**Project Proposal Reflection**

*Use Ceredig Cattanach-Chell, “Tackling A Level Projects in Computer Science OCR H446”*

**Task 1 – Being Realistic**

*(Pages 8-14 of the book to answer these questions)*

**Consider the scope and size of your project. Is it too big and demanding when you consider it needs to be completed by the end of 2021? Read Page 8 and respond to this question with either a justification for the size of your project or a reconsideration of its size:**

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| ***I do not think that the project is too demanding, as the core idea is fairly simple. It is a very modular project, as after I implement the core system, adding more components is as simple as extending the base class with new behavior, and adding a new image and name. The base libraries I am using have excellent documentation and tutorials, so I expect development to be fairly swift.*** |

**How will you make the best use of time? On the grid below set out when you expect to have completed each part of the project. Make full use of the book to be sure to include all sections of the project in your answer (remember that there may be a repetition of programming and testing in particular throughout the time – remember to include time for learning and research activities):**

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| **End of month target** | **Task that will be completed** |
| February | Initial Plan and GUI design, consult stakeholders about what they want.  Set up development environment with build and software requirements. |
| March | Begin to write a software decomposition, to aid in writing of the software. |
| April | Finish the decomposition. |
| May | A simple GUI prototype => allows dragging of objects on a canvas. |
| June | Write the project analysis |
| July | Write a prototype for the circuit executor, e.g. a hard-coded circuit, and test if it runs correctly. Begin putting prototypes together. |
| August | Begin to write the software and tests (much more time as this is summer holiday) |
| September | Finish writing software, improve tests, repair any major bugs. |
| October | Repair smaller bugs, gather evidence of completed product. |
| November | Send final version to stakeholders for testing. Begin evaluation. |
| December | Complete evaluation and final checks of the project. |

*\*Have you considered using the MS Planner App – it should be available as a M365 App.*

**Task 2 – Languages**

**State the programming language you are going to use. What do you already know about that language? What will you have to learn about that language to do your project? Where will you look for reference and help (manuals, books, forums such as ‘stack overflow’, et cetera):**

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| **I will be using C++, as this is the preferred language for QT development. I already know enough of the language to complete my project, but I will attempt to learn more of the features to create better code, e.g. Smart pointers instead of raw pointers as this is preferred in C++.**  **The QT framework has very good documentation (**[**https://doc.qt.io/qt-5.15/classes.html**](https://doc.qt.io/qt-5.15/classes.html)**), as well as quite a few tutorials (**[**https://doc.qt.io/qt-5.15/qtexamplesandtutorials.html**](https://doc.qt.io/qt-5.15/qtexamplesandtutorials.html)**).** |

**Make a choice of Integrated Development Environment (IDE). What will be the setup on your computer? How will you run your code? Consider all these questions because the setup of your computer is of vital importance so that it does not act as a barrier to project success:**

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| **I will be using the CLion IDE (**[**https://www.jetbrains.com/clion/**](https://www.jetbrains.com/clion/)**) for the programming and compilation side of the project, as this contains all the tools that I require, such as build tools, static code checking, and git integration. I will be using the free student license.**  **I will use the CMake build system for building the program on both Windows, Linux and Mac systems. This will allow me to have one script to test, build and export my programs, as well as integration with libraries. This is the preferred build system for QT.**  **My computer will have a base of Linux for my main development environment, which will have CLion installed, and also I will have a Windows 10 virtual machine with just the build tools and libraries, for testing builds on Windows.** |

**Task 3 – Stakeholders**

**Using page 6 and 7 of the book (although they are referred to elsewhere in the book as well) consider the stakeholders - the ‘end users’ of your system. Pin this down by being very specific about the group of people or specific client for your project.**

**Who is your stakeholder? Why would they use your program – what problem would it solve for them? What interest or activity would it allow them to enjoy? Be specific.**

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| **My stakeholders are the Physics department, and GCSE level physics students. This project will help them to visualise diagrams from the physics textbooks that they would usually not be able to build with real components. The project will enable them to experiment with circuits, helping them to learn about physics formulae and electronic circuits.** |

**What role will they play in your project? How will you involve stakeholders to gain evidence you can use in your project? Pages 24-25 also covers this topic.**

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| **I will be able to send my program to the physics teachers to test, and also to a few physics students that I know. They will be able to fill out response forms about how my program performs, and how it could be improved. The teachers will probably be available once a month for this purpose, but the students will be available every week.** |

**Task 4 – Referencing and recording sources**

**As you work through your project you are bound to make use of a variety of reference and source materials. Page 20 can help with the following questions though it might be necessary to also research this topic a bit before you answer.**

**Will you use Harvard Referencing? Why would using references help you with your project?**

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| **I will probably not use the Harvard referencing system, and will instead use footnotes to display references. This will allow me to more clearly show my sources, and doing these per page is much more clear than in one separate bibliography section.** |

**What sources are you likely to need to visit and reference in your project?**

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| **I will probably use the QT documentation and tutorials, as well as the QT forums for QT related problems. For C++ generally I will use StackOverflow and the** [**www.cplusplus.com**](https://www.cplusplus.com) **forums. I wil first search for an answer to my problem directly, and ask one myself if I cannot find an answer.** |