated had some overlap, with WinForms/C# being one of the more popular suggestions. Given the likely experience of the pharmacy, their potential hardware, and the team's experience, the team has decided to build a local data base.
This week also saw the addition of a new member who has been updated and added to the required repo/documentation smoothly.

102079989 | DAVID STARE
During this task the group discussed whether to use a local c# desktop application or a web based Java application to create a helpful software tool for a small pharmaceutical company. A SWOT analysis was one of the methods used to thoroughly analyze which approach would be better. The group concluded after weighing the pros and cons of both approaches, that a local c# desktop application would be best. Some reasons for this were: a c# desktop application can be tailored for a csv format (coma separated values), a unique user interface can be more easily developed and the team has more experience with c# than with Java making the development process smoother.