IS 6420 DB Project Report

CompanyName Database

Fall of 2012

October 29, 2012

Member Name1
Member Name2
Member Name3

Table of Contents

1 Business Description

CompanyName is a Utah based skin care retailer and the parent company to nationally recognized e-retail sites. Part of the Inc 500 in 2010, CompanyName focuses the majority of its labor and efforts on companyName.com, the company's leading site.

In order to remain competitive in the rapidly expanding e-retailing market, CompanyName maintains a high Search Engine Optimization (SEO) value through the use and utilization of its Blogger Network. This unique network contains 1,000+ beauty bloggers from all over the world who have agreed to host text and banner links on their personal blogs in return for a small payment via gift code and bi-monthly giveaway options. Each blogger hosts a text and/or banner link for one of the CompanyName e-retail sites. Having numerous links from a diversity of sources increases the "authority" Google perceives that site to have and in turn, ranks the company higher for specific searches. Higher rank placement drives more traffic and leads to an increase in sales.

2 Data Requirements

CompanyName deals with multiple different types of persons. These persons can be any of the following: bloggers, employees, and giveaway winners. They are identified by the following attributes: Person ID, Name (First, Last, Nickname [if applicable]), email address, shipping address (street address, city, state, country, zip code), and a phone number.

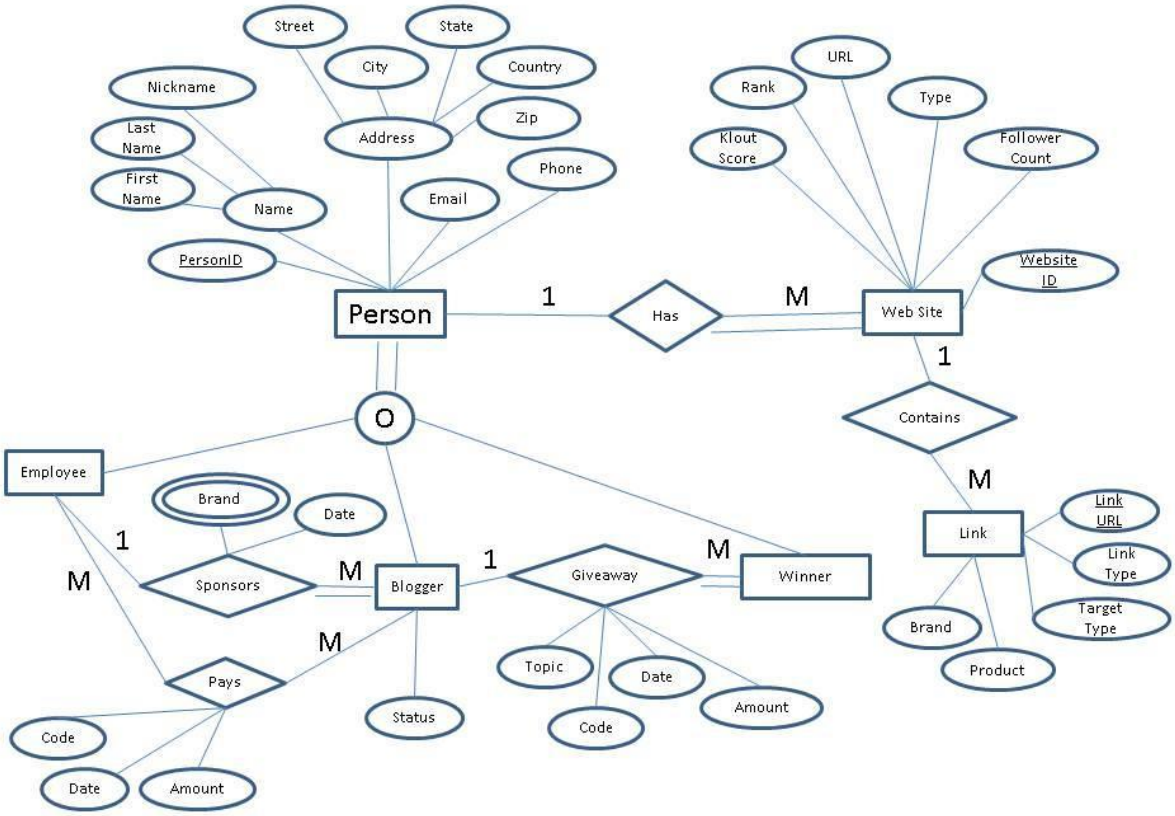
Each blogger must be sponsored by one employee. However, each employee can sponsor more than one blogger. The employee will record the starting date of the sponsorship as well as the specific pairing of brands given to the blogger. A blogger may have pairings with brands. After sponsoring a blogger, the employee then pays the blogger and records a unique gift code, gift amount, and the date paid. In addition, the bloggers' account status such as Active or Inactive, should be recorded.

The bloggers are allowed to host giveaways for their followers. Each blogger can host multiple giveaways, but there is only one winner per giveaway. The information collected on each giveaway is a unique gift code, topic, date initiated, and gift code amount.

Each person can have multiple websites, but each website can only belong to one person. CompanyName wants to record the URL for each site as well as the type of site it is. The types include a blog, Facebook page, Twitter page, Google+ page, LinkedIn page, Pinterest page, a StumbleUpon page, an Instagram page, and Youtube page. For each site, the follower count, page rank, and Kloutscore should be recorded. Every blog also contains at least one link to either a brand page, a product page, or a home page of a company. This link can be a text link, banner link, or an in-post link. Social media sites will eventually have these links but there may none for now.

For each link, CompanyName wants to track the link target URL address, link type such as text, banner, or in-post. The target URL refers to a target type such as MainPage, BrandPage, or ProductPage. CompanyName also wants to track the brand names referred to by each particular link as well as the product name [if applicable].

3 Entity Relationship Diagram



4 Relational Model

Person (PersonID,FName,LName,NName,Email,Phone,Street,City,State,Zip,Country)

Employee (EPersonID)
Foreign Key (EPersonID) References Person (PersonID)

Blogger (BPersonID,Status,SponsorID,SponsorDate)
Foreign Key (SponsorID) References Employee (EPersonID)

BloggerPairing (BPersonID,Brand)
Foreign Key (BPersonID) References Person (PersonID)

Winner (WPersonID,GiveawayCode,GiveawayTopic,GiveawayDate,GiveawayAmount)
Foreign Key (WPersonID) References Person (PersonID)

WebSite (WebSiteID,URL,Type,OwnerID,FollowerCount,KloutScore,Rank)
Foreign Key (OwnerID) References Person (PersonID)

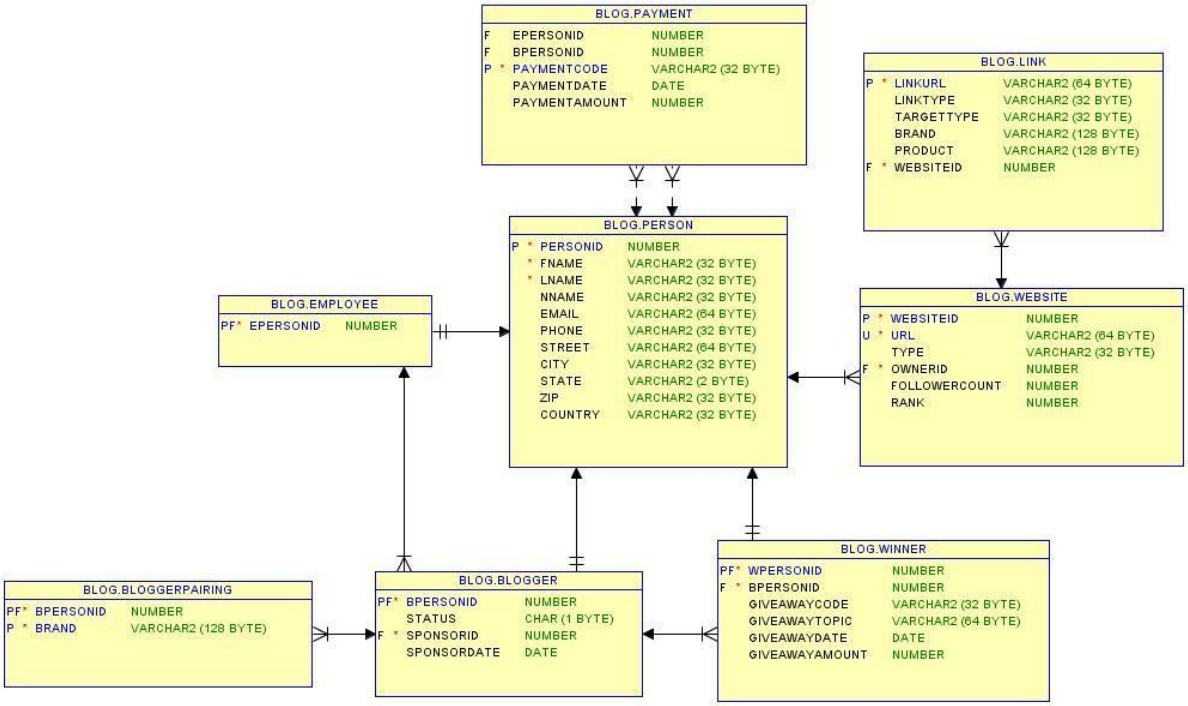
Link (LinkURL,LinkType,TargetType,Brand,Product,WebSiteID)
Foreign Key (WebSiteID) References WebSite (WebSiteID)

Payment (EPersonID,BPersonID,PaymentCode,Date,Amount)
Foreign Key (EPersonID) References Person (PersonID)
Foreign Key (BPersonID) References Person (PersonID)

Notes:
Link.LinkURL = Link Target Destination Address
Link.LinkType = Banner, Text, In-post, etc.
Link.TargetType = MainPage, ProductPage, BrandPage, etc.
Payment.PaymentCode should be the primary key because the same employee needs to pay the same blogger more than once.

5 Physical Data Model

Using Oracle SQL Developer Tool



6 Oracle DDL

6.1 Tables

```
/* Person */
CREATE TABLE BLOG.Person
(
  PersonID NUMBER(*,0),
  FName VARCHAR2(32) NOT NULL,
  LName VARCHAR2(32) NOT NULL,
  NName VARCHAR2(32),
  Email VARCHAR2(64),
  Phone VARCHAR2(32),
  Street VARCHAR2(64),
  City VARCHAR2(32),
  State VARCHAR2(2),
  Zip VARCHAR2(32),
  Country VARCHAR2(32),
  CONSTRAINT PERSON_PK PRIMARY KEY (PersonID)
);
COMMENT ON TABLE BLOG.Person IS 'Main Person Table';
COMMENT ON Column BLOG.Person.PersonID IS 'Person ID';
COMMENT ON Column BLOG.Person.FName IS 'First Name';
COMMENT ON Column BLOG.Person.LName IS 'Last Name';
COMMENT ON Column BLOG.Person.NName IS 'Nickname';
COMMENT ON Column BLOG.Person.Email IS 'Email Address';
COMMENT ON Column BLOG.Person.Phone IS 'Phone Number';
COMMENT ON Column BLOG.Person.Street IS 'Street Address';
COMMENT ON Column BLOG.Person.City IS 'City';
COMMENT ON Column BLOG.Person.State IS 'State';
COMMENT ON Column BLOG.Person.Zip IS 'Zip Code';
COMMENT ON Column BLOG.Person.Country IS 'Country';

/* Employee */
CREATE TABLE BLOG.Employee
(
  EPersonID NUMBER(*,0),
  CONSTRAINT EPERSON_PK PRIMARY KEY (EPersonID),
  CONSTRAINT Employee_FK FOREIGN KEY (EPersonID)
        REFERENCES Person(PersonID)
);
COMMENT ON TABLE BLOG.Employee IS 'Employee Table';
COMMENT ON Column BLOG.Employee.EPersonID IS 'Employee Person ID';
```

```
/* Blogger */
CREATE TABLE BLOG.Blogger
(
  BPersonID NUMBER(*,0),
  Status CHAR(1),
  SponsorID NUMBER(*,0) NOT NULL,
  SponsorDate Date,
  CONSTRAINT Blogger_PK PRIMARY KEY (BPersonID),
  CONSTRAINT Blogger_FK1 FOREIGN KEY (SponsorID)
        REFERENCES Employee(EPersonID),
  CONSTRAINT Blogger_FK2 FOREIGN KEY (BPersonID)
        REFERENCES Person(PersonID)
);
COMMENT ON TABLE BLOG.Blogger IS 'Blogger Table';
COMMENT ON Column BLOG.Blogger.BPersonID IS 'Blogger Person ID';
COMMENT ON Column BLOG.Blogger.Status IS 'Blogger Status such as Active or Inactive';
COMMENT ON Column BLOG.Blogger.SponsorID IS 'Employee (Sponsor) Person ID';
COMMENT ON Column BLOG.Blogger.SponsorDate IS 'Sponsorship Date';

/* BloggerPairing */
CREATE TABLE BLOG.BloggerPairing
(
  BPersonID NUMBER(*,0),
  Brand VARCHAR2(128),
  CONSTRAINT BloggerPairing_PK PRIMARY KEY (BPersonID,Brand),
  CONSTRAINT BloggerPairing_FK FOREIGN KEY (BPersonID)
        REFERENCES Blogger(BPersonID)
);
COMMENT ON TABLE BLOG.BloggerPairing IS 'Blogger Pairing with Products';
COMMENT ON Column BLOG.BloggerPairing.BPersonID IS 'Blogger Person ID';
COMMENT ON Column BLOG.BloggerPairing.Brand IS 'Brand Name';

/* Winner */
CREATE TABLE BLOG.Winner
(
  WPersonID NUMBER(*,0),
  BPersonID NUMBER(*,0) NOT NULL,
  GiveawayCode VARCHAR2(32),
  GiveawayTopic VARCHAR2(64),
  GiveawayDate DATE,
  GiveawayAmount NUMBER(*,2),
  CONSTRAINT Winner_PK PRIMARY KEY (WPersonID),
  CONSTRAINT Winner_FK1 FOREIGN KEY (WPersonID)
        REFERENCES Person(PersonID),
```

```
  CONSTRAINT Winner_FK2 FOREIGN KEY (BPersonID)
        REFERENCES BLOG.Blogger(BPersonID)
);
COMMENT ON TABLE BLOG.Winner IS 'Winner Table';
COMMENT ON Column BLOG.Winner.WPersonID IS 'Winner Person ID';
COMMENT ON Column BLOG.Winner.BPersonID IS 'Blogger Person ID who gave prize to
Winner';
COMMENT ON Column BLOG.Winner.GiveawayCode IS 'Giveaway Code';
COMMENT ON Column BLOG.Winner.GiveawayTopic IS 'Giveaway Topic';
COMMENT ON Column BLOG.Winner.GiveawayDate IS 'Giveaway Date';
COMMENT ON Column BLOG.Winner.GiveawayAmount IS 'Giveaway Amount';

/* WebSite */
CREATE TABLE BLOG.WebSite
(
  WebSiteID NUMBER(*,0),
  URL VARCHAR2(64) NOT NULL,
  Type VARCHAR2(32),
  OwnerID NUMBER(*,0) NOT NULL,
  FollowerCount NUMBER(*,0),
  Rank NUMBER(*,0),
  CONSTRAINT WebSite_PK PRIMARY KEY (WebSiteID),
  CONSTRAINT WebSite_FK FOREIGN KEY (OwnerID)
        REFERENCES Person(PersonID),
  CONSTRAINT WebSite_UK UNIQUE (URL)
);
COMMENT ON TABLE BLOG.WebSite IS 'Web Sites';
COMMENT ON Column BLOG.WebSite.WebSiteID IS 'WebSite ID';
COMMENT ON Column BLOG.WebSite.URL IS 'WebSite URL Address';
COMMENT ON Column BLOG.WebSite.Type IS 'WebSite Type such as Blog, Facebook, etc.';
COMMENT ON Column BLOG.WebSite.OwnerID IS 'Owner of the WebSite';
COMMENT ON Column BLOG.WebSite.FollowerCount IS 'Follower Count';
COMMENT ON Column BLOG.WebSite.Rank IS 'Web Site Rank';

/* Link */
CREATE TABLE BLOG.Link
(
  LinkURL VARCHAR2(64),
  LinkType VARCHAR2(32),
  TargetType VARCHAR2(32),
  Brand VARCHAR2(128),
  Product VARCHAR2(128),
  WebSiteID NUMBER(*,0) NOT NULL,
  CONSTRAINT Link_PK PRIMARY KEY (LinkURL),
```

```
  CONSTRAINT Link_FK FOREIGN KEY (WebSiteID)
        REFERENCES WebSite(WebSiteID)
);
COMMENT ON TABLE BLOG.Link IS 'Web Links';
COMMENT ON Column BLOG.Link.LinkURL IS 'Link Target URL Address';
COMMENT ON Column BLOG.Link.LinkType IS 'Link Type such as Banner, Text, or In-post';
COMMENT ON Column BLOG.Link.TargetType IS 'Target Type such as MainPage,
BrandPage, or ProductPage';
COMMENT ON Column BLOG.Link.Brand IS 'Brand (Product Line)';
COMMENT ON Column BLOG.Link.Product IS 'Specific Product within a Brand';
COMMENT ON Column BLOG.Link.WebSiteID IS 'WebSite that this Link belongs to';

/* Payment */
/* Many Payments could be made from the Same Employee to the Same Blogger */
/* Therefore, we must introduce our own PK */
CREATE TABLE BLOG.Payment
(
  EPersonID NUMBER(*,0),
  BPersonID NUMBER(*,0),
  PaymentCode VARCHAR2(32) NOT NULL,
  PaymentDate Date,
  PaymentAmount NUMBER(*,2),
  CONSTRAINT Payment_PK PRIMARY KEY (PaymentCode),
  CONSTRAINT Payment_FK1 FOREIGN KEY (EPersonID)
        REFERENCES Person(PersonID),
  CONSTRAINT Payment_FK2 FOREIGN KEY (BPersonID)
        REFERENCES Person(PersonID)
);
COMMENT ON TABLE BLOG.Payment  IS 'Payments';
COMMENT ON Column BLOG.Payment.EPersonID IS 'Employee ID';
COMMENT ON Column BLOG.Payment.BPersonID IS 'Blogger ID';
COMMENT ON Column BLOG.Payment.PaymentCode IS 'Payment Code';
COMMENT ON Column BLOG.Payment.PaymentDate IS 'Payment Date';
COMMENT ON Column BLOG.Payment.PaymentAmount IS 'Payment Amount';
```

6.2 Dynamic Views

The following views dramatically simplify current and future queries.

```
/* Views for connecting Subtypes to SuperType */
/* v_emp */
create or replace view v_emp
as
select *
  from Employee E, Person P
 where E.EPersonID = P.PersonID;

/* v_blogger */
create or replace view v_blogger
as
select *
  from Blogger B, Person P
 where B.BPersonID = P.PersonID;

/* v_winner */
create or replace view v_winner
as
select *
  from Winner W, Person P
 where W.WPersonID = P.PersonID;
```

7 Top Five Queries

Query 1 Business Function:
What is the total reach of Bloggers with brands?

When appealing to a potential brand, CompanyName must prove that the unique features it has are superior to its competitors. Being able to provide a precise number of people that its blogger program reaches not only shows that CompanyName monitors and is in control of this kind of deep information, but also that the company can select bloggers with related interests to work with a brand and optimize that brands' online presence. This kind of information is rarely measured with such accuracy, giving CompanyName the kind of edge it needs to beat out its competitors when winning over a brand for representation.

SQL 1:

```
/* Count Bloggers with Brands */
 select brand,
          count(bpersonid) as cnt
   from bloggerpairing
 group by brand
  order by cnt;
```

Query 2 Business Function:
What state do the majority of Bloggers live in?

When performing SEO tactics, localized link building is good, but national link building is even better. A brand in L.A. would benefit more from 15 links from New York than from 15 links from L.A. (or somewhere else in California). Knowing where bloggers live will assist in the designation of bloggers to specific brands based upon brand and blogger location.

SQL 2:

```
/* Count Bloggers by State */
select state,
         count(bpersonid) as CNT
  from v_blogger
group by state
 order by CNT desc;
```

Query 3 Business Function:
What is the average payment made to Bloggers?

Minimizing costs for any business is always a priority. The trick to minimizing blogger costs, is to figure out how low their gift codes can go before the bloggers start rejecting the sponsorship offer. As of now, there has been no substantial analysis of how low that number is. Monitoring

and reducing this cost will allow CompanyName to shift its budget for bloggers to another department that could make better use of it.

SQL 3:

```
/* Average Blogger Payment Amount */
select round(avg(paymentamount)) as AvgAmount
  from payment;
```

Query 4 Business Function:
How many Bloggers were sponsored each month?

Once the sponsorship spots are filled, many brands have to wait until CompanyName can engage more bloggers. Because of this wait and no accurate forecast of when the brand will get its bloggers, several brands have pulled out of being represented by CompanyName. Therefore, monitoring this information will allow CompanyName an accurate forecast of when a brand will get its respective bloggers and how many it will get.

SQL 4:

```
/* Sponsorship by Month Trend */
 select TO_CHAR(sponsordate, 'YYYY-MM') as YearMonth,
          count(*) as Sponsorships
   from blogger
 group by TO_CHAR(sponsordate, 'YYYY-MM')
  order by YearMonth;
```

Query 5 Business Function:
How many web links are there for each product?

When SEO rankings fall, many brands criticize CompanyName for not fulfilling its SEO obligations. With only the number of bloggers designated to that brand, CompanyName is leaving out all of the giveaway, special promotions, and otherwise other links that it has provided to its brands free of cost as these links just aren't tracked. Being able to show the number of links, and even better, WHERE those links are will help take the bombardment of criticism off of CompanyName and put it on the lack of assistance by the brand.

SQL 5:

```
/* Count of Links Group By Product */
 select product,
          count(*) as LinkCount
   from link
 group by product
  order by LinkCount desc;
```