Sequence of items in Dissertation Report The following sequence may be followed in the preparation of the final dissertation report:

Cover Page (On the hardbound cover)

Title Page (Inner Cover Page)

Certificate from the Institute

Declaration

Acknowledgment

# 

# 

(Detailed) Table of Contents (with page numbers).

Chapters

[**1. Introduction**](#_gejtjz3dmf7d) **5**

[i. Introduction of the System](#_qp4yqry7ymku) 5

[a. Project Title](#_c138oyvp9e1z) 5

[b. Category](#_h2ifjqaacv5k) 5

[c. Overview](#_l3islyk7h4wz) 5

[ii. Background](#_huaqgmh61fkc) 5

[a. Introduction of the Company](#_byd4ak6vhrfa) 5

[b. Brief note on Existing System](#_57r9h942grw0) 5

[iii. Objectives of the System](#_i9zg3orn24jh) 5

[iv. Scope of the System](#_nmb9chgqmnn6) 5

[v. Structure of the System](#_efx551yq6ll6) 5

[vi. System Architecture](#_babw8cmtu9az) 5

[vii. End Users](#_oc0ntxsmikf9) 5

[viii. Software/Hardware used for the development](#_fou59413gtt) 5

[ix. Software/Hardware required for the implementation](#_k7abn47wbjqk) 5

[**2. SRS**](#_ob0gz1ow1gvk) **5**

[i. Introduction (Brief write-up about SRS)](#_xh3y4q26c0r5) 5

[ii. Overall Description](#_psxsjdz6wkh3) 5

[a. Product perspective](#_mxzl3jrzc609) 5

[b. Product Functions](#_2peyddlpsh5g) 5

[c. User characteristics](#_pf0ds639d12h) 6

[d. General constraints](#_lbny6f1zwdn9) 6

[e. Assumptions](#_gfof8fs7cof) 6

[iii. Special Requirements (Software / Hardware - if any)](#_dilrzg2dh4m1) 6

[iv. Functional requirements](#_7s85va9wwr5i) 6

[a. Module 1](#_ii5rlt3luup0) 6

[b. Module 2](#_5ys022i3417t) 6

[c. ….](#_lxfhs9ks0r2s) 6

[v. Design Constraints](#_3myn1gd5sgua) 6

[vi. System Attributes](#_e4nhenzhzdtk) 6

[vii. Other Requirements (if any)](#_eyd0miea4ng) 6

[**3. System Design (Functional Design)**](#_1dzhyabiqre0) **7**

[i. Introduction (brief write-up about System Design)](#_fnap4jn9x3a6) 7

[ii. Assumptions and Constraints](#_rw2swwgw1o31) 7

[iii. Functional decomposition](#_7lpqpkbqqn8h) 7

[a. System software architecture](#_maafptob8ddy) 7

[b. System technical architecture](#_7ftepwp9sr4g) 7

[c. System hardware architecture](#_7f9f0o2gxkhe) 7

[d. External interfaces (if any)](#_gz8zog7p9kcf) 7

[iv. Description of Programs](#_pc5qvmjdvlec) 7

[a. Context Flow Diagram (CFD)](#_x4j0if4fc91m) 7

[b. Data Flow Diagrams (DFDs – Level 0, Level 1, Level 2)](#_u5rkravlo13r) 7

[v. Description of components](#_nls23ugsmvui) 7

[a. Functional component 1](#_l7sq6j7t36fv) 7

[b. Functional component 2](#_9rvorc31b2wi) 7

[c. ….](#_tbhsamjexb2w) 7

[**4. Database Design (or Data structure)**](#_ithsktv9p2cc) **7**

[i. Introduction (brief write-up about Database design)](#_tel84wr8mi7o) 7

[ii. Purpose and scope](#_hcu104orqttq) 7

[iii. Database Identification](#_fd390frqgpyn) 8

[iv. Schema information](#_j08sm6qzv08q) 8

[v. Table Definition](#_55nd00hbwp9s) 8

[vi. Physical design](#_f0wednc8tav0) 8

[vii. Data Dictionary](#_was202qqijus) 8

[viii. ER diagram](#_l5gymmgprxw3) 8

[ix. Database Administration](#_e210fva17pk8) 8

[a. System information](#_rffupjoa4ko6) 8

[b. DBMS configuration](#_tls56p89avzo) 8

[c. Support software required](#_9suwk65fq99o) 8

[d. Storage requirements](#_msyvjvgx7zl) 8

[e. Backup and recovery](#_8hljdwce4sp6) 8

[**5. Detailed Design (Logic design of modules)**](#_dvyknpfea6cg) **8**

[i. Introduction (brief write-up about Database design)](#_43lq7022fopk) 8

[ii. Structure of the software package (structure chart)](#_bbzkxog4lush) 8

[iii. Modular decomposition of the System](#_uzx3icmz07wl) 8

[a. Module1](#_jffhk6ltd5cv) 8

[a. Inputs](#_e3vfw7bcp03g) 8

[b. Procedural details](#_k3fq6yvp4ywu) 8

[c. File I/O interfaces](#_f4m9yf9b0qce) 8

[d. Outputs](#_7v3u94mbpmxa) 9

[e. Implementation aspects (if any)](#_9bl9j1o4e2k) 9

[b. Module 2](#_iuse9zkswh9m) 9

[**6. Program code listing**](#_vl5eo9emavjh) **9**

[i. Database connection](#_dgsojmti2r0g) 9

[ii. Authorization / Authentication](#_cp0etskqysab) 9

[iii. Data store / retrieval / update](#_srqr92f61wq) 9

[iv. Data validation](#_5dmytzfsshop) 9

[v. Search](#_vnrnm58ket5c) 9

[vi. Named procedures / functions](#_bo3b0378cpoc) 9

[vii. Interfacing with external devices (if any)](#_cfn45j9xlvo0) 9

[viii. Passing of parameters](#_da0a7z843qmg) 9

[ix. Backup/recovery](#_im1zj1mgmcvu) 9

[x. Internal documentation](#_nc0n012r14fu) 9

[xi. ……](#_i2z07be8p5jp) 9

[**7. User Interface (Screens and Reports)**](#_fn1vmwtx5e4q) **10**

[i. Login](#_sg9e2t9ty5l4) 10

[ii. Main Screen / Home page](#_kgjbae5s9he7) 10

[iii. Menu](#_7uakqkfuzs9e) 10

[iv. Data store / retrieval / update](#_ablhxauu27vc) 10

[v. Validation](#_wgmq9vqmtl4p) 10

[vi. View](#_h1gt4qg4x6dc) 10

[vii. On-screen reports](#_1bbz09bxp97e) 10

[viii. Data Reports](#_ykouvsguvtpk) 10

[ix. Alerts](#_uqscrng4os2q) 10

[x. Error messages](#_aqn47u83sv04) 10

[xi. ……..](#_vr5tv1xuwbt) 10

[**8. Testing**](#_xruau2e9qnel) **11**

[i. Introduction (brief write-up about Software Testing)](#_3xqgga4p4j73) 11

[ii. Test Reports](#_up87xaor85d7) 11

[a. Unit Testing](#_7q6nwl4luh82) 11

[b. Integrate Testing](#_wbvw8xsh82j4) 11

[c. System Testing Conclusion](#_d87kp1mcj857) 11

List of Figures (with figure number, figure titles and page numbers)

List of Tables with table number, table title and page number.

# 

# **1. Introduction**

## i. Introduction of the System

### a. Project Title

### b. Category

### c. Overview

## ii. Background

### a. Introduction of the Company

### b. Brief note on Existing System

### iii. Objectives of the System

### iv. Scope of the System

### v. Structure of the System

### vi. System Architecture

### vii. End Users

### viii. Software/Hardware used for the development

### ix. Software/Hardware required for the implementation

# **2. SRS**

## i. Introduction (Brief write-up about SRS)

## ii. Overall Description

### a. Product perspective

### b. Product Functions

### c. User characteristics

### d. General constraints

### e. Assumptions

## iii. Special Requirements (Software / Hardware - if any)

## iv. Functional requirements

### a. Module 1

### b. Module 2

### c. ….

## v. Design Constraints

## vi. System Attributes

## vii. Other Requirements (if any)

# **3. System Design (Functional Design)**

## i. Introduction (brief write-up about System Design)

## ii. Assumptions and Constraints

## iii. Functional decomposition

### a. System software architecture

### b. System technical architecture

### c. System hardware architecture

### d. External interfaces (if any)

## iv. Description of Programs

### a. Context Flow Diagram (CFD)

### b. Data Flow Diagrams (DFDs – Level 0, Level 1, Level 2)

## v. Description of components

### a. Functional component 1

### b. Functional component 2

### c. ….

# 

# **4. Database Design (or Data structure)**

## i. Introduction (brief write-up about Database design)

**Introduction**

Database is a collection of related data. Relational database stores data in a table or relations. The data stored in a relation are arranged in records. Each record consists of set of attributes. Fields can be referred to as characteristics of records. This document describes the table that is used to design software, its attributes, data type, constraints, and relationship among those tables.

Through MongoDB Compass, this application uses MongoDB as a database design platform. Database system based on NoSQL.

**Definition for NoSQL(Not only SQL):**

NoSQL databases (Not only SQL)are non-tabular databases and store data differently than relational tables. NoSQL databases come in a variety of types based on their data model. The main types are document, key-value, wide-column, and graph. They provide flexible schemas and scale easily with large amounts of data and high user loads.

**Definition for MongoDB:**

MongoDB is a document database with the scalability and flexibility you want with the querying and indexing you need.

**Definition for MongoDB Compass:**

MongoDB Compass is a powerful GUI for querying, aggregating, and analysing your MongoDB data in a visual environment.

**The design process consists of the following steps in MongoDB:**

· Design your schema according to user requirements.

· Combine objects into one document if you will use them together. Otherwise separate them (but make sure there should not be need of joins).

· Duplicate the data (but limited) because disk space is cheap as compared to compute time.

· Do joins while write, not on read.

· Optimize your schema for most frequent use cases.

· Do complex aggregation in the schema.

## ii. Purpose and scope

**Purpose**

· **Avoid Redundantly**

The table in the database should be constructed following standards and with utmost dedication. It should have different fields and minimize redundant data. The table should always have a unique id.

· **Faultless Information**

The database should follow the standards and conventions and provide meaningful information useful to the organization.

· **Data Integrity**

Integrity assists in guaranteeing that the values are valid and faultless. Data Integrity is set to tables, relationships, etc.

· **Modify**

The database developed should be worked upon with the conventions and standards, so that it can be easily modified whenever the need arises.

**Scope**

· Normalization of Database.

· Establishing the Relation between the tables.

· Accessing the data from multiple tables.

## iii. Database Identification

The identification of database by unique name given to the various database objects. The identifier is the name of database object. The following are the various database objects.

· Tables

· Columns

· Views

· Sequences

· Indexes

· Stored Procedures

## iv. Schema information

Schema design for NoSQL usually involves designing Keys, Indexes & Denormalization of attributes, all of which are inter-dependent on the application queries & workflows. The query requirements elicitation should include following specifications at a minimum: Business Data Entities.

## v. Table Definition

Instead of tables, a MongoDB database stores its data in collections. A collection holds one or more BSON documents. Documents are analogous to records or rows in a relational database table. Each document has one or more fields; fields are similar to the columns in a relational database table

## vi. Physical design

The physical design is where you translate schemas into actual database structures • Entity to collections • Objects to fields • ObjectID (Unique)

## vii. Data Dictionary

A data dictionary is file or a set of files that includes a database’s metadata. The data dictionary holds records about other objects in the database, such as dataownership, data relationship to other objects, and other data.

The data dictionary, in general, includes information about the following:

· Name of the data item

· Aliases

· Description/Purpose

· Related data items

· Range of values

· Data structure definition

## viii. ER diagram

ER-modeling is a data modeling method used in software engineering to produce a conceptual data model of an information system. Diagrams created using this ER-modeling method are called Entity-Relationship Diagrams or ER-diagrams or ERDs.

## ix. Database Administration

### a. System information

### b. DBMS configuration

### c. Support software required

### d. Storage requirements

### e. Backup and recovery

# **5. Detailed Design (Logic design of modules)**

## i. Introduction (brief write-up about Database design)

## ii. Structure of the software package (structure chart)

## iii. Modular decomposition of the System

### a. Module1

#### a. Inputs

#### b. Procedural details

#### c. File I/O interfaces

#### d. Outputs

#### e. Implementation aspects (if any)

### b. Module 2

1. …..

# **6. Program code listing**

## i. Database connection

## ii. Authorization / Authentication

## iii. Data store / retrieval / update

## iv. Data validation

## v. Search

## vi. Named procedures / functions

## vii. Interfacing with external devices (if any)

## viii. Passing of parameters

## ix. Backup/recovery

## x. Internal documentation

## xi. ……

# **7. User Interface (Screens and Reports)**

## i. Login

## ii. Main Screen / Home page

## iii. Menu

## iv. Data store / retrieval / update

## v. Validation

## vi. View

## vii. On-screen reports

## viii. Data Reports

## ix. Alerts

## x. Error messages

## xi. ……..

# **8. Testing**

## i. Introduction (brief write-up about Software Testing)

## ii. Test Reports

### a. Unit Testing

### b. Integrate Testing

### c. System Testing Conclusion

Limitations

Scope for enhancement (future scope)

Abbreviations and Acronyms (list)

Bibliography / References (list in specified format)