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Information Systems
Group Assignment 2

1.What are five alternatives to databases (include Blockchain, do not include flat files). Explain what the alternative is “best” at doing –i.e. Why would the alternative be selected over a database. (5 pts)

There are several alternatives to databases listed below:[1]

- In-memory databases
- Hadoop/NoSQL
- Virtualized or "federated" databases - Blockchain
- Columnar databases
- Streaming databases

In-memory - The core idea of an in-memory database is to assume that most or all storage is "flat" -- that is, any piece of data takes about as long to access as any other.

Hadoop - this approach has standardized on storing massive amounts of Web/cloud data as files,

Virtualized or "federated" database - The fundamental idea of the virtualized database is to provide a "veneer" that looks like a database and allows common SQL-like access to widely disparate data sources.

Columnar- instead of storing each field in a data store only once, and in the smallest possible area.
Streaming databases - treats data as a single stream passing under the database engine, which must make an immediate decision whether to store it, process it, use it to generate an alert and/or re-route it to some other appropriate data source.

2.What are the advantages of a database management? Give 2 examples to illustrate your answer.

One advantage of a database management is data integration. Business can integrate various departments data which will give easier access to stakeholders. For example: Sales data being accessible to the Accounting department.

Another advantage is that database management can minimize data inconsistencies and increase data integrity.
For example: The billing department may input a customers address in to a database in one format and the marketing department may contact the same customer using an address in a different format. Database management will address this concern and create standards.

1 http://www.enterpriseappstoday.com/data-management/slideshows/5-alternatives-to-the-traditional-relational-database.html

3.Compare MongoDB, Cassandra, and SimpleDB –Who are using these software packages? What is the ideal use-case? Who supports these products?

	MongoDB	Cassandra	SimpleDB
Structure	Flat	F;at	Distributed
Users	Google, UPS, Facebook, Cisco, eBay, BOSH, Adobe, SAP, Forbes	AppScale, Constant Contact, Digg, Facebook, IBM, Instagram, Spotify, Netflix, and Reddit.	
Use Case	being able to handle massive amounts of unstructured data.	schema-free, create documents without having to create the structure for the document first.	Network db
Product Support	Users	Users	Amazon
Scalability	Cassandra can handle the load of applications like Instagram that have roughly 80 million photos uploaded to the database every day.	Yes	Yes
Vs. Relational DBs	tables can be created, altered, and dropped while the database is running and processing queries.	collections in MongoDB are like tables in RDBMS.	
Operations	uses wide column stores which utilize rows and columns but allows the name and format of those columns to change. It uses a blend of a tabular and key-value.		
language	CQL	MongoDB query language	

Sources
https://en.wikipedia.org/wiki/Amazon_SimpleDB
https://www.mongodb.com/who-uses-mongodb.

4.What is the role of a database management system in an information system? How is this role evolving? (4 pts)

A database management system (DBMS) is the main software tool of the database management approach because it controls the creation, maintenance, and use of the databases of an organization and its end users. (P 213). It is a collection of related programs that manages the entire database structure and controls access to the data stored in the database.

Web applications and the need to handle large amounts of unrelated data is causing the role of the DBMS to evolve.

5.What are the benefits and limitations of the relational database model for business applications today?

The benefits to using a relational database is that information can be accessed quickly through queries. Data can be disbursed in multiple tables and retrieved by joining the tables. Another benefit is that relational databases are easier for programmers to set up and maintained. (pg. 196)

The main limitation of relational databases is that they can not quickly process large business transactions. They are also not as efficient with large business transactions.

6.What database trends are currently affecting data resource management in business?

1. The trend to have subject area databases (SADB) or Operational Databases to support customer information.
2. Greater utilization of networks capacity find the usage of Distributed Databases more ameniable.
3. The rapid growth of Web sites gives credence to the uses of Hypermedia Databases

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