**Level 6 Databases Projects.**

Suggested outputs ….

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| **Title**: one single sentence ... *example: Developing an online diagramming tool to validate logical design rules*  **Example of an Aim:**  Design, develop, implement and evaluate a ??? to ?????  *The aim of this project is to design, develop, implement and evaluate a diagramming tool to support database development stage- logical design.*  **Research topics in DB area that could be applicable to your project**  DB development stages(conceptual, logical, physical and implementation – see page 2) and what techniques are applied in each stage, when implementing an operational database  Investigate/ to evaluate current applications to …  Identify common functions of an??? Application and use this to make recommendations for the ??  Research into Advance features of Apex (email, printing, hosting, multiple logins, blogs, user documents, web database connections …)  DBA roles, and how this could be applied to your db project  Security and Auditing of the users use of the db system  Data Maintenance processes  SQL wonderful and weird language  NoSQL databases  CASE tools  Is it all getting a bit complicated with different db notations and terminology  Why Normalising tables? Is this a technique going to die with new data analysis capabilities?  Interactive reports; Crystal Reports  Use of procedures to run Reports  Data Analysis and Visualisation tools for data display  Scheduling and Reporting processes  Dynamic SQL statements importance  Data Analysis and Advanced Analytics  Data Quality  ETL processes  Text Analytics  Data Analysis in real time  Business Intelligence role and strategy for an organisation e.g University  Emerging Technologies in Business Intelligence  Data Mining  Analytical Technologies  Data warehouse and Data Marts for decision support making  Other types of decision support making systems  Cloud Computing as data integration platform  Big Data  Big Table – other database technologies but relational databases  Big Data environment  Alternative environments to traditional DW for working with Big Data  Agile Analytics  Also xml, data load, data integration,  Use of other db technology eg SQL server  Use of add-on/plug ins to Apex (or other technology) – maybe for reporting or visualisation.  **Objectives for projects:**  These are only examples of objectives following the SDLC which you will have to adapt to your own system:   * Familiarisation with oracle apex for small development of scale management systems * Website/ multi-user * Identify suitable training for ??? * Familiarisation with existing company processes, procedures with respect to procurement – DFDs etc process diagrams * Identification of a suitable methodology and methods for ‘aim’ of a ‘title’ * Investigation into expectations of - an online website to ? * Specify a Product/website/system to??? * Design a product using appropriate tools * Specify a data model for the system using appropriate tools * Produce storyboard, prototype * Requirements documentation, functional spec * Implement a database system/website/application to ‘title’ using identified technology and methods/methodology … * Produce a Test Plan and Evaluate final product using appropriate methods …. * Critically evaluation the process, methods and methodology   Database Industry standards would be an input into the implementation stage. (as would any other suitable programming naming conventions/standards/library procedures)  **Specification**  Possible future changes should be included  Note: look at marking scheme for research report |
| Requirements   * Project Requirements Document   A list of all project requirements.  - Indication of scoped requirements for the project.  - Indication of those that could be included in the next phase.  Includes: Security requirements (users, auditing), Deployment   * Functional Specification   Functional Spec to describe scoped requirements   * Expand on the functionality of key areas such as security (or project specific areas such as how to send an e-mail within Apex)   Security: Auditing, User/security control  Performance and Optimisation: Index Plan  Maintenance functions: Create, Delete, Update …   * Investigate ‘how to’ for critical areas. Apex 2 day developer and advanced course. |
| Cont. from page 1 – what is done for each db development stage  Conceptual Design   * EERM * Validate model and check with client |
| Logical Design   * Derive your ERD, produce Relational Data Model define your table, PKs and FK * Do you need to conduct Normalisation? Normalise a form or Webpage screen(s) ? * … is it normalised model now? Will this be implemented? |
| Physical Design   * Consider de-normalisation…composition and/or decomposition of tables * Will you introduce any derived attributes/columns * attributes datatypes, not nulls, default values, other constraints, validation to consider * Establish coding standards and naming conventions |
| Implementation   * Your final model to be implemented, with all tables, keys and constraints * Plan, plan, plan, plan your data!!!! * Database Objects (views, indexes, synonyms, tables, triggers, packages, procedures, functions etc. – quality, application and relevance of each implemented object will be marked accordingly) * Interface (home page, good navigation, relevant pages, different log ins, security, advanced Apex features such as LOVs 3rd table, user friendly data entry pages, validation, default values, derived fields, charts, maps, images and other imported files, websheet databases, pluf-ins and libraries, allow data upload, dash boards etc.) * Static and Interactive Reports based on multiple tables; * Data Mining Reports * Other tools integration? * Website - Reports * Establish coding standards and naming conventions |
| Some rework, consolidation, code review etc | |
| Evaluation and Testing  Code/Object/user/observation testing   * Test plan (based on requirements) * Evaluate your product using appropriate method | |
| **THE END** | |
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