# DATABASE DESIGN

**1.0 General Information**

Database design is the process of producing a detailed data model of a database. This logical data model contains all the needed logical and physical design choices and physical storage parameters. Need to generate a design in a data definition language, which can then be used to create a database. A fully attributed data model contains detailed attributes for each entity.

The term database design can be used to describe many different parts of the design of an overall database system. Principally, and most correctly, it can be thought of the logical design of the relation of the base data structures used to store the data. In the relational model these are the classes and named relationships. However, the term database design could also be used to apply to overall process of designing, not just the base data structure, but also the forms and queries used as part of the overall database application within the database management system (DBMS).

**1.1 Purpose**

Database description describes all the databases used in the software to store all the records. The database in turn is further described in detail giving all the fields used with their data type; constraints include primary key, foreign key, etc. Which allow the entities to be uniquely identified.

**1.2 Scope**

* Provide a complete solution for connecting with the friends.
* Help build online communities of people
* Provide productive environment as per user’s reading interest
* To understand how social network works.

**1.3 System overview**

We are creating the web application Social Networking Management System.

* **System Title**: Social Networking Management System.
* **System Category**: RDBMS(Relational Database management system)

A sort definition of RDBMS may be a DBMS in which data is stored in the form of tables and the relationship among the data is also stored in the form of tables.

* Optional status: Under Development status.
* Undergoing major Modification: Data will be stored in the database after the development.

**1.4 Project References**

The needed requirement for this project has been obtained by the observing manual records.

**1.5 Acronyms and Abbreviations**

### DBMS – Database management system

**1.6 Points of contact**

**1.6.2 Co Ordination**:

Database should be Secure, Security is the degree of protection against danger, damage, loss, and criminal activity. Security as a form of protection is structures and processes that provide or improve security as a condition.

**Data owners**

All data requirements are owned by Social Networking Management System.

**2.0 DATABASE IDENTIFICATION AND DESCRIPTION**

2.1 Naming Conversion:

When designing a database schema, the choice of names for entity types, attributes, relation types and roles is not always straightforward. One should choose names that convey, as much as possible, the meanings attached to the different constructs in the schema we choose to use similar names for entity types rather than plural ones, because the entity types name applies to each individual entity belonging to that entity types. In our ER diagrams, we will use the convention that entity type and relationship type names are uppercase letters, attributes name s are initial letters capitalized, and role names are lower case letters.

As a general practices, given a narrative descriptions of the database requirements, the nouns appearing in the narrative tend to give rise to entity type names, and the verbs tend to indicate names of relationships types. Attribute names generally arise from additional nouns that describe the nouns corresponding to entity types.

**2.2 Database Identification:**

**Database Name:** SocialNetworking

* [address](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=address&pos=0)
* [blog](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=blog&pos=0)
* [bookmark](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=bookmark&pos=0)
* [bookmark\_category](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=bookmark_category&pos=0)
* [bookmark\_info](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=bookmark_info&pos=0)
* [bookmark\_sub\_category](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=bookmark_sub_category&pos=0)
* [chat](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=chat&pos=0)
* [city](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=city&pos=0)
* [comment](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=comment&pos=0)
* [country](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=country&pos=0)
* [feed](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=feed&pos=0)
* [feed\_category](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=feed_category&pos=0)
* [feed\_info](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=feed_info&pos=0)
* [feed\_sub\_category](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=feed_sub_category&pos=0)
* [friend](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=friend&pos=0)
* [friend\_list](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=friend_list&pos=0)
* [lang](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=lang&pos=0)
* [message](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=message&pos=0)
* [nickname](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=nickname&pos=0)
* [notification](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=notification&pos=0)
* [privacy](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=privacy&pos=0)
* [privacy\_type](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=privacy_type&pos=0)
* [profile](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=profile&pos=0)
* [status](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=status&pos=0)
* [thumb\_up\_down](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=thumb_up_down&pos=0)
* [user](http://localhost/phpmyadmin/sql.php?db=socialnetworking&token=53eeb923ba51552da57baab0a210ca2a&table=user&pos=0)

### Features

**Friends Interaction**

* + Message/Status Update/Reply
  + Like/Dislike Friend’s Status

**Bookmarking**

* + **Top bookmark** suggestion using Analytic Hierarchy Process
  + Personal bookmarks become portable

**Updates from Feeds**

* + Saving web feeds allows user to save browsing time
  + User saves feed as per their reading interest
  + Top feeds Suggestion using Analytic Hierarchy Process

**System Breakdown Diagram**

The Social Networking Management System Database designed under following features.

* User profile
* Friends
* Friends List
* Status Updates
* Thumbs up/down status
* Bookmark saving
* RSS feeds saving
* Notifications
* Chat
* Message
* Blog post, News feed

**2.3 Systems using the database:**

Processor: Intel core Dual Core CPU M 350 @ 2.27GHZ

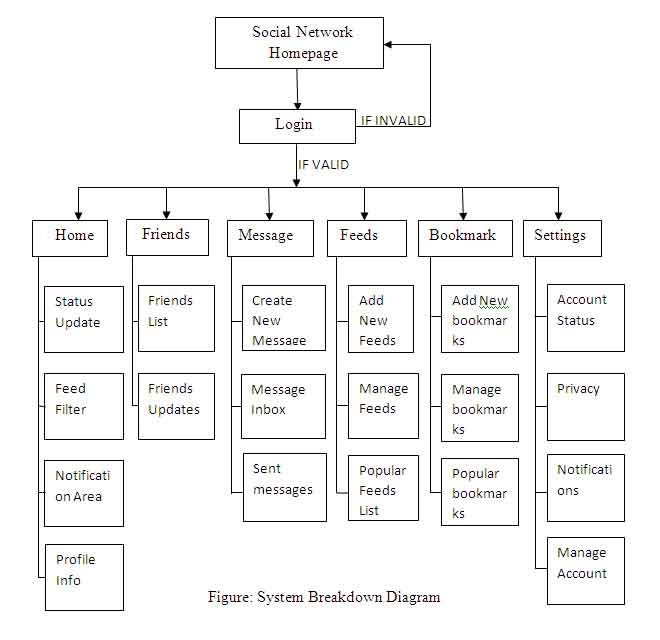
Installed memory (RAM): 1.00GM (1.86GB usable)

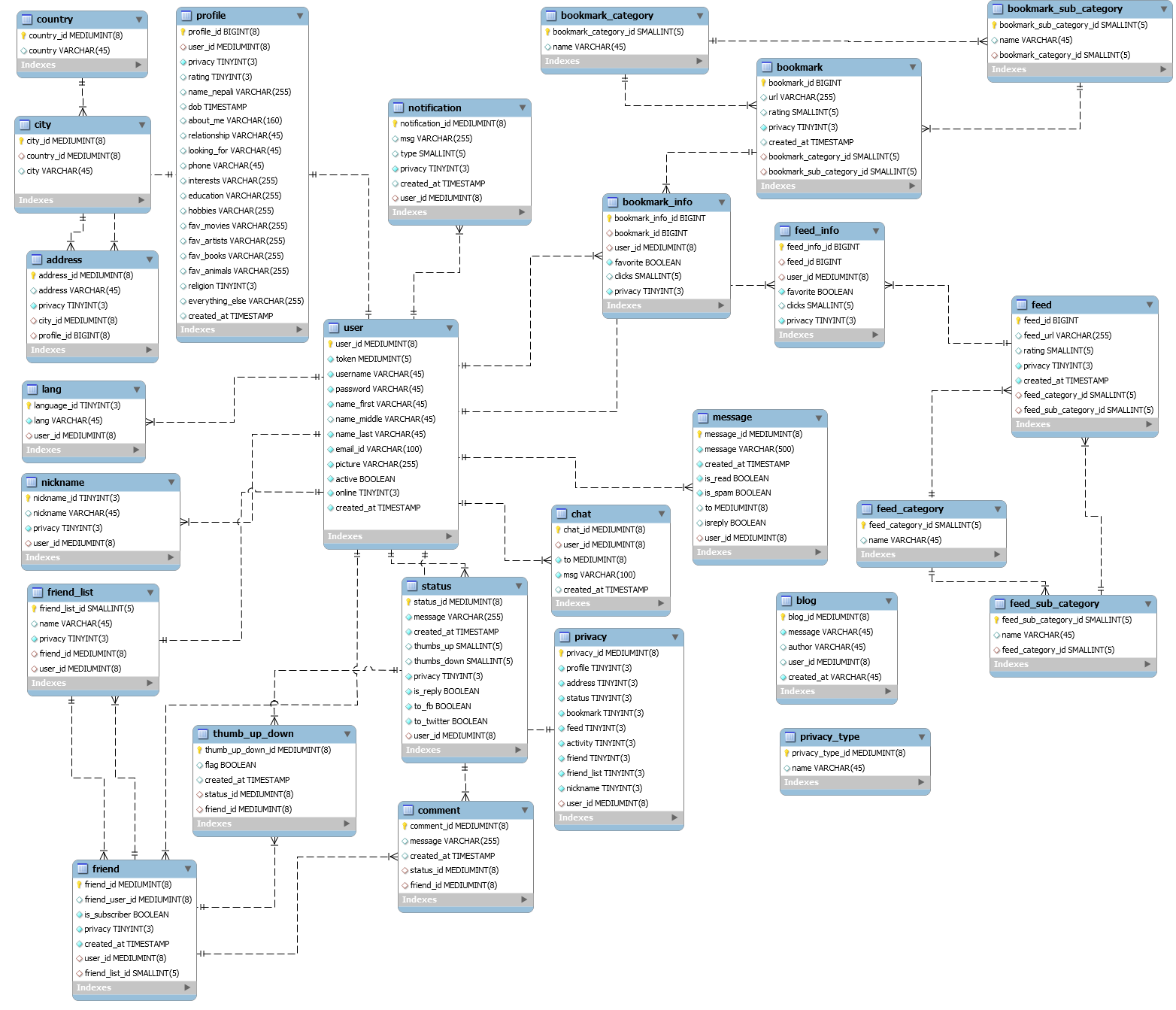
System type: 32-bit operating system

**2.4 Relationship to other Database:**

None

**2.5 Schema information:**



**Schema Diagram**

**2.5.2 Physical Design**

* **Intel Model/Physical Model**

User Request

External Model

**DBMS**

Internal Model

Access Methods

Operating System

Access Methods

Data base

**2.5.3 Physical Structure**

**2.6 ER Diagram**

An Entity Relation of (**ER**) Diagram is a specialized graphics that illustrates the interrelationship between entities in a database. ER diagrams often use symbols to represent 3 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.

An Entity Relationship model (ERM), in software engineering is an abstract and conceptual represent of data. Entity Relationship modeling is a relational schema database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relation database, and its requirements in a top-down fashion.

**Entity:**

Entity is the thing which we want to store information. It is an elementary basic building block of storing information about business process. An entity represents an object defined within the information system about which you want to store information. Entities are distinct things in the enterprise.

**Relationships**

A relationship is a named collection or association between entities or used to relate two or more entities with some common attributes or meaningful interaction between the objects.

**Attributes**

Attributes are the properties of the entities and relationship, Descriptor of the entity. Attributes are elementary pieces of information attached to an entity.

profile

updates

country

creates

updates

contains

city

user

address

updates

invites friends

nickname

friendslist

feedback

sends

posts

sends

message

feed

stores

Bookmark\_info

chat

has

**2.7 Data Dictionary:**

## Table Name address

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***address\_id*** | mediumint(8) | No |  |
| address | varchar(45) | Yes | NULL |
| privacy | tinyint(3) | No | 0 |
| city\_id | mediumint(8) | Yes | NULL |
| profile\_id | bigint(8) | Yes | NULL |

## Table Name bookmark

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***bookmark\_id*** | bigint(20) | No |  |
| url | varchar(255) | Yes | NULL |
| Rating | smallint(5) | Yes | NULL |
| Privacy | tinyint(3) | No | 2 |
| created\_at | timestamp | Yes | NULL |
| bookmark\_category\_id | smallint(5) | No |  |
| bookmark\_sub\_category\_id | smallint(5) | Yes | NULL |

## Table Name bookmark\_category

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***bookmark\_category\_id*** | smallint(5) | No |  |
| name | varchar(45) | Yes | NULL |

## Table Name bookmark\_info

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***bookmark\_info\_id*** | bigint(20) | No |  |
| bookmark\_id | bigint(20) | Yes | NULL |
| user\_id | mediumint(8) | Yes | NULL |
| favorite | tinyint(1) | No | 0 |
| clicks | smallint(5) | Yes | NULL |
| privacy | tinyint(3) | No | 2 |

## Table Name bookmark\_sub\_category

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***bookmark\_sub\_category\_id*** | smallint(5) | No |  |
| Name | varchar(45) | Yes | NULL |
| bookmark\_category\_id | smallint(5) | Yes | NULL |

## Table Name chat

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***chat\_id*** | mediumint(8) | No |  |
| user\_id | mediumint(8) | Yes | NULL |
| to | mediumint(8) | No |  |
| msg | varchar(100) | No |  |
| created\_at | timestamp | Yes | NULL |

## Table Name city

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***city\_id*** | mediumint(8) | No |  |
| country\_id | mediumint(8) | Yes | NULL |
| city | varchar(45) | Yes | NULL |

## Table Name comment

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***comment\_id*** | mediumint(8) | No |  |
| message | varchar(255) | Yes | NULL |
| created\_at | timestamp | Yes | NULL |
| status\_id | mediumint(8) | Yes | NULL |
| friend\_id | mediumint(8) | Yes | NULL |

## Table Name country

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***country\_id*** | mediumint(8) | No |  |
| country | varchar(45) | Yes | np |

## Table Name feed

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***feed\_id*** | bigint(20) | No |  |
| feed\_url | varchar(255) | Yes | NULL |
| rating | smallint(5) | Yes | NULL |
| privacy | tinyint(3) | No | 2 |
| created\_at | timestamp | No | CURRENT\_TIMESTAMP |
| feed\_category\_id | smallint(5) | Yes | NULL |
| feed\_sub\_category\_id | smallint(5) | Yes | NULL |

## Table Name feed\_category

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***feed\_category\_id*** | smallint(5) | No |  |
| name | varchar(45) | Yes | NULL |

## Table Name feed\_info

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***feed\_info\_id*** | bigint(20) | No |  |
| feed\_id | bigint(20) | Yes | NULL |
| user\_id | mediumint(8) | Yes | NULL |
| favorite | tinyint(1) | No | 0 |
| clicks | smallint(5) | Yes | NULL |
| privacy | tinyint(3) | No | 2 |

## Table Name feed\_sub\_category

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***feed\_sub\_category\_id*** | smallint(5) | No |  |
| name | varchar(45) | Yes | NULL |
| feed\_category\_id | smallint(5) | Yes | NULL |

## Table Name friend

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***friend\_id*** | mediumint(8) | No |  |
| friend\_user\_id | mediumint(8) | Yes | NULL |
| is\_subscriber | tinyint(1) | No | 1 |
| privacy | tinyint(3) | No | 0 |
| created\_at | timestamp | No | CURRENT\_TIMESTAMP |
| user\_id | mediumint(8) | No |  |
| friend\_list\_id | smallint(5) | Yes | NULL |

## Table Name friend\_list

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***friend\_list\_id*** | smallint(5) | No |  |
| name | varchar(45) | Yes | NULL |
| privacy | tinyint(3) | No | 0 |
| friend\_id | mediumint(8) | Yes | NULL |
| user\_id | mediumint(8) | Yes | NULL |

## Table Name lang

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***language\_id*** | tinyint(3) | No |  |
| lang | varchar(45) | No | en |
| user\_id | mediumint(8) | Yes | NULL |

## Table Name message

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***message\_id*** | mediumint(8) | No |  |
| message | varchar(500) | No |  |
| created\_at | timestamp | No | CURRENT\_TIMESTAMP |
| is\_read | tinyint(1) | No | 0 |
| is\_spam | tinyint(1) | No | 0 |
| to | mediumint(8) | Yes | NULL |
| isreply | tinyint(1) | Yes | 0 |
| user\_id | mediumint(8) | Yes | NULL |

## Table Name nickname

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***nickname\_id*** | tinyint(3) | No |  |
| nickname | varchar(45) | Yes | NULL |
| privacy | tinyint(3) | No | 0 |
| user\_id | mediumint(8) | Yes | NULL |

## Table Name notification

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***notification\_id*** | mediumint(8) | No |  |
| msg | varchar(255) | Yes | NULL |
| type | smallint(5) | Yes | NULL |
| privacy | tinyint(3) | No | 0 |
| created\_at | timestamp | Yes | NULL |
| user\_id | mediumint(8) | Yes | NULL |

## Table Name privacy

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***privacy\_id*** | mediumint(8) | No |  |
| profile | tinyint(3) | No | 1 |
| address | tinyint(3) | No | 2 |
| status | tinyint(3) | No | 1 |
| bookmark | tinyint(3) | No | 1 |
| feed | tinyint(3) | No | 1 |
| activity | tinyint(3) | No | 1 |
| friend | tinyint(3) | No | 1 |
| friend\_list | tinyint(3) | No | 0 |
| nickname | tinyint(3) | No | 1 |
| user\_id | mediumint(8) | Yes | NULL |

## Table Name privacy\_type

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***privacy\_type\_id*** | mediumint(8) | No |  |
| name | varchar(45) | Yes | NULL |

## Table Name profile

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***profile\_id*** | bigint(8) | No |  |
| user\_id | mediumint(8) | No |  |
| privacy | tinyint(3) | No | 1 |
| rating | tinyint(3) | Yes | 1 |
| name\_nepali | varchar(255) | Yes | NULL |
| dob | timestamp | Yes | NULL |
| about\_me | varchar(160) | Yes | NULL |
| relationship | varchar(45) | Yes | NULL |
| looking\_for | varchar(45) | Yes | NULL |
| phone | varchar(45) | Yes | NULL |
| interests | varchar(255) | Yes | NULL |
| education | varchar(255) | Yes | NULL |
| hobbies | varchar(255) | Yes | NULL |
| fav\_movies | varchar(255) | Yes | NULL |
| fav\_artists | varchar(255) | Yes | NULL |
| fav\_books | varchar(255) | Yes | NULL |
| fav\_animals | varchar(255) | Yes | NULL |
| religion | tinyint(3) | Yes | NULL |
| everything\_else | varchar(255) | Yes | NULL |
| created\_at | timestamp | Yes | NULL |

## Table Name status

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***status\_id*** | mediumint(8) | No |  |
| message | varchar(255) | No |  |
| created\_at | timestamp | No | CURRENT\_TIMESTAMP |
| thumbs\_up | smallint(5) | Yes | NULL |
| thumbs\_down | smallint(5) | Yes | NULL |
| privacy | tinyint(3) | No | 0 |
| is\_reply | tinyint(1) | No | 0 |
| to\_fb | tinyint(1) | No | 0 |
| to\_twitter | tinyint(1) | No | 0 |
| user\_id | mediumint(8) | No |  |

## Table Name thumb\_up\_down

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***thumb\_up\_down\_id*** | mediumint(8) | No |  |
| flag | tinyint(1) | Yes | 1 |
| created\_at | timestamp | Yes | NULL |
| status\_id | mediumint(8) | Yes | NULL |
| friend\_id | mediumint(8) | Yes | NULL |

## Table Name user

|  |  |  |  |
| --- | --- | --- | --- |
| **Column** | **Type** | **Null** | **Default** |
| ***user\_id*** | mediumint(8) | No |  |
| token | mediumint(5) | No |  |
| username | varchar(45) | No |  |
| password | varchar(45) | No |  |
| name\_first | varchar(45) | No |  |
| name\_middle | varchar(45) | Yes | NULL |
| name\_last | varchar(45) | No |  |
| email\_id | varchar(100) | No |  |
| picture | varchar(255) | No | /web/image/default.jpg |
| active | tinyint(1) | No | 1 |
| online | tinyint(3) | No | 1 |
| created\_at | timestamp | No | CURRENT\_TIMESTAMP |

1. **DATABASE ADMINISTRATIVE INFORMATION**

**3.1 Responsible**

Essentially the main role of a database administrative has to do with overseeing the installation and ongoing function of software on a system designed for use by the number of users. There are several specific responsibilities that the typical database administrator will perform in the just about any corporate environment.

A Basic responsibility for just about every database administrator involves the installation of new databases. As part of the database installation, the database administrator will set up login credential to authorized person, define the privileges associated with each authorized user,and ensure that every work station attached to the network is set up to access the new database. This process usually involves a period of troubleshooting, in which the database administrator will address and resolve any problems that users experience with the new project.

* There are four different types of database administrator jobs:

Installation, maintenance, data modeling, and user management. A database administrator is responsible for managing the database(s) that are used to hold the data for large database-driven software.

* Computer often play an integral role with sales team activities and documentation tracking. Sales administrator jobs may therefore manage information technology to minimize electronic data problem.

**3.2 System Information**

**3.2.1 Database management System (DBMs) Configuration.**

**MySQL Configuration**

* Server: localhost via TCP/IP
* Server version: 5.5.16
* Protocol version: 10
* User: root@localhost
* MySQL charset: UTF-8 Unicode (utf8)

**Webserver Information:**

Apache/2.2.21 (Win32) mod\_ssl/2.2.21 OpenSSL/1.0.0e PHP/5.3.8 mod\_perl/2.0.4 Perl/v5.10.1

MySQL client version: mysqlnd 5.0.8-dev - 20102224 - $Revision: 310735 $

PHP extension: mysql [Documentation](http://php.net/manual/en/book.mysql.php)

**3.2.2 Hardware Configuration**

|  |  |
| --- | --- |
| Processor | processor 133-Mhz intel Pentium-class |
| Hard disk | 120GB recommended |
| Memory | 128MB of RAM,256MB |
| Display | Standard output display |
| Keyboard | Standard qwerty keyboard for interface |
| Mouse | Standard mouse with two buttons |

**3.2.3 Database Software utilities**

Utilities software (also known as program, service routine, tool, or utility routine is a type of computer software. It is specially designed to help manage and tune the computer hardware, operating system or application software and perform a single task or a small range of task; as opposed to application software which tend to be software suites.

Support Software Available for Maintaining Database

Operating System:

Minimum hardware requirements for windows XP

**Architecture** 32-bit 64-bit

**Processor** 1 GHz x86 processor 1 GHz x86 processor

**Memory** (RAM) 1GB 2GB

**Graphics** **card** Direct X9graphics processor with WDDM driver

Model 1.0

**HDD free space**  16GB of free disk space 20 GB of free disk space

**Optical drive** DVD drive (only to install from DVD/CD media)

**3.2.5 Security**

To maintain non replication of data Most of the tables are designed with primary key.

Data Integration between the tables maintains using foreign key.

User Authentication for the system stored in the login tables.

Backup provision is given in order to prevent loss of data.

**3.3 Storage Requirements**

Our application can store in Apache Server

Capacity: 83,780,169,728 bytes 78.0 GB

Tools: Error Checking

Defragmentation

Back up

Hardware

**All Devices:**

|  |  |
| --- | --- |
| Name | Type |
| Generic Flash Disk USB Drive | Disk Drive |
| Hitachi S545016139A3000 | Disk Drive |
| MATSHITA DVD RAM UJ89ASATA | DVD/CD |

**3.4 Recovery**

Database recovery is the process of restoring the database to a correct state following a failure. The failure may be the result of a system crash due to hardware or software errors, a media failure, such as a head crash, or a software error in the application, such as logical errors in the program that is access the database. It may also be result of unintentional or intentional correction or destruction of data. Whatever the underlying cause of the failure, the DBMS must be able to recover from the failure and restore the database to a consistent state. It is the responsibility of DBMS to ensure that the database is reliable and remains in a consistent state in the presence of failures. In general, backup and recovery refers to the various strategies and procedures involved in the protecting the database against data loss and reconstructing the data such that no data is loss after failure.