Section 2.1

Question 1.

Scenario: The university authorities have completed a five-year plan to implement university-wide computing systems to support all core business processes such as

Implementing a Data Warehouse System for the University’s business processes.

My investigation begins with the architecture of a potential Data Warehouse (DW) system. Today, the amount of data we need is enormous. We need a centralized system for simplicity.

Therefore we need to understand the architecture of the entire DW system. Let’s start. So where do we get our data? Source Systems (SS). The main SS are OLTP databases, other databases, spreadsheets, ERP and web files.

When we have this data, it needs to be accessible for the user. ETL (extract, transform and load) helps this. This copies data from sources and inserts it into the DW, changing the data into an easily assessable form.

Now the data has been put into the DW, which stores a lot of data, in an easily accessible format. The benefits to business from this are astronomical.

What makes the data so accessible to the end user? OLAP; a technology which allows us to use the data in the warehouse; to view data and reports, complex calculations and make predictions.

End users need reporting tools, interactive dashboards and KPI scorecards. For this we need BI tools such as Microsoft Power BI, Tableau to use the data effectively.

The purpose and the importance of DWs is obvious. We need to store a lot of data safely with easy access. Now we can with DWs. Now we can use it for our business needs. It comes from the source to the next tier; the Data Staging Tier, ETL plays its part here, where the data is extracted, checked for quality and turned into clear, organized data. Now the data is safe and accessible.

The most popular DWs are Teradata; an industry leader, Oracle; a standard for decades and AWS; a top choice for customers.

What are the emerging trends? One is Self- Adapting DWs; where the DW will pick up what your business goal is with the data and try and help you without intervention.

A second is Data Lakes, which store more data then DWs and store unprocessed data which has no purpose yet.

A third; the cloud, as you’ll never lose data, little maintenance, strong security and limitless storage.

Here is the future of Data Storage and the many benefits of implementing a DW. The possibilities are endless and if not implemented we will fall behind our competitors as the pros are evident.