🚀 Getting Started with MarkLogic

# 1. Install MarkLogic

- Download from: https://developer.marklogic.com/products/marklogic-server/  
- Supported OS: Windows, Linux, macOS (via VM/containers).  
- Install and start the MarkLogic Server service.  
- Access Admin Console at: http://localhost:8001

# 2. Setup Your First Database

- Login to Admin Console.  
- Create a Database (e.g., HealthcareDB).  
- Create a Forest (storage unit) and attach it to the database.  
- MarkLogic automatically indexes incoming data.

# 3. Load Data (Ingestion)

You can load XML, JSON, RDF, or even PDFs:  
- Using qconsole (web-based query editor on port 8000).  
- Example: Insert JSON patient record:

xdmp:document-insert(  
 "/patients/001.json",  
 { "patient\_id": "001", "name": "John Doe", "age": 45, "condition": "Diabetes" }  
)

Example: Insert XML lab report:

xdmp:document-insert(  
 "/labs/lab001.xml",  
 <lab>  
 <id>001</id>  
 <patient\_id>001</patient\_id>  
 <test>Blood Sugar</test>  
 <result>150 mg/dl</result>  
 </lab>  
)

# 4. Query Data

- XQuery or SPARQL for advanced queries.  
Example: Search patients with Diabetes:

for $p in collection()/patient  
where $p/condition = "Diabetes"  
return $p/name

Full-text search:

cts:search(collection("patients"), "Diabetes")

# 5. Build APIs

- Use MarkLogic REST API (enabled on port 8002).  
- Example request:  
 GET http://localhost:8002/v1/documents?uri=/patients/001.json  
- Returns the JSON patient record.  
- You can create APIs for patient search, filtering, analytics, etc.

# 6. Secure the Database

- Create roles & users in Admin Console.  
- Apply element-level permissions (e.g., doctors can see medical history, but billing staff cannot).  
- Enable encryption for HIPAA compliance.

# 7. Deploy

- Local setup → for learning.  
- Cloud setup → MarkLogic supports AWS, Azure, GCP.  
- Hybrid → Common in healthcare/government (on-prem + cloud).

# 8. Monitor & Scale

- Use Monitoring Dashboard in Admin Console.  
- Add forests & replicas to handle large data.  
- Configure failover & backups for reliability.