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| --- | --- | --- | --- | --- |
| Databases | * Services available for DB * Overview of RDS instances * Types of Databases. Aurora, MySQL, MSSQL, PostgresSQL * Overview of Elastic Cache * Classic solutions | | **Section 9 - ( 89 -102 )**  **Section 21 - ( Section 235 - 239 )**  **Section - 11 (123 - 125)** | |
| Handle security on workloads | | * Encrypt and Decrypt Data using KMS * Rotate and manage secrets using Secrets Manager | | **Section 26 - (298 - 301, 307, 308)** | |

**Task:**

Design and implement a resilient database infrastructure for a global trading platform operating in **us-east-1** and **eu-west-1**.

**Requirements:**

1. **Database Design:**
   * Deploy a secure and highly available database setup with multi-region capabilities. Database choice (Regional RDS)
   * Optimize performance and ensure compliance with data residency laws.
2. **Security:**
   * Manage and rotate database credentials securely.
   * Enable encryption for data at rest and in transit.
3. **Backup & Monitoring:**
   * Configure automated backups and enable detailed monitoring with alerts for critical metrics.
4. **Performance & Validation:**
   * Ensure low latency for users across regions.
   * Test failover, recovery, and performance under high transaction loads.

**Success Criteria:**  
Secure credentials, low latency, zero data loss, seamless failover, and effective monitoring.

