



National Certificate of Educational Achievement  
TAUMATA MĀTAURANGA Ā-MOTU KUA TAEA

## **Exemplar for Internal Achievement Standard Digital Technologies Level 3**

This exemplar supports assessment against:

**Achievement Standard 91902**

**Use complex techniques to develop a database**

An annotated exemplar is an extract of student evidence, with a commentary, to explain key aspects of the standard. It assists teachers to make assessment judgements at the grade boundaries.

New Zealand Qualifications Authority

To support internal assessment

	Grade: Excellence
1.	<p>For Excellence, the student needs to use complex techniques to develop a refined database.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• iterative improvement throughout the design, development and testing process</li> <li>• using efficient tools and techniques in the outcome's production</li> <li>• presenting the data effectively for the purpose and end-users.</li> </ul> <p>There is no student work currently available at this grade.</p> <p>The student shows iterative improvement by trialling and testing alternative ways of making components of the database or adding new features. Iterative improvement will involve deliberate cycles and focus on the reliability and functionality of the database, resulting in a substantially improved outcome. For example, the student included trialling and improving the interface, data tables/nodes, queries, input forms and output forms.</p> <p>The student showed how they used efficient tools and techniques in producing the database. For example:</p> <ul style="list-style-type: none"> <li>• they applied version control methods</li> <li>• their testing was planned and systematic, not trial and error</li> <li>• the student used "includes" to make efficient use of PHP scripts</li> <li>• the student created relationship diagrams before implementing the table structure</li> <li>• the student created queries that use input parameters so that scripts do not have to be duplicated.</li> </ul> <p>The student showed how they have effectively presented the data. For example:</p> <ul style="list-style-type: none"> <li>• they ensured that the data was presented in such a way that it was able to be analysed and searched (e.g. drop-down lists and checkboxes where appropriate) and the data is easily understood</li> <li>• there are very few grammatical or typographical errors</li> <li>• the layout demonstrates the application of design principles.</li> </ul>

	Grade: Merit
2.	<p>For Merit, the student needs to use complex techniques to develop an informed database.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• using information from testing procedures to improve the quality of the outcome</li> <li>• structuring, organising and querying the data logically.</li> </ul> <p>There is no student work currently available at this grade.</p> <p>The student has thoroughly tested the database and made significant improvements to the operation of the database as a result. This is more than correcting errors in the database. For example, the student has tested and revised the interface, data nodes, queries, input forms or output forms and improved their functionality and layout.</p> <p>The student has logically structured, organised and queried the data. For example:</p> <ul style="list-style-type: none"> <li>• the database output is displayed in a logical order that is easy to read and understand</li> <li>• the queries make it easy to find items in the database both for users looking for items and for admins who might want to delete/edit a given item</li> <li>• the form has been edited so that the input types restrict the input to what is allowable, in order to improve accuracy of the data and efficiency for the user</li> <li>• the database structure has minimised repeated data (normalised).</li> </ul>

	Grade: Achieved
3.	<p>For Achieved, the student needs to use complex techniques to develop a database.</p> <p>This involves:</p> <ul style="list-style-type: none"> <li>• designing the structure of the data</li> <li>• using appropriate tools and techniques to organise, query and present data for a purpose and end-users</li> <li>• applying appropriate data integrity and testing procedures</li> <li>• addressing relevant implications.</li> </ul> <p>There is no student work currently available at this grade.</p> <p>The student has produced a database plan which includes at least two linked tables, shows the structure of the tables, shows the designs for the input and output interfaces, planned queries and a plan for linking the tables. They have used at least two complex techniques from the list in EN4.</p> <p>The student has used appropriate tools and techniques to organise, query and present data for a purpose and end-users. For example, they have:</p> <ul style="list-style-type: none"> <li>• used appropriate data types and data formatting</li> <li>• written a custom query to filter and/or sort data</li> <li>• created a form which allows users to add data to the database via a website</li> <li>• allowed different levels of authorised users to add, edit and delete information in the database.</li> </ul> <p>Data integrity and testing has been applied and shows that the database functions as intended, and that the data is relevant for the intended purpose and end-user.</p> <p>Testing shows that the data in the database is correct, including data being validated before it is added to the database to prevent obviously invalid material from being inserted (e.g., blank records), and that adding material to the database works correctly and that the various queries returned the expected results.</p> <p>The student has shown how their database addresses at least two identified relevant implications. For a database, this could include how they have addressed privacy concerns and met end-user considerations.</p>