**ASSESSMENT AND INTERNAL VERIFICATION FRONT SHEET (Individual Criteria)**

**(Note: This version is to be used for an assignment brief issued to students via Classter)**

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| Course  Title | | **B.Sc. (Hons.) Software Development, B.Sc. (Hons.) Computer Systems & Networking, B.Sc. (Hons.) Multimedia Software Development** | | | **Lecturer Name & Surname** | Clifford De RaffaeleFrankie Inguanez Neville Magri  Daren Scerri | | |
| Unit Number & Title | | | ITRSH-506-2101 – Research Design 1 | | | | | |
| Assignment Number, Title / Type | | | 01, Research Project / Home | | | | | |
| Date Set | | | 03/02/2024 | Deadline Date | 23/03/2024 | | | |
| Student Name | Nicholas Saliba | | | ID Number | 0157500L | | Class / Group | 6.2A |

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| --- | --- |
| Assessment Criteria | Maximum Mark |
| SE1.2 Formulate a research hypothesis, supported with research questions from which research methods will be derived. | 10 |
| Total Mark | 10 |

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| **Notes to Students:** |
| * This assignment brief has been approved and released by the Internal Verifier through Classter. * Assessment marks and feedback by the lecturer will be available online via Classter (<Http://mcast.classter.com>) following release by the Internal Verifier * Students submitting their assignment on Moodle/Turnitin will be requested to confirm online the following statements:   **Student’s declaration prior to handing-in of assignment**   * I certify that the work submitted for this assignment is my own and that I have read and understood the respective Plagiarism Policy   **Student’s declaration on assessment special arrangements**   * I certify that adequate support was given to me during the assignment through the Institute and/or the Inclusive Education Unit. * I declare that I refused the special support offered by the Institute. |

**Milestone 01: Research Introduction**

1. Create a GitHub private repository and call it **com.mcast.research\_design\_I\_2023.<surname>\_<name>**, replacing <surname> and <name> with your actual name. Share this repository with your respective lecturer. Clone the repository on your local computer and commit regularly. Create and maintain the following structure:
   * **doc:** Upload the assignment brief.
   * **lit:** Any academic papers that you refer to and cite in your final paper.
   * **src:** The source code and data of your prototype. Consult with your respective lecturer on whether this folder should be included on your Git repository or elsewhere especially in games development that require very large files. Also be mindful of large datasets.
   * **deliverables:** All deliverables that will be requested of you.
2. Propose a research topic that you want to research. For the chosen topic you need to provide:
   * Research aim.
   * Research hypothesis.
   * Three research questions.
   * Inspirational sources (previous projects, dissertations, blogs).

**P.S.** This task requires a certain amount of research, communication, and reflection. Consider reviewing past dissertations, speaking with your lecturer, reflect on the current context, what you want to pursue and what your strong points are. Consider making use of tools such as a Kanban board to organise your thoughts and address key aspects of your research such as what is shown below.

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Description automatically generated

Figure 1 - Sample Research Ideation Kanban Board

**Research Aim:** Implementing Containerization to Improve Availability on IoT Devices

Which type of iot devices?

**Research Hypothesis:**

It is hypothesised that failures will be contained more effectively, system availability will be enhanced, and downtime will be shortened by enclosing IoT apps and their dependencies within containers by making use of orchestration platforms. Make Shorter- enhanced availability and security. Iot devices lack loads of security

**Research Questions:**

1. How does containerization affect the availability and performance of IoT applications? good
2. How do container orchestration platforms contribute to enhancing availability in IoT deployments? good
3. What container orchestration strategies can be used to ensure high availability for IoT devices with intermittent or unreliable network conditions? Good but complex

**Inspirational Sources:**

* <https://ieeexplore.ieee.org/document/10170261>
* <https://www.researchgate.net/profile/Bob-Duncan/publication/333024381_CLOUD_COMPUTING_2019_Proceedings_of_the_Tenth_International_Conference_on_Cloud_Computing_GRIDs_and_Virtualization/links/5cd74276a6fdccc9dda36ae0/CLOUD-COMPUTING-2019-Proceedings-of-the-Tenth-International-Conference-on-Cloud-Computing-GRIDs-and-Virtualization.pdf#page=12>
* <https://ieeexplore.ieee.org/document/9368276>

# Grading Criteria

**Milestone 01 – Grading Criteria**

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| Criteria / Task | Low Performance | Average Performance | Best Performance |
| SE1.2 | 1-3 | 4-6 | 7-10 |
| Identified research | Proposed research is broad, lacking direction or context. | Proposed research identifies key technologies and context yet is lacking depth of thought. | Proposed research is detailed, relevant to specific context and based on good background research. |
| Research hypothesis | Hypothesis is generic and lacking rigor. | Hypothesis specifies research direction and correlates well with research questions. | Hypothesis is well defined and encapsulates the research direction well. |
| Research questions | One or two research questions provided that are loosely linked to research hypothesis or are too generic. | Three research questions provided but are lacking depth of thought. | Three research questions provided, contextualised to research, and showing depth of thought. |