Unit 1 Applied Computing 2025

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, analyse data and develop data visualisations to present findings.

Key knowledge	Key skills	Assessment task development
		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 databases, spreadsheets and data visualisations to present findings. Key content within the tasks should be based on the targeted key knowledge and key skills.
• characteristics of functional and non-functional requirements, 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 database, spreadsheet 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: – input-process-output (IPO) charts – annotated diagrams – mock-ups – query designs	• 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 database, spreadsheet 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, such as: – interviews and surveys to gather insights/perspectives on a topical issue – sensor data to monitor a person's health – census and demographic data for statistical analysis – data collected over a period of time – data generated by artificial intelligence • factors affecting the quality of data and information, such as: – accuracy – bias – integrity – relevance – reliability • characteristics of data and information, such as: – size – structure – relevance – accessibility – clarity – context • techniques for applying the Australian Privacy Principles (APPs) in the *Privacy Act 1988* (Cwlth) relating to the use, management and communication of data and information, such as: – non-identification of individuals (APP 2)	• explore data and information from primary and secondary sources, taking into account legal and ethical considerations	Students are to explore data and information from a range of primary and secondary data sources. Legal issues relating to the use, management and communication of data and information and ethical issues arising from the management and the communication of data and information need to be taken into consideration.

Unit 1 Applied Computing 2025 Outcome 1 Data analysis – Template for developing an assessment task – Plan		
– information only being held for its primary purpose (APP 6) – security measures used to protect personal information (APP 11) • ethical issues arising from the management and communication of data and information, such as: – lack of transparency – use of inaccurate or incomplete data – ownership and control of data – misuse of personal data and information – repurposing and sharing of data by artificial intelligence systems		
• referencing primary and secondary data and information using the American Psychological Association (APA) referencing system to acknowledge intellectual property	• use the APA referencing system to acknowledge intellectual property	Students are to reference data and information from a range of primary and secondary data sources.
• use of spreadsheets to calculate descriptive statistics for analysis, such as: – average – median – count/frequency – standard deviation	• conduct statistical analysis to identify trends and patterns	Students are to conduct statistical analysis on the data they have selected to identify trends and patterns.
• characteristics of data types relevant to the selected software tools, such as: – text (character, string) – numeric (integer, floating point, date/time) – Boolean • structural characteristics of relational database management systems (RDBMS), such as: – tables – queries – relationships using primary and foreign keys • structural characteristics of spreadsheets, such as: – rows and columns – cells • software functions and techniques for efficiently and effectively manipulating, validating and testing data to develop databases, spreadsheets and data visualisations, such as: – formulas and functions – charts and graphs – use of SQL to generate queries • purposes of data visualisations for educating, entertaining, informing and persuading audiences	• select and apply functions, formats, conventions, data validation and testing techniques to efficiently manipulate data and create 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 database, spreadsheet and data visualisations solutions. Students are to develop solutions using these three software tools. Software functions chosen should enable the efficient and effective manipulating and validation of data. A testing table is to be developed that involves the testing of all validation and processing. The testing table should include columns for expected and actual output and show evidence of tests that work and don't work.

Unit 1 Applied Computing 2025 Outcome 1 Data analysis – Template for developing an assessment task – Plan		
• types of data visualisations, such as: – infographics (long-form) – series of posters of infographics – dashboards • components of data visualisations, such as: – text and graphics – tables – charts and graphs • formats and conventions suitable for databases, spreadsheets and data visualisations, such as: – consistent naming conventions for databases (database name, table name, column name, primary key, foreign key) – consistent naming conventions for spreadsheets (worksheet names, header labels for rows, header labels for columns) – use of colours, fonts, images and icons		