

VCE Applied Computing 2025–2028

Video 6

Background to Unit 3 Outcome 1
Data Analytics



VICTORIAN CURRICULUM
AND ASSESSMENT AUTHORITY



Acknowledgement of Country

The VCAA respectfully acknowledges the Traditional Owners of Country throughout Victoria and pays respect to the ongoing living cultures of First Peoples.



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Background to Unit 3 Outcome 1
Data Analytics



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Purpose of this presentation

- Overview of Unit 3 Outcome 1 Data Analytics
- Major changes to Unit 3 Outcome 1
- Software tools
- Outcome statement
- Key knowledge
- Key skills
- Assessment task

Unit 3 Outcome 1

Changes to Unit 3 Outcome 1

- Emerging trends
- SQL
- Statistical analysis
- Updated assessment task (SAC)

Unit 3 Outcome 1

Software tools

Students are required to use the following software tools:

- Database software
- Spreadsheet software
- Data visualisation software
- An appropriate tool for running Structured Query Language (SQL) queries

Unit 3 Outcome 1

From the outcome statement

- Interpret teacher-provided solution requirements and designs, extract data from large repositories, manipulate and cleanse data, conduct statistical analysis and develop data visualisations to display findings.

Unit 3 Outcome 1 – Key knowledge

- emerging trends in data analytics using artificial intelligence, including:
 - integration of artificial intelligence features into software tools
 - generating data visualisations through the writing and refinement of prompts
 - machine learning and statistical modelling for making predictions, decisions and recommendations
- characteristics of functional and non-functional requirements, constraints and scope
- characteristics of data types, including:
 - text (character, string)
 - numeric (integer, floating point, date/time)
 - Boolean

Unit 3 Outcome 1 – Key knowledge

- structural characteristics of relational database management systems (RDBMS), including:
 - data types and field sizes
 - data in tables
 - relationships using primary and foreign key fields
 - use of SQL to generate queries
- design tools for representing databases and spreadsheets, including:
 - data dictionaries
 - query designs
 - layout diagrams
 - input-process-output (IPO) charts

Unit 3 Outcome 1 – Key knowledge

- techniques for identifying, selecting, extracting and validating authentic data stored in large repositories, including:
 - downloading datasets in a range of formats
 - the use of SQL functions to retrieve, filter, sort and link dataset values (SELECT, FROM, WHERE, ORDER BY, INNER JOIN)
 - the use of Boolean operators (AND, NOT, OR) for WHERE statements
 - existence checking, type checking and range checking
- methods for referencing data sources using the American Psychological Association (APA) referencing system

Unit 3 Outcome 1 – Key knowledge

- techniques for effectively and efficiently manipulating and cleansing data, including:
 - formulas and functions to perform calculations
 - sorting, filtering and reformatting
 - identifying and fixing errors
- techniques to statistically analyse data to identify trends, relationships and patterns, including:
 - descriptive statistics (average, median, minimum, maximum, range, standard deviation, count/frequency, sum)
 - Pearson's correlation co-efficient (r)
 - the shape and skew of data

Unit 3 Outcome 1 – Key knowledge

- purposes of data visualisations, including:
 - exploratory data analysis
 - presentation of information
 - providing interactive experiences for users to explore data
- types of data visualisations, including:
 - infographics (series or long-form, static)
 - dashboards (interactive, static or live data)
 - dynamic data visualisations (interactive, live data)

Unit 3 Outcome 1 – Key knowledge

- design tools for representing data visualisations, including:
 - mock-ups
 - storyboards
- formats and conventions applied to data visualisations to improve their effectiveness for intended users, including:
 - use of colours, fonts, images and icons
 - visual hierarchy and clarity of message

Unit 3 Outcome 1 – Key knowledge

- techniques for testing databases and spreadsheets, including:
 - testing formula and query results
 - testing validation
 - test cases comparing expected and actual results in testing tables
- techniques for testing data visualisations, including:
 - visual inspection of the appearance of the data visualisation
 - confirming that charts and graphs are representative of the data being visualised.

Unit 3 Outcome 1 – Key skills

- interpret solution requirements and designs
- identify, select, extract and validate relevant data from large repositories using database software
- use the APA referencing system to acknowledge intellectual property
- manipulate and cleanse data using spreadsheet software
- conduct statistical analysis to identify trends, relationships and patterns
- select, justify and apply functions, formats and conventions to create effective data visualisations
- develop and apply suitable testing techniques to software tools used.

Unit 3 Outcome 1

Contribution to final assessment

- School-assessed Coursework for Unit 3 will contribute 10 per cent to the study score.
- Total marks – 100

Unit 3 Outcome 1

Assessment task

In response to teacher-provided solution requirements and designs:

- extract and reference data from large repositories into a database
- query data using databases and SQL
- use spreadsheet functions to manipulate data
- statistically analyse data in spreadsheets
- develop data visualisations.

Task time allocated should be at least 6–10 lessons.

Contact

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