Tutorial 1 – DBMS & RDBMS

Q: What is ‘Metadata’ and what role does this play within a DBMS or RDBMS setup?

A: Simply put its data that provides information about other data. This would be like descriptive text on pages or it could be part of the actual website to help in google searches to find it.

A better example may be when looking at photography. Once the photo is taken the Metadata could be the settings used for that photo like Focal Length, aperture and exposure.

<https://datatechnologytoday.wordpress.com/2010/09/07/on-the-importance-of-metadata/>

Q: Why are ‘Procedures’ necessary within a DBMS or RDBMS setup? Give examples of typical procedures used in database design.

A: Procedures are subroutines and are similar to procedures in normal programming in which they allow to be called and run instead of writing it out every time. They can be used for data validation and allow for access control mechanisms.

A benefit of stored procedures is that you can centralize data access logic into a single place that is then easy for DBA's to optimize.

<https://stackoverflow.com/questions/459457/what-is-a-stored-procedure>

Q: At what level within a DBMS or RDBMS setup will data QA/QC be carried out?

A: QA is quality assurance and is a process done throughout the database development. It makes sure that you are doing the right things, the right way. It’s a set of activities designed to ensure that the development and/or maintenance process is adequate to ensure a system will meet its objectives.

QC is quality control and refers to the final product and if it meets the requirements. Quality Control makes sure the results of what you've done are what you expected. It’s a set of activities designed to evaluate a developed work product.

<http://www.mosaicinc.com/mosaicinc/rmThisMonth.asp>

<http://wiki.c2.com/?QualityAssuranceIsNotQualityControl>

Q: Mention 3 common tools used for data QA/QC in database setup

A: Validation of the fields can be used in QA to ensure that the correct data is being entered.

Q: You have been approached by a meteorological company to design a robust database to be used for storing and monitoring global weather data in real-time. Which do you consider the most important factor to consider in your design; Complexity, Time and Cost? Give your reason(s).

A: Complexity would be a big factor I think as the amount of data needing to be collected, analysed and linked to try and forecasts weather and create some kind of map to visualise it all. The time and cost are the side effects of its complexity. It would cost a lot and take a long time to set up but once all that is done It should be a little easier to maintain it.