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**VCE Information Technology**

**Data and Graphic Solutions**

**Common Assessment Task (CAT)**

**Unit One - Outcome One**

2018

Acquire, secure and interpret data, and design and develop a graphic solution that communicates the findings of an investigation.

**Task Description:**

Conduct an investigation into an issue, practice or event through the systematic collection, interpretation and manipulation of primary data and then create a graphic solution, such as an infographic that represents your findings.

**Task 1:**Developing your inquiry

*This task will be marked out of 32. It will contribute 32% of the marks (100) allocated for this outcome. You have 150 minutes. Answer using the sheet provided.*

**Task 2:**Preparing to present your inquiry

*This task will be marked out of 30. It will contribute 30% of the marks (100) allocated for this outcome. You have 150 minutes. Answer using the sheet provided.*

**Task 3:** Development of graphic solution

*This task will be marked out of 38. It will contribute 38% of the marks (100) allocated for this outcome. You have 200 minutes. Print your infographic to hand in as hard copy.*

This task will require an extended period of class time and some out of class work. You can access notes, textbooks and other resources as required.

Answer in space provided, attach printouts and other documentation and submit electronic files where required.

*The tasks cover a range of* ***key knowledge*** *and* ***key skills*** *from this outcome.*

*You are required to follow the* ***design*** *and* ***development*** *stages (only) of the problem solving methodology (ADDE)*

**Student Name:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- | --- | --- |
| **Task 1 Mark:**  **/ 32** | **Task 2 Mark:**  **/ 30** | **Task 3 Mark:**  **/ 38** | **Total Mark**  **/ 100** |

*Read the following information and complete the series of activities that follow.*

**Introduction**

You are required to conduct an investigation into an issue, practice or event of your own choice.

Examples of issues that can be investigated include:

* social networking habits of people;
* heritage of a class of students;
* music preferences grouped by genre or favourite artist.

But the choice of the investigation is *completely up to you.*

**Data collection**

Once a topic has been selected you are required to collect a range of primary data about the issue.

Primary data is original data that has been observed or collected by the researcher first hand.

The source of primary data is generally from stakeholders (people who are affected by the issue being investigated).

Methods used to collect primary data include focus groups, interviews, observations, surveys, or questionnaires.

Techniques used to collect data, using the methods listed above, include in person, over the telephone, or online.

**Data manipulation**

After the data has been collected it needs to be validated and then manipulated to identify patterns and relationships within the data.

**Graphic Solution**

Finally the data needs to be presented in the form of a graphic solution.

Types of graphic solutions include:

* charts
* flowcharts
* diagrams
* images
* hierarchies
* animations
* maps
* timelines

**Task 1: Developing your inquiry (32 marks): 150 minutes**

**Investigation Inquiry**

1. Outline the area of focus for the investigation, including the topic you are going to investigate and its purpose.

**­­­­­**

**2 Marks**

**Data Collection**

1. Data can be classified as qualitative data that can be observed but not measured, such as colours, appearances and smells, and qualitative data, that can be measured such as growth records or the number of entries into a room. What data will you gather? List the data items that need to be collected for the investigation. Indicate which data items will be quantitative and/or qualitative data.

**2 Marks**

1. Identify the source(s) of the primary data. Explain how the data source is related to the topic under investigation.

**2 Marks**

1. The method of acquiring data is about the way data is collected, such as counting occurrences or interviewing face to face. What method are you going to use to gather your data? Identify one data collection method that will be used to acquire the data required. Give a reason for your answer.

**2 Marks**

1. What techniques will be used to gather your data? Discuss a technique that will be used to acquire the data, and explain why it is appropriate.

**2 Marks**

1. Explain procedures that can be used to assist in the collection of quality data, including its relevance, accuracy, freedom from bias, and/or reliability.

**2 Marks**

1. Discuss two legal or ethical obligations, under the Privacy Act 1988, that need to be followed when collecting primary data.

**2 Marks**

1. Identify an ethical dilemma that may arise from the collection of data from the stakeholders.

**2 Marks**

1. Provide an example of how a set of data will be referenced.

**2 Marks**

1. Create a consent form that can be sent to participants informing them about the investigation and asking for their permission to participate. Include and clearly display information on the following:

* purpose of the data collection;
* how the data is to be used;
* what data will be collected and;
* how the data will be securely stored.

**8 Marks**

***This can be done using software and printed or on the page provided.***

**Controls and Techniques**

1. Outline how each of the following methods could be used to protect the data collected in the investigation:

* backing up
* username and passwords
* system protection software
* encryption

**8 Marks**

**Task 2: Preparing to present your inquiry (30 marks): 150 minutes**

**Interpreting Data**

1. Outline how the data will be effectively stored after it is collected.

**2 Marks**

1. Insert a screenshot showing the gathered data.

**4 Marks**

1. Discuss the software functions and features used to identify patterns and relationships in the data.

**4 Marks**

**Design Tools**

1. Select and apply one appropriate design tool to represent the functionality of the graphic solution.

***This can be done using software and printed or on the page provided.***

**10 Marks**

1. Select and apply one appropriate design tool to represent the appearance of the graphic solution. Include annotations where necessary.

***This can be done using software (Moqups) and printed or on the page provided.***

**10 Marks**

**Task 3: Development of graphic solution – Infographic (38 marks): 200 minutes**

**Manipulating Data**

1. Using software, select and apply appropriate functions, formats, conventions, data validation and testing techniques to manipulate data and create graphic solutions.

You will be assessed on:

* providing a graphic solution;
* appropriate graphical representations;
* appropriate functions;
* appropriate formats and conventions;
* data validation shown;
* applied testing techniques;
* completeness of information;
* correctness and accuracy of data and information;
* presentation of infographic.

Submit the graphic solution electronically **and** hard copy. (Include excel data to show validation)

**24 Marks**

1. Explain and justify the use of one format and one convention in the graphic solutions.

**2 Marks**

1. Explain two validation techniques you used to ensure the reasonableness of the data used to create the graphic solution.

**2 Marks**

1. Can you make any recommendations as to how you would change your inquiry in the future?

**2 Marks**

1. Complete the test table below for each data item to check if the graphic solution contained the information expected.

**6 Marks**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test** | **Test Data** | **Expected Result** | **Actual Result** |
| Accuracy | Primary data collected | Results shown in the solution are exactly the same as the data collected |  |
| Communication of message | Primary data collected | The results of the data collected are clear for the user to identify in the solution |  |
| Completeness | Primary data collected | All of the valid data collected has been included in the solution |  |
| Reliability | Primary data collected | The source of the data used in the solution has been verified |  |
| Presentation | Primary data collected | The data has been presented in a way that it is attractive and clear to the user |  |
| Relevance | Primary data collected | Only data relevant for the investigation enquiry has been included on the solution |  |

**Use the following steps as a tick list to complete your investigation:**

* select a topic of interest you will investigate
* prepare a survey/questionnaire, if appropriate
* identify risks to the privacy of participants and security of data and have strategies in place to minimise them
* create consent forms and the participation information statement
* collect your data
* analyse data, identify patterns, describe its meanings and make conclusions
* select and apply appropriate design tools to represent the functionality and appearance of your inquiry
* use software to select and apply functions, formats, conventions, data validation and testing techniques to manipulate data and create graphic solutions.

**Proposed Timeline**

*Homework (in advance)*

Select investigation inquiry

*Session One & Two*

Frame inquiry, data collection and control & techniques

*Homework (in-between lesson two and three)*

Collect data using data collection method

*Session Three & Four*

Interpret data and design tools

*Session Five & Six*

Create graphic solution

|  |  |  |  |
| --- | --- | --- | --- |
| **Area of Study 1** | **Skill assessed** | | **Mark** |
| **Frame an investigation inquiry** | | | **12** |
|  | Description of the topic to be investigated | 2 |  |
|  | Identification of the types of data collected | 4 |  |
|  | Process of collecting data identified and the tools used to collect the data | 6 |  |
| **Identify, legally and ethically acquire, and reference data and information from primary sources** | | | **14** |
|  | Adherence to ethical and legal acquisition of data | 6 |  |
|  | Evidence of completed consent forms | 8 |  |
| **Devise and implement controls and techniques to minimise risks to the security and privacy of data and information** | | | **8** |
|  | Description of data management strategies | 4 |  |
|  | Evidence of data management strategies | 4 |  |
| **Interpret selected data, identifying relationships and patterns** | | | **10** |
|  | Interpretations of data submitted | 10 |  |
| **Select and apply appropriate design tools to represent the functionality and appearance of graphic solutions for particular purposes** | | | **20** |
|  | Annotated designs of a graphic solution |  |  |
|  | Functionality:   * Attempt all aspects of IPO * All items fully identified | 6  4 |  |
|  | Appearance   * Formats and Conventions (headings/titles, layout, text styles, colours etc.) * Graphical representation (title, labelled, legend, layout etc.) | 6  4 |  |
| **Use software, and select and apply functions, formats, conventions, data validation and testing techniques to efficiently manipulate data and create graphic solutions** | | | **26** |
|  | Presentation of solution.   * graphic solution * appropriate graphical representations * appropriate functions (usability, accessibility) * appropriate formats and conventions used – justify 1 of each * data validation shown (in excel) * applied testing techniques * complete information * correct and accurate data * overall presentation. | 1  1  2  10  2  2  2  2  4 |  |
| **Techniques for testing graphic solutions.** | | | **10** |
|  | Comprehensive testing to confirm all requirements of the solution operate as intended. | 10 |  |
| **Total marks:** | | **100** | |

**General Comments:**

**Teacher: Date:**