

**Specification of Competency Standards**  
**for the Information & Communications Technology Industry**  
**Unit of Competency**

Functional Area - Data Science

Title	Develop and perform data acquisition and collection processes and conduct pre-processing and exploratory data analysis
Code	111131L5
Range	This Uoc involves conducting data acquisition processes including hack/wrangle complex data, selecting appropriate techniques relevant to the problem. Utilising a range of data audit techniques and approaches for data quality assessment and data quality verification. Conducting data cleaning of noisy, incomplete data or data with data quality issues
Level	5
Credit	3 (For Reference Only)
Competency	<p>Performance Requirements</p> <ol style="list-style-type: none"> <li>1. Have knowledge of data acquisition and collection processes and pre-processing and exploratory data analysis <ul style="list-style-type: none"> <li>• Be able to: <ul style="list-style-type: none"> <li>○ have knowledge of data acquisition and collection processes (See Remark 1)</li> <li>○ have knowledge of pre-processing and exploratory data analysis (See Remark 2)</li> </ul> </li> </ul> </li> <li>2. Appraise and manage different data acquisition methods <ul style="list-style-type: none"> <li>• Be able to use appropriate methods to acquire data from internal or external sources</li> </ul> </li> <li>3. Conduct pre-processing and transformation of the data <ul style="list-style-type: none"> <li>• Be able to conduct pre-processing and transformation of the data to ensure that it is in the optimal format, layout or shape for the project purposes using feature engineering or exploratory data analysis</li> </ul> </li> <li>4. Conduct and review data quality processes <ul style="list-style-type: none"> <li>• Be able to conduct and review data quality assessment for missing values, duplicates, multiple sources and inconsistent formats</li> </ul> </li> </ol>
Assessment Criteria	<p>The integrated outcome requirements of this UoC are the abilities to:</p> <ul style="list-style-type: none"> <li>• have knowledge of data acquisition and collection processes and pre-processing and exploratory data analysis; and</li> <li>• develop and perform data acquisition and collection processes and conduct pre-processing and exploratory data analysis to obtain the data being valid, accurately interpreted, and applicable to the desired contexts</li> </ul>
Remark	<ol style="list-style-type: none"> <li>1. Various Data Acquisition Methods are collecting new data; converting/transforming legacy data; sharing/exchanging data; and purchasing data. This includes automated collection (e.g., of sensor-derived data), the manual recording of empirical observations, and obtaining existing data from other sources.</li> <li>2. Exploratory data analysis (EDA) is a term for certain kinds of initial analysis and findings done with data sets, usually early on in an analytical process. Pre-processing of the data will be performed by analysing the data either categorical or numerical, visualizing them and some statistical decision.</li> </ol>