**Week 2 – 01/25/2024**

1. *Identify the Big V’s*
   1. Variety
   2. Volume
   3. Veracity
   4. Version
2. *Parallel programming and concurrent programming are the same*
   1. True
   2. False
3. *Which Big Data concept is primarily focused on handling large and diverse data sets with complex structures?*
   1. Volume
   2. Veracity
   3. Velocity
   4. Variety
4. *In the CAP Theorem, what does ‘C’ stand for?*
   1. Capacity
   2. Consistency
   3. Concurrency
   4. Connectivity
5. *Eventual Consistency guarantees immediate consistency across all nodes after a write operation.*
   1. True
   2. False
6. *Optimistic Concurrency Control is based on which principle?*
   1. Locks are applied before a transaction
   2. Data is read-only during a transaction
   3. Transactions are processed without locking resources
   4. Transactions are serialized one after another
7. *ETL stands for*
   1. Extract, Translate, Link
   2. Extract, Transform, Load
   3. Enter, Transform, Leave
   4. Encode, Transfer, Load
8. *Parallel programming involves breaking a problem into sub-problems, which are processed simultaneously.*
   1. True
   2. False
9. *What does ELT stand for in Big Data processing?*
   1. Enter, Link, Translate
   2. Encode, Load, Transform
   3. Extract, Load, Transform
   4. Extract, Link Transfer
10. *In concurrent programming, what is a common issue to be managed?*
    1. Data duplication
    2. Race conditions
    3. Memory allocation
    4. Data compression
11. *The ‘Veracity’ in Big Data refers to*
    1. Amount of data
    2. Diversity of data types
    3. Speed of data processing
    4. Accuracy and reliability of data
12. *CAP Theorem stats and a distributed system can guarantee only 2 out of 3 properties.*
    1. Consistency, Availability, Partition tolerance
    2. Consistency, Access, Privacy
    3. Connectivity, Accuracy, Performance
    4. Compression, Availability, Privacy
13. *Eventual Consistency is a model used in*
    1. Relational databases Only
    2. NoSQL databases
    3. Data warehouses Only
    4. In all Databases
14. *ETL processed are typically used in:*
    1. Real-time data processing
    2. Batch data processing
    3. Stream data processing
    4. On-the-fly data processing
15. *Online Multiplayer Gaming Platform*
    1. CP
    2. CA
    3. AP
    4. None of the above
16. *Public Traffic Management System*
    1. CP
    2. CA
    3. AP
    4. None of the above
17. *Automated Supply Chain Management System*
    1. CP
    2. CA
    3. AP
    4. None of the above
18. *Remote Health Monitoring Service*
    1. CP
    2. CA
    3. AP
    4. None of the above

**Week 3 – 02/01/2024**

1. **\* Not Recorded \***
2. *JSON data format supports hierarchical data structures*
   1. True
   2. False
3. *CSV files are generally smaller in size compared to Parquet files for the same data.*
   1. True
   2. False
4. *REST API typically communicates using which format?*
   1. JSON
   2. TSV
   3. CSV
   4. Parquet
5. *REST API support statelessness*
   1. True
   2. False
6. *Columnar storage is especially efficient when*
   1. You frequently access a small subset of columns in a large dataset.
   2. You frequently insert new rows into a dataset.
   3. You frequently access all columns of a dataset.
   4. You frequently update a specific row in a dataset.
7. *Row-based storage is generally faster for write-heavy database operations compared to columnar storage.*
   1. True
   2. False
8. *Which format is more suitable for storing complex nested data structures?*
   1. JSON
   2. CSV
   3. Parquet
   4. TSV
9. *Parquet file format is well suited for OLTP systems due to its efficient row-based operations.*
   1. True
   2. False
10. *The main advantage of using TSV over CSV is:*
    1. Better data compression
    2. Reduced file size.
    3. Support for hierarchical data.
    4. Handling of data fields that contain commas.
11. *What does a 200 HTTP status code signify?*
    1. Created
    2. OK
    3. Accepted
    4. No Content
12. *HTTP DELETE request should be idempotent.*
    1. True
    2. False
13. *Which HTTP method is idempotent and used to update resources?*
    1. GET
    2. POST
    3. PUT
    4. DELETE
14. *Which HTTP status code represents ‘Not Found’?*
    1. 400
    2. 404
    3. 401
    4. 402
15. *In a monolithic architecture, components are:*
    1. Loosely couple and independently deployable.
    2. Independently developed and maintained.
    3. Highly coupled and interconnected.
    4. None of the above.
16. *Microservices architecture promotes:*
    1. Single data source of all services.
    2. Independent modular services.
    3. Synchronous communication for all service interactions.
    4. Shared libraries across services.
17. *Microservices can be deployed independently, allowing for easier scaling and maintenance.*
    1. True
    2. False
18. *Microservices can be deployed independently, allowing for easier scaling and maintenance.*
    1. True
    2. False

**Week 4 – 02/08/2024**

1. *What is Cloud Computing?*
   1. Using local servers exclusively
   2. Delivering computing services over the internet
   3. Tenting storage space in a physical store
   4. None of the above
2. *How can you prevent creation of non-compliant resources, without having to manually evaluate each resource?*
   1. Azure Policy
   2. Azure Purview
   3. Azure Resource Monitor
   4. Azure Storage
3. *Which storage redundancy option provides the highest degree of durability, with 16 nines of durability?*
   1. Geo zone redundant storage
   2. Zone redundant storage
   3. Local redundant storage
4. *Which of the following is a benefit of cloud services?*
   1. Reduced operational costs
   2. Higher maintenance
   3. Limited scalability
   4. Slower deployment
5. *Identify the popular Cloud services*
   1. IaaS
   2. SaaS
   3. PaaS
   4. FAAS
6. *Azure Blob Storage is specifically designed to store unstructured data.*
   1. True
   2. False
7. *What does Azure Active Directory (AD) primarily provide?*
   1. Identity and access management services
   2. IoT services
   3. Data storage services
   4. Virtual Machine hosting
8. *Azure Cost Management provides tools to monitor, allocate, and optimize cloud costs.*
   1. True
   2. False
9. *Azure Policy helps in governance by:*
   1. Increasing the cost of resources
   2. Providing virtual machines
   3. Enforcing rules for resource creation
   4. Storing data
10. *Which type of scaling involves adding or removing VMs to meet demand?*
    1. Vertical scaling
    2. Direct scaling
    3. Horizontal scaling
    4. None of the above
11. *Tools for Managing and Deploying Azure Resources*
    1. Azure PowerShell
    2. Azure DevOps
    3. Azure CLI
    4. None of the above
12. *What’s the best way to prevent inadvertent deletion of a resource?*
    1. Microsoft Purview
    2. Azure Policy
    3. Azure resource Lock
    4. Remove permissions for all
13. *TCO means*
    1. Total Cost Ownership
    2. Total Calculation Objects
    3. Total Cost Offset
    4. Time Cloud Open
14. *Which Microsoft Entra tool can very the credentials needed to log in based user located?*
    1. Guest Access
    2. Unlimited Access
    3. Conditional Access
    4. Passwordless Access
15. *Which security model assumes the worst-case security scenario, and protects resources accordingly?*
    1. Zero Trust
    2. Defense in depth
    3. Role based access control
    4. Account based access control

**Week 5 – 02/15/2024**

1. *What data structure is primarily used by Redis to store data?*
   1. Array
   2. Document Store
   3. Graph
   4. Key-Value Store
2. *Why is pagination used in APIs?*
   1. To improve the security of the API
   2. To increase the API response time
   3. To reduce the amount of data returned, improving performance
   4. The complicate the API usage
3. *What is the primary purpose of a cache?*
   1. To increase data storage capacity
   2. To improve data retrieval times
   3. To secure data
   4. To validate data integrity
4. *Which command is used to add another string to a string in Redis?*
   1. CONCAT
   2. PUSHSTR
   3. APPEND
   4. ADDSTR
5. *How can you add an element to the beginning of a list in Redis?*
   1. LPUSH
   2. LADD
   3. RPUSH
   4. RADD
6. *What command would you use to get a range of elements from a list in Redis?*
   1. LRANGE
   2. REVRANGE
   3. LINDEX
   4. LSLICE
7. Which use case is Redis particularly well-suited?
   1. Long-term data archival
   2. Large file storage
   3. Real-time analytics
   4. Bulk data processing
8. For which scenario is Redis an excellent choice as a caching layer?
   1. Caching static website content
   2. Caching video streaming content
   3. Caching database query results
   4. None of the above
9. Redis Messaging system is ideally used for which of the following?
   1. Storing persistent messages
   2. Complex event processing
   3. Real-time message broadcasting
   4. Transactional data storage
10. Which command is use to set a key to hold a string value in Redis, only if the key does not already exist?
    1. SET
    2. SETEX
    3. SETNX
    4. GETSET
11. How can you remove all keys from all database in Redis?
    1. FLUSHALL
    2. CLEARALL
    3. FLUSHDatabase
    4. DELETEDB
12. Which command is used to find all keys matching a given pattern?
    1. FINDKEYS
    2. KEYS
    3. MATCHKEYS
    4. SEARCHKEYS
13. What does the EXPIRE command do in Redis?
    1. Deletes a key immediately.
    2. Sets a key’s time to live in seconds.
    3. Sets a key’s time to live in milliseconds.
    4. Expires a key at a specific timestamp.

**Week 6 – 02/22/2024**

1. *Which command is used to create an index in Redis Search?*
   1. CREATEINDEX
   2. FT.CREATE
   3. SEARCH.INDEX
   4. INDEX.ADD
2. *How do you set a JSON value in RedisJSON?*
   1. JSON.SET
   2. ADDJSON
   3. SETJSON
   4. JSON.ADD
3. *Which persistence strategy involves writing operations to a disk in real-time?*
   1. Snapshotting
   2. Replication
   3. Append-only file (AOF)
   4. Caching
4. *How does Redis implement data expiration*
   1. Expiry timers
   2. Time-To-Live (TTL) attribute
   3. Manual deletion
   4. Automatic eviction
5. *Redis geospatial queries can return results within a specified radius in meters, kilometers, miles, or feet.*
   1. True
   2. False
6. *What does Redis Pub/Sub model support?*
   1. Key-value store
   2. Publish/Subscribe messaging pattern
   3. Message queuing
   4. Data replication
7. *Redis supports persistence to disk but does not allow both AOF and RDB persistence strategies to be used simultaneously.*
   1. True
   2. False
8. *Which command is used to add geospatial data in Redis?*
   1. GEOADD
   2. ADDGEO
   3. GEOSET
   4. SETGEO
9. *Redis supports transactions, allowing multiple commands to be executed as a single atomic operation*
   1. True
   2. False
10. *What is the Redis command to get all the fields and values stored in a hash?*
    1. HGETALL
    2. HKEYS
    3. HVALS
    4. HMGET
11. *Which command is used to search for documents in a specific index that match a query in Redis Search?*
    1. FT.SEARCH
    2. FT.FIND
    3. SEARCH.QUERY
    4. QUERY.SEARCH
12. *Redis Pub/Sub mechanism guarantees message delivery to all subscribers, even if they are temporarily disconnected.*
    1. True
    2. False
13. *Which scenario is an ideal use case for Redis Pub/Sub?*
    1. Storing user session data for a web application
    2. Persistent storage of critical application data
    3. Implementing a real-time chat system
    4. Indexing and searching text documents
14. *Which of the following operations can be performed with RedisJSON?*
    1. Store and retrieve plain text documents
    2. Execute JavaScript functions on JSON documents
    3. Directly manipulate and query fields within a JSON document
    4. Automatically index all fields of a JSON for search