**Programme: Bachelor of Information and Communication Technologies (BICT) and Grad Dips**

**Course: Hot Topic in Software/Networking/Data analytics**

**Quarter: 02**

**Assignment type: Practical & Final Report**

**Purpose**

The purpose of this assessment is to design, and implement or re-engineer a practical solution to a research/issue/opportunity using high level programming language.

**Skills**

Problem identification, problem solving, technical documentation, research and investigation, experimentations, requirements analysis, resource management, software design, software implementation, software development lifecycle, team work, organisation, communication, software technologies, forward looking and innovative thinking, project planning, project analysis, situations assessment, module(s) integration, abstraction and high-level information and data modelling.

**Weightage, Learning Outcomes, and Submission Dates and Methods**

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| --- | --- | --- | --- |
| Assessment Type | Learning Outcome Assessed | Due date & submission method | Weighting |
| Proposal | 1-2 | Canvas | 30% |
| Presentation (in the class) – 7-10 minutes | 3 | Canvas | 10% |
| Practical including final report | 1,3,4 | Canvas | 60% |

**Forming A Team**

A team of two will work together and nominate a team leader to prepare the research proposal, design and implement or re-engineer a practical solution using a high level programming language to the research problem(s) raised. Finally, the team should prepare a final technical report based on phases of the project. The project background and resources are given later in this document. The team members must conduct an extensive investigation using a hot topic related to software (suggested topics are available on Canvas).

**Marking:**

See project grade rubric document on Canvas

**Feedback:**

Feedback will be provided on the progress document during class time. Verbal feedback will be provided after the presentations that needs to be addressed before the final submission. A written feedback only will be provided if the team submitted a draft to the lecturer before the deadline. This written feedback must be addressed in the final submission.

**Project Background**

Select one research issue/problem or a business opportunity related to hot topics in software. A list of suggest topics can be found on the course webpage in Canavas. Based on your selected topic you will need to research, plan, design, implement and communicate a practical solution using high level programming language and propose a potential solution (a prototype). The phases of research will be assessed separately in a research document that should be submitted in week #4. For this component there are two deliverables

1. A practical prototype for the proposal
2. A final report that includes the proposal plus the design, implementation and validation of the practical prototype. (Details are provided as assessment supporting documents in Canvas)

**Project Aim**

The aim of this project is to apply the research and software development skills on a real-world research problem / issue / opportunity in order to develop a practical solution using high-level programming language and document the findings in a technical report. The phases of the project includes: proposal preparation and documentation (research a problem, introduction, explaining the problem, scanning the literature, identifying a research approach, etc.), presentation, prototype design and coding, results analysis, and conclusions. All these should be communicated in a final technical report.

**Practical Project Task**

1. Prepare the design and analysis of the problem and its requirements (You may use any software design tool like MS Visio or Rationale Rose or any tool of your own choice)
2. Develop a working prototype using any high level programming languages such as C#, Java, C++ or any open source one.
3. Analyse the results produced by your prototype (discussion)
4. Test and debug your prototype
5. Develop a technical report based on stapes a-d plus the research proposal component

**Practical Demonstration**

There will be 10-15 minutes presentation in the final week of the course.

**Assessment Weight**

The project weight is 50% from the total grades of the course. The project is divided into two deliverables

* Technical Report 15% (Only the new added sections to the initial proposals will be assessed)
* Practical Prototype + demonstration 35% (Whether the expected functionalities of the research problem set earlier during the proposal document have been met in the prototype)

**Due Date**

Check the course webpage on Canvas