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| Pearson  Higher Nationals in | | | |
| Computing | | | |
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| Unit 21: | | Data Mining | | |
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| **Issue** | **1** | | |



Higher National Certificate/Diploma in

Computing

Assignment Brief

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| Student Name/ID Number |  |
| **Unit Number and Title** | **21: Data Mining** |
| Academic Year |  |
| Unit Tutor |  |
| **Assignment Title** | **Data Mining – Work Shop** |
| **Issue Date** |  |
| Submission Date |  |
| IV Name & Date |  |

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| **Submission Format** |
| The submission is in the following two forms:   1. Part 1 : A course material which distribute to the participant 2. Part 2 : A presentation which need to conduct the lecture 3. Part 3 : An assessment to evaluate the participant understanding about the data mining after the workshop   You are required to make use of headings, paragraphs, subsections and illustrations as appropriate, and all work must be supported with research and (where appropriate) referenced using the Harvard referencing system. |

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| **Unit Learning Outcomes** |
| LO1 Discuss the historical and theoretical foundation of data mining, its scope, techniques, and processes.  LO2 Investigate a range of data mining techniques to discover patterns and relationships in large data sets.  LO3 Illustrate how a data mining algorithm performs text mining to identify relationships within text.  LO4 Evaluate a range of graph data mining techniques that recognise patterns and relationships in graph-based technologies. |
| **Assignment Brief and Guidance** |
| You are working as a **Database Developer** at **Data Solution Institute** in Sri Lanka. Chief Academic officer (CAO) asked you to prepare a course material and the relevant presentations for Data mining workshop which schedule from 15th September 2018 to 20th September 2018. The participant of the workshops already having the knowledge of database development. They wants to improve the data analysis and mining skills for achieve some targets set by the organization.  **Part 01:** This course material should cover the following areas.   1. **Introduction to data mining**    1. What is data mining?    2. Briefly discuss the historical background of data mining.    3. How does data mining work? Illustrate with an appropriate diagram.    4. Compare and contrast the most common data mining techniques.    5. Identify popular data mining tools used in industry.    6. Evaluate traditional and modern data mining approaches.    7. Illustrate the building blocks of both of these approaches. 2. **Data mining algorithms**    1. What are the scopes of data mining?    2. Explain how these scopes work.    3. Identify the most common data mining algorithms used in industry.    4. Explain how these data mining algorithms work.    5. Demonstrate these algorithms using an appropriate programming language or data mining tool. 3. **Text mining algorithms**    1. What is text mining?    2. Explain how text mining works.    3. Investigate text mining techniques, methods and approaches.    4. Demonstrate text mining with at least two different real world examples.    5. Identify the most common text mining algorithms used in industry.    6. Explain how these text mining algorithms work.    7. Demonstrate these algorithms using an appropriate programming language or text mining tool. 4. **Graph mining**     1. What is graph mining?    2. Explain how graph mining works.    3. Investigate graph mining techniques, methods and approaches.    4. Demonstrate graph mining with at least two different real world examples.    5. Identify the most common graph mining algorithms used in industry.    6. Explain how these graph mining algorithms work.    7. Demonstrate these algorithms using an appropriate programming language or graph mining tool.   **Part 02: Create a presentation which cover some important areas including speaker notes.**  **Part 03: Create an assessment for final evaluation.** |

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| Learning Outcomes and Assessment Criteria | | |
| Pass | Merit | Distinction |
| **LO1** Discuss the historical and theoretical foundation of data mining, its scope, techniques, and processes | | **D1** Discuss how an organisation benefits from data mining. |
| **P1** Investigate the historical background of data mining.  **P2** Analyse the theoretical background of data mining and identify data mining tools used in industry. | **M1** Evaluate traditional and modern approaches to data mining and show the building blocks of both approaches. |
| **LO2** Investigate a range of data mining techniques to discover patterns and relationships in large data sets | | **D2** Develop a complete data mining application for a real world issue. |
| **P3** Demonstrate various scopes of data mining.  **P4** Investigate a range of data mining algorithms and their uses. | **M2** Investigate a tool or programming language that can support data mining.  **M3** Apply an appropriate tool or programming language to demonstrate how data mining algorithms work. |
| **LO3** Illustrate how a data mining algorithm performs text mining to identify relationships within text | | **D3** Develop a complete text mining application for a real world issue. |
| **P5** Discuss what is meant by text mining and explain with appropriate examples.  **P6** Analyse how data mining algorithms, techniques, methods and approaches work. | **M4** Show how text mining works using a tool or programming language. |
| **LO4** Evaluate a range of graph data mining techniques that recognise patterns and relationships in graph based technologies | | **D4** Develop a complete graph data mining application for a real world scenario. |
| **P7** Discuss what is meant by graph data mining and explain with appropriate examples.  **P8** Assess how graph mining algorithms work and identify appropriate programming languages and tools used by industry for graph data mining. | **M5** Demonstrate how graph data mining works using a tool or programming language. |