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DAILY CHALLENGE WEEK 4 DAY 2

QUESTION 1:

Use the table below to identify what scale of measurement (Nominal, Ordinal, Interval or Rank) best represents the data

DATA SET	SCALE OF MEASUREMENT
Genotype	Nominal
Temperature	Interval
Socio-economic status	Ordinal
Gender	Nominal
Income level	Ordinal
Credit score	Interval
Race	Nominal
Satisfaction rating	Ordinal
Weight	Interval
Political party	Nominal

QUESTION 2:

What is the difference between Array, List and Dictionary data structures?

ARRAY	LIST	DICTIONARY
1. Arrays are an ordered collection of items of the same data type. 2. The array must contain real numbers like integers and floats, no strings allowed. 3. Arrays allow both direct and sequential access 4. It's easier and faster to access individual list items in arrays. 5. Information is stored in form of continuous memory allocations. 6. They provide random access like arr[0].	1. List have items of the different data types. 2. List can contain real numbers, floats and even strings. 3. Lists allow only sequential access. 4. It's easier to insert, delete, and generally manipulate lists represented using the linked approach. 5. Information are stored RANDOMLY in parts. 6. They are to be accessed sequentially because of the dependency of each part.	1. dictionary is an unordered collection of items. 2. It contains a key: value pair 3. The syntax to access an item in a list is myDict['key']

7. Insertion and deletion are bit more time consuming	7. Insertion and deletion are easier and faster.	

QUESTION 3:

Give a short overview of how database technology has evolved in the 21st century (more specifically as regards SQL vs NoSQL).

ANSWER

SQL databases represent data in the form of tables, comprising rows and columns.

NoSQL databases are document-based and do not have standard schema definitions representing key-value pairs, graph databases or wide-column store-based data categories, thus making them ideal to deal with unstructured data.

The increasing influence of social, mobility and cloud, and the humungous volumes of unstructured data generated, is not only challenging the traditional RDBMS (relational database management system), but also paving ways to raise innovative queries. The new—aged non-relational database— "NoSQL" has created a universe of opportunities through data collation, management and analysis.

Database technology has come a long way since IBM began its research project "System R" in 1974. This was followed by Oracle, which made relational database commercially available for the first time in 1979. For the next 30 years, which is a fairly long period of time considering the pace of technological advancements, database technologies kept evolving but more or less in isolation. It failed to adapt to new changes that the programmer community was demanding in the early Internet era. Database technology vendors were happy with their dominating market share but were oblivious to emerging technology requirements of data-driven applications.

NoSQL is now providing competition to traditional RDBMS and is posing a serious challenge to its three-decade monopoly. Interestingly, NoSQL databases existed even in late 1960s but its popularity surged only in the first decade of the 21st century due to adoption by companies such as Google, Yahoo, Amazon. These companies realized that they cannot depend on RDBMS technology for their vast data volumes. Hence, they started innovating by adopting open source culture and developed end-to-end ecosystems to manage their business requirements.

The open source movement made these innovations highly collaborative and at a blistering pace. And the gap between traditional database technology and these innovations widened further.

The predicted rise of unstructured data is at 56% per annum, compared to 12% for the structured data; this is why "NoSQL database" is believed to be the database of the future.