VCE Data Analytics 2024 <u>Unit 3 School-based Assessment</u>

Video 3
Planning the
Unit 3 Outcome 1 SAC





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 3
Planning the
Unit 3 Outcome 1 SAC

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Purpose of this session

- 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 plan for 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		





Planning 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.



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		
	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.		
Unit 3 Outcome 1 Respond to teacher-provided solution requirements and designs to extract data from large repositories, manipulsta and cleane data and apply a range of functions to develop software solutions to present findings.	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 cotracted 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.		



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or requirements and designs to substantions and designs to substantions and designs to substantions and designs to substantial relevant data from an	All and documents and dissigns are interpreted associately individually as orderly individually as orderly individual and case incultant and case in the case of the case	
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referencing system to defeated property		
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nd apply functions, formula and sreads effective date	conventions to create effective data intradications. Compartments published and explanation of how the selected functions, formats and conventions are used to preate effective data intradications.	
	Congrehensive range of last data is expressed in being labbe, with both expected and actual output stated.	
	and apply functions, formats and create effective date	and apply functions, formats and interdirection in the property of the propert

Outcome: 1 Data analytics = Template for developing an assessment lask = Plan				
Outcome ! On consisting of this coil the elution doublike with in respect to implementate and designs in extent data from large recognition manifolds		Assessment task development - Planning for the case study Control a supposit that is a rest-partiti special field markins shallow in backday requirements and devices that all markins.		
and sleaves date and apply a range of functions to develop as Key knowledge	Ruse solution to present fedings. Keyskills	VSAA Performance descriptors (Very high)	be extend submotic data from large expositivities, revelopable and clearate the data and describe pothware solutions using prescriberts, obtained and data invasitation enthines to this objection of the collevant may be completed as the facilities of data invasitation enthines to this object enthines to collection, presentative adultion, debtoes solution and data invasitation actions. Nay contact within the tests should be asset of the secretariative invasitation and the valid to the first invasitation that the two collections should be out of 150.	
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Including American Psychological Association (APIA) referencing system	 use a standard referencing system to acknowledge intollectual property 			
 deatherminist of delit (year	Ingenier, manipulate and sitemate data saing database and ginealitied actioners	Comparison in use of features of the debates software but used to both, manipulate and useful to both, manipulate and velocit cells. Competitionals used in features of the greated each of the other to the useful manipulate and velocity debates.	The second with the solution speciment and energy registered belief belief between the second energy registered by the solution of the second energy registered by the second energy registere	
types and purposes of data visualisations threats and conventions applied to data visualisations to improve their effectiveness for intended users, including delity of message.	select, justify and apply functions, formula and somewhere is unable effective date revealerations	 Comprehensive suc of functions, termels and committions to make effective data visualization. Comprehensive juditionation and explanation of how the architect functions, formats and committee are used to make effective data visualization. 	The screen's with the solution requirements and designs should enable students to determine the appropriate use of functions, famous and connection for the other suicedation to the content of the connection of	
 methods and fechniques for feeling displaces, appreciations and data reconstrations 	 develop and apply suitable validation and bedrag factoriques to software bulk used 	 Comprehensive range of test date is expressed in testing tables, with both expected and actual output stated. 	A testing bable is to be developed that involves the teeding of all validation and processing such as calculations, etc. The testing labels should include columns for expected and adval output and show a videous of labels that work and don't each.	





Task development template – Blank

	_	Unit 3 Data Analytics - 2024	
	sessment task – Blank		
Outcome 1 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 designs and extract data from large repositories, manipulate and designs and extract data and apply a range of functions to develop software solutions to present findings.			Assessment task development
Key knowledge	Key skills	VCAA Performance descriptors (Very high)	
 methods for documenting a problem, need or opportunity methods for determining solution requirements,	interpret solution requirements and designs to develop data visualisations	All solution requirements and designs are interpreted accurately in developing the database, spreadsheet and data vasualisation solutions.	
 resorts why organisations applied deta techniques for elicitant and efficient deta cliention, including methods to collect ceruse, Geographic including methods to collect ceruse, Geographic information System (GIS) della, sensor, social media and weather factors influencing the integrity of della, including accuracy, suthenticity, corroctness, resonateleness, relevance and timeliness sources of, and methods and techniques for, soquiring suthentic dels stored in large repositions. 	identify, select and extract relevant data from large repositories	All relevant data is identified, selected and extracted from appropriate data reconforces and references to advocate generate and property.	
 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 bytes naming connections to support efficient use of databases, spreadsheets and data visualisations as a methodology for orealing a database structure: identifying entities, defining tables and fields to represent entities, defining tables and fields to represent entities, defining tables and fields as the properties of sizes, romalisation to brid romant great bytes and field sizes, romalisation to brid romant generality as the functions and behinques to retrieve required information through quarrying data stati, including searching, sorting and the station of the station of the station of the control of the station of the station of the station of the software functions, between the station of the station of cleanse data including files, and applying formets and conventions 	organise, manipulate and cleanse data using database and spreadsheet software	Comprehensive use of features of the dahabase software tool used to store, meripulate and validate data. Comprehensive use of features of the spreadthest orthware tool have been used to manipulate and validate data.	
types and purposes of data visualisations formels and conventions applied to data visualisations to improve their effectiveness for intended users, including clarity of message.	select, justify and apply functions, formels and conventions to create effective data visualisations	Comprehensive use of functions, formets and conventions to create effective data visual abons. Comprehensive judification and explanation of how the sectoral functions, formats and conventions are used to create effective data visualisations.	
 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. 	





Task development template – Plan

Unit 3 Data Analytics – 2024			
Outcome 1 Data analytics – Template for developing an assessment task – Plan			
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 cleanes deals and apply a range of functions to develop software solutions to present findings.		Assessment task development – Planning for the case study Create a scenario that is a real-world example that provides students with solution requirements and designs that will enable to extract sufferito data from large repostories, meripulate and cleans the data and develop software solutions using screadarted cladesse and data vasication software tools to present findings. The outcome may be completed as for users	
Key knowledge	Key skills	VCAA Performance descriptors (Very high)	a pressurance, casticase and data visual about 5 and to present managa. In a custome may be completed as four data collection, perceditated sollow, oldabase solution and data visual season solution. Key content within the tasks should be based on the targeted key knowledge and key skills. The total number of the marks for the outcome should be out of 100.
methods for documenting a problem, need or opportunity methods for documenting a problem, need or opportunity methods for determining solution requirements design holds for representing debadeses, apresid	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.	Content to be included in the assessment task should introduce students to a scenario. The scenario should indicate the data repositiones that students are to use. The scenario should idently state the solution requirements and designs for the apreciablest, detailess and data visualisation solutions and provide students with sufficient opportunities to demonstrate their involvings and to detailess and data visualisation solutions and provide students with sufficient opportunities to demonstrate their involvings and to detail the solution of the involving and the province of the solutions. So the second data where the solutions are to see the solution of the solu
reasons why organizations acquire data techniques for efficient and effective data collection, including methods to collect cersus, Geographic information System (GSI) data, season, cools media and weather factors information System (GSI) data, including socrescy, authenticity, corrections, reasonableness, relevants and timerisess techniques for specially authentic data stored in large reportations.	identify, select and extract relevant data from large repositories	All relevant data is identified, selected and exhabited from appropriate data reconstructs and referenced to advisculate intellectual property.	Students are to identify, select and extract the relevant data from the repositories listed in the scenario and use the APA referencing system to acknowledge the intellectual property used within the data visualisations.
including American Psychological Association (APA) referencing system	 use a standard referencing system to acknowledge intellectual property 		
 cheracteristics of date types cheracteristics of date types naming convertion to support deficient use of databases, spreadsheats and data visualisations a methodology for cesting a database at vurture identifying entities, defining tables and fields to represent entities, defining tables and fields to represent entities, defining tables are field as the properties of cleaning and efficiently entitles in properties and cleane data including files, and applying formets and cleane. 	organise, manipulate and deanse data using database and spreadathed software	Comprehensive use of features of the detabases software tool used to store, manipulate and validate data. Comprehensive use of features of the spreadtheat orthware tool have been used to manipulate and validate data.	The scererio with the solution requirements and designs should enable students to determine the appropriate selection and use of features for the defeates software tool and the spreadtheet software tool to enable them to organize, manipulate and desires data (filed to the Software tools and Surutions document on the study page). Students are to use a defabase software tool and a spreadtheet software tool. Relevant data validation techniques are to be used within the spreadtheet software tool and the defabase software tool.
types and purposes of data visualisations tomats and conventions applied to data visualisations to improve their effectiveness for intended users, including clarity of message	select, justify and apply functions, formals and conventions to create effective data visualisations	Comprehensive use of functions, formets 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.	The scenario with the solution requirements and designs should enable students to determine the appropriate use of functions, formats and conventions for the data visualisation tool to enable them to create their data visualisation (Refer to the Software tools and functions document on the study page). Students are to use a data visualisation tool. They are to justify and explain their section of function, remed and conventions used to develop their data visualisation. This written justification and explanation could be included as a separate written report.
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. 	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.





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