**TASK 1- SMART BILLING USING IOT**

Proposed Concept:

To developments IoT shifts the game every day. Sales and promotions are part of the process, like never, combining technologies.

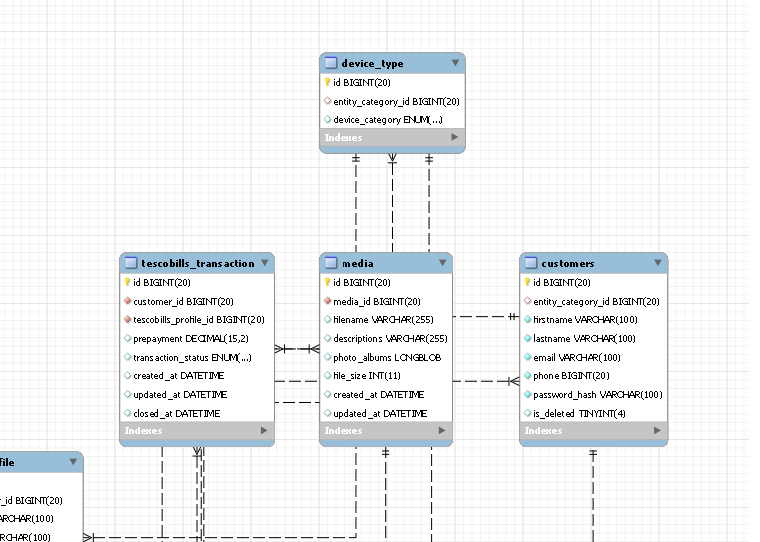
IoT is a difficult thing to describe. It serves as a network which connects all tech stuff over the Internet. The data could then be transmitted and retrieved by the devices concerned.

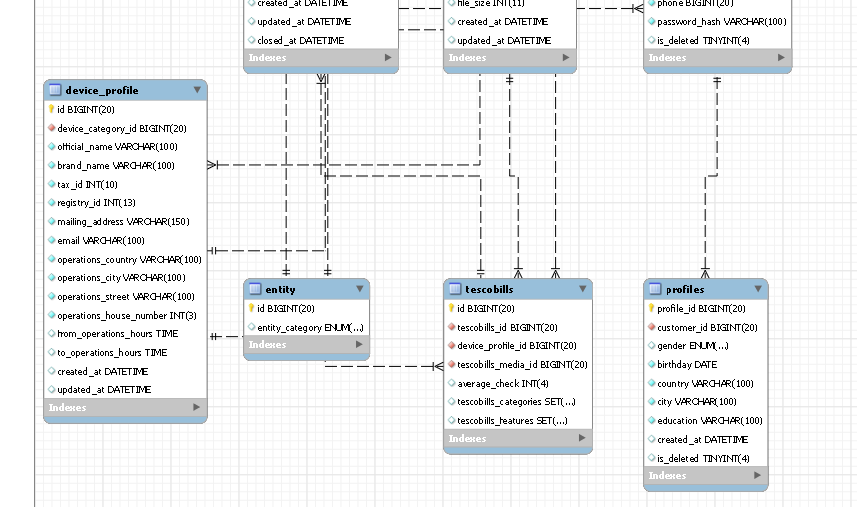
This knowledge sharing could become a major part of the industry, which implies infinite possibilities for incorporation into daily goods.

Aim:

I will be making the smart sales environment in the shopping marts which will provide the customer to purchase goods and get their transaction done by themselves. Used SQL to save data from which is getting generating by the smart sales devices.

**TASK 2 – ER DIAGRAM**

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**SQL SCRIPT- TASK 3**

drop database if exists SmartTesco;

create database SmartTesco;

use SmartTesco;

drop table if exists entity;

create table entity (

id SERIAL primary key,

entity\_category enum('customers', 'devices')

);

drop table if exists customers;

create table customers (

id SERIAL primary key,

entity\_category\_id bigint unsigned default 1,

firstname varchar(100) not null,

lastname varchar(100) not null,

email varchar(100) not null,

phone bigint unsigned not null unique,

password\_hash varchar(100) not null,

is\_deleted tinyint default 0,

foreign key(entity\_category\_id) references entity(id)

);

drop table if exists profiles;

create table profiles (

profile\_id SERIAL primary key,

customer\_id bigint unsigned not null,

gender enum ('male', 'female'),

birthday date not null,

country varchar(100) not null,

city varchar(100) not null,

education varchar(100) not null,

created\_at datetime default now(),

is\_deleted tinyint default 0,

foreign key(customer\_id) references customers(id)

);

-- mostly working on tescoBilling device

drop table if exists device\_type;

create table device\_type (

id SERIAL primary key,

entity\_category\_id bigint unsigned default 2,

device\_category enum('tescoBillingdevice', 'tescoAssistantdevice'),

index(device\_category),

foreign key(entity\_category\_id) references entity(id)

);

drop table if exists device\_profile;

create table device\_profile (

id SERIAL primary key,

device\_category\_id bigint unsigned not null,

official\_name varchar(100) not null,

brand\_name varchar(100) not null,

tax\_id int(10) not null unique,

registry\_id int(13) not null unique,

mailing\_address varchar(150) not null,

email varchar(100) not null,

operations\_country varchar(100) not null,

operations\_city varchar(100) not null,

operations\_street varchar(100) not null,

operations\_house\_number int(3) not null,

from\_operations\_hours time,

to\_operations\_hours time,

created\_at datetime default now(),

updated\_at datetime on update now(),

index(brand\_name,operations\_country, operations\_city, operations\_street),

foreign key (device\_category\_id) references device\_type(id)

);

drop table if exists media;

create table media (

id SERIAL primary key,

media\_id bigint unsigned not null,

filename varchar(255),

descriptions varchar(255),

photo\_albums longblob,

file\_size int,

created\_at datetime default now(),

updated\_at datetime on update now(),

foreign key (media\_id) references device\_profile(id)

);

drop table if exists tescobills;

create table tescobills (

id SERIAL primary key,

tescobills\_id bigint unsigned not null,

device\_profile\_id bigint unsigned not null,

tescobills\_media\_id bigint unsigned not null,

average\_check int(4) unsigned,

tescobills\_categories set('machine 1', 'machine 2', 'machine 3', 'machine 4', 'machine 5',

'machine 6'),

tescobills\_features set('paybydebitcard', 'paybycreditcard', 'paybycash',

'paybygiftcard'),

foreign key(tescobills\_id) references device\_type(id),

foreign key(tescobills\_media\_id) references media(id),

foreign key(device\_profile\_id) references device\_profile(id)

);

drop table if exists tescobills\_transaction;

create table tescobills\_transaction (

id SERIAL primary key,

customer\_id bigint unsigned not null,

tescobills\_profile\_id bigint unsigned not null,

prepayment decimal (15, 2) unsigned,

transaction\_status enum('confirmed', 'in processing', 'regected', 'prepayment received', 'on position', 'closed'),

created\_at datetime default now(),

updated\_at datetime on update now(),

closed\_at datetime default now(),

foreign key(customer\_id) references customers(id),

foreign key(tescobills\_profile\_id) references tescobills(id)

);

**DATA DUMPS**

use SmartTesco;

-- Batch insert queries samples

insert into entity values

('1', 'customers'),

('2', 'devices');

insert into customers (id, entity\_category\_id, firstname, lastname, email, phone, password\_hash, is\_deleted) values

('21', '1', 'penelope', 'kreiger', 'dean.gerhold@gmail.org', '4', '9836504a445a7f5d246a2985ad8c800996bbc84a', 0),

('22', '1', 'curt', 'weber', 'eliane.rempel@gmail.com', '445', '3f21a4a461cebb2881e276cb4d3e29cb76edd3d0', 0),

('23', '1', 'amiya', 'hintz', 'po\'conner@gmail.org', '1', 'c1efe7a20807099773cfa64fb87e1bf007218369', 0),

('24', '1', 'daniella', 'kuhlman', 'clifford.o\'conner@gmail.com', '3302324395', 'e274b3a22cd79ea06ed5f86f5fa9fc675e853818', 0),

('25', '1', 'ettie', 'crooks', 'kaelyn.lehner@gmail.net', '799', '1db02b5475ec0a59300081ea0ace2a28ed65bb93', 0),

('26', '1', 'meagan', 'krajcik', 'jeremy04@gmail.org', '0', 'f5ccf49a212cabfa8c2db82448827ed4ac6a0835', 0),

('27', '1', 'tyreek', 'bailey', 'wschinner@gmail.org', '569534', '949a79796f91510a115aebd0408ace13f47244bc', 0),

('28', '1', 'mariela', 'mcdermott', 'tate63@gmail.net', '95', 'fc6e2cc0a7fed59998fc0e5bc1f1ef4bcf6fd7b0', 0),

('29', '1', 'kelley', 'conroy', 'barbara.bergstrom@gmail.org', '887841', '789aa85f6580c0e733b8640168c9912b7c4ec84a', 0),

('32', '1', 'jack', 'jakubowski', 'mborer@gmail.com', '123079', '59d9580dbd40dde9e0fcc49aef288dd79ec13455', 0),

('34', '1', 'marilou', 'monahan', 'rollin27@gmail.net', '302702', 'df1fce5ae8a18d7aa0899622dd74f88dd64acb52', 0),

('37', '1', 'nathan', 'weissnat', 'mortiz@gmail.net', '9970511710', '2b6275eb6e989d59a5ca8358023aa0c4117311e4', 0),

('38', '1', 'shawna', 'sauer', 'gladyce.heller@gmail.net', '6279042570', 'ffc2f702dc3ecde7f5a422145f18307c36978da1', 0),

('39', '1', 'maybelle', 'bruen', 'halvorson.mafalda@gmail.com', '48', '1c40d82768a83c26f973da9ea9f1b6d68df6468b', 0),

('40', '1', 'myah', 'o\'kon', 'johathan.schultz@gmail.org', '641', '1153d74a4f649c34a612da36bde7e440b7c6e251', 0);

insert into profiles (profile\_id, customer\_id, gender, birthday, country, city, education, created\_at, is\_deleted) values

('1', '21', 'female', '1996-04-26', 'ireland', 'mulingar', '', '2020-04-30 17:18:44', 0),

('2', '22', 'female', '1998-04-16', 'ireland', 'wexford', '', '2020-09-22 21:30:26', 0),

('3', '23', 'female', '1956-05-09', 'ireland', 'athlone', '', '2020-05-05 15:50:22', 0),

('4', '24', 'male', '1989-01-12', 'ireland', 'galway', '', '2020-10-19 02:42:16', 0),

('5', '25', 'male', '1999-09-23', 'ireland', 'tullamore', '', '2020-12-16 23:39:00', 0),

('6', '26', 'male', '1985-01-07', 'ireland', 'dublin', '', '2020-01-08 03:59:36', 0),

('7', '27', 'female', '1996-08-10', 'ireland', 'galway', '', '2020-06-18 13:18:54', 0),

('8', '28', 'female', '1995-10-07', 'ireland', 'tullamore', '', '2020-04-13 20:11:52', 0),

('9', '29', 'female', '1991-03-28', 'ireland', 'athlone', '', '2020-02-14 22:27:53', 0),

('10', '32', 'male', '1996-02-06', 'ireland', 'tullamore', '', '2020-03-20 08:31:46', 0),

('11', '34', 'female', '1992-04-12', 'ireland', 'dublin', '', '2020-02-09 04:18:29', 0),

('12', '37', 'female', '1993-10-04', 'ireland', 'athlone', '', '2020-10-19 15:42:54', 0),

('13', '38', 'female', '1994-08-27', 'ireland', 'galway', '', '2020-09-09 14:14:23', 0),

('14', '39', 'female', '1987-01-22', 'ireland', 'dublin', '', '2020-01-03 02:29:56', 0),

('15', '40', 'female', '1988-05-21', 'ireland', 'galway', '', '2020-05-15 15:54:56', 0);

insert into device\_type (id, entity\_category\_id, device\_category) values

('1', '2', 'tescoAssistantdevice'),

('2', '2', 'tescoBillingdevice'),

('3', '2', 'tescoAssistantdevice'),

('4', '2', 'tescoAssistantdevice'),

('5', '2', 'tescoBillingdevice'),

('6', '2', 'tescoBillingdevice');

insert into device\_profile (id, device\_category\_id, official\_name, brand\_name, tax\_id, registry\_id, mailing\_address, email, operations\_country, operations\_city, operations\_street, operations\_house\_number, from\_operations\_hours, to\_operations\_hours, created\_at, updated\_at) values

('1', '3', 'sales', 'iotBilling', 1, 9186389, '', 'cremin.luigi@gmail.org', 'ireland', 'galway', '', 3, '08:50:00', '21:50:00', '2020-12-24 15:29:43', '2020-12-07 23:54:34'),

('2', '4', 'assistance', 'iotBilling', 881010, 29, '', 'lysanne.gorczany@gmail.com', 'ireland', 'dublin', '', 84, '06:00:00', '23:50:00', '2020-09-12 04:07:12', '2020-06-13 05:44:23'),

('3', '3', 'assistance', 'iotHelp', 0, 6042885, '', 'kamron.gleason@gmail.org', 'ireland', 'athlone', '', 42, '10:00:00', '23:00:00', '2020-04-30 01:24:35', '2020-03-30 06:28:21'),

('4', '4', 'assistance', 'iotHelp', 969486563, 379613972, '', 'esperanza.lowe@gmail.org', 'ireland', 'wexford', '', 61, '05:00:00', '23:50:00', '2020-08-07 14:44:06', '2020-10-01 20:46:08'),

('5', '4', 'sales', 'iotBilling', 594933, 2833429, '', 'josiah59@gmail.net', 'ireland', 'mulingar', '', 0, '04:50:00', '23:50:00', '2020-01-24 11:00:01', '2020-10-13 03:06:35'),

('6', '3', 'assistance', 'iotHelp', 90298348, 689, '', 'bret.jacobi@gmail.net', 'ireland', 'athlone', '', 0, '10:45:00', '23:50:00', '2020-05-18 02:20:20', '2020-12-23 22:26:17'),

('7', '3', 'sales', 'iotBilling', 951222399, 565, '', 'winfield.o\'conner@gmail.org', 'ireland', 'tullamore', '', 91, '06:30:00', '22:50:00', '2020-09-16 01:37:51', '2020-03-16 05:38:18'),

('8', '3', 'sales', 'iotBilling', 913, 325, '', 'marshall26@gmail.net', 'ireland', 'galway', '', 76, '10:00:00', '22:00:00', '2020-03-07 17:26:31', '2020-11-14 14:49:35'),

('9', '3', 'assistance', 'iotHelp', 51866, 2, '', 'olarson@gmail.net', 'ireland', 'athlone', '', 36, '08:20:00', '21:50:00', '2020-08-12 06:50:36', '2020-12-29 02:49:59'),

('10', '4', 'assistance', 'iotHelp', 771, 35, '', 'tyrese.bednar@gmail.org', 'ireland', 'dublin', '', 7, '02:00:00', '22:50:00', '2020-09-17 16:48:54', '2020-08-11 00:44:15');

insert into media (id, media\_id, filename, description, photo\_albums, file\_size, created\_at, updated\_at) values

('1', '3', 'file1', 'generated successfully', '', 0, '2020-04-15 22:12:50', '2020-04-06 02:56:27'),

('2', '4', 'file2', 'generated successfully', '', 0, '2020-06-01 22:36:12', '2020-03-13 07:05:38'),

('4', '4', 'file4', 'generated successfully', '', 0, '2020-10-25 08:07:08', '2020-08-04 07:57:52'),

('5', '4', 'file5', 'generated successfully', '', 0, '2020-12-10 03:17:29', '2020-02-21 15:34:30'),

('6', '3', 'file6', 'generated successfully', '', 0, '2020-08-13 04:31:55', '2020-03-26 18:14:20'),

('7', '3', 'file7', 'generated successfully', '', 0, '2020-11-19 10:01:03', '2020-04-15 04:54:20'),

('8', '3', 'file8', 'generated successfully', '', 0, '2020-09-07 11:13:08', '2020-11-09 04:37:06'),

('9', '3', 'file9', 'generated successfully', '', 0, '2020-12-04 16:41:22', '2020-10-07 11:28:25'),

('10', '4', 'file10', 'generated successfully', '', 0, '2020-01-21 23:42:40', '2020-05-28 23:50:12');

insert into tescobills (id, tescobills\_id, device\_profile\_id, tescobills\_media\_id, average\_check, tescobills\_categories, tescobills\_features) values

('29', '3', '1', '1', 1500, ('machine 1'), ('paybycreditcard')),

('30', '3', '3', '3', 2020, ('machine 4'), ('paybydebitcard')),

('31', '3', '6', '6', 700, ('machine 3'), ('paybygiftcard')),

('32', '3', '7', '7', 900, ('machine 4'), ('paybycash')),

('33', '3', '8', '8', 1700, ('machine 2'), ('paybycash')),

('34', '3', '9', '9', 3000, ('machine 5'), ('paybycash'));

insert into tescobills\_transaction (id, customer\_id, tescobills\_profile\_id, prepayment, transaction\_status, created\_at, updated\_at, closed\_at) values

('1', '21', '29', null, 'in processing', '2020-05-25 21:30:39', '2020-01-16 05:33:34', '2020-04-08 12:20:29'),

('2', '22', '30', null, 'prepayment received', '2020-01-25 16:40:13', '2020-04-11 02:47:57', '2020-03-18 19:20:19'),

('3', '23', '31', null, 'regected', '2020-08-25 19:07:43', '2020-07-14 19:58:02', '2020-04-12 06:32:43'),

('4', '24', '32', null, 'on position', '2020-11-19 03:59:29', '2020-09-02 09:07:55', '2020-04-01 18:14:03'),

('5', '25', '33', null, 'prepayment received', '2020-01-13 05:06:46', '2020-07-26 18:44:19', '2020-01-18 06:41:40'),

('6', '26', '34', null, 'regected', '2020-06-19 12:39:25', '2020-04-30 18:41:04', '2020-06-25 02:43:11'),

('7', '27', '33', null, 'in processing', '2020-08-21 08:00:50', '2020-09-06 14:12:29', '2020-06-07 20:10:25'),

('8', '28', '30', null, 'confirmed', '2020-08-08 07:16:50', '2020-08-04 09:59:50', '2020-07-12 12:52:09'),

('9', '29', '29', null, 'prepayment received', '2020-07-04 14:41:38', '2020-04-01 12:10:00', '2020-04-16 19:20:31'),

('10', '32', '29', null, 'on position', '2020-04-19 02:25:22', '2020-01-13 12:05:53', '2020-12-17 23:51:48'),

('11', '34', '33', null, 'prepayment received', '2020-11-11 20:04:43', '2020-08-16 11:13:59', '2020-06-29 19:20:57'),

('12', '37', '31', null, 'on position', '2020-03-03 22:48:51', '2020-08-31 08:40:00', '2020-05-13 02:13:35'),

('13', '38', '31', null, 'prepayment received', '2020-07-04 17:06:13', '2020-08-09 14:16:28', '2020-11-09 21:14:35'),

('14', '39', '32', null, 'prepayment received', '2020-02-07 05:03:21', '2020-01-05 18:19:02', '2020-04-27 03:47:43');

**10 QUERIES- TASK 4**

use smarttesco;

-- 1Find the quantity of male customers

select

count(profile\_id) as total\_male

from profiles

where gender = 'male';

-- 2 customer wants to view brand name

select brand\_name from device\_profile

where device\_category\_id = '3'

and operations\_city = 'athlone';

-- 3 Sort in ascend order devices by the quantity of operation hours

select

brand\_name,

official\_name,

timediff(to\_operations\_hours, from\_operations\_hours) as total\_operations\_hours

from device\_profile

order by total\_operations\_hours;

-- 4 Find the average age of male and female customer

select

gender,

avg(timestampdiff(year, birthday, now())) as average\_age

from profiles

group by gender;

-- 5 Sort in ascend order the age of minors after the age of adults

select

timestampdiff(year, birthday, now()) as age

from profiles

order by

if(age >= 18,1,0)desc, age asc;

-- 6 Find the total assistance device

select

device\_category,

count(\*) as total

from device\_profile

join device\_type on device\_category\_id = device\_type.id

group by device\_category;

-- 7 Find the number of customer older than average

select

count(age) as total\_older

from

(select

timestampdiff(year, birthday, now()) as age

from profiles

having age > (select

avg(timestampdiff(year, birthday, now()))

from profiles)

order by age) as age;

-- 8 Find the number of customer birthday where firstname starts with 'm'.

select

concat(monthname(profiles.birthday), ' ', day(profiles.birthday)) as Birhday,

concat (customers.firstname, ' ', customers.lastname) as Name

from profiles

join customers on id = customers.id

where firstname like 'm%';

-- 9 Customer wants to know details about the transaction

select

brand\_name,

operations\_country,

operations\_city,

operations\_street,

descriptions,

photo\_albums,

min(average\_check)

from device\_profile

join tescobills on device\_profile\_id = device\_profile.id

join media on tescobills\_media\_id = media.id

where tescobills\_features = 'paybycash';

-- 10 Find who used tescoBillingdevice to pay and compare the transaction

select

count(\*) as total\_customers\_transactions,

transaction\_status

from customers

join tescobills\_transaction

on customers.id = tescobills\_transaction .customer\_id

where transaction\_status = 'confirmed'

or transaction\_status = 'on position'

group by transaction\_status

order by total\_customers\_transactions desc;

DF

**STORE PROCEDURE- TASK 5**

use SmartTesco;

drop procedure if exists offers;

-- to check device category and brand name of it.

delimiter $$

$$

create procedure offers()

begin

select

device\_category,

brand\_name,

photo\_albums

from device\_type

join device\_profile on device\_category\_id = device\_type.id

join media on media\_id = device\_profile.id

order by rand()

limit 6;

end$$

delimiter ;

call offers();