Application Store

Team Galaxy

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Introduction

Problem Definition:-

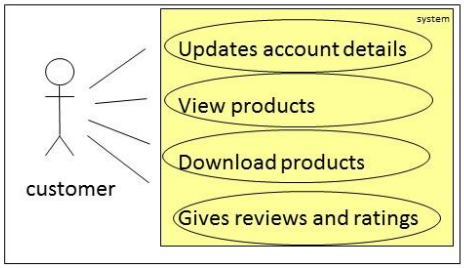
In this fast paced world of smartphones, more than five thousand applications are getting released everyday on multiple platforms like Android, iOS, WindowsPhone etc. The objective of our project is to create a cross platform mobile application store which can give a lot of variety and flexibility in one place. This is one of its kind store which supports maximum devices compared to any other application store and thus has a wider market.

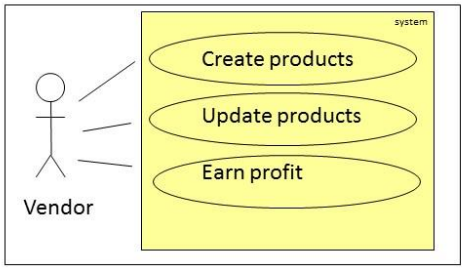
We have created a database which can store applications supporting all the mobile platforms. It can incorporate all the versions of a particular application. It also tracks details of each and every company dealing with our application store and gives them space for advertising their apps.

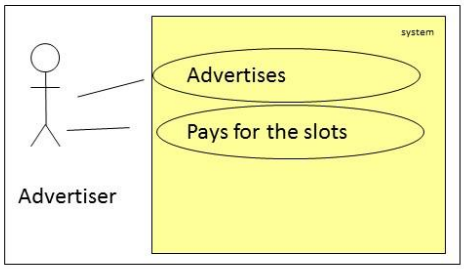
The exciting feature of this store is that it includes various products including Music, Movies, and EBooks along with traditional applications and games.

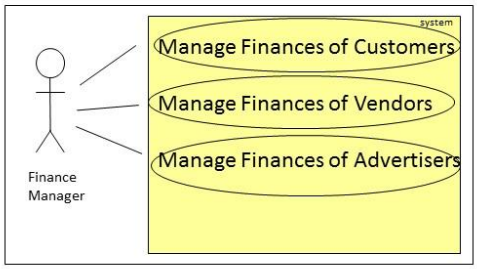
We have given prime focus on Business Intelligence and analysis and created BI reports which can help operations of various sectors of the company.

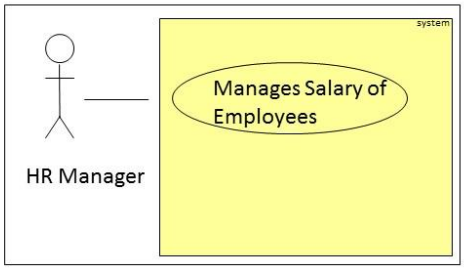
Use case Diagram

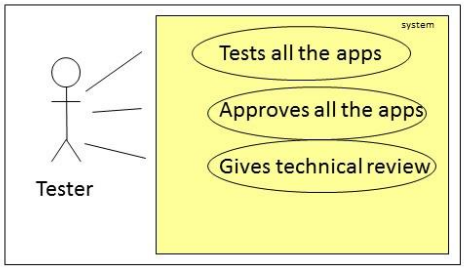


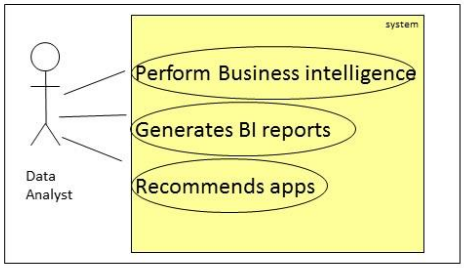


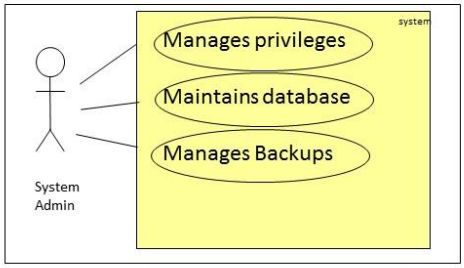




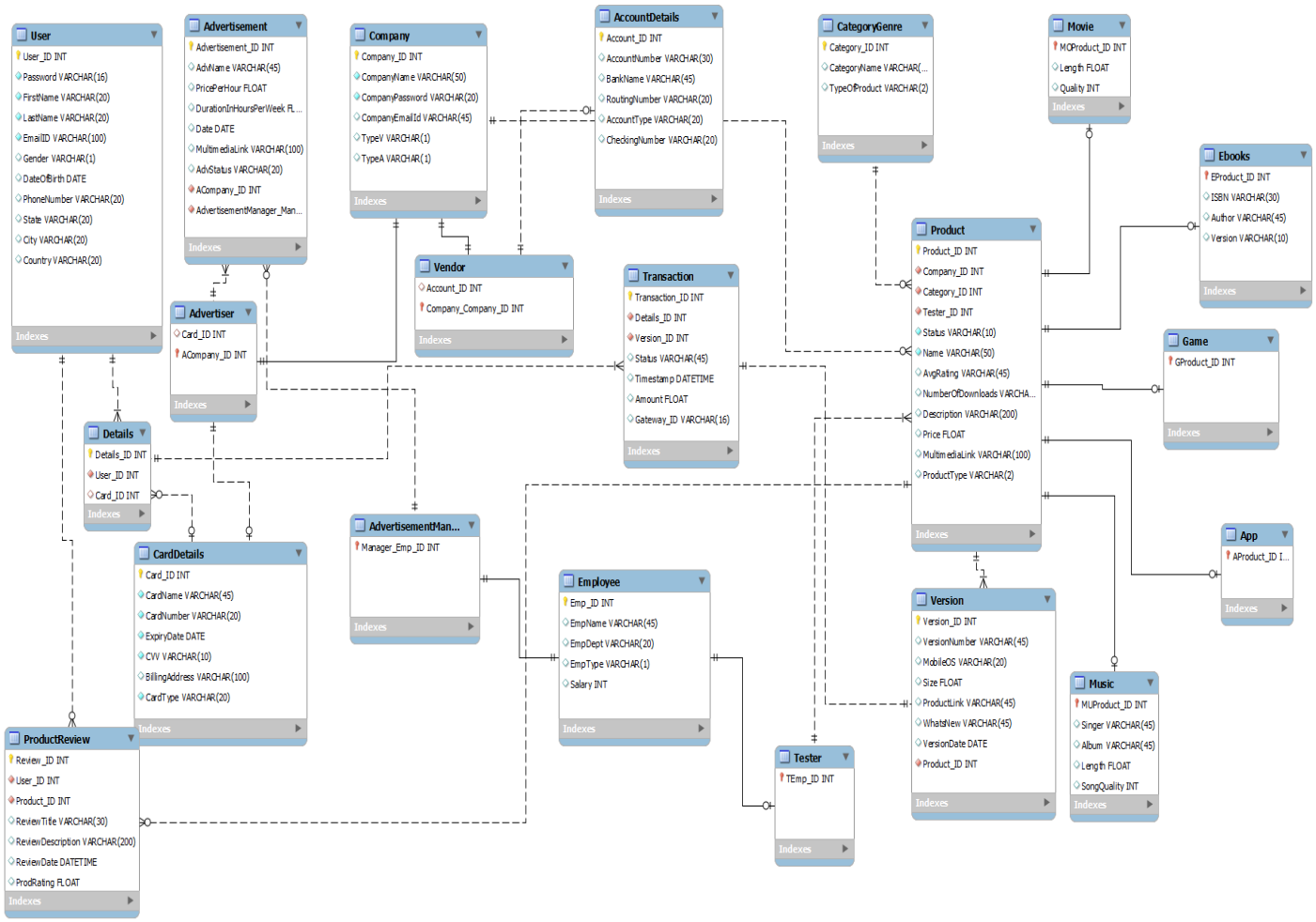








EER diagram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User_ID INT
Password VARCHAR(16)
FirstName VARCHAR(20)
LastName VARCHAR(20)
EmailID VARCHAR(100)
Gender VARCHAR(1)
DateOfBirth DATE
PhoneNumber VARCHAR(20)
State VARCHAR(20)
City VARCHAR(20)
Country VARCHAR(20)
Indexes
Advertisement
Advertisement_ID INT
AdvName VARCHAR(45)
PricePerHour FLOAT
DurationInHoursPerWeek FL...
Date DATE
MultimediaLink VARCHAR(100)
AdvStatus VARCHAR(20)
ACompany_ID INT
AdvertisementManager_Man...
Indexes
Company
Company_ID INT
CompanyName VARCHAR(50)
CompanyPassword VARCHAR(20)
CompanyEmailId VARCHAR(45)
TypeV VARCHAR(1)
TypeA VARCHAR(1)
Indexes
AccountDetails
Account_ID INT
AccountNumber VARCHAR(30)
BankName VARCHAR(45)
RoutingNumber VARCHAR(20)
AccountType VARCHAR(20)
CheckingNumber VARCHAR(20)
Indexes
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Category_ID INT
CategoryName VARCHAR(...
TypeOfProduct VARCHAR(2)
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Length FLOAT
Quality INT
Indexes
Ebooks
EProduct_ID INT
ISBN VARCHAR(30)
Author VARCHAR(45)
Version VARCHAR(10)
Indexes
Advertiser
Card_ID INT
ACompany_ID INT
Indexes
Vendor
Account_ID INT
Company_Company_ID INT
Indexes
Transaction
Transaction_ID INT
Details_ID INT
Version_ID INT
Status VARCHAR(45)
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Amount FLOAT
Gateway_ID VARCHAR(16)
Indexes
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Product_ID INT
Company_ID INT
Category_ID INT
Tester_ID INT
Status VARCHAR(10)
Name VARCHAR(50)
AvgRating VARCHAR(45)
NumberOfDownloads VARCHA...
Description VARCHAR(200)
Price FLOAT
MultimediaLink VARCHAR(100)
ProductType VARCHAR(2)
Indexes
Game
GProduct_ID INT
Indexes
Details
Details_ID INT
User_ID INT
Card_ID INT
Indexes
AdvertisementMan...
Manager_Emp_ID INT
Indexes
CardDetails
Card_ID INT
CardName VARCHAR(45)
CardNumber VARCHAR(20)
ExpiryDate DATE
CVV VARCHAR(10)
BillingAddress VARCHAR(100)
CardType VARCHAR(20)
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EmpName VARCHAR(45)
EmpDept VARCHAR(20)
EmpType VARCHAR(1)
Salary INT
Indexes
App
AProduct_ID I...
Indexes
Version
Version_ID INT
VersionNumber VARCHAR(45)
MobileOS VARCHAR(20)
Size FLOAT
ProductLink VARCHAR(45)
WhatsNew VARCHAR(45)
VersionDate DATE
Product_ID INT
Indexes
Music
MUProduct_ID INT
Singer VARCHAR(45)
Album VARCHAR(45)
Length FLOAT
SongQuality INT
Indexes
ProductReview
Review_ID INT
User_ID INT
Product_ID INT
ReviewTitle VARCHAR(30)
ReviewDescription VARCHAR(200)
ReviewDate DATETIME
ProdRating FLOAT
Indexes
Tester
TEmp_ID INT
Indexes

Normalization

The main purpose of normalization is to remove data redundancy and anomalies created while performing INSERT, UPDATE and DELETE operations.

We have normalized all the tables to 3NF.

E.g.:- In product table, we have normalized the attribute Category by making another table called as 'CategoryGenre' and referencing it in the main Product table. This reduces data redundancy.

Product

Product_ID	Name	VersionID	……..	CategoryID(FK)

CategoryGenre

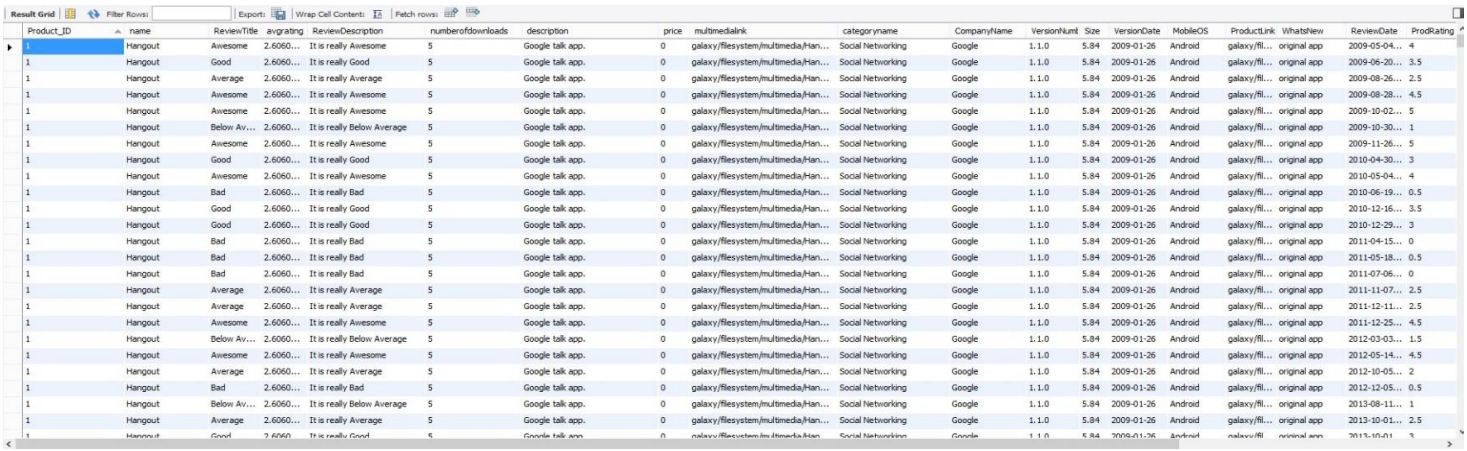
CategoryID(PK)		CategoryName	TypeofProduct

Similarly, all other tables have been normalized and data redundancy has been reduced.

Views

1) CustomerView(User_view):-

This is the view which can be seen by customers. It includes all the information of all the apps including multiple ProductReviews and Ratings.



Product_ID	name	ReviewTitle	avgrating	ReviewDescription	numberofdownloads	description	price	multimedialink	categoryname	CompanyName	VersionNuml	Size	VersionDate	MobileOS	ProductLink	WhatsNew	ReviewDate	ProdRating
1	Hangout	Awesome	2.6060...	It is really Awesome	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2009-05-04...	4
1	Hangout	Good	2.6060...	It is really Good	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2009-06-20...	3.5
1	Hangout	Average	2.6060...	It is really Average	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2009-08-26...	2.5
1	Hangout	Awesome	2.6060...	It is really Awesome	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2009-08-28...	4.5
1	Hangout	Awesome	2.6060...	It is really Awesome	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2009-10-02...	5
1	Hangout	Below Av...	2.6060...	It is really Below Average	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2009-10-30...	1
1	Hangout	Awesome	2.6060...	It is really Awesome	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2009-11-26...	5
1	Hangout	Good	2.6060...	It is really Good	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2010-04-30...	3
1	Hangout	Awesome	2.6060...	It is really Awesome	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2010-05-04...	4
1	Hangout	Bad	2.6060...	It is really Bad	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2010-06-19...	0.5
1	Hangout	Good	2.6060...	It is really Good	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2010-12-16...	3.5
1	Hangout	Good	2.6060...	It is really Good	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2010-12-29...	3
1	Hangout	Bad	2.6060...	It is really Bad	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2011-04-15...	0
1	Hangout	Bad	2.6060...	It is really Bad	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2011-05-18...	0.5
1	Hangout	Bad	2.6060...	It is really Bad	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2011-07-06...	0
1	Hangout	Average	2.6060...	It is really Average	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2011-11-07...	2.5
1	Hangout	Average	2.6060...	It is really Average	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2011-12-11...	2.5
1	Hangout	Awesome	2.6060...	It is really Awesome	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2011-12-25...	4.5
1	Hangout	Below Av...	2.6060...	It is really Below Average	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2012-03-03...	1.5
1	Hangout	Awesome	2.6060...	It is really Awesome	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2012-05-14...	4.5
1	Hangout	Average	2.6060...	It is really Average	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2012-10-05...	2
1	Hangout	Bad	2.6060...	It is really Bad	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2012-12-05...	0.5
1	Hangout	Below Av...	2.6060...	It is really Below Average	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2013-08-11...	1
1	Hangout	Average	2.6060...	It is really Average	5	Google talk app.	0	galaxy/filesystem/multimedia/Han...	Social Networking	Google	1.1.0	5.84	2009-01-26	Android	galaxy/fil...	original app	2013-10-01...	2.5

2) Non-HR(Non_HR):-

This is the view which consists of all the attributes of Employee table except for the salary column. This view can be seen by all the employees except for HR and Finance employees (which have access to all the attributes).

EMP_ID	EmpName	EMPdept	Emptype
1	Ashwin	System Administrator	NULL
2	Vinay	Tester	T
3	Xingyang	Advertisement Manage	A
4	Shaine	Finance Manager	NULL
5	Tanmay	HR Manager	NULL
6	Prateek	Data Analyst	NULL
7	Mayuresh	Tester	T
8	Jack	Finance Manager	NULL
9	John	Data Analyst	NULL
10	Rose	HR Manager	NULL
11	Lucy	Finance Manager	NULL
12	Lily	Data Analyst	NULL
13	Arnold	Advertisement Manage	A
14	Tony	Data Analyst	NULL
15	Stuart	Tester	T

3) Customer_Product(user_product) :-

This view contains information about every entity in the transaction table namely customer, product, Company and its various versions. This view is aimed at making Business Intelligence reports. Data Analyst will be given privilege to this view.

transaction_id	timestamp	User_id	FirstName	lastname	emailid	Gender	dateofbirth	state	country	city	details_id	Product_ID	name	avgrating	numberofdown	description	price	multimedialink	categoryname	CompanyName	Album	musiclength	Singer	WhatsNew	SongQuality	VersionN
3	2009-07-05 ...	2	M	George	Phaselus...	M	2000-04-01	Nor...	UK	Keri...	2	28	Lifestyle	1.6	5	stardust wi...	1.99	galaxy/filesy...	Hiphop	SonyMusic	Lifestyle	4.29	Rich Gang	original version	160	4.1
46	2011-03-15 ...	44	O	Fuentes	lacinia.S...	F	1961-10-11	NI	UK	Ham...	44	30	Dreams	2.375	4	best choic...	2.19	galaxy/filesy...	Metal	SonyMusic	Drea...	3.39	King Diamond	original version	280	4.1
54	2011-05-05 ...	4	O	Shaw	pharetra...	M	1970-02-25	UP	India	Hat...	104	28	Lifestyle	1.6	5	stardust wi...	1.99	galaxy/filesy...	Hiphop	SonyMusic	Lifestyle	4.29	Rich Gang	original version	160	4.1
117	2012-03-12 ...	69	U	Moses	Cum.soci...	M	1974-06-25	QC	Brazil	Rim...	69	32	For You	2.2142...	7	romantic m...	1.59	galaxy/filesy...	Pop	Tseries	For You	4.36	Krewella	original version	360	4.1
129	2012-05-10 ...	20	I	Copeland	orci@Cra...	F	1950-12-23	Per...	Brazil	Cam...	20	30	Dreams	2.375	4	best choic...	2.19	galaxy/filesy...	Metal	SonyMusic	Drea...	3.39	King Diamond	original version	280	4.1
173	2012-12-27 ...	58	B	Blake	Aliquam....	F	1971-04-26	Gl	Argentina	Hatt...	58	30	Dreams	2.375	4	best choic...	2.19	galaxy/filesy...	Metal	SonyMusic	Drea...	3.39	King Diamond	original version	280	4.1
179	2013-01-30 ...	96	T	Robles	et@sit.c...	F	1968-12-30	BC	UK	Nak...	96	32	For You	2.2142...	7	romantic m...	1.59	galaxy/filesy...	Pop	Tseries	For You	4.36	Krewella	original version	360	4.1
223	2013-06-19 ...	32	Z	Blevins	in.conse...	M	1990-03-18	RF	Argentina	Joh...	32	32	For You	2.2142...	7	romantic m...	1.59	galaxy/filesy...	Pop	Tseries	For You	4.36	Krewella	original version	360	4.1
240	2013-08-07 ...	6	O	Stone	consequ...	F	1959-10-14	Ha...	China	Ham...	6	31	Differe...	2.5	4	made for b...	0	galaxy/filesy...	Blues	Tseries	Differ...	5.56	Eminem	original version	160	4.1
253	2013-09-09 ...	94	L	Ochoa	quis@vit...	F	2004-11-16	An...	Argentina	Ana...	94	32	For You	2.2142...	7	romantic m...	1.59	galaxy/filesy...	Pop	Tseries	For You	4.36	Krewella	original version	360	4.1
273	2013-10-17 ...	92	D	Dillon	Integer....	M	1958-04-23	No...	Canada	Edam	92	28	Lifestyle	1.6	5	stardust wi...	1.99	galaxy/filesy...	Hiphop	SonyMusic	Lifestyle	4.29	Rich Gang	original version	160	4.1
281	2013-11-08 ...	3	P	Mack	Phaselus...	M	1982-10-14	We...	USA	Bos...	103	31	Differe...	2.5	4	made for b...	0	galaxy/filesy...	Blues	Tseries	Differ...	5.56	Eminem	original version	160	4.1
282	2013-11-08 ...	100	N	Gray	lorem.eu...	M	1984-10-28	SO	Argentina	Glas...	100	32	For You	2.2142...	7	romantic m...	1.59	galaxy/filesy...	Pop	Tseries	For You	4.36	Krewella	original version	360	4.1
284	2013-11-11 ...	98	Y	Miller	sem.ege...	F	1961-10-31	Okl...	India	Brok...	98	28	Lifestyle	1.6	5	stardust wi...	1.99	galaxy/filesy...	Hiphop	SonyMusic	Lifestyle	4.29	Rich Gang	original version	160	4.1
349	2014-04-12 ...	22	Y	Hansen	penatibu...	M	1963-04-11	IL	Argentina	Boul...	22	26	Sympho...	2	5	oscar winner	1.39	galaxy/filesy...	Classical	Tseries	UN	3.4	Dan Black	original version	320	4.1
371	2014-05-17 ...	57	K	Wynn	Nunc@lib...	M	1979-04-29	OY	Germany	Iseyin	57	26	Sympho...	2	5	oscar winner	1.39	galaxy/filesy...	Classical	Tseries	UN	3.4	Dan Black	original version	320	4.1
378	2014-05-22 ...	83	C	Knox	ultrices@...	F	1953-02-24	KN	Australia	Kano	83	29	Now we...	2.1666...	6	starparivar...	0	galaxy/filesy...	Metal	Tseries	Blood...	7.1	Machine Head	original version	310	4.1
408	2014-07-04 ...	87	I	Head	nec.ante...	F	1999-08-21	BO	Australia	Bama	87	29	Now we...	2.1666...	6	starparivar...	0	galaxy/filesy...	Metal	Tseries	Blood...	7.1	Machine Head	original version	310	4.1
410	2014-07-05 ...	77	G	Cohen	Lorem.ip...	F	1961-12-19	NI	Australia	Huntly	77	26	Sympho...	2	5	oscar winner	1.39	galaxy/filesy...	Classical	Tseries	UN	3.4	Dan Black	original version	320	4.1
433	2014-07-23 ...	12	G	Peterson	Nullam@...	M	1954-02-03	H	China	Ullo...	12	26	Sympho...	2	5	oscar winner	1.39	galaxy/filesy...	Classical	Tseries	UN	3.4	Dan Black	original version	320	4.1
441	2014-08-06 ...	69	U	Moses	Cum.soci...	M	1974-06-25	QC	Brazil	Rim...	69	29	Now we...	2.1666...	6	starparivar...	0	galaxy/filesy...	Metal	Tseries	Blood...	7.1	Machine Head	original version	310	4.1

4) **Application (application_view)**:- This view shows us the information about all applications.

Product_ID	name	AvgRating	NumberOfDownloads	Description	Price	MultimediaLink	CategoryName	CompanyName	VersionNumber	size	MobileOS	ProductLink	VersionDate	WhatsNew	ProductType
1	Hangout	2.60606060...	5	Google talk a...	0	galaxy/filesyste...	Social Networking	Google	1.1.0	5.84	Android	galaxy/filesys...	2009-01-26	original app	AP
2	Skype	2.72222222...	3	Video Chatin...	2.99	galaxy/filesyste...	Social Networking	Microsoft	1.1.2	8.35	Android	galaxy/filesys...	2009-08-15	original app	AP
3	Google ...	2.65217391...	6	Free calls via ...	3.99	galaxy/filesyste...	Utilities	Google	1.1.4	12.22	Android	galaxy/filesys...	2009-12-14	original app	AP
4	Google ...	1.91666666...	7	Navigation tool	0	galaxy/filesyste...	Travel	Google	1.1.6	16.1	Android	galaxy/filesys...	2010-03-14	original app	AP
5	Google ...	2.515625	3	Free Music pl...	0.99	galaxy/filesyste...	Music	Google	1.1.8	19.97	Android	galaxy/filesys...	2010-09-24	original app	AP
6	Outlook	2.12962962...	4	Email applicat...	1.49	galaxy/filesyste...	Utilities	Microsoft	1.1.10	23.84	Android	galaxy/filesys...	2010-12-30	original app	AP
7	Office ...	2.77083333...	5	Microsoft Offi...	1	galaxy/filesyste...	Productivity	Microsoft	1.1.12	27.72	Android	galaxy/filesys...	2011-07-15	original app	AP
8	OneNote	2.44444444...	3	Productivity ...	0	galaxy/filesyste...	Productivity	Microsoft	1.1.14	31.59	Android	galaxy/filesys...	2011-09-24	original app	AP

5) **Games (game_view**):- This view shows us the information about all games.

Product_ID	name	AvgRating	NumberOfDownloads	Description	Price	MultimediaLink	CategoryName	CompanyName	VersionNumber	size	MobileOS	ProductLink	VersionDate	WhatsNew	ProductType
9	Asphalt	2.625	5	Leading racin...	2.99	galaxy/filesyste...	Racing	Gameloft	1.1.16	35.47	Android	galaxy/filesys...	2012-02-19	original app	GA
10	Minion	2.72916666...	0	fun loving ga...	1.99	galaxy/filesyste...	Adventure	Glu	1.1.19	39.99	Android	galaxy/filesys...	2012-08-21	bug fixes	GA
11	Robocop	2.14583333...	1	Action game ...	0.99	galaxy/filesyste...	Action	Gameloft	1.1.20	43.22	Android	galaxy/filesys...	2012-11-22	original app	GA
12	Killshot	2.51666666...	8	Shooting gam...	0	galaxy/filesyste...	Action	Glu	1.1.22	47.09	Android	galaxy/filesys...	2013-07-20	original app	GA
13	Candyc...	2.3	7	best puzzle g...	0	galaxy/filesyste...	Puzzle	Gameloft	1.1.24	50.96	Android	galaxy/filesys...	2013-09-22	original app	GA
14	Fifa2015	2.5	3	best football ...	9.99	galaxy/filesyste...	Sports	Glu	1.1.26	54.84	Android	galaxy/filesys...	2014-03-08	original app	GA
15	Wordpu...	2.52631578...	3	puzzle game ...	0	galaxy/filesyste...	Word	Gameloft	1.1.28	58.71	Android	galaxy/filesys...	2014-09-07	original app	GA
16	Clash O...	2.55357142...	7	Strategic ga...	0.99	galaxy/filesyste...	Strategy	Glu	1.1.31	63.23	Android	galaxy/filesys...	2009-01-26	bug fixes	GA

6) **Music (music_view)**:- This view shows us the information about all songs.

Product_ID	name	AvgRating	NumberOfDownloads	Description	Price	MultimediaLink	CategoryName	CompanyName	Album	musiclength	Singer	SongQuality	size	ProductLink	VersionDate	ProductType
26	Sympho...	2	5	oscar winner	1.39	galaxy/filesyste...	Classical	Tseries	UN	3.4	Dan Black	320	72.27	galaxy/filesys...	2014-03-26	MU
27	Gotti	4.5	1	filmfare winner	1.49	galaxy/filesyste...	Hiphop	Tseries	Gotti	4.41	Lil Wayne	320	72.92	galaxy/filesys...	2012-04-20	MU
28	Lifestyle	1.6	5	stardust winner	1.99	galaxy/filesyste...	Hiphop	SonyMusic	Lifestyle	4.29	Rich Gang	160	73.56	galaxy/filesys...	2009-04-21	MU
29	Now we...	2.16666666...	6	starparivar w...	0	galaxy/filesyste...	Metal	Tseries	Bloodsto...	7.1	Machine ...	310	74.21	galaxy/filesys...	2014-04-22	MU
30	Dreams	2.375	4	best choice f...	2.19	galaxy/filesyste...	Metal	SonyMusic	Dream o...	3.39	King Dia...	280	74.86	galaxy/filesys...	2010-04-27	MU
31	Differe...	2.5	4	made for blu...	0	galaxy/filesyste...	Blues	Tseries	Differen...	5.56	Eminem	160	75.5	galaxy/filesys...	2013-04-27	MU
32	For You	2.21428571...	7	romantic musi...	1.59	galaxy/filesyste...	Pop	Tseries	For You	4.36	Krewella	360	76.15	galaxy/filesys...	2011-04-28	MU

7) **Movie (movie_view):**- This view shows us the information about all movies.

Product_ID	name	AvgRating	NumberOfDownloads	Description	Price	MultimediaLink	CategoryName	CompanyName	movielength	size	ProductLink	VersionDate	ProductType
33	Fast an...	2.5625	8	best car movi...	19.99	galaxy/filesyste...	Action	WB	120	720	galaxy/filesys...	2009-04-29	MO
34	Despica...	3.125	3	animated mo...	25.99	galaxy/filesyste...	Animation	WB	129	1080	galaxy/filesys...	2010-05-02	MO
35	Shawsh...	2.57142857...	7	a prison break story		galaxy/filesyste...	Crime	Lionsgate	189	320	galaxy/filesys...	2014-05-14	MO
36	Hangover	2.14285714...	7	a fun story o...	5.99	galaxy/filesyste...	Comedy	Lionsgate	150	1080	galaxy/filesys...	2012-05-21	MO
37	Insidious	1.66666666...	6	nerve breaki...	10.99	galaxy/filesyste...	Horror	WB	120	320	galaxy/filesys...	2012-05-24	MO
38	Annabelle	1.9	5	a horror movi...	0	galaxy/filesyste...	Horror	Lionsgate	130	720	galaxy/filesys...	2009-06-11	MO
39	Father ...	2.33333333...	3	family drama ...	0	galaxy/filesyste...	Family	WB	139	1080	galaxy/filesys...	2012-06-16	MO
40	The Judge	1.875	4	Drama on rel...	5.99	galaxy/filesyste...	Crime	Lionsgate	93	1080	galaxy/filesys...	2014-06-26	MO

8) **EBooks (ebook_view**):- This view shows us the information about all eBooks.

Product_ID	name	AvgRating	NumberOfDownloads	Description	Price	MultimediaLink	CategoryName	CompanyName	ISBN	Author	size	ProductLink	VersionDate	ProductType
17	Modern...	2.4	5	Covers conce...	44.99	galaxy/filesyste...	Computer and Te...	Princeton	456-345	V Ramesh	10.1	galaxy/filesys...	2011-03-06	EB
18	Beginni...	0.66666666...	3	learn mysql fr...	15.99	galaxy/filesyste...	Computer and Te...	Princeton	125-345	Robert S...	1.1	galaxy/filesys...	2014-03-08	EB
19	Beginni...	2.5	2	best book for...	9.99	galaxy/filesyste...	Computer and Te...	Princeton	325-24	Paul Wilton	2.1	galaxy/filesys...	2014-03-08	EB
20	Zero to ...	2.125	7	a business bo...	5.99	galaxy/filesyste...	Business	Amazon	468-35	Peter Thiel	3.1	galaxy/filesys...	2010-03-14	EB
21	How Go...	3.5	5	a brief workin...	0	galaxy/filesyste...	Business	Princeton	165-234	Barnes	4.1	galaxy/filesys...	2011-03-16	EB
22	Game o...	2	2	thrilling story ...	99.99	galaxy/filesyste...	Thriller	Amazon	458-24	George ...	1.1	galaxy/filesys...	2014-03-20	EB
23	Fifty Sh...	1.875	4	a romantic no...	29.99	galaxy/filesyste...	Romance	Amazon	238-234	E L James	1.0	galaxy/filesys...	2010-03-21	EB
24	50 Best...	3.25	3	a compilation ...	0	galaxy/filesyste...	Cooking	Amazon	138-64	Sanjay K...	1.0	galaxy/filesys...	2013-03-22	EB

Procedures

Procedures improves the performance of the database significantly. It's basically set of queries which are pre compiled which need to be executed frequently.

1) Product details (sp_productdetails) :-

This is a parametric procedure which takes two parameters – ProductID and MobileOS, and displays the entire information corresponding to those parameters. It automatically checks the release date and displays the information of the latest version of the product. Every product type has its unique categories and need different tables to be joined with product table. Thus this procedure checks the product type of the productID given and displays the appropriate attributes. E.g. for movies, it gives attributes – Length, quality

```
call sp_productdetails(40,'Android');
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name	companyName	categoryname	Avgrating	numberofdownloads	description	price	multimedialink	mobileos	Size	Productlink	Versiondate	Length	Quality
The Judge	Lionsgate	Crime	1.875	4	Drama on rel...	5.99	galaxy/filesyste...	All Platforms	81.31	galaxy/filesy...	2014-06-26	93	1080

For music, it displays attributes – Length, SongQuality, Album, Singer

```
call sp_productdetails(32,'Android');
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name	companyName	categoryname	Avgrating	numberofdownloads	description	price	multimedialink	mobileos	Size	Productlink	Versiondate	Length	SongQuality	Album	Singer
For You	Tseries	Pop	2.21428571...	7	romantic mus...	1.59	galaxy/filesyste...	All Platforms	76.15	galaxy/filesy...	2011-04-28	4.36	360	For You	Krewella

For applications, it displays – whatsnew.

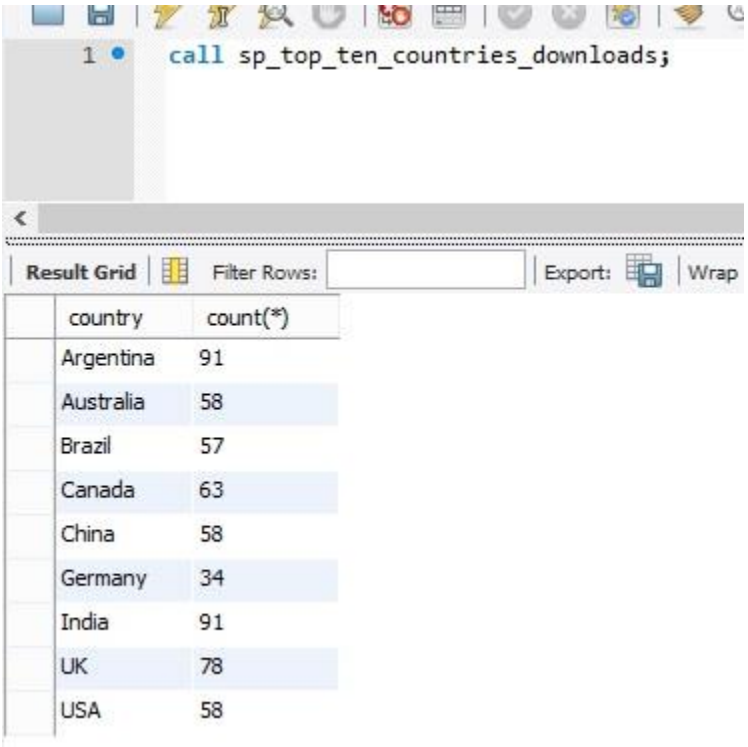
```
call sp_productdetails(1,'Android');
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

name	companyName	categoryname	Avgrating	numberofdownloads	description	price	multimedialink	Versionnumber	mobileos	Size	Productlink	Whatsnew	Versiondate
Hangout	Google	Social Networking	2.60606060...	5	Google talk a...	0	galaxy/filesyste...	1.1.1	Android	6.2	galaxy/filesy...	bug fixes	2009-03-24

Following procedures are created for Business Intelligence and Analysis. According to Wikipedia – "Business intelligence (BI) is the set of techniques and tools for the transformation of raw data into meaningful and useful information for business analysis purposes." [Source - Wikipedia]

2) Top Ten countries according to number of downloads (sp_top_ten_countries_downloads).



country	count(*)
Argentina	91
Australia	58
Brazil	57
Canada	63
China	58
Germany	34
India	91
UK	78
USA	58

3) Best apps in each country (sp_best_apps_in_each_country)

```
1 •  call sp_best_apps_in_each_country;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

country	name	count(*)
Argentina	Annabelle	1
Australia	Robocop	5
Australia	Clash O...	5
Australia	Skype	4
Australia	Google ...	4
Australia	Hangout	4
Australia	Google ...	3
Australia	Wordpu...	3
Australia	Google ...	3
Australia	Killshot	3
Australia	Minion	2
Australia	Outlook	2
Australia	For You	2
Australia	Office ...	2
Australia	Fifa2015	2
Australia	Now we...	2
Australia	Candyc...	2
Australia	Asphalt	2
Australia	Beginni...	1
Australia	Sympho...	1
Australia	Shawsh...	1
Australia	Insidious	1
Australia	Annabelle	1
Australia	Zero to ...	1
Australia	Differe...	1
Australia	OneNote	1
Brazil	Google ...	6
Brazil	Google ...	5
Brazil	Wordpu...	4
Brazil	Outlook	4
Brazil	Fifa2015	4
Brazil	Skype	4

Result 26

4) Country wise OS analysis

```
1 • call sp_countrywise_OS_analysis;
```

Result Grid | Filter Rows: | Export: | Wrap

country	MobileOS	count(*)
Argentina	Android	28
Argentina	IOS	22
Argentina	WindowsPh...	24
Australia	Android	12
Australia	IOS	19
Australia	WindowsPh...	16
Brazil	Android	12
Brazil	IOS	14
Brazil	WindowsPh...	18
Canada	Android	12
Canada	IOS	18
Canada	WindowsPh...	20
China	Android	9
China	IOS	18
China	WindowsPh...	19
Germany	Android	12
Germany	IOS	6
Germany	WindowsPh...	9
India	Android	29
India	IOS	27
India	WindowsPh...	25
UK	Android	13
UK	IOS	24
UK	WindowsPh...	26
USA	Android	20
USA	IOS	15
USA	WindowsPh...	10

5) Top 10 apps in last one year, month, week

```
1 •  call sp_top_ten_apps_last_year;
```

Result Grid | Filter Rows: | Export:

name	count(*)
Fifa2015	33
Candyc...	28
Killshot	27
Wordpu...	19
Asphalt	17
Google ...	14
Robocop	12
Office ...	12
OneNote	12
Minion	11

6) Top 10 free Apps + Games

```
1 •  call sp_top_ten_free_apps;
```

Result Grid | Filter Rows: | Export: | Wrap C

Top Free	categoryname	AVG(avgrating)
Hangout	Social Networking	2.606060606060...
Wordpuzzle	Word	2.526315789473...
Killshot	Action	2.516666666666...
OneNote	Productivity	2.444444444444...
Candycrush	Puzzle	2.299999999999...
Google Maps	Travel	1.916666666666...

7) Top 10 paid apps + games

```
1 •  call sp_top_ten_paid_apps;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Top Free	categoryname	AVG(avgrating)
Office Mobile	Productivity	2.770833333333...
Minion	Adventure	2.729166666666...
Skype	Social Networking	2.722222222222...
Google Voice	Utillities	2.652173913043...
Asphalt	Racing	2.625
Clash Of Ti...	Strategy	2.553571428571...
Google Music	Music	2.515625
Fifa2015	Sports	2.5
Robocop	Action	2.145833333333...
Outlook	Utillities	2.129629629629...

8) Top 10 most downloaded apps + games

```
1 •  call sp_top_ten_most_downloaded_apps;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Most Downloaded	categoryname	SUM(numberofdownloads)
Killshot	Action	264
Google Maps	Travel	196
Candycrush	Puzzle	203
Clash Of Titans	Strategy	238
Google Voice	Utillities	162
Hangout	Social Networking	190
Office Mobile	Productivity	130
Asphalt	Racing	165
Outlook	Utillities	116
OneNote	Productivity	84

9) Top 10 companies with highest number of downloads

```
1 •  call sp_top_ten_companies_downloads;
```

Result Grid | Filter Rows: | Export: | Wrap Ce

CompanyName	count(*)
Google	130
Glu	124
Microsoft	114
Gameloft	109
Tseries	23
Lionsgate	23
WB	21
Amazon	18
Princeton	17
SonyMusic	9

10) Top 10 companies with highest amount of sales

```
1 •  call sp_top_ten_companies_sales;
```

Result Grid | Filter Rows: | Export: | Wrap

CompanyName	Sales in $
Glu	411.08999...
Amazon	367.85999...
WB	329.81999...
Princeton	312.88000...
Lionsgate	282.81999...
Microsoft	161.90000...
Google	144.36000...
Gameloft	126.39000...
Tseries	19.570000...
SonyMusic	18.710000...

Privileges

There are various kinds of users who can access different tables and/or attributes. E.g. any employee except HR and Finance cannot view everyone's salary. Thus different users are given different privileges on tables, views and databases.

1) Customer

E.g. Username- shaw

Password - shaw

Tables

User – Select, Update

Carddetails - Select, Update

Details - Select, Update

ProductReview - Select, Update

Views

User_view -Select

2) Vendor

Eg . username – Microsoft

Password – Microsoft

Tables

Company - Select, Update

AccountDetails - Select, Update

Vendor - Select, Update

Product - Select, Update, Insert

Version - Select, Update, Insert

App - Select, Update, Insert

3) Advertiser

Eg . username – apple

Password - apple

Tables

Company - Select, Update

Advertiser - Select, Update

Advertisement - Select, Update

CardDetails - Select, Update

4) Vendor+Advertiser

Eg – username – google

Password – google

Tables

Company - Select, Update

AccountDetails - Select, Update

Vendor - Select, Update

Product - Select, Update, Insert

Version - Select, Update, Insert

App - Select, Update, Insert

Advertiser - Select, Update

Advertisement - Select, Update

CardDetails - Select, Update

5) Ad Manager

Eg. Username – xingyang

Password – xingyang

Tables

Advertisement - Select, Update

Views

Non_HR - Select, Update

6) Tester

Eg. Username – vinay

Password – vinay

Tables

Product - All

Categorygenre- All

Version - All

App - All

Music - All

Game - All

Movie - All

Ebooks - All

Views

Non_HR – Select,Update

7) HR manager

Eg. Username – Tanmay

Password – Tanmay

Tables

Employee - All

8) Finance Manager

Eg . username – shaine

Password – shaine

Tables

Transaction - All

Carddetails - all

Accountdetails - all

Employee-select

9) Data Analyst

Eg . username – ashwin

Password – ashwin

Databases

Mydb – all

Views

User_product – all

10) System Admin

Eg . username –admin

Password –admin

Databases

Mydb – all

Triggers

Triggers are nothing but a specific reaction when we perform a certain action on any of the tables like Insert, Update, and Delete.

We have created three triggers.

1) **Rating**: - This trigger is fired when a customer gives a rating to certain product i.e. INSERTS in the Product Review table. This action results in calculation of average rating in the product table for that product ID.

2) **Rating 1**:- This trigger is fired when a customer EDITS a rating to certain product i.e. UPDATES in the Product Review table. This action results in calculation of average rating in the product table for that product ID.

3) **Number of downloads:** - This trigger is fired when a new transaction is carried out i.e. a new row is INSERTED in the transaction table. This results in increment in the column 'numberofdownloads' in product table for that product ID.

Index

Indexes are special lookup tables that the database search engine can use to speed up data retrieval. In our project most frequently searched columns are ProductName, MobileOS and ReviewDescription. Thus to improve data retrieval speed we have used three indexes which are as follows:-

1) create index reviewdescription_idx on ProductReview(ReviewDescription);

2) create index productname_idx on Product (Name);

3) create index mobileOS_idx on Version(MobileOS);

Transaction

Transaction is a set of one or more SQL statements that perform a set of related actions. The statements are grouped together and treated as a single unit whose success or failure depends on the successful execution of each statement in the transaction. Thus we have used transaction to insert initial data into the database.

```
-- -----------------------------------------------------
-- Data for table `mydb`.`Company`
-- -----------------------------------------------------
START TRANSACTION;
USE `mydb`;
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (1, 'Gameloft', 'blgfeiw', 'Gameloft@gmail.com', 'V', 'A');
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (2, 'Glu', 'gweerg', 'Glu@gmail.com', 'V', NULL);
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (3, 'Google', 'fdw343', 'Google@gmail.com', 'V', 'A');
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (4, 'Microsoft', '23fe3f3', 'Microsoft@gmail.com', 'V', NULL);
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (5, 'WB', 'e345r3', 'WB@gmail.com', 'V', NULL);
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (6, 'Lionsgate', 'r3345f43', 'Lionsgate@gmail.com', 'V', NULL);
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (7, 'SonyMusic', '345fe43', 'SonyMusic@gmail.com', 'V', NULL);
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (8, 'Tseries', 'f3453f3', 'Tseries@gmail.com', 'V', NULL);
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (9, 'Princeton', '34rfewy34', 'Princeton@gmail.com', 'V', NULL);
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (10, 'Amazon', 'g3t2345f', 'Amazon@gmail.com', 'V', 'A');
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (11, 'Walmart', '35eghwy3t', 'Walmart@gmail.com', NULL, 'A');
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (12, 'Facebook', 'gr3453w', 'Facebook@gmail.com', NULL, 'A');
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (13, 'Apple', 't3twtew', 'Apple@gmail.com', NULL, 'A');
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (14, 'HTC', '3543tew454', 'HTC@gmail.com', NULL, 'A');
INSERT INTO `mydb`.`Company` (`Company_ID`, `CompanyName`, `CompanyPassword`, `CompanyEmailId`, `TypeV`, `TypeA`) VALUES (15, 'Honda', 't432t4w', 'Honda@gmail.com', NULL, 'A');

COMMIT;
```

Conclusion and Future Scope

Thus we have amalgamated applications from multiple mobile operating systems into a single store. The purpose of our project was to create a unique application store which will support all devices and thus increase the scope and market of this store.

We would like to give certain suggestions for future scope and development of this project. They are as follows:-

1) **Game center** – We can incorporate the concept of game center in our database by creating tables to store scores and achievements of various customers and give them the opportunity to challenge each other.
2) **Connectivity to social media** – We can connect our store to various social media platforms and thereby increase our outreach.
3) **Country wise application restrictions** –Certain applications like Facebook which are not allowed to access in countries like china should not be seen to customer belonging to that country. We can incorporate this concept and make our database more robust.
4) **Discounts and gift card systems** – We can use triggers and give certain privileges to our loyal customers who have high contribution to our sales.

References

- www.wikipedia.com
- www.w3schools.com
- MySQL Documentation
- Modern Database Management
- Beginning MySQL
- Beginning SQL
- Presentation slides by Prof. Mutsalklisana