Unit 1 Applied Computing – 2024

Outcome 1 Data analysis – Template for developing an assessment task – Plan

Outcome 1

On completion of this unit the student should be able to interpret teacher-provided solution requirements and designs, collect and manipulate data, analyse patterns and relationships, and develop data visualisations to present findings.

Assessment task development – Planning the case study

Create a scenario that is a real-world example that provides students with solution requirements, constraints, scope and designs that will enable them to acquire and reference data from primary and secondary sources, analyse the data and develop software solutions using spreadsheet, database and data visualisation software tools to present findings. Key content within the tasks should be based on the targeted key knowledge and key skills.

Key knowledge	Key skills	
• functional and non-functional requirements of solutions, constraints and scope	• interpret solution requirements, constraints and scope	Content to be included in the assessment task should introduce students to a scenario. The scenario should indicate the data repositories that students are to acquire and analyse. The scenario should clearly state the solution requirements, constraints and scope for the spreadsheet, database and data visualisations solutions and provide students with sufficient opportunities to demonstrate their knowledge and to meet the requirements of the outcome.
• design tools for representing the functionality and appearance of databases, spreadsheets and data visualisations, such as annotated diagrams and mock-ups	• interpret designs using appropriate design tools to represent the functionality and appearance of databases, spreadsheets and data visualisations	Students are to interpret designs. Teachers are to include a range of design tools to represent the functionality and the appearance of spreadsheet, database and data visualisations solutions. Students are not to complete designs themselves. Design tools should be appropriate for the software tool used.
• types and purposes of qualitative and quantitative data • characteristics of data and information • sources, methods and techniques for acquiring and referencing primary and secondary data and information • factors affecting the quality of data and information, such as accuracy, bias, integrity, relevance and reliability • procedures for the legal and ethical collection and use of data and information, such as using consent forms • techniques for protecting data and information from misuse, such as de-identifying personal data and the use of physical and software security controls • Australian Privacy Principles relating to the acquisition, management and communication of data and information including non-identification of individuals (Principle 2), information only being held for its primary purpose (Principle 6) and the security measures used to protect personal information (Principle 11) • ethical issues arising from the acquisition, storage and use of data and information	• acquire and reference data and information from primary and secondary sources, taking into account legal and ethical considerations	Students are to acquire and reference data and information from a range of primary and secondary data sources. Legal issues relating to the acquisition, management and communication of data and information and ethical issues arising from the acquisition, storage and use of data and information need to be taken into consideration.
• interpretation of information for communication and decision making	• analyse the selected data, and discuss the relationships and patterns identified	Students are to analyse the data they have selected and discuss the relationships and patterns they have identified within the data. This analysis and discussion could be completed as a written report.
• types and purposes of data visualisations suitable for educating, entertaining, informing and persuading audiences • characteristics of data types and data structures relevant to selected software tools • structural characteristics of spreadsheets and databases, such as cells, fields, records and tables • formats and conventions suitable for databases, spreadsheets and data visualisations • software functions and techniques for efficiently and effectively manipulating, validating and testing data to develop databases, spreadsheets and data visualisations	• use software, and select and apply functions, formats, conventions, data validation and testing techniques to efficiently manipulate data and create data visualisations • compare and interpret data visualisations	The scenario with the solution requirements, constraints, scope and designs should enable students to determine the use of appropriate functions, formats and conventions for them to develop their spreadsheet, database and data visualisations solutions. Students are to develop solutions using these three software tools. Software functions chosen should enable the efficient and effective manipulating of data. A testing table is to be developed that involves the testing of all validation and processing such as calculations, etc. The testing table should include columns for expected and actual output and show evidence of tests that work and don't work. Students are to compare and interpret their data visualisations solutions. This comparison and interpretation could be completed as a written report.