

INFOSOFT IT SOLUTIONS

Training | Projects | Placements

Revathi Apartments, Ameerpet, 1st Floor, Opposite Annapurna Block, Info

soft it solutions Software Training& Development 905968394,918254087

ELASTIC SEARCH

- **Introduction to Elasticsearch**
 - What is Elasticsearch?
 - Use cases and benefits
- **Core Concepts**
 - Index, Document, Type
 - Node, Cluster, Shard, Replica
 - Document CRUD operations
- **Querying Elasticsearch**
 - Basic search queries
 - Full-text search
 - Filtering, aggregations, sorting
 - Query DSL (Domain-Specific Language)
- **Mapping and Analysis**
 - Mapping types
 - Analysis and analyzers
 - Mapping customization

- **Scaling Elasticsearch**
 - Horizontal scaling
 - Cluster setup and configuration
 - Sharding and replication strategies
- **Advanced Search Features**
 - Geo-spatial search
 - Highlighting
 - Fuzzy queries, wildcard queries
- **Elasticsearch APIs**
 - RESTful API basics
 - CRUD operations using APIs
 - Bulk API
- **Elasticsearch Security**
 - Authentication and authorization
 - User roles and permissions
- **Monitoring and Administration**
 - Cluster health monitoring
 - Performance tuning
 - Backup and restore strategies
- **Integration with Other Systems**
 - Logstash and Beats for data ingestion
 - Kibana for visualization and monitoring
- **Elasticsearch in Production**
 - Best practices
 - Troubleshooting common issues

- **Advanced Querying**

- Query performance optimization
- Complex nested queries
- Scripted queries and filters
- Function Score Query for custom relevance scoring

- **Aggregations**

- Metrics aggregations (sum, min, max, avg)
- Bucket aggregations (terms, date histograms, ranges)
- Pipeline aggregations for advanced metrics

- **Mapping and Analysis**

- Custom analyzers and tokenizers
- Multi-fields and dynamic templates
- Index-time and search-time boosting

- **Index Management**

- Index settings and mappings management
- Index aliases and index templates
- Index lifecycle management (ILM)

- **Data Modeling**

- Parent-child relationships
- Join datatype for denormalization
- Handling hierarchical data

- **Scalability and Resilience**

- Cross-cluster search
- Shard allocation awareness
- Circuit breakers and thread pools
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- **Security**

- SSL/TLS configuration
- Role-based access control (RBAC)
- Audit logging and compliance features

- **Monitoring and Performance Tuning**

- Performance metrics and monitoring APIs
- Hot-warm-cold architecture
- JVM tuning and heap management

- **Data Ingestion**

- Using Logstash for complex data pipelines
- Beats for lightweight data shippers
- Ingest Node for Elasticsearch data transformation

- **Advanced Scripting**

- Inline and stored scripts
- Scripting languages Security considerations and limitations