Final Year Project Proposal Department of Computing

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| Name | Courtney Enright |
| Student ID | E011645K |
| Award | Bsc Degree Cyber Security |
| Semester | 3 |
| Course Leader | Mostafa |

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| --- | --- |
| Version | 1 |

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| --- | --- | --- |
| Change History | Version | Date |
| Made basic notes for each point | 1 | 25/10/22 |
| Extended each point into paragraphs | 2 | 31/10/22 |
| Ethics Disclaimer, Finish aim/objectives | 3 | 01/11/22 |
| Signed and added Project plan | 4 | 02/11/22 |

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| Project Title |
| *< this should be short(ish) and distinctive >*  Web Based Penetration Testing Amalgamation Tool |

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| Introduction |
| < giving the background to the project and elaborate on the title. State the specific goals the student is aiming to achieve, the method of managing the project process, a breakdown of the key subtasks of the project, identification of source/data to be used as well as an identification of technology/techniques/algorithms to be considered.>  I plan to make a web-based penetration testing amalgamation tool as when I have used similar tools in the past I have been restricted by privileges and the need to perform downloads. I have a greater interest in penetration testing and know this would be the best field for me to complete my project as I can create a tool where I can actively see my progress, for example a successful tool would be one which could accurately run scripts to execute things like Nmap scans.  The tools must give the expected outputs and work efficiently in their process, I may also include a chatbot to assist in the process of filling out variables to make it easier for the ‘general joe’.  My tool will demonstrate my capabilities in the field and will use multiple coding languages, prebuilt scripts and will successfully test websites for vulnerabilities.  I shall ensure this is attainable by making a manageable plan and making any adjustments to my timetable to ensure I meet deadlines and attain all goals in the time required. |

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| Justification |
| < stating what will be the benefit of the project with relevance to the student's discipline? What are the key subject matter concepts? Existing major works/examples, etc. >  The tool would be most useful for people working in penetration testing to perform simple scans/attacks without the need for installing software, making the process more efficient.  This would be useful as all the top rated scanners as listed by coresecurity.com currently require downloads which may be inconvenient for anyone without download permissions - <https://www.coresecurity.com/blog/top-14-vulnerability-scanners-cybersecurity-professionals> .  This project will be a good final year project as it is directly suited to my degree, for example I have been studying penetration testing throughout year 2 so for my final year project it would be very fitting to extend this knowledge into a project to prove my capabilities in this field. Furtherly my project will express the capacity of what I can do as I can continue to make improvements within the scope of my plan until my knowledge in the field is completely exhausted, this could be done by adding new and innovative methods of penetration testing and tools for information gathering not currently seen on a wide range of amalgamation tools.  A tool I am fond of is <https://www.arachni-scanner.com/#:~:text=Arachni%20is%20a%20feature%2Dfull,public%20and%20available%20for%20review>. It is a similar amalgamation tool to what I plan to use as it uses a wide range of python scripts to execute attacks. However, I plan to innovate in a way this tool does not by not requiring the user to download the scripts and instead have them inbuilt to the website, this may be slower and not as efficient however it will be much more accessible. |

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| Criteria for Success |
| < this will be a statement or series of statements, which identify how the student will measure the success of the project. This is expected to form part of the validation of the completed project on conclusion and should ideally therefore be quantitative. >  For my tool to be successful I will need to research the most suitable languages and IDE’s for the job. My tool must be effective in running scripts and giving the correct predicted output at all times, to prove I have done so I must run numerous tests to check for any errors.   * Proposal   + Make a clear statement on what I will be doing   + Gantt Chart- To insure I correctly implement good/affective time management   + Project Plan- To plan and ensure my goals are attainable   + Create clear, relevant and attainable goals   + Risk assessment   + Ethical Review & Disclaimer * Literature Review   + Select and justify research methodology – this will allow me to efficiently research key areas and increase the speed/quality of my research   + Research into Most Popular Tools – this will allow me to see what tools/scripts people tend to use the most and will be the most necessary for me to include in my artifact   + Research into similar penetration testing amalgamation tools - this will help me see the best ways for me to innovate and what works across the board so far   + Research into scripts and how to implement them – this will ensure I have all the scripts necessary to build the artifact and will ensure I find the most efficient and integrative way of implementing them * Create a Proof-of-Concept System   + Design The Artifact – MPR – here I will piece together my research to design a tool relevant to my findings so that it has an innovative design   + Design the Test Plan – I must design the test plan so I can cover all areas to guarantee the success of the tool and that the outputs have the maximum integrity   + Create The Artifact – This will be my first draft to the Artifact   + Test The Artifact – This is where I use my test plan to find all error   + Fix any problems – this is where I use the finding of my test plan to fix all errors |

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| Resource Required |
| < a list of the resources necessary to complete the project based on your initial research. An indication of the source of the resources and the probability of their being available. >   * A machine * A target * IDE * Office 365 * Virtual environment * Internet connection |

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| Declarations | |
| I confirm that I understand and agree to the following:  All activities and aspects of this project will be conducted in strict adherence to the British Computer Society code of conduct.  All activities and aspects of this project will be conducted in strict adherence to Staffordshire University codes of ethical practice for research.  All activities and aspects of this project will be conducted in strict adherence to the Department of Computing codes of conduct and ethical practice.  All relevant aspects and requirements of the General Data Protection Regulation will be applied to data collected from participants in the project. | |
| Digital Signature: | Date:02/11/22 |

Appendices

A Project Plan

B Health and Safety Risk Assessment

C Ethics Statement

Appendix A – Project Plan

< this should decompose the project down into the main areas of activity, at minimum research, analysis, design, implementation and testing, show key milestones (mid-point, hand-in, etc. including other work, planned vacations, etc.) It is recommended to achieve better marks that you use a suitable planning application such as Microsoft Project (see Guides on Blackboard) to produce your plan as this will make it easier to track progress and maintain your plan. >

A picture containing application

Description automatically generated

Table

Description automatically generated

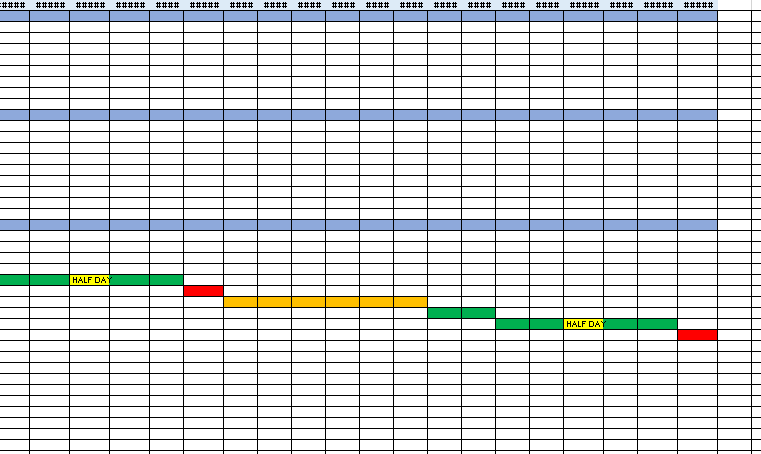
A screenshot of a computer

Description automatically generated with medium confidence

A screenshot of a computer

Description automatically generated with medium confidenceA screenshot of a computer

Description automatically generated with medium confidenceA picture containing shoji, building

Description automatically generated

Appendix B – Health and Safety Risk Assessment

| Staffordshire University Logo**GENERAL RISK ASSESSMENT FORM** | | | **Severity** multiplied by **Likelihood** equals **Risk Rate**.  NB: Calculated after taking in to account existing precautions | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Department: Department for Digital Technologies and Arts | | Severity | Insignifi-cant (1) | Minor (2) | Moder-ate (3) | Serious (4) | Fatal / Critical (5) |
| Likelihood |
| Task/Activity/Area: Final Year Project | | Almost Certain (5) | **5** | **10** | **15** | **20** | **25** |
| Likely (4) | **4** | **8** | **12** | **16** | **20** |
| Student ID: | Signature: | Possible (3) | **3** | **6** | **9** | **12** | **15** |
| Unlikely (2) | **2** | **4** | **6** | **8** | **10** |
| Date of Assessment: | Review Date: | Rare (1) | **1** | **2** | **3** | **4** | **5** |

| **ID** | **Activity/Process/Machines** | **Hazard** | **Persons in Danger** | **Severity 1-5** | **Likelihood 1-5** | **Risk Rate** | **Measures/Comments** | **Result** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | Working with blue light | Insomnia | Me | 2 | 3 | 6 | I will keep a set time to sleep and stop working. This is because the nhs recommend set sleeping times to avoid insomnia. They state “Making a habit of going to bed when you feel tired and getting up at roughly the same time helps teach your body to sleep better”. https://www.nhs.uk/every-mind-matters/mental-health-issues/sleep/?WT.mc\_id=Sleep&gclid=CjwKCAjw5P2aBhAlEiwAAdY7dBPWH3F2EUM8HQ2rMJ80kuKuEWLeunlG1YRRlm8ss6P8Obep4HxElhoC\_okQAvD\_BwE&gclsrc=aw.ds | A |
| 2 | Typing for prolonged periods of time | RSI | Me | 2 | 3 | 6 | The NHS says a number of things can ease repetitive strain injury and the one I will implement is to “Keep active” https://www.nhs.uk/conditions/repetitive-strain-injury-rsi/ | A |
| 3 | Too much screen time. | Depression | Me | 4 | 3 | 12 | I must limit my work to a maximum of six hours a day as healthline.com “found that adults who watched TV or used a computer for more than 6 hours per day were more likely to experience moderate to severe depression.”  https://www.healthline.com/health/the-mental-health-effects-of-being-constantly-online#Screen-time-and-depression | A |
|  | Misusing/opening a machine | Electric shocks | Me/People with access to machine | 5 | 1 | 5 | I will make sure to properly use my machine by keeping it undamaged and away from water. When not in use I will put it in a safe place, out of reach of children to avoid any risk of damage/water damage to my machine which may cause shocks. Furtherly I will ensure when in use I have the correct amp fuses in my machine to avoid risk of fatal shocks  Eletricalsafetyfirst.org.uk explains that a “blown fuse cuts off the electricity to stop the lead and appliance from overheating and causing a fire.” So I will ensure I only use correct amp fuses. |  |

Key to result **T** = Trivial Risk **A** = Adequately Controlled **N** = Not Adequately Controlled **U** = Unable to decide (further information required).

Appendix C – Ethical Statement

< a completed Ethics statement form. At minimum this will Ethics Disclaimer online form downloaded as a pdf or your completed Proportionate or Full form (both are docx forms so can just be added to your proposal. None of your forms require other signature for this submission than your own. You will, however, be expected to submit completed, fully signed forms as an appendix to your final report. >

To avoid any ethical issues I will only be using the tool on isolated/virtual machines/websites owned by me, the only other thing I will test this on is Metasploit. I will be doing so to avoid any potential damage to others property and to avoid any computer misuse.

# Block University LogoResearch Ethics

# *Disclaimer Form*

The following declaration should be made in cases where the researcher and the supervisor (where applicable) conclude that it is not necessary to apply for ethical approval for a specific research project.

**PART A: TO BE COMPLETED BY RESEARCHER**

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| Name of Researcher: | Courtney Enright |
| School | Staffordshire university |

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| **Student/Course Details (If Applicable)** | | | |
| Student ID Number: | | | E011645K |
| Name of Supervisor(s)/Module Tutor: | | | Stephen Cahill |
| PhD/MPhil project: |  |  | |
| Taught Postgraduate Project/Assignment: |  | Award Title:  Module Title: | Bsc Degree cyber security  Final Year Project |
| Undergraduate Project/Assignment: |  |

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| --- | --- | --- | --- |
| Project Title: | Web Based Penetration Testing Amalgamation Tool | | |
| Project Outline: |  | | |
| Give a brief description of research procedure (methods, tests etc.) | I will be testing a penetration testing tool on isolated labs only and only machines I personally own. | | |
| Expected Start Date: | 25/10/22 | Expected End Date: | 02/06/22 |

**Declaration**

I/We confirm that the University’s Ethical Review Policy has been consulted and that all ethical issues and implications in relation to the above project have been considered. I/We confirm that ethical approval need not be sought. I/We confirm that:

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| The research does not involve human or animal participants |  |
| The research does not present an indirect risk to non-participants (human or animal). |  |
| The research does not raise ethical issues due to the potential social or environmental implications of the study. |  |
| The research does not re-use previously collected personal data which is sensitive in nature, or enables the identification of individuals. |  |
| Has a risk assessment been completed for this project? | Yes  N/A |

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| Signature of Researcher: |  | Date: | 02/11/22 |
| Signature(s) of Project Supervisor(s)  (If student) OR  Signature of Head of Department/ Senior researcher (if staff) | S.Cahill | Date: | 02/11/22 |

**NB:** If the research departs from the protocol which provides the basis for this disclaimer then ethical review may be required and the applicant and supervisor (where applicable) should consider whether or not the disclaimer declaration remains appropriate. If it is no longer appropriate an application for ethical review **must** be submitted.