# 2017/18 candidate record form, production log and assessment record

## Level 3 Extended Project (7993)

Please attach the form to your candidate’s work and keep it at the centre or send it to the moderator as required. The declarations should be completed as indicated.

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| **Centre number** |  | **Centre name** |
| 23205. |  | Queen Elizabeth’s Grammar School (Academy) Ashbourne |
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| --- | --- | --- |
| **Candidate number** |  | **Candidate’s full name** |
| Click here to enter. |  | Oli Radlett |
|  |  |  |

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| --- |
| Work submitted for assessment **must** be the candidate’s own. If candidates copy work, allow candidates to copy from them, or cheat in any other way, they may be disqualified. |

**Candidate declaration**

Have you received help/information from anyone **other than** subject teacher(s) to produce this work?

☐ No ☐ Yes *(give details below or on a separate sheet if necessary).*

|  |
| --- |
| Click here to enter text. |

Please list below any books, leaflets or other materials (for example DVDs, software packages, internet information) used to complete this work **no**t acknowledged in the work itself. Presenting materials copied from other sources **without acknowledgement** is regarded as deliberate deception.

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| --- |
| Click here to enter text. |

From time to time we use anonymous examples of candidates’ work (in paper form and electronically) within our guidance materials to illustrate particular points. If your work appears in AQA materials in this context and you object to this, please contact us and we will remove it on reasonable notice.

I have read and understood the above. I confirm I produced the attached work without assistance other than that which is acceptable under the scheme of assessment.

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| --- | --- | --- |
| Candidate signature. | Date | Click here to enter a date. |
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**Supervisor declaration**

I confirm the candidate’s work was conducted under the conditions laid out by the specification. I have authenticated the candidate’s work and am satisfied, (to the best of my knowledge) that the work produced is solely that of the candidate.

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| Supervisor signature. | Date | Click here to enter a date. |
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Submission checklist

**To be completed by the supervisor**

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| Extended Project **working** title | Making an interpreted programming language that can be used to create a variety of programs and be comparable to other interpreted languages |
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| --- | --- |
| Extended Project **final** title | Making an interpreted programming language that can be used to create a variety of programs and be comparable to other interpreted languages |
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Form of project

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| --- | --- | --- | --- |
| ☐ | Either | written report | |
| ☐ | Or | Click here to enter text. | and accompanying written report |
|  |  |  |  |

Is this project part of a group project?

|  |  |  |
| --- | --- | --- |
| ☐ | No |  |
| ☐ | Yes | If ‘Yes’, give brief details Click here to enter text. |

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| **Please note** that failure to complete or submit a compulsory element may result in a mark of zero being awarded. |

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| --- | --- | --- |
| Select/tick | Items that **must** be included | Notes |
| ☐ | 1. A signed and completed *Candidate record form, production log and assessment record* | This document. All pages must be completed. |
| ☐ | 1. Research based written report | If the project product is an artefact or a production, an accompanying research based written report is also required. |
| ☐ | 1. Evidence of the project product | Eg photographs of artefact, investigation or production; a piece of creative writing (artefact); research based written report. |
| ☐ | 1. Evidence of a presentation within the production log | Presentation on the project process. Where the project product is itself a presentation (for a specified audience), a presentation on the project process must also be delivered to a non-specialist audience |

The taught skills element

**To be completed by the supervisor**

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| **Outline details of taught skills**  Record here details of relevant skills taught in a class/group and details of relevant skills taught individually to this candidate as described in the specification. Continue on a separate sheet if necessary.  Skills were taught in lessons and through independent work. Early on in the process, the balance of taught to independent work was greater and the scheme of work was enhanced this year to include homework and assessment of the skills being taught before they immersed themselves in their projects. Skills required later such as essay writing and referencing were delivered at appropriate points.  In sessions when there was no taught element, students continued with their research and the tutor spoke to a few students each session, keeping up to date with their progress and giving guidance.  In the early days, students could use first ideas for their project as an area to work on when tasks were set relating to the skills being taught.  Students were expected to keep an activity diary as well as a research diary. In the former they made a short entry each lesson to say what they had done and any issues going forward so that they knew where to pick up next time and to help them look back over their process later for their log book reflections and plans of action.  We also organised our own visit to Sheffield University library, organised with their outreach team, where we had a workshop followed by a visit to the library where students could access books etc and scan sections back to their school email account. Sheffield had enabled a temporary log in access to the catalogue and were immensely helpful.  Taught sessions:  Setting the Scene – including information on what EPQ is and how it will be run  What is a source? What does it tell you? – The need to find out more.  What is a source? Evaluating reliability including bias and vested interest.  What is a source? Using the internet – navigating the web, using Google Scholar etc and applying filters for reliability.  Using the Library – school, council, university etc. How to search catalogues; what Derbyshire County Council can offer re databases etc. Understand the Dewey system. Looking at journals available in school.  Efficient Reading skills – techniques to read material quickly and efficiently. Use the apparatus such as titles, abstract, intro etc to help you find your way efficiently around a text.  Critical Reading – what are you trying to find out? What is the text telling you? Are you asking questions as you read?  Note taking – important to supplement your reading and to avoid plagiarism. Don’t just copy everything!  Summarizing – useful for your research diaries.  Mindmapping – a good tool for adults, not just children. Very helpful in identifying the links between ideas or for collecting ideas and starting to make links.  Writing a synopsis – another way to store the information you need from texts.  Assessment test of skills learned so far.  Refining ideas for your EPQ – what makes a good title?  Introduction to the Log Book and how to keep it well. Looking at Record of Initial Ideas to see what is coming.  Time Management – including creating a GANTT chart  Personal organisation – including prioritisation – urgent or important?  Primary research – how to design a questionnaire – but only if you really need it!  Ethical issues – are you asking people sensitive questions? How are you storing the information?  Visit to Sheffield University Library for own research opportunity.  Structuring and writing a good essay -  Referencing  What makes a good Presentation |

Record of marks

**To be completed by the supervisor**

Marks must be awarded in accordance with the instructions and criteria in the specification.

Summary information to show how the marks have been awarded should be given in the spaces below in addition to comments in other pages of this document and any supporting information in the form of annotations on the candidate’s work.

|  |  |  |  |
| --- | --- | --- | --- |
| Skill area | Maximum mark | Mark awarded | Supervisor’s supporting statement |
| 1. Manage | 10 | Click. | Click here to enter text. |
| 1. Use resources | 10 | Click. | Click here to enter text. |
| 1. Develop and realise | 20 | Click. | Click here to enter text. |
| 1. Review | 10 | Click. | Click here to enter text. |
| Total mark | 50 | Click. |  |

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| **Supervisor’s concluding comments**  Click here to enter text. |

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| **Internal moderation comments if appropriate**  Click here to enter text. |

**Supervisor declaration**

I confirm that no work assessed for the award of the marks above is also to be submitted, or has been submitted, for any other accredited qualification(s).

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| Supervisor signature. | Date | Click here to enter a date. |
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Record of initial ideas

**To be completed by the candidate**

This page records initial meeting(s) with your supervisor to agree your project ideas. Additional pages can be submitted if more than one idea has been explored.

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| My idea(s) for topic/title  I have an interest in almost all areas of computing and computer science, so I was always going to do a project involving a technical aspect of computers. Since my primary interest is programming, I wanted to write a program of some kind. Choosing what kind of program to write however, was a harder decision. My first thoughts were to do a similar program to the one I'm doing for Computer Science, however I wouldn't be able to due to already receiving marks for it. I wanted to choose something with enough depth to keep me interested, but not so big that it would be impossible to ever complete. In the end, I chose to reinvent one of my old projects - writing an interpreted programming language. This has enough depth to hold my interest but should be manageable. |
| My ideas for research and development of my project  My primary research is going to be researching interpreted language design in order to give me enough background information to start to plan how my language should work. Next I am going to research existing interpreted languages and compare their features to see what they do well and what they have in common, as well as any flaws they may have. After that I will create common programs using existing languages to discover what features I want to add to my language. This will be very useful in working out how specialised my language should be, and what areas it should be used in. This will make up a large amount of my research. Finally, I will research data types and ways of storing data inside a program. This is the most technical aspect of my research and will likely end up with me writing various programs to test custom data structures. I might also end up researching compilers and compiled language design in order to give a comparison between my interpreted language and other compiled languages. |
| My summary of the comments and advice from my supervisor  At first my supervisor was quite confused about what I was making and explained to me that research would make up a larger part of the project than I expected. |
| Modifications I have made as a result of my discussion with my supervisor  After my initial discussion with my supervisor, I decided to put more of an emphasis on research throughout my project.  I also thought about ways to convey what I’m planning on making. I’m planning on making a document explaining the project to go alongside it. |

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|  | Date | 20/01/18 |
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Part A: Candidate proposal

**To be completed by the candidate**

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| Working title of my Extended Project.  Present the topic to be researched in the form of a short statement/question/hypothesis with clear focus.  Making an interpreted programming language that can be used to create a variety of programs and be comparable to other interpreted languages |

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| * my initial resources will be   My laptop and desktops at home  Various programming software (VS2013, git, Sublime Text 3, GitHub)  https://stackoverflow.com/questions/19689639/expression-block-type-is-validphead-nblockuse-error?utm\_medium=organic&utm\_source=google\_rich\_qa&utm\_campaign=google\_rich\_qa  - Useful for diagnosing a common error with deleting objects from vectors  https://stackoverflow.com/questions/3385229/c-erase-vector-element-by-value-rather-than-by-position?utm\_medium=organic&utm\_source=google\_rich\_qa&utm\_campaign=google\_rich\_qa  - Useful for the theory behind removing objects from vector using algorithm.h  https://stackoverflow.com/questions/7345956/advantages-of-classes-with-only-static-methods-in-c  - Discussion about alternatives to a Java style static function util class  http://memphis.compilertools.net/interpreter.html  - Tutorial on writing an interpreter using Lex and Yacc. Useful, but I decided not to use these tools.  https://docs.microsoft.com/en-gb/visualstudio/test/writing-unit-tests-for-c-cpp  - Documentation on writing unit tests in C++. Very useful.  https://medium.freecodecamp.org/the-programming-language-pipeline-91d3f449c919  - Useful article explaining the process of creating a programming language  https://theboostcpplibraries.com/boost.spirit-parsers  - Documentation and examples of boost::spirit. Useful but I decided not to use the boost library.  https://visualstudiomagazine.com/articles/2014/05/01/how-to-write-your-own-compiler-part-1.aspx  - Very useful article on compiler design. However, I chose to write an interpreted language rather than a compiled langauge |
| * the courses of study or area(s) of personal interest to which the topic relates   My project relates to Computer Science as it involves programming, however the programming needed to create my project exceeds taught anything at A-Level. It relates to my personal interests completely, because it’s something I've been meaning to do for a while, and I'd probably end up making something similar for fun anyway. |
| * my intended product   I am making an artefact as my project. My artefact is an interpreted programming language. I have chosen to make an artefact instead of an essay, because my best skill and hobby is programming, so it makes sense to make the most of it. Also I will be more motivated to create a program than to write an essay. The artefact will be in the form of one executable file, and will be accompanied by a separate research document (approx. 1000 words).  . |

Provide details of the courses that you are currently studying

|  |  |
| --- | --- |
| **Qualification type** | **Awarding body & subject** |
| eg A-level, Modern Apprenticeship, BTEC | eg AQA Mathematics, OCR Computing, WJEC English |
| A Level | AQA Maths |
| A Level | AQA Physics |
| A Level | OCR Computer Science |

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| **Qualification type** | **Awarding body & subject** |
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| **Notice to candidate** You must not take part in any unfair practice in the preparation of project work required for assessment and you must understand that to present material copied directly from any book or any other sources without acknowledgement will be regarded as deliberate deception. If you use or attempt to use any unfair practice you will be reported to AQA and you may be disqualified from **all** subjects. |

**Candidate declaration**

I certify that I have read and understood AQA’s Regulations relating to unfair practice as set out in the notice to candidates above.

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| --- | --- | --- |
| Oli Radlett | Date | 30/04/18 |
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Part B: Supervisor’s comments on candidate proposal

**To be completed by the supervisor**

Please comment below on the validity and feasibility of the candidate proposal (Part A) as an Extended Project

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|  | Supervisor’s comments |
| Indicate the relation to, and development/extension outside of, the main course(s) of study or interest | Click here to enter text. |
| Comment on the suitability of the proposed initial sources and research base | Click here to enter text. |
| Confirm that the project is feasible in the proposed timescale and/or indicate any potential difficulties that may prevent the candidate from meeting the assessment objectives | Click here to enter text. |

Indicate the expected format of the project product that will be submitted for assessment

☐ Research based written report

☐ Artefact (for example prototype, model, artwork, scientific investigation, creative writing) plus written report

Is the project a contribution to a group exercise? ☐ YES ☐ NO

If Yes, confirm that there is a defined individual contribution by the candidate ☐ YES ☐ NO

List the **other** group members below.

|  |  |
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| Candidate No. Click. | Candidate Name Click here to enter text. |
| Candidate No. Click. | Candidate Name Click here to enter text. |
| Candidate No. Click. | Candidate Name Click here to enter text. |

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| Supervisor signature. | Date | Click here to enter a date. |
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Part C: Centre coordinator’s approval of candidate proposal

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| **Supervisor’s name** |
| Click here to enter text. |
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**To be completed by the centre coordinator**

If you are acting as both the Centre coordinator and the supervisor, please seek counter signature from a senior colleague

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| Centre coordinator’s comments on the feasibility and acceptability of the proposal (parts A & B) as an Extended Project  Click here to enter text. |

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| ☐ | Approved | ☐ | Approved subject to the implementation of  the centre coordinator’s recommendations | ☐ | Resubmission required |

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| **Centre coordinator’s name** |
| Click here to enter text. |
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| Centre coordinator signature. | Date | Click here to enter a date. |
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Planning review

**To be completed by the candidate**

This page records your outline plan once your proposal has been approved.

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| My next steps in planning, researching and deadlines that I will set myself. What I intend to do, by when, what resources I will use and how I will implement the recommendations of the centre co-ordinator (where appropriate).  The first stage of my research will involve researching the basic concepts of interpreters, compilers, and interpreted language concepts. After this I will use my existing programming knowledge to create multiple iterations of a simplified version of my project. This will allow me to try out what works and discover various problems along the way. After I have a working prototype with basic functionality, I will decide whether to create a new version for the final project, or add functionality to the prototype to create the final project.  My plan is to finish writing the language by the end of the summer, present by the end of September, and finish the project by the end of the Autumn term  So far one of the most useful sources I’ve found has been an article about creating an interpreted programming language (https://medium.freecodecamp.org/the-programming-language-pipeline-91d3f449c919). This article helped me decide the various components I wanted to use to make up my language, and how I should make them.  I’m aiming to finish developing my language by the end of the Summer in order to focus on the administrative side of the project which I think I’ll find harder. I’ve been struggling a little with keeping the log book up to date so I’ve planned in extra time for that at the end of the project. |
| My summary of the comments and advice from my supervisor  My supervisor reminded me to keep working on the log book and not get too distracted by the programming.  She also said to think about how I can test my project |
| Modifications I have made as a result of my discussion with my supervisor and/or the comments from my centre coordinator  In response to the feedback about testing I’ve done some research into unit testing - an approach to testing where the developer writes mini test programs which either pass or fail. If all the test programs pass then the program passes. |
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|  | Date | 08/06/18 |
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Mid-project review

**To be completed by the candidate**

This page records your outline plan when you have completed your research.

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| Is my project following my original plan? How has my plan developed?  So far, the development side of the project is going quite well. The language is almost finished and is far better than I anticipated. This is because I thought I could only use three letter commands but finally managed to add commands with any lengths, which greatly improves the usability of the language. The added progress came when I had lots of spare time on my work experience which enabled me to devote some serious time to my project. I’m still aiming to finish by September due to this unexpected amount of free time.  My working method turned out to be researching and problem solving on the go, which was very specific to my project. I was always researching throughout every stage of the development, using websites such as StackOverflow and MSDN (Microsoft Developer Network) to find solutions to common problems along the way. This approach is quiet standard in programming, and is very productive as no single programmer knows every detail about every language they use.  One particular research source I found very useful was a post on StackOverflow (a developer question and answer site) which provided a very simple and effective method for checking if a file exists or not. (<https://stackoverflow.com/questions/12774207/fastest-way-to-check-if-a-file-exist-using-standard-c-c11-c>)  This is used in the program to check for the presence of the source file provided as an argument when running the program, in order to gracefully handle any error if the file doesn’t exist instead of crashing.  The general approach to my work up until this point has been programming and researching a feature simultaneously and then testing it, effectively creating a new version of the project with every new feature. This approach is known as iterative development and has been very useful. |
| My summary of the comments and advice from my supervisor  My supervisor advised me to define my testing methodology and process as my solution can’t be quantified in the same way as most artifacts and can appear quite confusing to people not used to the industry.  She also suggested I should explicitly define my success criteria at this stage in order to make it easier to evaluate my project.  I was also reminded to focus on my written report as we both felt I was prioritising the development too much.  Finally I was told to take another look at the assessment objectives |
| Modifications I have made as a result of my discussion with my supervisor at this stage  I added some information about the way I was testing my project in the section above, as well as a whole section on testing into my written report that goes into lots of detail.  I was also given advice about constructing a research report about an artefact such as mine which I found very useful as previously I was struggling to convey complicated programming terminology in a way everyone would understand, and struggling to explain what my project actually was. |
| My final title and agreed form of project product  Making an interpreted programming language that can be used to create a variety of programs and be comparable to other interpreted languages  Evidence of programming language and research based report |
| My planned next steps to complete my project  I am planning to continue developing my project over the summer as I’ll have lots more free time to devote to it. I aim to finish the programming side by the beginning of September so I can work on the presentation and report in the Autumn term.  I’m planning on being ready to submit in November. |

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|  | Date | 12 July 2018 |
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Project product review

**To be completed by the candidate**

This page records the (near) completion of your project product. Outline the successes, failures, additions and/or changes you made as you followed the plan in your mid-project review

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| Did my project follow my revised plan (from the mid-project review)?  The development side of my project went very well. The programming was very interesting ad I’d never done anything like it before and I think I learned a lot.  The research I did for my project proved very useful and I think it would have been an impossible project without it. As I explained earlier in this document, my approach to research has been researching in parallel to the development which worked very well and was very beneficial.  I found writing the report a lot harder than I expected. My first draft was several times the world limit as I was struggling to convey fundamental programming concepts however after sitting down with my supervisor a few times I changed the way I was writing it and started to make a new draft that addressed all the issues I’d previously had.  At this point I am not ready present in November and I’m aiming to present after half term and finish by Christmas. |
| My summary of the comments and advice from my supervisor at this final stage  One of the main comments my supervisor had at this stage was to think about how I can convey what I’ve made, as most non-programmers have either never heard of a programming language, or have very little understanding of what one does.  She also told me to concentrate on preparing my presentation as I hadn’t given it much thought until this point.  Finally she mentioned that I needed to think about how I’m going to present my finished solution, and what form it should be in. |
| Modifications I have made as a result of discussion with my supervisor at this final stage  Do I need to do anything else to complete my product?  After discussing my project with my supervisor I’m working on uploading all my code to a website in order to show the work I’ve doe, as well as uploading the language executable in case anyone wanted to have a play around with it and see what it’s capable of doing.  I’ve also started working on my presentation. |

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|  | Date | 18 October 2018 |
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Presentation record part A

**To be completed by the candidate**

This page records your presentation and its preparation.

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| Planned format of my presentation (eg timing, audience, use of visual aids, slides, use of notes, etc.)  My presentation will be in the form of a PowerPoint, which I will be presenting to my supervisor, another EPQ teacher and a small group of students.  I’ll have some notes to help me during the presentation. |
| Planned content of my presentation  List of slides:  Title,  What have I made? (title),  What have I made?,  How did I make it? (title),  How did I make it?,  Evaluation (title),  Evaluation |
| Modifications I have made as a result of rehearsal and/or discussion with my supervisor  My supervisor suggested I make the following:  New slide: why did I do this? (Interests, etc.)  New slide: writing the report (Challenge, research etc.) |

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|  | Date | 18/12/18 |
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Presentation record part B

**To be completed by the supervisor**

Record and comment below on the delivery of the presentation

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|  | Supervisor’s record/comments |
| The nature of the audience (include numbers of staff, students and others present) | Click here to enter text. |
| The nature of the presentation (include use of notes, use of display items, and use of presentation software) | Click here to enter text. |
| Comment on the content and delivery of the presentation (for example clarity of ideas, structure of presentation, pace, engagement with audience) | Click here to enter text. |
| Comment on the response of the candidate to questions that demonstrated understanding and grasp of the project and/or its production. **Give examples of questions asked and answers given.** | Click here to enter text. |

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| Supervisor signature. | Date | Click here to enter a date. |
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Summary and reflection

**To be completed by the candidate**

This page records your summary, reflection and evaluation when you have completed your project product and given your presentation.

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| Some questions you may wish to answer in this section include, what have I learned from completing this project? What new knowledge or expertise have I enjoyed or found valuable? What are the strengths and weaknesses of my project (including planning and organisation)? What skills have I improved? What changes would I make if I undertook such work again? What advice would I give to others undertaking such a project?  This was a very interesting project to undertake, since I’ve never made a program thats as theoretical as a programming language. I’ve learned a lot about interpreters and compilers, and the descisions behind design features in the programming languages I’ve used for years.  I think the mains strengths of my project are the robustness and completeness of the program compared to the more “hobby style” programs I’ve made in the past which often end up full of bugs and incomplete. The main weaknesses of my project lie in the process side of it, specifically the planning and keeping up to date with the log book. These are both things I struggled with but I think I got better at them as the project moved forwards.  I’ve improved my research skills and I’ve learned the importance of planning and working using a specific procedure, in order to keep on track and avoid falling behind.  If I was doing this process again I would definitly chose to make something simpler to explain to people. This was one of the hardest things about DOG – explaining to people exactly what I’d made and how it was useful. I think if I’d chosen something that people had more existing knowledge on I’d have had an easier time.  If I was making DOG again I’d probably do things similarly but focus on the log book and the EPQ process more than the actual program. As this was the main thing I stuggled with, I think this would have made the whole project work better. |