## Central Queensland Aged Care Management Entity relationship diagram

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## Business rules and justifications

* A resident (elderly person) can only have one room.
* A Staff member can take care of more than one resident
* Each employee/staff member will have a position title.
* All external employees are only allowed to handle tasks that are not related directly to the residents.
* Each resident will be served on a separate invoice.
* No Resident is to be admitted without completing the application process.
* External employees should handle each one task at time
* Staff should handle the residents depending on their type of care

## Database Normalization

Normalization is the act of reducing redundancy in a table to improve data integrity. We normalize data to avoid anomalies such as Insertion anomaly, update anomaly and deletion anomaly.

In summary, normalization is a method of database data organization. The database columns and tables must be organized as part of normalization in order to properly for enforce database integrity requirements and dependencies.

## 1st Normal Form

Here we deal atomicity problems which means a row is not allowed to handle more than one value at a time, i.e only a single value is allowed on each row. Here each record has to be unique.

In this I added data to the tables that I created to enable normalization, the tables include

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Resident | | | | | |
| Resident ID | Name | Address | Contact phone | Date of birth | Health issue |
| 21 | Michael Angelo | 14th Street | 801-202-1422 | 5/12/1960 | Dementia |
| 28 | Susan Grace | 17th Street | 896-764-0876 | 10/05/1943 | Dementia |
| 89 | Leon Davis | 14th Street | 804-299-9000 | 13/11/1955 | Respite |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Room | | | | | |
| Room NO | Room type | Size | Photo | Cost per day | Available date |
| 101 | single | 1 |  | 200 | 10/04/2023 |
| 102 | double | 2 |  | 300 | 10/04/2023 |
| 103 | double | 2 |  | 300 | 12/04/2023 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Care manager | | | | | |
| Staff ID | Name | Address | Contact phone | Start date | Position |
| 111 | Cindy | 13th Street | 844-300-4090 | 12/12/2016 | Nurse |
| 234 | Brian | 2nd Street | 901-200-3202 | 1/12/2005 | Accountant |
| 432 | Mark | 10th Street | 910-322-4545 | 23/01/2000 | nurse |

The tables above are already in 1NF, each row has a single value.

## 2nd Normalization form

The first rule here is that the tables has to be in 1NF. The table should also not have partial dependents, i.e. removing data that is not related to the primary key and fortify the relationships.

|  |  |  |
| --- | --- | --- |
| patients | | |
| Resident ID | Name | Room ID |
| 21 | Michael Angelo | 101 |
| 28 | Susan Grace | 102 |
| 89 | Leon Davis | 103 |

|  |  |  |
| --- | --- | --- |
| Staff | | |
| Staff ID | Staff name | Position |
| 111 | Cindy | Nurse |
| 234 | Brian | Accountant |
| 432 | Mark | Nurse |

## 3rd Normalization Form

The table has to be in 2nf and there should be no transitive dependency for non-prime attributes. Non-prime attributes are attributes that do not form a candidate key

|  |  |  |
| --- | --- | --- |
| Staff ID | Resident ID | Room No |
| 111 | 21 | 101 |
| 234 | 28 | 102 |
| 432 | 89 | 103 |
|  |  |  |