VCE Data Analytics 2024
Unit 3 School-based Assessment

Video 4
Assessing the
Unit 3 Outcome 1 SAC

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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.

VCE Data Analytics 2024
Unit 3 School-based Assessment

Video 4
Assessing the
Unit 3 Outcome 1 SAC

Phil Feain
Digital Technologies Curriculum Manager
VCAA

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Purpose of this presentation

- to build the capacity of teachers to develop compliant, rigorous and engaging VCE assessment tasks in line with the VCE assessment principles
- provide an overview of how to assess the Unit 3 Outcome 1 School-assessed Coursework (SAC) task.

Unit 3 Outcome 1

Unit 3 Outcome 1 – The outcome

On completion of this unit the student should be able to respond to teacher-provided solution requirements and designs to extract data from large repositories, manipulate and cleanse data and apply a range of functions to develop software solutions to present findings.

Key knowledge

Data and information

- techniques for efficient and effective data collection, including methods to collect census, Geographic Information System (GIS) data, sensor, social media and weather
- factors influencing the integrity of data, including accuracy, authenticity, correctness, reasonableness, relevance and timeliness
- sources of, and methods and techniques for, acquiring authentic data stored in large repositories
- methods for referencing primary and secondary sources, including American Psychological Association (APA) referencing system
- characteristics of data types

Approaches to problem solving

- methods for documenting a problem, need or opportunity
- methods for determining solution requirements, constraints and scope
- naming conventions to support efficient use of databases, spreadsheets and data visualisations
- a methodology for creating a database structure: identifying entities, defining tables and fields to represent entities; defining relationships by identifying primary key fields and foreign key fields; defining data types and field sizes, normalisation to third normal form
- design tools for representing databases, spreadsheets and data visualisations, including data dictionaries, tables, charts, input forms, queries and reports
- design principles that influence the functionality and appearance of databases, spreadsheets and data visualisations
- functions and techniques to retrieve required information through querying data sets, including searching, sorting and filtering to identify relationships and patterns
- software functions, techniques and procedures to efficiently and effectively validate, manipulate and cleanse data including files, and applying formats and conventions
- types and purposes of data visualisations
- formats and conventions applied to data visualisations to improve their effectiveness for intended users, including clarity of message
- methods and techniques for testing databases, spreadsheets and data visualisations

Interactions and impact

- reasons why organisations acquire data.

Key skills

- interpret solution requirements and designs to develop data visualisations
- identify, select and extract relevant data from large repositories
- use a standard referencing system to acknowledge intellectual property
- organise, manipulate and cleanse data using database and spreadsheet software
- select, justify and apply functions, formats and conventions to create effective data visualisations
- develop and apply suitable validation and testing techniques to software tools used.

Unit 3 Outcome 1 – The assessment task

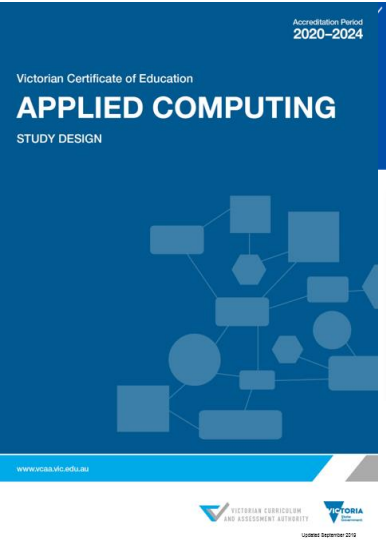
Contribution to final assessment

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

Outcomes	Marks allocated	Assessment tasks
Unit 3 **Outcome 1** Respond to teacher-provided solution requirements and designs to extract data from large repositories, manipulate and cleanse data and apply a range of functions to develop software solutions to present findings.	100	In response to teacher-provided solution requirements and designs, create software solutions.
Total marks	100	

Assessing the Unit 3 Outcome 1 SAC task using VCAA resources

Unit 3 Outcome 1 Resources



ADVICE FOR TEACHERS - APPLIED COMPUTING

Applied Computing

- Introduction
- Unit 1
- Unit 2
- Unit 3: Data analytics
- Unit 4: Data analytics
- Unit 3 and 4: Data Analytics - School-assessed Task
- Unit 3: Software development

Unit: 3: Data analytics

Sample approaches to developing an assessment task

Area of Study 1

On completion of this unit the student should be able to respond to teacher-provided solution requirements and designs to extract data from large repositories, manipulate and cleanse data and apply a range of functions to develop software solutions to present findings.

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VCE Applied Computing: Performance Descriptors

DATA ANALYTICS UNIT 3 OUTCOME 1
SCHOOL-ASSESSED COURSEWORK

Performance Descriptors

	DESCRIPTOR: typical performance in each range				
	Very low	Low	Medium	High	Very high
Unit 3 Outcome 1 ***Respond to teacher-provided solution requirements and designs to extract data from large repositories, manipulate and cleanse data and apply a range of functions to develop software solutions to present findings.***	Limited interpretation of solution requirements and designs to develop the database, spreadsheet and data visualisation solutions.	Some interpretation of solution requirements and designs to develop the database, spreadsheet and data visualisation solutions.	Sound interpretation of solution requirements and designs to develop the database, spreadsheet and data visualisation solutions.	Most solution requirements and designs are interpreted accurately in developing the database, spreadsheet and data visualisation solutions.	All solution requirements and designs are interpreted accurately in developing the database, spreadsheet and data visualisation solutions.
	Limited data is identified and selected from data repositories.	Some relevant data is identified, selected and extracted from data repositories with some referencing to acknowledge intellectual property.	A range of relevant data is identified, selected and extracted from appropriate data repositories and referenced to acknowledge intellectual property.	Most relevant data is identified, selected and extracted from appropriate data repositories and referenced to acknowledge intellectual property.	All relevant data is identified, selected and extracted from appropriate data repositories and referenced to acknowledge intellectual property.
	Limited features of the database software tool have been used to store and manipulate data.	Some features of the database software tool have been used to store and manipulate data.	A range of features of the database software tool have been used to store and manipulate data. There has been some validation of data.	Most features of the database software tool have been used to store, manipulate and validate data.	Comprehensive use of features of the database software tool used to store, manipulate and validate data.

Unit 3 Data Analytics – 2024
Outcome 1 Data analytics – Developing a marking scheme – Sample

Outcome 1
On completion of this unit the student should be able to respond to teacher-provided solution requirements and designs to extract data from large repositories, manipulate and cleanse data and apply a range of functions to develop software solutions to present findings.

Developing a marking scheme – Marks allocated – 100
Refer to the key skills or the VCAA performance descriptors when developing a marking scheme for the assessment task. Determine the weighting of the marks out of 100 for each key skill or performance descriptor. When determining weightings consider the time that students will take to complete each task as well as the level of difficulty of each task. Marks should be allocated to ensure students can demonstrate a range of levels of performance in the task.

Key knowledge	Key skills	VCAA Performance descriptors (Very high)	
• methods for documenting a problem, need or opportunity • methods for determining solution requirements, constraints and scope • design tools for representing databases, spreadsheets and data visualisations, including data dictionaries, tables, charts, input forms, queries and reports • design principles that influence the functionality and appearance of databases, spreadsheets and data visualisations	• interpret solution requirements and designs to develop data visualisations	• All solution requirements and designs are interpreted accurately in developing the database, spreadsheet and data visualisation solutions.	Students are to interpret the solution requirements and designs to develop the database, spreadsheet and data visualisation solutions. Possible number of marks – 10 marks
• reasons why organisations acquire data • techniques for efficient and effective data collection, including methods to collect census, Geographic Information System (GIS) data, sensor, social media and weather • factors influencing the integrity of data, including accuracy, authenticity, correctness, reasonableness, relevance and timeliness • sources of, and methods and techniques for, acquiring authentic data stored in large repositories	• identify, select and extract relevant data from large repositories	• All relevant data is identified, selected and extracted from appropriate data repositories and referenced to acknowledge intellectual property.	Students are to identify, select and extract relevant data from appropriate data repositories and reference them using the APA referencing system. Possible number of marks – 10 marks
• methods for referencing primary and secondary sources, including American Psychological Association (APA) referencing system	• use a standard referencing system to acknowledge intellectual property		
• characteristics of data types • naming conventions to support efficient use of databases, spreadsheets and data visualisations • a methodology for creating a database structure: identifying entities, defining tables and fields to represent entities; defining relationships by identifying primary key fields and foreign key fields; defining data types and field sizes, normalisation to third normal form • functions and techniques to retrieve required information through querying data sets, including searching, sorting and filtering to identify relationships and patterns • software functions, techniques and procedures to efficiently and effectively validate, manipulate and cleanse data including files, and applying formats and conventions	• organise, manipulate and cleanse data using database and spreadsheet software	• Comprehensive use of features of the database software tool used to store, manipulate and validate data. • Comprehensive use of features of the spreadsheet software tool have been used to manipulate and validate data.	Students are to use appropriate features of the database software tool to store, manipulate and validate data. A higher weighting of marks should be included to meet this key skill or performance descriptor. Possible number of marks – 20 marks Students are to use appropriate features of the spreadsheet software tool to store, manipulate and validate data. A higher weighting of marks should be included to meet this key skill or performance descriptor. Possible number of marks – 20 marks
• types and purposes of data visualisations • formats and conventions applied to data visualisations to improve their effectiveness for intended users, including clarity of message	• select, justify and apply functions, formats and conventions to create effective data visualisations	• Comprehensive use of functions, formats and conventions to create effective data visualisations. • Comprehensive justification and explanation of how the selected functions, formats and conventions are used to create effective data visualisations.	Students are to use appropriate functions, formats and conventions to create data visualisations. A higher weighting of marks should be included to meet this key skill or performance descriptor. Possible number of marks – 20 marks Students are to justify and explain their use of functions, formats and conventions to develop their data visualisations. Possible number of marks – 10 marks
• methods and techniques for testing databases, spreadsheets and data visualisations	• develop and apply suitable validation and testing techniques to software tools used	• Comprehensive range of test data is expressed in testing tables, with both expected and actual output stated.	Students are to test their database, spreadsheet and data visualisations solutions using appropriate testing techniques. Possible number of marks – 10 marks

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Developing a marking scheme – Sample

Unit 3 Data Analytics – 2024 Outcome 1 Data analytics – Developing a marking scheme – Sample			
Outcome 1 On completion of this unit the student should be able to respond to teacher-provided solution requirements and designs to extract data from large repositories, manipulate and cleanse data and apply a range of functions to develop software solutions to present findings.			**Developing a marking scheme – Marks allocated – 100** Refer to the key skills or the VCAA performance descriptors when developing a marking scheme for the assessment task. Determine the weighting of the marks out of 100 for each key skill or performance descriptor. When determining weightings consider the time that students will take to complete each task as well as the level of difficulty of each task. Marks should be allocated to ensure students can demonstrate a range of levels of performance in the task.
Key knowledge	**Key skills**	**VCAA Performance descriptors (Very high)**	
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• reasons why organisations acquire data • techniques for efficient and effective data collection, including methods to collect census, Geographic Information System (GIS) data, sensor, social media and weather • factors influencing the integrity of data, including accuracy, authenticity, correctness, reasonableness, relevance and timeliness • sources of, and methods and techniques for, acquiring authentic data stored in large repositories	• identify, select and extract relevant data from large repositories	• All relevant data is identified, selected and extracted from appropriate data repositories and referenced to acknowledge intellectual property.	Students are to identify, select and extract relevant data from appropriate data repositories and reference them using the APA referencing system. Possible number of marks – 10 marks
• methods for referencing primary and secondary sources, including American Psychological Association (APA) referencing system	• use a standard referencing system to acknowledge intellectual property		
• characteristics of data types • naming conventions to support efficient use of databases, spreadsheets and data visualisations • a methodology for creating a database structure: identifying entities, defining tables and fields to represent entities; defining relationships by identifying primary key fields and foreign key fields; defining data types and field sizes, normalisation to third normal form • functions and techniques to retrieve required information through querying data sets, including searching, sorting and filtering to identify relationships and patterns • software functions, techniques and procedures to efficiently and effectively validate, manipulate and cleanse data including files, and applying formats and conventions	• organise, manipulate and cleanse data using database and spreadsheet software	• Comprehensive use of features of the database software tool used to store, manipulate and validate data. • Comprehensive use of features of the spreadsheet software tool have been used to manipulate and validate data.	Students are to use appropriate features of the database software tool to store, manipulate and validate data. A higher weighting of marks should be included to meet this key skill or performance descriptor. Possible number of marks – 20 marks Students are to use appropriate features of the spreadsheet software tool to store, manipulate and validate data. A higher weighting of marks should be included to meet this key skill or performance descriptor. Possible number of marks – 20 marks
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• methods and techniques for testing databases, spreadsheets and data visualisations	• develop and apply suitable validation and testing techniques to software tools used	• Comprehensive range of test data is expressed in testing tables, with both expected and actual output stated.	Students are to test their database, spreadsheet and data visualisations solutions using appropriate testing techniques. Possible number of marks – 10 marks

Some do’s

- Take the time to develop the assessment task and develop a suitable marking scheme.
- Refer to the key skills and the performance descriptors.
- Consider the number of marks to be awarded.
- Consider the weighting of the marks for each component. This enables more marks for more complex and time consuming components of the assessment task and enables you to differentiate more between your stronger students and your weaker students.
- Ensure you have a range of levels of performance from very low to very high. Having marks in multiples of 5 helps you to separate the marks out for students.
- Ensure your marks add up to 100 marks.

Some don’ts

- Don’t just stick a copy of the VCAA Performance descriptors at the back of the assessment task. It does not break down how you are marking each component and how they contribute to 100 marks.
- Don’t have the number of marks out of 10 or 20 or 30 and then say you’ll multiply by however much to get a score out of 100. This does not allow your student scores to be separated out and will bunch your scores.
- Don’t just use a commercial marking scheme without checking it against your assessment task. Check to see that it meets the key skills and the performance descriptors and that the marks total to 100 marks.
- Don’t forget to go through the marking scheme with the students before they commence the assessment task. They should know what they are being assessed on and how they are being marked.

Contact

- **Phil Feain – Digital Technologies Curriculum Manager (VCAA)**
- **Ph: (03) 9059 5146**
- **Philip.Feain@education.vic.gov.au**

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