**Database Design**

**Introduction:**

* **Database:** A Database is collection of related data, which can be of any size and complexity. By using the concept of Database, we can easily store and retrieve the data. The major purpose of a database is to provide the information, which utilizes it with the information’s that the system needs according to its own requirements.
* **Database Design:** Database design is done before building it to meet needs of end-users within a given information-system that the database is intended to support. The database design defines the needed data and data structures that such a database comprises

The database is physically implemented using MySQL.

The database for “iAgro” is organized into 19 tables:

* admin
* article
* category
* city
* country
* customer
* produce
* product
* product\_purchase\_bill
* product\_purchase\_record
* purchase\_order
* purchase\_order\_bill
* purchase\_request
* seller
* selling\_product
* state
* variety
* worker
* worker\_request

Each entity can be described as follows along with its attributes:

1. **Database tables:**

**Structure of Table “admin”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| admin\_id | int | 10 | Admin ID |
| admin\_name | varchar | 25 | Admin Name |
| login\_id | varchar | 20 | Login ID |
| password | varchar | 50 | Password |
| status | varchar | 10 | Status |

**Structure of Table “article”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| article\_id | Int | 10 | Article ID |
| article\_type | varchar | 25 | Article type |
| publish\_date | date |  | Publishing date of the article |
| title | varchar | 100 | Title of the article |
| article\_description | text |  | Description of the article |
| article\_img1 | varchar | 100 | Image of the article |
| article\_img2 | varchar | 100 | Image of the article |
| article\_img3 | varchar | 100 | Image of the article |
| article\_img4 | varchar | 100 | Image of the article |
| article\_img5 | varchar | 100 | Image of the article |
| status | varchar | 10 | Status |

**Structure of Table “category”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| category\_id | int | 10 | Category ID |
| category | varchar | 25 | Category |
| category\_type | varchar | 25 | Category type |
| description | text |  | Description |
| img | varchar | 100 | Image |
| satus | varchar | 10 | Status |

**Structure of Table “city”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| city\_id | Int | 10 | City ID |
| country\_id | Int | 10 | Country ID |
| state\_id | Int | 10 | State ID |
| City | varchar | 25 | City |
| description | text |  | Description |
| status | varchar | 10 | Status |

**Structure of Table “country”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| country\_id | int | 10 | Country ID |
| country | varchar | 25 | Country |
| description | text |  | Description |
| status | varchar | 10 | Status |

**Structure of Table “customer”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| customer\_id | int | 10 | Customer ID |
| customer\_name | int | 25 | Customer Name |
| address | int |  | Address |
| country\_id | varchar | 10 | Country ID |
| state\_id | varchar | 10 | State ID |
| city\_id | varchar | 10 | City ID |
| pincode | varchar | 10 | Pincode |
| contact\_no | varchar | 15 | Contact number |
| mobile\_no | varchar | 15 | Mobile number |
| email\_id | varchar | 50 | Email ID |
| password | varchar | 25 | Password |
| customer\_type | varchar | 25 | Customer Type |
| status | varchar | 10 | Status |

**Structure of Table “produce”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| produce\_id | int | 10 | Produce ID |
| category\_id | Int | 10 | Category ID |
| produce | varchar | 25 | Produce |
| description | text |  | Description |
| img | varchar | 100 | Image |
| status | varchar | 10 | Status |

**Structure of Table “product”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| product\_id | int | 10 | Product ID |
| seller\_id | int | 10 | Seller ID |
| category\_id | int | 10 | Category ID |
| produce\_id | int | 10 | Produce ID |
| variety\_id | int | 10 | Variety ID |
| Title | varchar | 100 | Title |
| img\_1 | varchar | 100 | Image of the product |
| img\_2 | varchar | 100 | Image of the product |
| img\_3 | varchar | 100 | Image of the product |
| img\_4 | varchar | 100 | Image of the product |
| img\_5 | varchar | 100 | Image of the product |
| Quantity | float | 10,2 | Quantity |
| quantity\_type | varchar | 25 | Quantity type |
| description | text |  | Description |
| uploaded\_date | date |  | Uploaded date |
| status | varchar | 10 | Status |

**Structure of Table “product purchase bill”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| product\_purchase\_bill\_id | int | 10 | Product purchase bill ID |
| country\_id | int | 10 | Country ID |
| state\_id | int | 10 | State ID |
| city\_id | int | 10 | City ID |
| customer\_name | varchar | 25 | Customer Name |
| customer\_address | text |  | Customer Address |
| pincode | varchar | 10 | Pincode |
| customer\_contact\_number | varchar | 15 | Customer Contact Number |
| purchase\_date | date |  | Purchase Record |
| Status | varchar | 10 | Status |
| payment\_type | varchar | 25 | Payment Type |
| payment\_description | text |  | Payment Description |
| seller\_id | int | 10 | Seller ID |

**Structure of Table “product\_purchase record”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| purchase\_record\_id | int | 10 | Purchase record ID |
| product\_purchase\_bill\_id | int | 10 | Product purchase bill ID |
| selling\_product\_id | int | 10 | Selling Product ID |
| quantity | int | 10 | Quantity of the product |
| cost | float | 10,2 | Cost of the product |
| Status | varchar | 10 | status |

**Structure of Table “purchase\_order”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| purchase\_order\_id | int | 10 | Purchase Order ID |
| product\_id | int | 10 | Product ID |
| purchase\_request\_id | int | 10 | Purchase Request ID |
| customer\_id | int | 10 | Customer ID |
| seller\_id | int | 10 | Seller ID |
| purchase\_order\_date | date |  | Date of purchase order |
| purchase\_order\_time | time |  | Time of purchase order |
| purchase\_amt | float | 10,2 | Amount of purchase order |
| quantity | float | 10,2 | Quantity of purchase order |
| status | varchar | 10 | Status of purchase order |

**Structure of Table “purchase\_order\_bill”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| purchase\_order\_bill\_id | int | 10 | Purchase order bill ID |
| purchase\_order\_id | int | 10 | Purchase order ID |
| payment\_type | varchar | 20 | Mode of payment |
| payment\_description | text |  | Description of the payment |
| paid\_date | date |  | Date of payment made |
| paid\_amt | float | 10,2 | Amount paid |
| status | varchar | 10 | Status of purchase order bill |

**Structure of Table “purchase\_request”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| purchase\_request\_id | int | 10 | Purchase Request ID |
| customer\_id | int | 10 | Customer ID |
| product\_id | int | 10 | Product ID |
| quantity | float | 10,2 | Quantity of purchase request |
| request\_date | date |  | Date of purchase request |
| request\_date\_expire | date |  | Expiry date of purchase request |
| note | text |  | Note on Purchase Request |
| status | varchar | 20 | Status of purchase request |

**Structure of Table “seller”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| seller\_id | int | 10 | Seller ID |
| seller\_name | varchar | 25 | Name of the seller |
| seller\_address | text |  | Address of the seller |
| state\_id | int | 10 | State ID |
| country\_id | int | 10 | Country ID |
| city\_id | int | 10 | City ID |
| pincode | varchar | 10 | Pincode of the seller’s location |
| contact\_number | varchar | 15 | Contact Number of the seller |
| mobile\_no | varchar | 10 | Mobile Number of the seller |
| email\_id | varchar | 50 | E-Mail of the seller |
| password | varchar | 25 | Password to login |
| bank\_name | varchar | 50 | Name of the bank |
| bank\_branch | varchar | 50 | Branch Name of the bank |
| bank\_IFSC | varchar | 25 | IFSC Code of seller’s bank account |
| bank\_acno | varchar | 25 | Seller’s bank account number |
| status | varchar | 10 | Status of the seller |

**Structure of Table “selling\_product”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| selling\_prod\_id | int | 10 | Selling product ID |
| category\_id | int | 10 | Category ID |
| product\_name | varchar | 25 | Name of the product |
| product\_ description | text |  | Description of the product |
| product\_img1 | varchar | 100 | Image of the product |
| product\_img2 | varchar | 100 | Image of the product |
| product\_img3 | varchar | 100 | Image of the product |
| product\_img4 | varchar | 100 | Image of the product |
| product\_img5 | varchar | 100 | Image of the product |
| quantity\_type | varchar | 50 | Quantity Type |
| cost | float | 10,2 | Cost of the product on sale |
| status | varchar | 10 | Status of the product on sale |

**Structure of Table “state”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| state\_id | int | 10 | Primary key |
| country\_id | int | 10 | Foreign key |
| state | varchar | 25 | Name of the state |
| description | text |  | Description of the state |
| status | varchar | 10 | Status of the state |

**Structure of Table “variety”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| variety\_id | int | 10 | Variety ID |
| category\_id | int | 10 | Category ID |
| produce\_id | int | 10 | Produce ID |
| variety | varchar | 25 | Name of the produce variety |
| description | text |  | Description about the variety |
| img | varchar | 100 | Image of the produce variety |
| status | varchar | 10 | Status of the produce variety |

**Structure of Table “worker”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| worker\_id | int | 10 | Worker ID |
| name | varchar | 50 | Name of the worker |
| address | text |  | Address of the worker |
| state\_id | int | 10 | State ID |
| city\_id | int | 10 | City ID |
| country\_id | int | 10 | Country ID |
| pincode | varchar | 10 | Pincode of the worker’s location |
| work\_profile | text |  | Services provided by the worker |
| biodata | varchar | 100 | Biodata of the worker |
| contactno | varchar | 15 | Contact Number |
| date\_of\_birth | date |  | Date of birth of the worker |
| login\_id | varchar | 100 | Worker’s login ID |
| password | varchar | 100 | Worker’s password to login |
| expected\_salary | float | 10,2 | Salary range the worker expects |
| status | varchar | 10 | Status of the worker |

**Structure of Table “worker\_request”:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Field Name** | **Field Type** | **Size** | **Description** |
| worker\_request\_id | int | 10 | Worker Request ID |
| worker\_id | int | 10 | Worker ID |
| seller\_id | int | 10 | Seller ID |
| from\_date | date |  | Date of commencement of work |
| to\_date | date |  | Date of completion of work |
| task | text |  | Task to be done by the worker |
| country\_id | int | 10 | Country ID |
| state\_id | int | 10 | State ID |
| city\_id | int | 10 | City ID |
| salary | float | 10,2 | Salary provided |
| salary\_type | varchar | 20 | Type of salary |
| seller\_status | varchar | 20 | Status of the seller |
| worker\_status | varchar | 20 | Status of the worker |
| seller\_comment | text |  | Comment by the seller |
| worker\_comment | text |  | Comment by the worker |

1. **Entity-Relationship Diagram:**

An entity-relationship (ER) diagram is a specialized graphic that illustrates the [relationships between entities in a database](http://databases.about.com/od/specificproducts/a/Database-Relationships-An-Introduction-To-Foreign-Keys-Joins-And-E-R-Diagrams.htm). ER diagrams often use symbols to represent three different types of information. Boxes are commonly used to represent entities. Diamonds are normally used to represent relationships and ovals are used to represent attributes.

The Symbols are shown in below table:

|  |  |  |
| --- | --- | --- |
| **Name** | **Notation** | **Description** |
| Entity |  | Entity is represented by a box within the ERD. Entities are abstract concepts, each representing one or more instances of the concept in question. An entity might be considered a container that holds all of the instances of a particular thing in a system. Entities are equivalent to database tables in a relational database, with each row of the table representing an instance of that entity. |
| Relationship |  | Relationships are represented by Diamonds. A relationship is a named collection or association between entities or used to relate to two or more entities with some common attributes or meaningful interaction between the objects. |
| Attributes |  | Attributes are represented by Oval. An attribute is a single data item related to a database object. The database schema associates one or more attributes with each database entity. |

**ER-Diagram:**





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**Database schema Diagram:**

