

**DATABASE**

**SPECIFICATIONS**

*Next-Gen Restaurant Application Database System (NRADS)*

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INSC 521 - Introduction to Database Concepts

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# Document Control

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## Revision Sheet

Changes in **Bold** are new since the last submission.

|  |  |  |
| --- | --- | --- |
| **Release No.** | **Date** | **Revision Description** |
| 1.0 | 01/21/2024 | Milestone 1 Creation |
| **1.1** | **01/26/2024** | **- Added username and password to Requirement No. 9**  **- Changed “shall” to “will”**  **- Added Purpose and Outcome section to Milestone 1**  **- Modified DR regarding logs to note location of stored logs**  **- Separated menu and tab into respective DR**  **- Modified attributes for all Core Requirements to be more specific and their referenced page numbers** |
| **2.0** | **01/29/2024** | **- Milestone 2 Creation** |
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**DATABASE SPECIFICATIONS**

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# Milestone 1: Data Requirements

## System Name or Title

Next-Gen Restaurant Application Database System (NRADS)

**Purpose**

This section will describe the data requirements needed to facilitate the successful creation of the Next-Gen Restaurant Application (NRA) as defined in the Software Requirements Specification (SRS).

**Outcome**

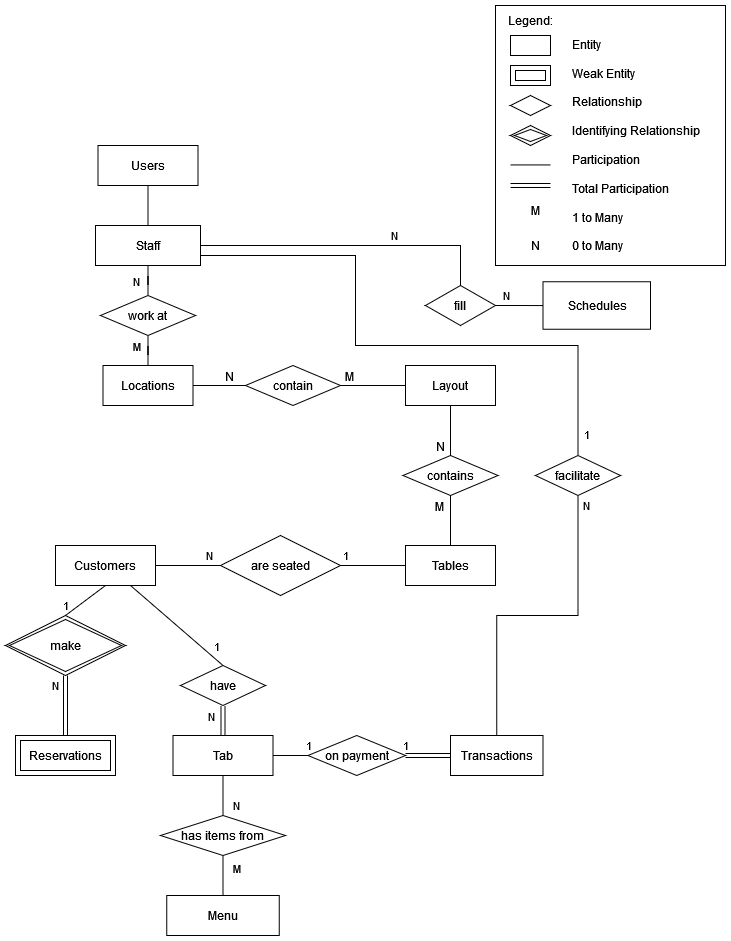
This section will define the data entities and their attributes needed to support the NRA.

## Core requirements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Requirement | Referenced page in SRS | Referenced Section in SRS | Referenced Paragraph in Section |
| 1 | The system will store general restaurant information including store\_id, address, table\_layout, table\_occupancy, table\_type, table\_id, layout\_id | 3  5  10  11 | 1.2  2.2  3.5.2  3.5.3 | 1.2.1  2.2.1  2.2.9  all  3.5.3.6 |
| 2 | The system will store customer information including customer\_id, age, phone\_number, first\_name, last\_name, date\_of\_birth. | 3  5  10  11  13 | 1.2  2.2  3.5.3  3.5.3  5.3 | 1.2.2  2.2.2  3.5.3.2  3.5.3.3  3.5.3.4  5.3.1 |
| 3 | The system will store walk-in and reservation information including reservation\_id, customer\_id, party\_size, wait\_time, and datetime. | 3  5  5  10  11  12 | 1.2  2.1  2.2  3.5.3  3.5.3  3.5.6 | 1.2.2  3  2.2.2  2.2.7  2.2.9  3.5.3.1  3.5.3.7  3.5.3.8  all |
| 4 | The system will store staff (host/hostess, Servers, Kitchen Staff, Restaurant Management) information including staff\_id, date\_of\_birth, phone\_number, address, and availability. | 3  5  5  11 | 1.2  2.1  2.2  3.5.3 | 1.2.3  1.2.7  3  2.2.2  3.5.3.5 |
| 5 | The system will store transaction information including transaction\_id, staff\_id, customer\_id, tab\_id, total, tip, datetime, currency, payment\_method, and location. | 3  5  5 | 1.2  2.1  2.2 | 1.2.4  3  2.2.4 |
| 6 | The system will store menu information including menu\_item\_id, menu\_item\_description, menu\_item\_name, menu\_item\_ingredients, minimum\_age\_to\_order, current\_inventory, price | 3  5  5  11 | 1.2  2.1  2.2  3.5.4 | 1.2.5  3  2.2.3  2.2.5  2.2.8  all |
| 7 | The system will store tab information including sales\_tax, menu\_item\_id, customer\_id, staff\_id, tab\_total, tab\_id, gratuity, datetime, customer\_id, and tab\_limit\_amount | 5  9 | 2.2  3.5 | 2.2.5  all |
| 8 | The system will store schedule structure information including required\_days, time, and required\_staff\_levels, staff\_assignment. | 3  5  5 | 1.2  2.1  2.2 | 1.2.7  3  2.2.6 |
| 9 | The system will handle user authentication including username, password, account\_type. | 13 | 5 | 5.1  5.2 |
| 10 | The system will store log information on file system in /var/log/ | 11 | 3.5.5 | all |

# Milestone 2: Conceptual Design

## Diagram



## Assumptions and Constraints

1. Users must be a member of the staff.
2. Staff must work at at least one location.
3. A location can have any number of staff assigned to work.
4. A location can contain different layouts.
5. A layout must belong to a location.
6. Staff can fill any number of schedule slots (or none).
7. A schedule can have any number of staff assigned to work.
8. A layout must contain at least one table.
9. A table can belong to any number of layouts.
10. A customer can only be seated at one table.
11. A table can have any number of customers seated at it.
12. A customer can make a reservation but does not have to make a reservation.
13. A reservation must belong to a customer.
14. A tab must belong to a customer.
15. A tab must be compiled of at least one menu item.
16. A menu item can be associated with any number of tabs.
17. A customer can have any number of tabs open.
18. A transaction must close out a tab.
19. A tab can only have one transaction.
20. A staff member must facilitate a transaction.
21. Staff can facilitate any number of transactions.

# Milestone 3: Logical Design

## Entity Relationship Diagram

**Entity name**: Departments

**Attributes**:

Example: SSN, userid, Name

**Functional dependencies**:

Example: SSN → userid, name; userid → SSN, name

|  |  |  |  |
| --- | --- | --- | --- |
| **Attributes not in FD** | **Attributes on the left** | **Attributes on both sides** | **Attributes on the right side** |
|  |  | SSN, userid | name |

**Attribute closures** (if any):

SSN+ = SSN, name, userid (this is an example)

userid+ = SSN, name, userid

(SSN, userid) is a super key

**Unique keys**: the key for this table is/are

SSN

userid

## Assumptions and Constraints

# 

# Milestone 4: Normalization and

# Milestone 5: Physical Design

## Assumptions and Constraints

## Naming Conventions

Discuss the naming standards and conventions that you have used for table creation.

## Tables

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ***Name of the table*** | ***Employee*** | | | | |
|  | **Description** | an employee is a person that works for our university. There are three types of employees: Faculty, staff, and contract employees. | | | | |
|  | **Attribute** | **Description** | | **Type** | **Examples of values** | **Notes** |
|  |  |  | |  |  |  |
|  |  |  | |  |  |  |
|  |  |  | |  |  |  |
|  |  |  | |  |  |  |
|  | **…** |  | |  |  |  |
|  | **Functional Dependencies and Keys** | | | | | |
|  | **Functional dependencies** |  | | | | |
|  | **Candidate keys** | **id** | | | | |
|  | **Normalization** | | | | | |
|  | **1NF** | **Yes** | Reason… | | | |
|  | **2NF** | **Yes** | Reason... | | | |
|  | **3NF** | **Yes** | Reason... | | | |
|  | **BCNF** | **Yes** | Reason... | | | |
|  | **Physical Design** | | | | | |
|  | **Primary Key** |  | | | | |
|  | **Foreign Keys** | **-** | | | | |
|  | **SQL Code** |  | | | | |
|  | **Count of records in the table** | **Note**: Please make sure you add 2 records in each table. | | | | |

...

# Milestone 6: SQL queries and

**Note**: Please make sure you add/have 25 records in each table, on average.

|  |  |
| --- | --- |
| **Query 1** |  |
| **English version** |  |
| **Source for the query need in the SRS document** |  |
| **SQL sentence** |  |
| **Example of returned rows (cropped screen caption)** |  |

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