

M.Sc. (IT & CA)
Saurashtra University
Effective from June - 2022

CS – 03: NoSQL DATABASE: MongoDB				
Objectives: ▪ To develop proficiency in the specification, representation and various other types in MongoDB using PHP. ▪ To be able to perform various Analytical as well as to increase the programming skills in PHP using MongoDB. ▪ To get a good understanding regarding various styles in Programming. ▪ To develop a good base for No-SQL queries.				
Pre-Requisites: Knowledge of PHP				
Sr. No	Topics	Details	Weightage in %	Approx Lectures
1	Introduction to NoSQL Database	• Define NoSQL, its characteristics and history, and the primary benefits for using NoSQL databases. • Define the major types of NoSQL databases including a primary use case and advantages/disadvantages of each type. • Describe the factors affecting return on investment for using locally hosted database vs. database-as-a-service.	20	12
	Introduction to MongoDB	• MongoDB concepts – Databases, collections, and documents • Downloading Installing and running MongoDB, Installing PHP Driver for MongoDB on various OS Platforms • The Data Model and Working with Data		
2	Learning MongoDB by implementing web Application	• Inserting documents in MongoDB, Querying documents in collection. • Doing advance queries in MongoDB, Updating documents MongoDB, • Deleting documents in MongoDB, Managing relationships between documents	20	12
	Session Management	• Understanding HTTP sessions. • Understanding PHP native session handling, • Implementing session handling with MongoDB. • Putting Session Manager. • Building user authentication module, creating login, logout and user profile.		
3	Queries &	• Querying using find(), sort(), skip(), limit()		

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	Aggregation Queries	• Update, Delete, Aggregation • Generating Sample Data. • Understanding MapReduce, • Performing MapReduce in MongoDB and PHP, Aggregation using group() • Listing distinct values for field • counting documents with count()	20	12
4	Web Analytics using MongoDB	• Logging with MongoDB, • Extracting analytics data with MapReduce • Real-time analytics using MongoDB	20	12
	Using MongoDB with relational Databases	• MongoDB and RDBMS together • Defining the relational model		
5	Handling Files with GridFS	• What is Grid? • Storing files in GridFS • Serving files from GridFS • Reading files in chunks	20	12
	Database Management	• Database Administration • Optimization • Replication • Sharding		
		Total	100	60

References Books

1. MongoDB the definitive guide - O'Reilly Kristina Chodorow & Michal Dirolf
2. MongoDB in Action - Kyle Banker Manning Sheltar Island.
3. The definitive guide to MongoDB - NoSQL Database for cloud and desktop computing. - Apress - Eelco Plugge, Peter membrey and Tim Hawkins
4. PHP and MongoDB Web Development Beginners guide - Rubayeet Islam - Open Source

Course Outcome:

After completion of the course students will be able:

- Able to explore and define specification, representation and various other types in MongoDB using PHP.
- Able to implement concept of Replication and Sharding in MongoDB practically.
- Able to perform various Analytical as well as to increase the programming skills in PHP using MongoDB.
- Able to get a good understanding regarding various styles in Programming.
- Able to execute No-SQL queries.

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CS – 04: PRACTICAL - 1 (BASED ON CS-01)	
Topics	Marks
APPLICATION DEVELOPMENT USING ADVANCE JAVA	100

CS – 05: PRACTICAL - 2 (BASED ON CS-02 and CS-03)	
Topics	Marks
• ADVANCE WEB DEVELOPMENT IN Laravel • NoSQL DATABASE: MongoDB	100

Note:

- Practical examination may be arranged before or after theory exam.

CS – 06: PROJECT DEVELOPMENT (In House)	Marks: 100
Project must be developed in the computer laboratory of concern institute under the supervision of faculties of concern institute on any subject of current semester. <u>(At the time of Project-Viva examination student must show Project Report along with all the Workouts in workbook, implementation of project in SDLC, Documentation, Program codes and project in running mode)</u>	

Note :

- Project must be submitted before two week of commencement of theory exam.
- Project viva examination may be arranged before or after theory exam.
- During the project viva examination project must be run.

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M.Sc. (IT & CA) (Semester – 2)

SR. NO.	SUBJECT	No. of LECT./Lab. PER WEEK	CREDIT
1.	CS – 07 APPLICATOIN DEVELOPMENT USING ADVANCED ANDROID	5	5
2.	CS – 08 REACT JS & EXPRESS JS	5	5
3.	CS – 09 CLOUD COMPUTING WITH AWS	5	5
4.	CS – 10 PRACTICAL - 1 (BASED ON CS-07)	5	5
5.	CS – 11 PRACTICAL - 2 (BASED ON CS-08 and CS-09)	5	5
6.	CS – 12 PROJECT DEVELOPMENT (In House)	5	5
Total Credits of Semester – 2			30

Note:

1. Total marks of each **theory paper** are 100 (university examination of 70 marks + internal examination of 30 marks).
2. Total marks of each **practical and project-viva** paper are 100. No internal examination of marks in practical and project-viva papers.