DBMS - CS351

GODADDY SITE
FINAL REPORT

Group no 8

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Introduction

A domain name registrar is an organization or commercial entity that manages the reservation of Internet domain names. The management is done in accordance with the guidelines of the designated domain name registries.

Of the registrars who initially entered the market, many have continued to grow and outpace rivals. Go Daddy is the largest registrar.

What are DNS Records?

The DNS records are automatically bundled up into a zone file, which is what allows the Internet to look up the correct IP address for your domain. Three types which we have included in our database are:

1. A -IPv4 address for the record.
2. AAAA -IPv6 address for the record.
3. CNAME -domain name to which this domain name forwards request.
4. MX -mail server address.

*A website cannot have both CNAME and A values simultaneously.

ER DIAGRAM
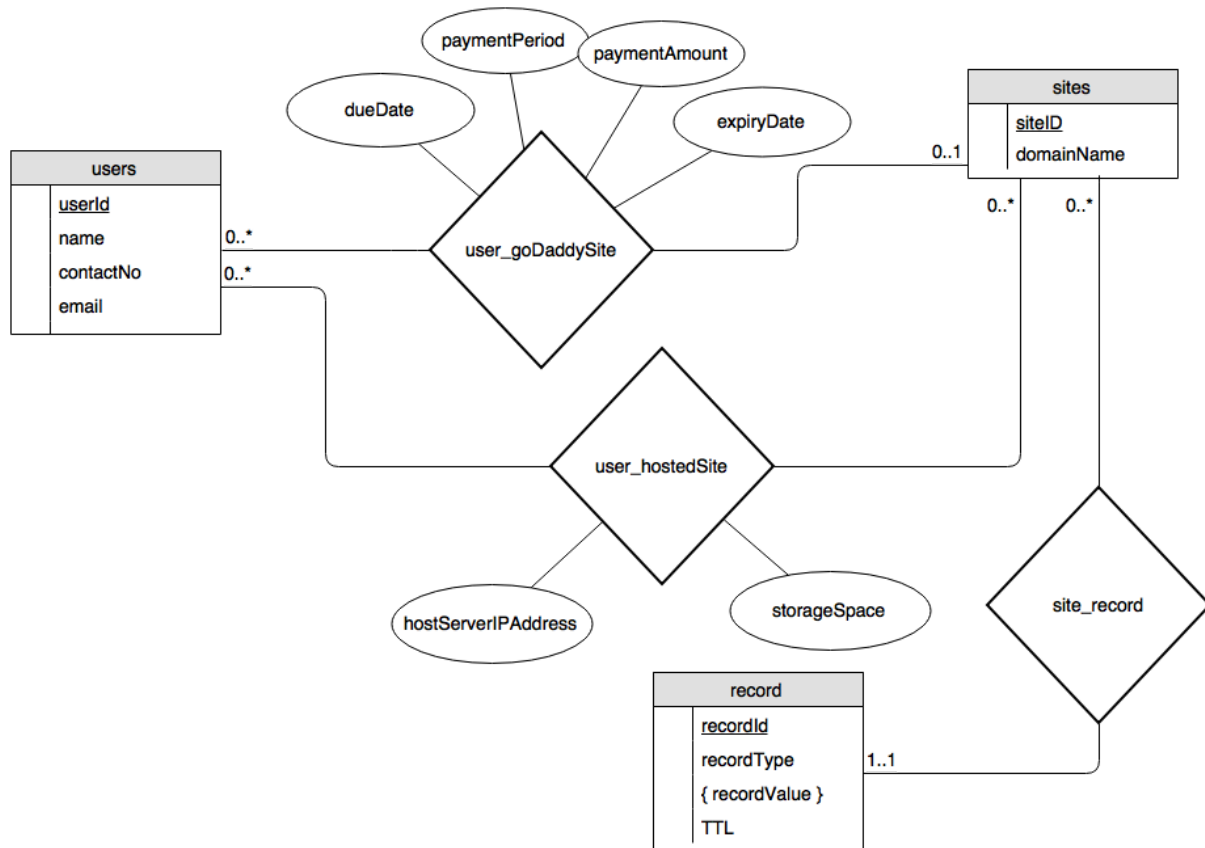
Assumption:

1. Users have already registered on godaddy and filled payment method details.
2. Godaddy's system daily checks if there that day is due date of any user, notifies him accordingly.
3. If user opts for site hosting fixed storage space is offered.
4. A registered user on goDaddySite can buy 0 or more domain names and a particular site can be owned by at most one registered user.
5. A registered user can host zero or more site on goDaddySite.
6. A particular record can have one and only one corresponding site whereas a particular site can have zero or more records associated with it.

Features

1. 'sites' Table enlists all the existing domain names registered with any domain registrar. Thus it will help goDaddy system to check which domain names are still available.
2. 'users' table has the names and contact details of all the registered users on goDaddy.
3. user_goDaddySite contains information regarding any domain name registration done via goDaddy.
    a. dueDate: date when the next payment installment is due
    b. paymentPeriod: period of installment , -1 if it is a one-time payment
    c. paymentAmount: amount of installment
    d. expiryDate: the date until which this domain name registration is valid
4. goDaddySite record contains all DNS records of domian names registered via goDaddy.
    a. recordType can be one of DNS record types like: A, CNAME, MX etc.
    b. TTL: Time To Live for the particular record
5. Record_value : Value of each DNS record can be multivalued , hence these have been stored in another table, to reduce redundancy.
6. goDaddy also provides the hosting server space if one opts for it. user_hostedSite contains all records of sites hosted by goDaddy.
7. Expiry date tells date till when domain name will be flushed if not renewed. However the due date is date till which if user dont pays then all records of domain name are seized though domain name is not flushed.

SCHEMA
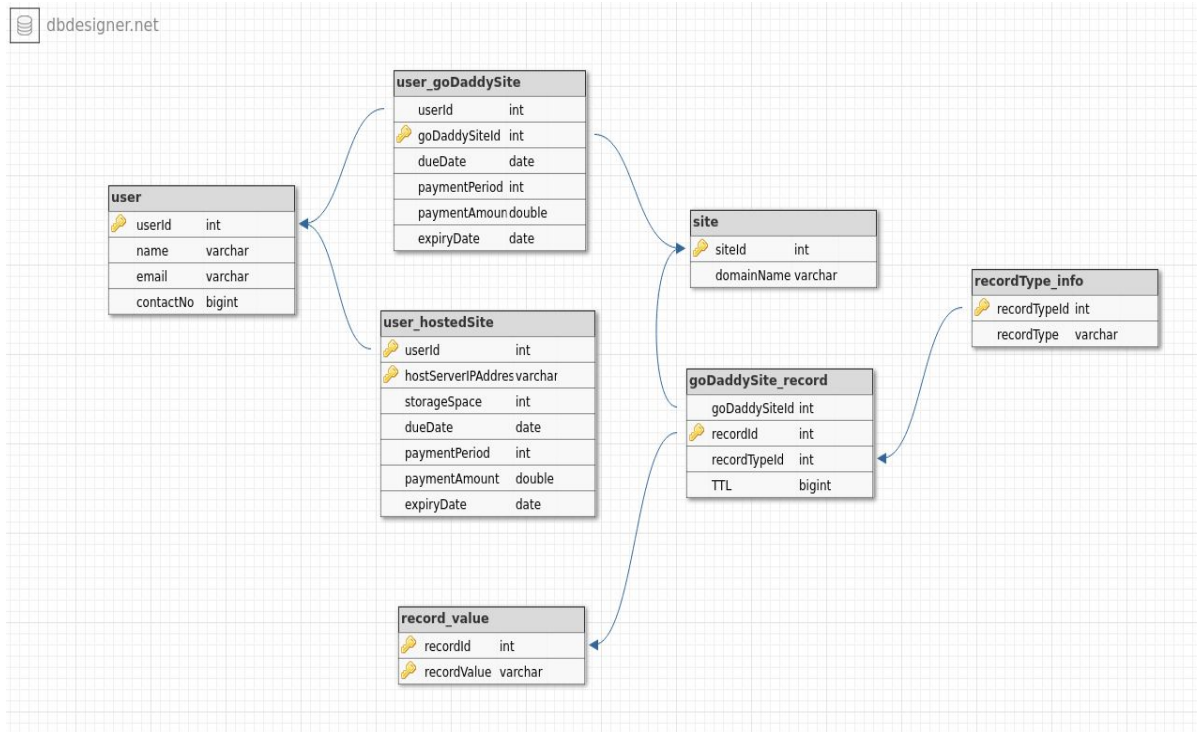
Tables Information:

CK = Candidate Key
PK = Primary Key
FD = Functional Dependency

```
site:
      CK = siteId, domainName
      PK = siteId
      FD:
            siteId -> domainName
            domainName -> siteId


user:
      CK = userId,email,contactNo.
      PK = userId
      FD:
            userId -> email,name
            email -> contactNo.
```

```
                        contactNo. -> userId


        user_goDaddySite
                PK = CK = goDaddySideId
                FD:
                        goDaddySiteId -> userId,dueDate, paymentPeriod,
                                         paymentAmount, expiryDate


        user_hostedSite
                PK = CK = (userId,hostServerIPAddress)
                FD:
                        (userID,hostServerIdAddress)-> storageSpace, dueDate,
                        paymentPeriod, paymentAmount, expiryDate.


        record_value
                PK = CK = (recordId,recordValue)


        recordType_info
                CK = recordTypeId, recordType
                PK = recordTypeId
                FD:
                        recordTypeId-> recordType
                        recordType-> recordTypeId
```

Highest Normal Forms:

All the tables are in BCNF.

Table Creation Code:

```sql
CREATE TABLE `user_goDaddySite` (
        `userId` int,
        `goDaddySiteId` int,
        `dueDate` DATE,
        `paymentPeriod` int,
        `paymentAmount` double,
        `expiryDate` DATE,
        PRIMARY KEY (`goDaddySiteId`)
);

CREATE TABLE `site` (
```

```sql
        `siteId` int,
        `domainName` varchar(20),
        PRIMARY KEY (`siteId`)
);

CREATE TABLE `record_value` (
        `recordId` int,
        `recordValue` varchar(20),
        PRIMARY KEY (`recordId`,`recordValue`)
);

CREATE TABLE `goDaddySite_record` (
        `goDaddySiteId` int,
        `recordId` int,
        `recordTypeId` int,
        `TTL` bigint,
        PRIMARY KEY (`recordId`)
);

CREATE TABLE `user_hostedSite` (
        `userId` int,
        `hostServerIPAddress` varchar(20),
        `storageSpace` int,
        `dueDate` DATE,
        `paymentPeriod` int,
        `paymentAmount` double,
        `expiryDate` DATE,
        PRIMARY KEY (`userId`,`hostServerIPAddress`)
);

CREATE TABLE `recordType_info` (
        `recordTypeId` int,
        `recordType` varchar(20),
        PRIMARY KEY (`recordTypeId`)
);

ALTER TABLE `user_goDaddySite` ADD CONSTRAINT `user_goDaddySite_fk0` FOREIGN KEY (`userId`)
REFERENCES `user`(`userId`);

ALTER TABLE `user_goDaddySite` ADD CONSTRAINT `user_goDaddySite_fk1` FOREIGN KEY
(`goDaddySiteId`) REFERENCES `site`(`siteId`);

ALTER TABLE `goDaddySite_record` ADD CONSTRAINT `goDaddySite_record_fk0` FOREIGN KEY
(`goDaddySiteId`) REFERENCES `site`(`siteId`);

ALTER TABLE `goDaddySite_record` ADD CONSTRAINT `goDaddySite_record_fk1` FOREIGN KEY
(`recordId`) REFERENCES `record_value`(`recordId`);

ALTER TABLE `user_hostedSite` ADD CONSTRAINT `user_hostedSite_fk0` FOREIGN KEY (`userId`)
REFERENCES `user`(`userId`);
```

```
ALTER TABLE `recordType_info` ADD CONSTRAINT `recordType_info_fk0` FOREIGN KEY
(`recordTypeId`) REFERENCES `goDaddySite_record`(`recordTypeId`);
```

Possible Query Types:

1. When a user wants to register a new domain name, check whether the domain name already existing site or not:

```
select count(*) from site
where domainName = 'tarunkumar.in';
```

```
MariaDB [goDaddy]> select count(*) from site
    -> where domainName = 'siel.nl';
+----------+
| count(*) |
+----------+
|        1 |
+----------+
1 row in set (0.08 sec)
```

2. Display all subdomain names for a given domain name:

```
select domainName from site
where domainName like '%amanto.be';
```

```
mysql> select domainName from site
    -> where domainName like '%amanto.be';
+-------------------+
| domainName        |
+-------------------+
| amanto.be         |
| rajdio.amanto.be  |
+-------------------+
2 rows in set (0.00 sec)
```

3. For a given domain-name, display its expiry date if it is registered under goDaddy (this query will be useful if another user wants to know expiry date of a domain name he is interested in):

```
select expiryDate from user_goDaddySite as A, site as B
where A.goDaddySiteId = B.siteId and B.domainName = 'amanto.be';
```

```
mysql> select expiryDate from user_goDaddySite as A, site as B
    -> where A.goDaddySiteId = B.siteId and B.domainName = 'amanto.be';
+------------+
| expiryDate |
+------------+
| 2020-02-12 |
+------------+
1 row in set (0.04 sec)
```

4. All websites whose dueDate is within next 30 days (to notify user), print email-id for corresponding users (useful to notify the concerned user):

```
select email, domainName, dueDate
from user as A, user_goDaddySite as B, site as C
where A.userId = B.userId and B.goDaddySiteId = C.siteId and DATE_ADD(CURDATE(),INTERVAL 30
DAY) > dueDate and CURDATE() <= dueDate;
```

```
mysql> select email, domainName, dueDate from user as A, user_goDaddySite as
B, site as C where A.userId = B.userId and B.goDaddySiteId = C.siteId and DAT
E_ADD(2017-10-01,INTERVAL 30 DAY) > dueDate and 2017-10-01 <= dueDate;
+------------------+
| domainName       |
+------------------+
| bvillaseminyak.com |
+------------------+
1 row in set (0.00 sec)
```

-- NOTE: above query will check with respect to current date, using the CURDATE() function. To compare with respect to someother date, replace CURDATE() everywhere with date , like '2017-03-02'

5. All websites whose dueDate was yesterday (we use this query to discontinue services for those websites):

```
select domainName
from user_goDaddySite as A, site as B
where A.goDaddySiteId = B.siteId and dueDate = DATE_SUB(CURDATE(),INTERVAL 1 DAY);
```

```
mysql> select domainName from user_goDaddySite as A, site as B where A.goDadd
SiteId = B.siteId and dueDate = DATE_SUB(2017-10-03,INTERVAL 1 DAY);
+------------------+
| domainName       |
+------------------+
| bvillaseminyak.com |
+------------------+
1 row in set (0.00 sec)
```

-- NOTE: above query will check with respect to current date, using the CURDATE() function. To compare with respect to someother date, replace CURDATE() everywhere with date , like '2017-05-03'

6. Update expiryDate for a website, when user renews his registration for a domain name (standard Expiry duration is 365 days):

```
update user_goDaddySite as A, site as B
set expiryDate = DATE_ADD(expiryDate,INTERVAL 365 DAY)
where A.goDaddySiteId = B.siteId and B.domainName = 'amanto.be';
```

```
MariaDB [goDaddy]> update user_goDaddySite as A, site as B
    -> set expiryDate = DATE_ADD(expiryDate,INTERVAL 365 DAY)
    -> where A.goDaddySiteId = B.siteId and B.domainName = 'amanto.be';
Query OK, 1 row affected (0.05 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

-- NOTE: input domain parameter for above query is: 'amanto.be'

7. Print all the ip-addresses for the sites registered by a user on goDaddy:

```
select domainName, recordValue
from user as A, user_goDaddySite as B, site as C, goDaddySite_record as D, record_value as E
where A.userId = B.userId and B.goDaddySiteId = C.siteId and C.siteId = D.goDaddySiteId
and D.recordId = E.recordId and name = 'Vaibhav Gosain'
and D.recordTypeId =
(
        select F.recordTypeId from recordType_info as F
        where F.recordType = 'A'
);
```

```
MariaDB [goDaddy]> select domainName, recordValue
    -> from user as A, user_goDaddySite as B, site as C, goDaddySite_record as D, record_value as E
    -> where A.userId = B.userId and B.goDaddySiteId = C.siteId and C.siteId = D.goDaddySiteId
    -> and D.recordId = E.recordId and name = 'Vaibhav Gosain'
    -> and D.recordTypeId =
    -> (
    -> select F.recordTypeId from recordType_info as F
    -> where F.recordType = 'A'
    -> );
+------------+-------------+
| domainName | recordValue |
+------------+-------------+
| jbbr.net   | 5.16.72.52  |
+------------+-------------+
1 row in set (0.06 sec)
```

-- NOTE: input user name parameter for above query is: 'Vaibhav Gosain'

8. Given a domain name, check if it is an alias of another website, and display that website's ip-address:

```
select B.recordValue
from goDaddySite_record as A, record_value as B
where A.recordId = B.recordId and A.recordTypeId =
(
  select C.recordTypeId from recordType_info as C
  where C.recordType = 'A'
)
and A.goDaddySiteId =
(
  select D.siteId from site as D
  where D.domainName in
  (
      select G.recordValue
      from site as E, goDaddySite_record as F, record_value as G
      where E.siteId = F.goDaddySiteId and F.recordId = G.recordId and F.recordTypeId =
    (
      select H.recordTypeId from recordType_info as H
      where H.recordType = 'CNAME'
    )
    and E.domainName = 'morban.co.uk'
  )
);
```

```
mysql> select B.recordValue
    -> from goDaddySite_record as A, record_value as B
    -> where A.recordId = B.recordId and A.recordTypeId =
    -> (
    ->   select C.recordTypeId from recordType_info as C
    ->   where C.recordType = 'A'
    -> )
    -> and A.goDaddySiteId =
    -> (
    ->   select D.siteId from site as D
    ->   where D.domainName in
    ->   (
    ->   select G.recordValue
    ->   from site as E, goDaddySite_record as F, record_value as G
    ->   where E.siteId = F.goDaddySiteId and F.recordId = G.recordId and F.recordTypeId =
    ->     (
    ->       select H.recordTypeId from recordType_info as H
    ->       where H.recordType = 'CNAME'
    ->     )
    ->     and E.domainName = 'morban.co.uk'
    ->   )
    -> );
+----------------+
| recordValue    |
+----------------+
| 43.241.134.205 |
+----------------+
1 row in set (0.11 sec)
```

-- *NOTE: input domain name parameter for above query is: 'morban.co.uk'*

9. Display hostserver data for all server-spaces bought by a user:

```
select hostServerIPAddress, storageSpace
from user as A, user_hostedSite as B
where A.userId = B.userId and name = "Tarun Kumar";
```

```
mysql> select hostServerIPAddress, storageSpace
    -> from user as A, user_hostedSite as B
    -> where A.userId = B.userId and name = "Tarun Kumar";
+---------------------+--------------+
| hostServerIPAddress | storageSpace |
+---------------------+--------------+
| 172.30.20.71        |           10 |
+---------------------+--------------+
1 row in set (0.04 sec)
```

10. Display userinfo for a user

```
select * from user where name = "Tarun Kumar";
```

```
mysql> select * from user where name = "Tarun Kumar";
+--------+-------------+---------------------+------------+
| userId | name        | email               | contactNo  |
+--------+-------------+---------------------+------------+
|      2 | Tarun Kumar | tarunk10@hotmail.com | 7060334208 |
+--------+-------------+---------------------+------------+
1 row in set (0.00 sec)
```