

Assignment 1

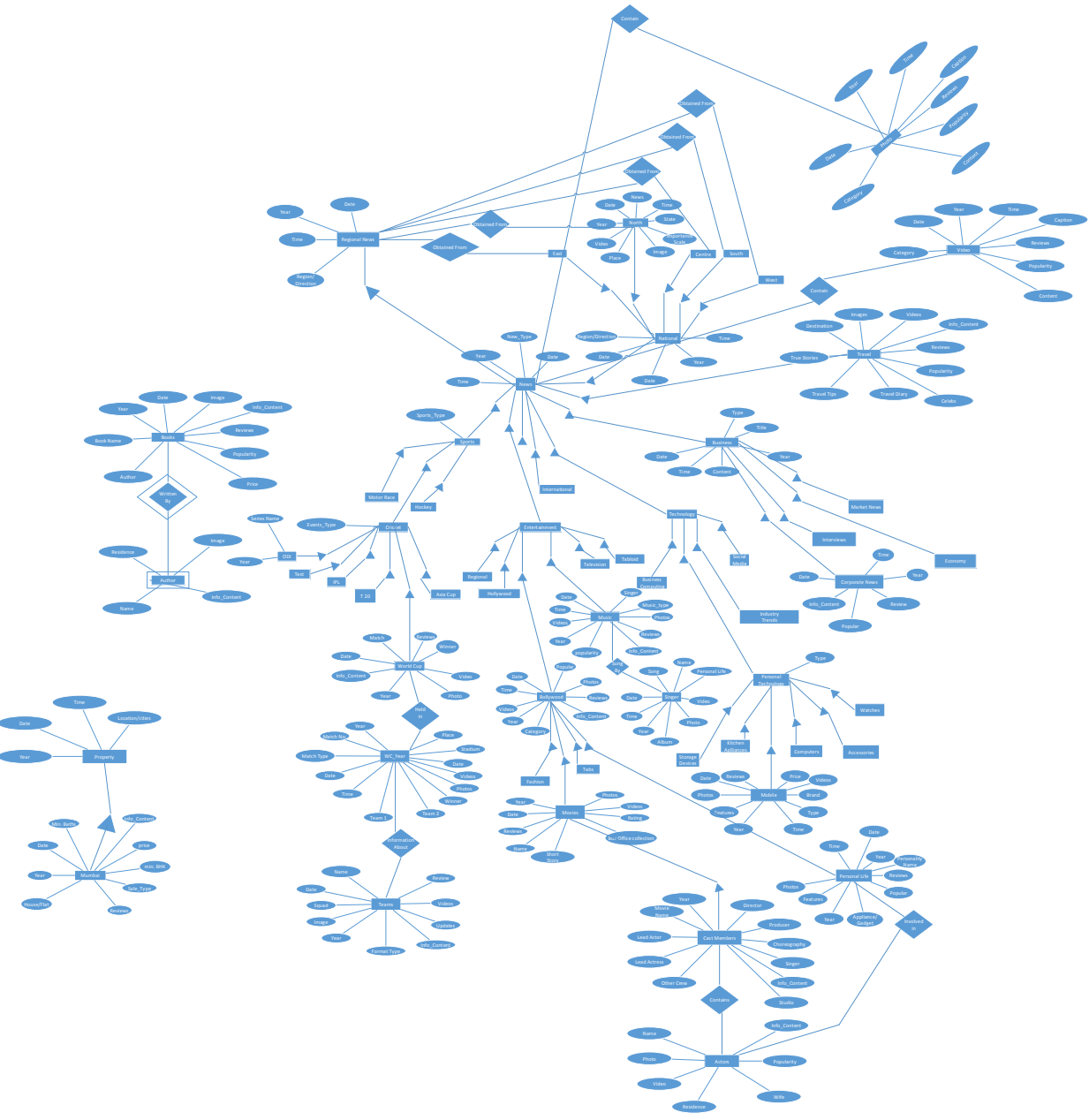
Shubham Garg, 2010CE10401

Sumeet Kumar Sinha, 2010CE10405

Due date: January 28, 2013, 11:55pm IST

1 part (a)

E R DIAGRAM



Part (a)

Entities	Attributes	Primary Key
News	Year, Date , Time , News_type	<u>Year, Date, Time</u>
Sports	Sports_Type	<u>Sports_Type</u>
Cricket	Event_Type P.S.- Similarly for the other entities i.e. Motor Race, hockey	<u>Events_Type</u>
WorldCup	Year, Winner, Info_Content, Reviews, Photo, Videos P.S.- Similarly for the other entities i.e. IPL,T20,AsiaCup,ODI, Test	<u>Year,</u>
WC_Year	MatchNo,Year,Place,Match_Type,Date,Videos,Photos,Team1,Team2,Winner,Stadium	<u>Date,Year,Time,MatchNo</u>
Teams(India)	Date,,Squad, Year, Image, Videos, Info_Content, Updates, Reviews P.S.- Similarly for the other entities i.e. Srilanka , Australia and other countries	<u>Year , Date,Name</u>

Entities	Attributes	Primary Key
News	Year, Date , Time , News_type	<u>Year, Date, Time</u>
Entertainment	E_type	<u>E_Type</u>
Bollywood	Year ,Date ,Time, Videos, Photos ,Category, Info_Content, Popular ,Reviews P.S.- Similarly for the other entities i.e. Regional,Hollywood,Television,Tabloid	<u>Year ,Date ,Time</u>
Music	Year, Date, Time, Videos, Photos, Singer, Music_Type, Info_Content, Popularity ,Reviews	<u>Year ,Date ,Time</u>
Singer	Year, Date, Time, Album, Photo, Song, Video, Name, Personal Life	<u>Date, Year, Time,</u>
Movies	Year ,Date, Name, Photos, Short_Story, Videos, BoxOffice, Rating, Reviews P.S.- Similarly for the other entities i.e. Fashion,Tabu	<u>Year ,Date, Name</u>
PersonalLife	Year, Date, Time, Features, Photos, Videos, PersonalityName, Reviews, Popular, Gadget	<u>Year, Date, Time , Personality Name</u>
CastMembers	Year, Movie_Name, Lead_Actor, Lead_Actress, Other_Crew, Director, Producer, Studio, Singer, Choreography, Info_Content	<u>Year, Movie Name</u>
Actors	Name, Photo, Video, Info_Content, Popularity, Wife, Residence	<u>Name</u>

Entities	Attributes	Primary Key
Technology	T_Type	<u>T_Type</u>
PersonalTechnology	Gadgets_Type	<u>G_Type</u>
Mobile	Year, Date, Photos, Videos, Features, Price, Brand, Types ,Reviews P.S.- Similarly for the other entities i.e. StorageDevices, KitchenAppliances, Computers, Accessories, Watches	<u>Year, Date</u>

Entities	Attributes	Primary Key
Travel	Destination ,Images, Videos, Info_Content, True_Stories, Travel_Tips, Travel_Dairy, CelebsVisit, Popularity ,Reviews	<u>Destination</u>

Entities	Attributes	Primary Key
Book	Year, Date, Book_Name, Author, Price ,Image, Info_Content, Reviews, Popularity	<u>Year , Date,</u>
Author	Residence, Image, Info_Content, Name	<u>Name</u>

Entities	Attributes	Primary Key
Business	B_type, Title, Content ,Year, Date, Time	<u>B_Type</u>
Bollywood	Year, Date, Time, Videos, Photos, Category, Info_Content ,Popular, Reviews P.S.- Similarly for the other entities i.e. Market_News, Interview, Economy	<u>Year, Date, Time</u>

Entities	Attributes	Primary Key
Property	Location	<u>Location</u>
Mumbai	Year ,Date, Min_Baths , House, Info_Content, price, min_BHK, sale_Type, Reviews P.S.- Similarly for the other entities i.e. other places in India	<u>Year, Date</u>

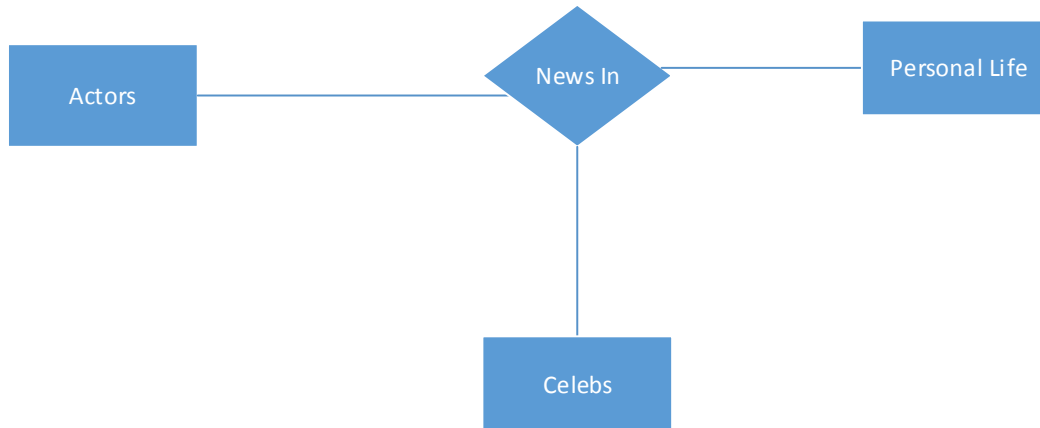
Entities	Attributes	Primary Key
National	Year, Date ,Time ,Region/Direction P.S.- Similarly for the other entities i.e. International ,Regional	<u>Year, Date, Time, Region</u>
North	Year, Date, Time, Videos, Photos , Importance_Scale , News, State, Place P.S.- Similarly for the other entities i.e. East, West, South, Centre	<u>Year, Date, Time</u>

Entities	Attributes	Primary Key
Video	Year, Date ,Time ,Caption, Reviews, Popularity, Content, Category	<u>Year, Date, Time, Region</u>
Photo	Year, Date ,Time ,Caption, Reviews, Popularity, Content, Category	<u>Year, Date, Time</u>

Part (b) & (c)

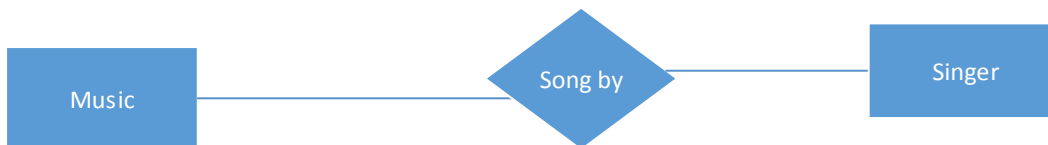
Relationships

Only some of the E-R Diagrams



Entities	Keys
Actors	<u>Year, Movie Name, Ac_Name</u>
Personal Life	<u>Year, Date, Time, Personality Name</u>
Celebs	<u>Personality Name, Type</u>
News In	<u>Year, Movie, Date, Time, CelebName, Type</u>

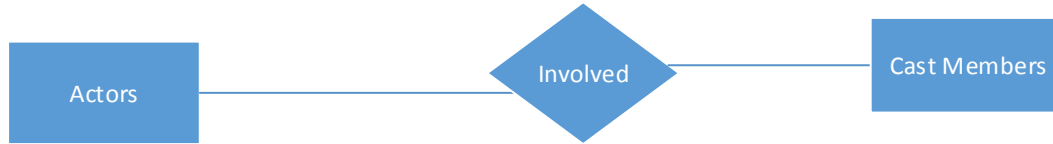
Functional Dependencies	
Movie Name ->	Rating, Reviews, Film plot
Year, Movie Name->	Box Office, reviews, Stars, popularity
Personality Name->	Type, Popularity, Info_Content
Year, Date, Time, Type->	News, Reviews, Importance Factor



Functional Dependencies	
Year, Date, Time->	News, Importance Factor, Reviews

Entities	Keys
Music	<u>Year, Date, Time</u>
Singer	<u>Date, Year, Time, Name</u>
Songs By	<u>Date, Year, Time, Name</u>

Songs->	Singer, Info, Content, Reviews
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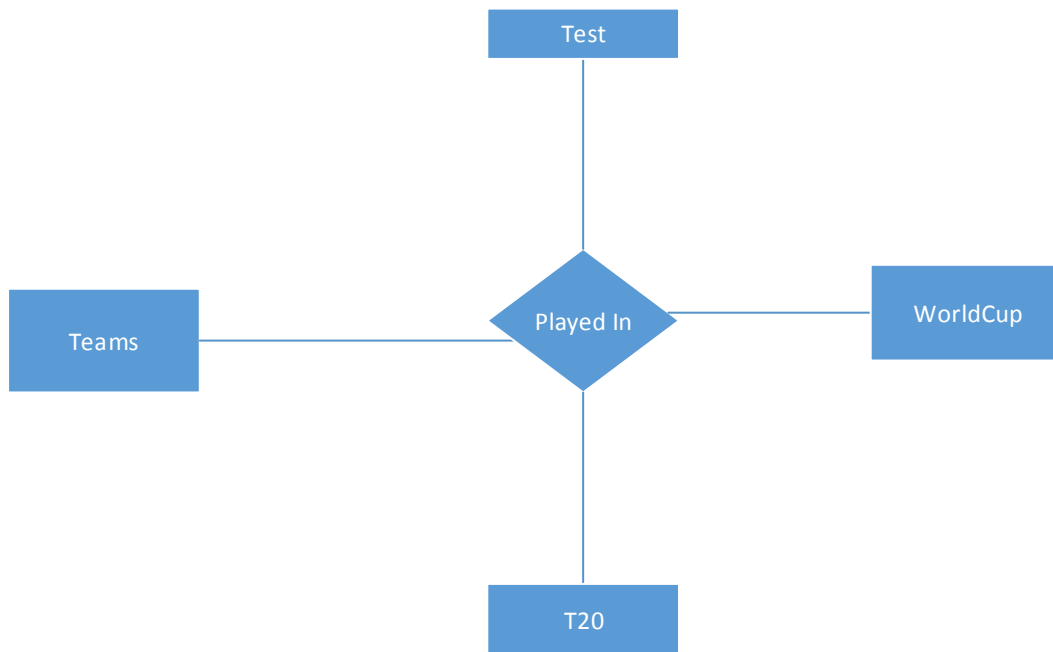
Entities	Keys
Actors	<u>Name</u>
Cast Members	<u>Year, Movie Name</u>
Involved	<u>Year, Movie Name, Name</u>

Functional Dependencies	
Name->	Photo, Video, Content, Residence, Personal Info
Year, Movie Name->	Actors, Director, Producer



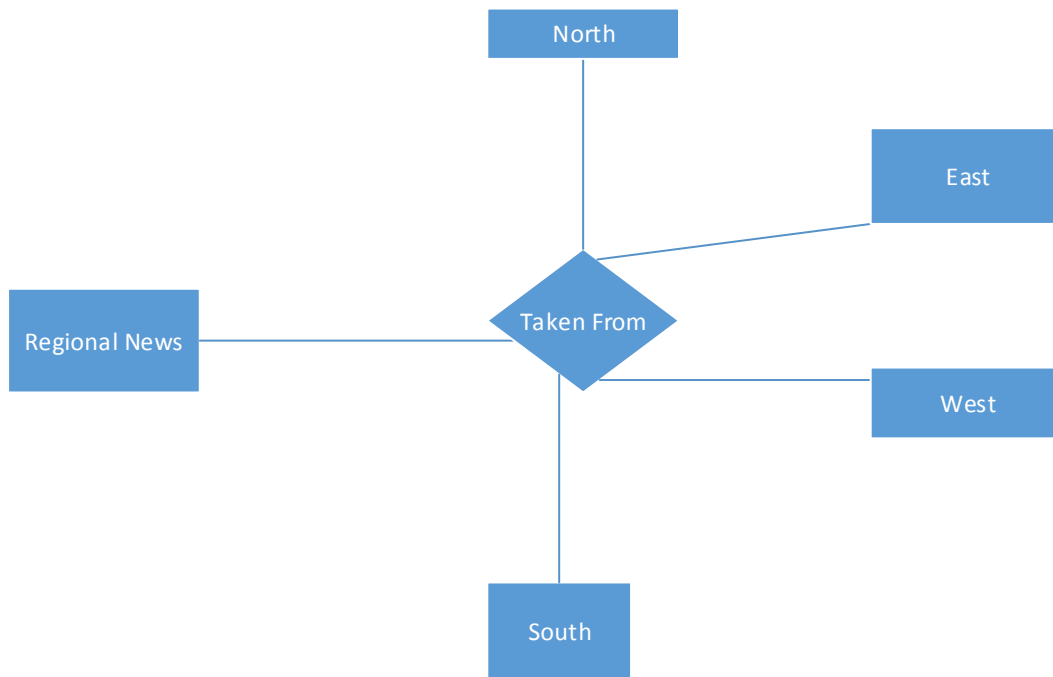
Entities	Keys
World Cup	<u>Year,</u>
WC Year	<u>Date, Year, Time, MatchNo</u>
In Year	<u>Date, Year, Time, MatchNo</u>

Functional Dependencies	
Year->	Winner, Stadium, Place, Photo, Video
Match No, Date, Year, Time ->	Team1, Team 2, Winner, Match Details, Squad, Gallery



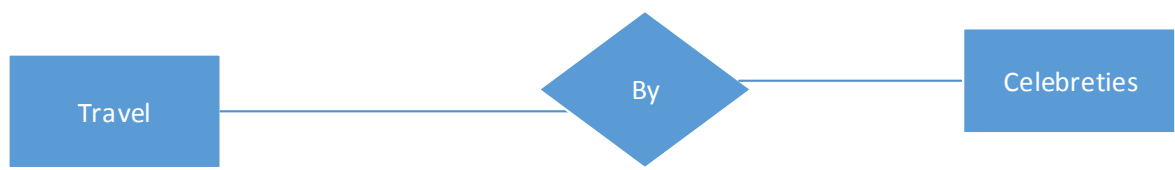
Entities	Keys
Teams	<u>Year , Date, Name</u>
Test	<u>Year, Date</u>
World Cup	<u>WC Year,</u>
T20	<u>Year ,Date</u>
Taken From	<u>Year , Date , Time , Team Name</u>

Functional Dependencies	
Year , Date , Name ->	Squad
Info_Content->	Match_Type
WC_Year->	Team 1, Team 2 , Winner , gallery
Year, Date , Category - >	Score Card, Match Details



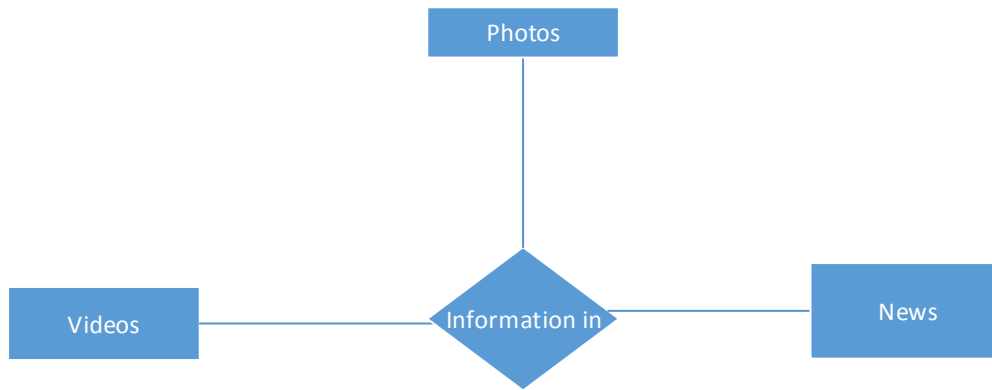
Entities	Keys
Regional	<u>Year, Date, Time, Region</u>
North	<u>Year, Date, Time</u>
West	<u>Year, Date, Time</u>
South	<u>Year, Date, Time</u>
East	<u>Year, Date, Time</u>
Taken From	<u>Year, Date, Time, Region</u>

Functional Dependencies	
Year, Date, Time ->	News
Region->	Regional_News



Entities	Keys
Travel	<u>Destination</u>
Celebrities	<u>Personality Name, Type</u>
By	<u>Personality Name, Type, Destination</u>

Functional Dependencies	
Destination ->	Travel_Tips, Travel Diary, Images, Videos
Personality Name, Type->	Info_Content, Images, Reviews, Content, Updates



Entities	Keys
Videos	<u>Year, Date, Time, Category</u>
Photos	<u>Year, Date, Time, Category</u>
News	<u>Year, Date, Time</u>
Information in	<u>Year, Date, Time, Type</u>

Functional Dependencies	
Year, Date, Time, Category ->	Title, Reviews, Content, Popular
Year, Date, Time->	News, Content, reviews



Entities	Keys
Books	<u>Year, Date,</u>
Author	<u>name</u>
Written by	<u>Personality Name, Type</u>

Functional Dependencies	
Year, Date ->	Book Name, Reviews, Content, Gallery, Reviews, Popularity
Name ->	Residence, Info_Content,

Part(d)

SAMPLE DATA

Test Series

Date-year-time	Match no.	Stadium	Time	Team1	Team2	Winner	Type
Jul 10-14, 2010	1st Test (D)	Trent Bridge, Nottingham	15:30 (IST) 11:00 (Local)	Australia	England	Australia	League
Jul 18-22, 2010	2nd Test (D)	Lord's, London	15:30 (IST) 11:00 (Local)	Australia	New Zealand	Australia	League
Aug 01-05, 2010	3rd Test (D)	Old Trafford, Manchester	15:30 (IST) 11:00 (Local)	New Zealand	England	England	League
Aug 09-13, 2010	4th Test (D)	Riverside Ground, Chester-Le-Street	15:30 (IST) 11:00 (Local)	Australia	England	Australia	Final 1
Aug 21-25, 2010	5th Test (D)	The Oval, London	15:30 (IST) 11:00 (Local)	Australia	England	Australia	final 2

INDIA Cricket

Date-year-time	Team Squad	Content	Updates
Jul 10-14, 2012	Team Squad 22	Content 176	Sehwag injured
Aug 18-22, 2010	Team Squad 13	Content 145	Balaji Enters again
Sep 01-05, 2009	Team Squad 19	Content 100	Dhoni selected as a Captain
Feb 09-13, 2007	Team Squad 8	Content 52	India looks ahead for world cup
Nov 21-25, 2006	Team Squad 7	Content 34	Update 10

News

Date-year	Title	Content	Time	Importance Factor	Reviews	Type

Jan 25, 2013	NPCIL to repeat hydro-tests at Kudankulam-I	Armed with a green signal from India's atomic energy regulator, the Nuclear Power Corporation of India Ltd (NPCIL) is gearing itself to repeat the full systems test - also called the hydro test - of the first unit of Kudankulam Nuclear Power Project (KNPP), a senior official said Friday.	15:30 (IST) 11:00 (Local)	100	Review 89	National
Jul 18-22, 2012	Dual pricing policy on diesel short-sighted: Jaya	n a sharp attack on the Centre's dual pricing policy on diesel for bulk consumers, Tamil Nadu chief minister J Jayalalithaa on Friday termed it as "ill-conceived" and "short-sighted" and demanded its withdrawal.	15:30 (IST) 11:00 (Local)	98	Review 68	National
Aug 01-05, 2010	Missiles, rockets used to divert attention from N-tests preps: Kalam	India had launched a series of missiles, rockets and dropped experimental bombs to divert attention of "snoopers" before conducting the 1998 nuclear tests, APJ Abdul Kalam, considered the father of India's missile programme, said on Thursday.	15:30 (IST) 11:00 (Local)	75	Review 50	National
Aug 09-13, 2009	No screening of Kamal Haasan's Vishwaroopam in Hyderabad	The Andhra Pradesh government today stopped the release of Kamal Haasan's film Vishwaroopam in Hyderabad after some Muslims organisations complained that the movie had hurt religious sentiments.	15:30 (IST) 11:00 (Local)	50	Review 45	Regional
Dec 21-25, 2006	'Slightly disappointed' with Headley's quantum of punishment: Khurshid	India today said it will continue to press for extradition of David Headley from the US after the Pakistani-American LeT terrorist	15:30 (IST) 11:00 (Local)	35	Review 34	International

escaped death penalty for helping plot the 2008 Mumbai terror attack and sentenced to 35 years in jail by an American court.

Travel

Destination	Travel Diary	Travel tip	Content	Type
Bangkok	Once viewed as a backward part of northeast Japan, so snowy it was known as "Japan's Tibet," the city of Morioka and surrounding Iwate prefecture came into their own 30 years ago, when the superfast Shinkansen train began running up north.	Trent Bridge, Nottingham	This summer, head to the haven of shopaholics and food lovers	League
Toronto	You could easily lose yourself while exploring the Estonian capital's well-preserved medieval Old Town or become absorbed in Tallinn's gritty Soviet and spy-laden past.	Lord's, London	When in Toronto, don't miss out on a visit to the Bata Shoe Museum and the Royal Ontario Museum. The footwear museum has an impressive collection of shoes, some older than 4,500 years and shoes of celebrities like Marilyn Monroe and Pierce Brosnon.	League
Almora	Don't let sub-zero temperatures and darkness put you off visiting Finland's capital city in the winter, when its Art Nouveau and modernist buildings are covered in a layer of snow.	Old Trafford, Manchester	The temperature was soaring, there was a long weekend and we just wanted to get away to the hills.	League
London	The footwear museum has an impressive collection of shoes, some older than 4,500 years and shoes of celebrities like Marilyn Monroe and Pierce Brosnon.	Riverside Ground, Chester-Le-Street	The upcoming Olympic Games are a win-win situation for London	Final 1
Island Odyssey	In Rome one can still indulge in la dolce vita without breaking the bank, even in times of austerity.	The Oval, London	It's not for penny-counting backpackers, but for those who love the good life, Mauritius offers wave after wave of fun by Serena Menon	final 2

Bollywood

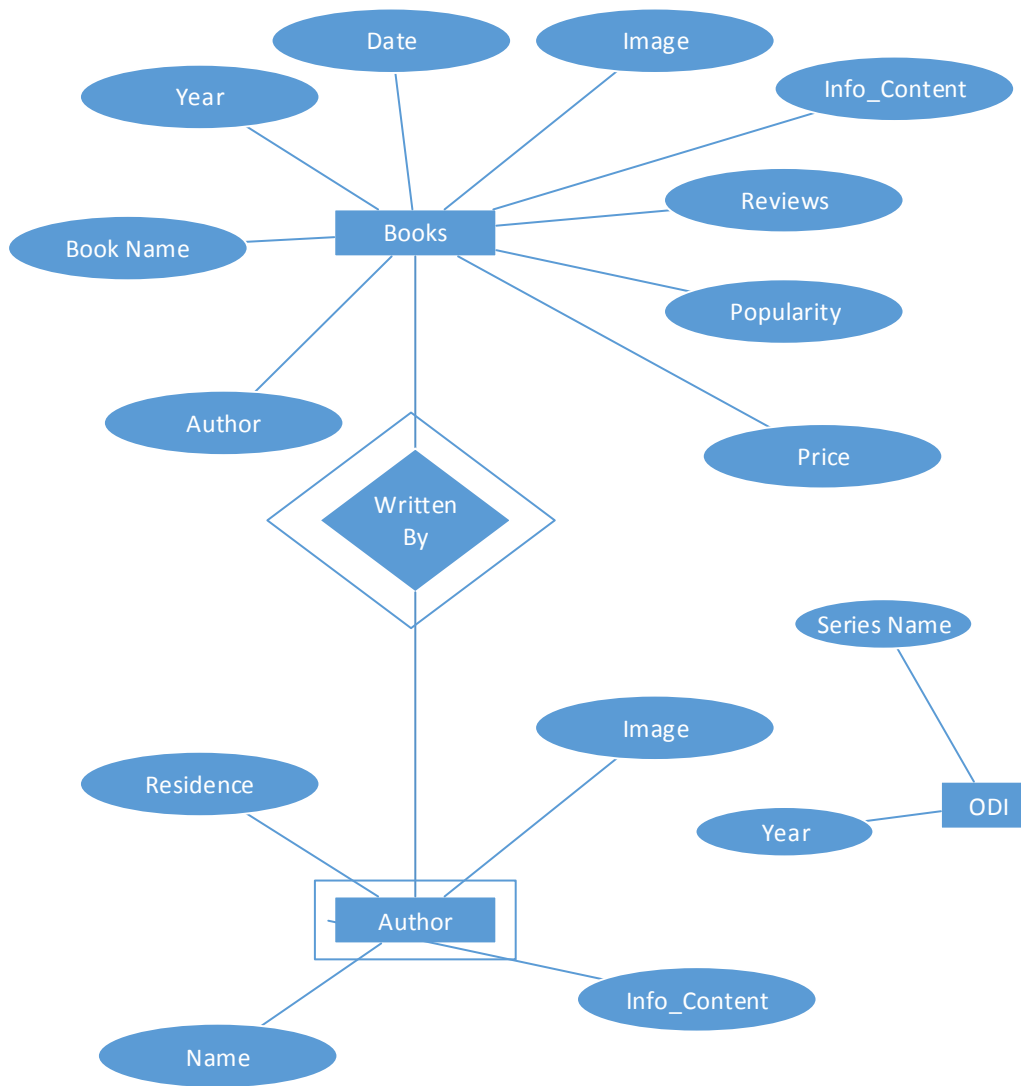
Date-year-time	Title	Content	Date	Reviews
Jan 10, 2013	Imran Khan, Kareena Kapoor starrer titled Gori Tere Pyar Mein	The trio from the film I Hate Luv Storys, Punit Malhotra, Karan Johar and Imran Khan are back. Earlier we had reported that post IHLS, Punit was ready with the script of his next venture and roped in Imran for the same.	15:30 (IST) 11:00 (Local)	Review 78
Jul 18, 2012	Sudhir Mishra finds a producer, finally	After nearly two years and many changes, director Sudhir Mishra is finally making his long-stalled film, earlier titled Dhruv. Balaji Motion Pictures and Excel Entertainment have come together to produce the film, which the director will start work on after he completes his upcoming film Mehrunissa.	15:30 (IST) 11:00 (Local)	Review 65
Aug 01, 2010	Shah Rukh Khan wants Farah to choreograph more songs for him	After finishing one song Chennai Express, Shah Rukh Khan wants friend Farah Khan to choreograph another. Apparently nothing has been finalised yet, not even the venue or the dates. "But in all probability, it will be shot after March," says an insider.	15:30 (IST) 11:00 (Local)	Review 50

Oct 09-, 2009	FIRST LOOK: Deepika Padukone, Ranveer Singh in Ram Leela	The much-hyped Deepika Padukone and Ranveer Singh starrer Ram Leela's poster is out! And how! While Ranveer Singh stuns in his six-pack rugged avatar, Deepika looks astonishing	15:30 (IST) 11:00 (Local)	Review 45
Aug 21, 2009	AnilKappors Favourite Item Song	"But in all probability, it will be shot after March," says an insider	15:30 (IST) 11:00 (Local)	Review 38

Part (E)

SHOWCASE

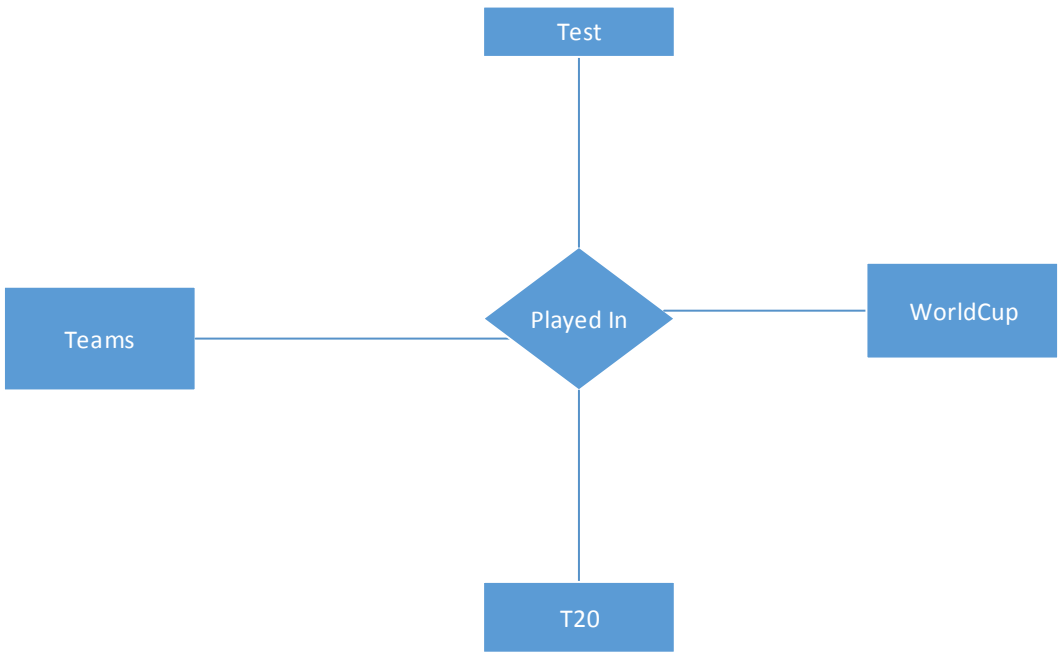
- Weak Entity Set



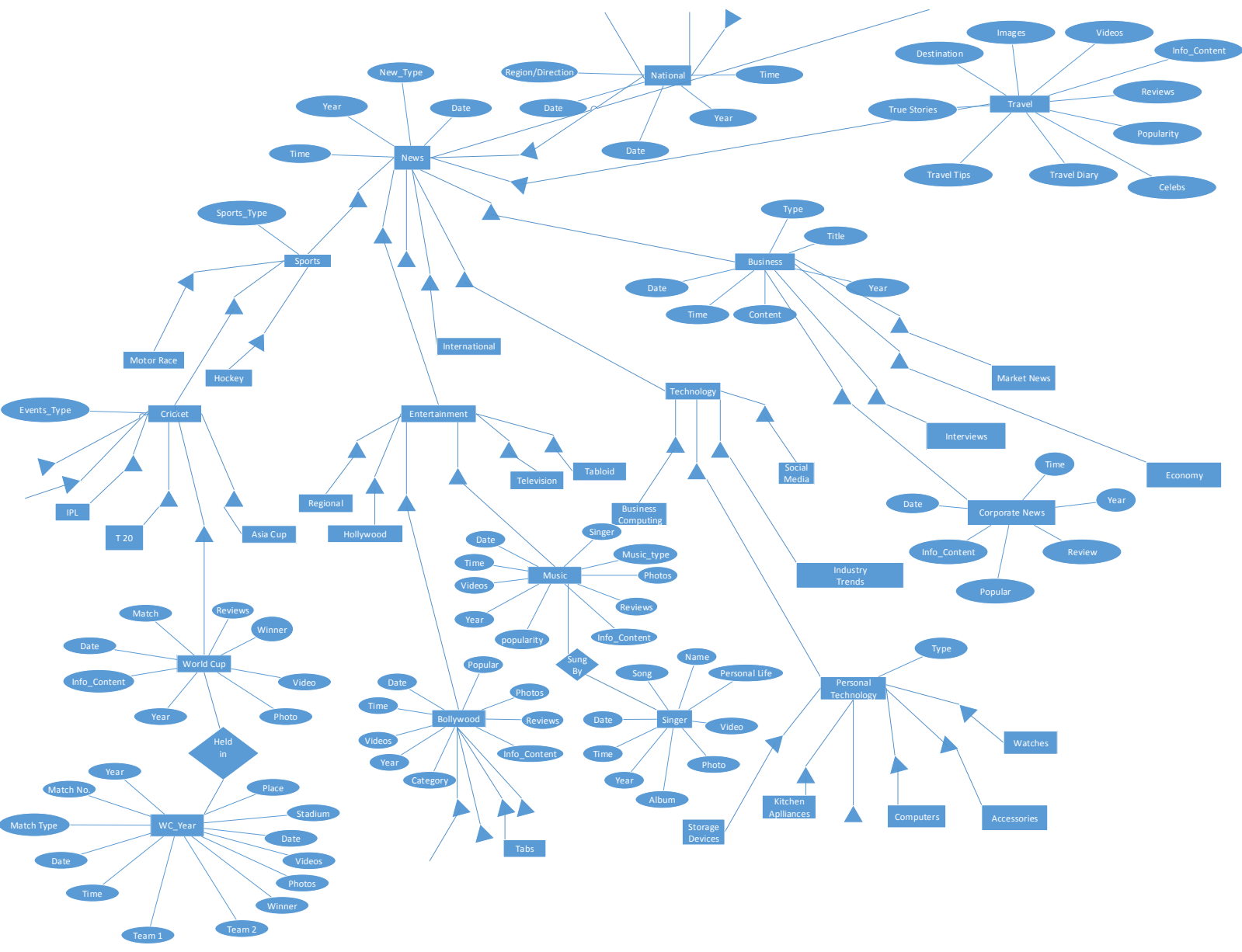
- Binary Relationship



- Non-Binary Relationship



- Hierarchy



• Referential Integrity

- In the above E-R diagram in most of the entities Date/Year/Time is the referential Integrity i.e. without it we would not allow any other attributes to be filled.
- Also similarly Team names is referential integrity in Cricket as this is necessary for all tuples.

Decomposing a Universal Relation into Normal Forms

Universal Relation

Let us we have the following universal relation of cricket and its various forms(indicated here as types)

CRICKET									
Year/date/Time(IST)	Teams	Match Type	Winner	Man Of the match	Series Name	Captains	Umpire	Squad	Place
2013/Jan 23/10:30 am	India , Australia	ODI	India	Sehwag	Aishes Series	MS Dhoni, Michael Clarke	Simon Taufel, Billy Borden	Squad_if	Mumbai
2013/Jan 1/11:00 am	India, South Africa	ODI	South Africa	Kallis	Airtel Series	MS Dhoni, Grahm Smith	Alim Darr, Shepherd	Squad_ih	Johanesberg
2011/Mar 5/5:30 am	Pakistan , South Africa	TEST	Pakistan	Morkel	Micromax Cup	Mohd. Hafeez, Grahm Smith	Billy Borden, Ramesh	Squad_ifs	Karachi
2011/Feb 18/5:30 pm	New Zealand , England	TEST	England	Eoin Morgan	Champions Cup	Rose Taylor, Altair Cook	Shepherd, Simon Taufel	Squad_ihs	Bangalore
2010/Dec 16/5:30 am	England , India	T20	India	Virat Kohli	Airtel Series	Altair Cook, MS Dhoni	Ramesh, Alim Darr	Squad_ikj	Delhi
2010/Jul 18/2:00 pm	England , Australia	ODI	England	Kevin Peterson	Aishes Series	Andrew Strauss, Michael Clarke	Simon Taufel, Suresh	Squad_iiu	Sydney
2009/Aug23/9:30 pm	Sri Lanka , England	T20	England	Kumar Sangakara	Champions Cup	Jayawardhane, Andrew Strauss	Billy Borden, Alim Darr	Squad_ikw	Lords
2009/Jun 21/3:00 am	Bangladesh , India	ODI	India	Sachin Tendulkar	Micromax Cup	Mohd. Asif, MS Dhoni	John Stewart, Bradman	Squad_imw	Chitgon
2009/Feb 1/11:28 pm	West Indies , Pakistan	TEST	Pakistan	Umar Gul	Airtel Series	Bravo, Younis Khan	Bradman, Shephard	Squad_iqw	Lahore
2008/Feb 16/3:30 pm	India , Pakistan	ODI	India	Zaheer Khan	India-Pak Series	MS Dhoni, Mohd. Hafeez	Suresh, Alim Darr	Squad_if	Nagpur
2007/Nov 23/3:00 am	India , Sri Lanka	ODI	Sri Lanka	Jayawardhane	Tata Cup	Ganguly, Sangakara	Shepherd, John Stewart	Squad_ihs	Kathmandu
2007/Mar 16/10:00 am	Pakistan , England	ODI	England	Anderson	Champions Cup	Younis Khan,	Alim Darr, Ramesh	Squad_iiu	Lahore

						Nasif Hussain			
2006/May 12/11:00 pm	India , Australia	TEST	Australia	Brett Lee	Tata Cup	Ganguly, Ricky Ponting	Bradman, Simon Taufel	Squad_it	Sydney
2005/Feb 28/12:00 am	Australia , New Zealand	T20	Australia	Shane Warne	Champions Cup	Ricky Ponting, Stephen Flaming	Billy Borden, Suresh	Squad_im	Perth

Now, we can see that it does not contain atomic values in the attributes like

- Year/Date/Time
- Teams -> Which contain names of two teams
- Captain -> Which contain names of two captains

1st Normal Form

To convert it into the first normal form, we decompose the attributes further into smaller attributes so that it may contain atomic values.

CRICKET														
Year	Date	Time	Team1	Team2	Match Type	Winner	Man Of the match	Series Name	Captain Team 1	Captain Team 2	Umpire 1	Umpire 2	Squad	Place
2013	23-Jan	10:30 AM	India	Australia	ODI	India	Sehwag	Aishes Series	MS Dhoni	Michael Clarke	Simon Taufel	Bill Borden	Squad_if	Mumbai
2013	1-Jan	11:00 AM	India	South Africa	ODI	South Africa	Kallis	Airtel Series	MS Dhoni	Grahm Smith	Alim Darr	Shepherd	Squad_ih	Johannesburg
2011	5-Mar	5:30 AM	Pakistan	South Africa	TEST	Pakistan	Morkel	Micromax Cup	Mohd. Hafeez	Grahm Smith	Billy Borden	Ramesh	Squad_ifs	Karachi
2011	18-Feb	5:30 PM	New Zealand	England	TEST	England	Eoin Morgan	Champions Cup	Rose Taylor	Altair Cook	Shepherd	Simon Taufel	Squad_ih_s	Bangalore
2010	16-Dec	5:30 AM	England	India	T20	India	Virat Kohli	Airtel Series	Altair Cook	MS Dhoni	Ramesh	Alim Darr	Squad_ik_j	Delhi
2010	18-Jul	2:00 PM	England	Australia	ODI	England	Kevin Peterson	Aishes Series	Andrew Strauss	Michael Clarke	Simon Taufel	Suresh	Squad_ii_u	Sydney
2009	23-Aug	9:30 PM	Sri Lanka	England	T20	England	Kumar Sangakara	Champions Cup	Jayawardhane	Andrew Strauss	Billy Borden	Alim	Squad	Lords

												Dar r	_ik w	
2009	21-Jun	3:00 AM	Banglad esh	India	ODI	India	Sachin Tendulk ar	Microm ax Cup	Mohd. Asif	MS Dhoni	John Stewa rt	Bra d ma n	Sq uad _i mw	Chi tgo n
2009	1-Feb	11:28 PM	West Indies	Pakistan	TEST	Pakistan	Umar Gul	Airtel Series	Bravo	Younis Khan	Brad man	She phar d	Sq uad _iq w	La hor e
2008	16- Feb	3:30 PM	India	Pakistan	ODI	India	Zaheer Khan	India- Pak Series	MS Dhoni	Mohd. Hafeez	Sures h	Ali m Dar r	Sq uad _if	Na gpu r
2007	23- Nov	3:00 AM	India	Sri Lanka	ODI	Sri Lanka	Jayawar dhane	Tata Cup	Gangul y	Sangak ara	Alim Darr	Joh n Ste wart	Sq uad _ih s	Kat hm and u
2007	16- Mar	10:00 AM	Pakistan	England	ODI	England	Anderso n	Champi ons Cup	Younis Khan	Nasif Hussai n	Alim Darr	Ra mes h	Sq uad _ii u	La hor e
2006	12- May	11:00 PM	India	Australia	TEST	Australi a	Brett Lee	Tata Cup	Gangul y	Ricky Pontin g	Brad man	Sim on Tau fel	Sq uad _it	Sy dne y
2005	28- Feb	12:00 AM	Australia	New Zealand	T20	Australi a	Shane Warne	Champi ons Cup	Ricky Ponting	Stephe n Flamin g	Billy Borde n	Sur esh	Sq uad _i m	Per th

2nd Normal Form

The first normal form contain some attributes which can be decomposed further so that they are dependent on some primary key.

- Here , Captain is dependent on Year and Team and not determine by the primary key
- And Year, Date and Time identify all attributes in Cricket

Year	Date	Time	Team1	Team2	Match Type	Winner	Man Of the match	Series Name	Umpire 1	Umpire 2	Squad	Place
2013	23- Jan	10:30 AM	India	Australia	ODI	India	Sehwag	Aishes Series	Simon Taufel	Billy Borden	Squad_if	Mumbai
2013	1-Jan	11:00 AM	India	South Africa	ODI	South Africa	Kallis	Airtel Series	Alim Darr	Shepherd	Squad_ih	Johanesberg
2011	5- Mar	5:30 AM	Pakista n	South Africa	TEST	Pakista n	Morkel	Micro max Cup	Billy Borden	Ramesh	Squad_ifs	Karachi
2011	18- Feb	5:30 PM	New Zealand	England	TEST	Englan d	Eoin Morgan	Champi ons Cup	Shephe rd	Simon Taufel	Squad_ih s	Bangalore
2010	16- Dec	5:30 AM	Englan d	India	T20	India	Virat Kohli	Airtel Series	Ramesh	Alim Darr	Squad_ik j	Delhi

2010	18-Jul	2:00 PM	England	Australia	ODI	England	Kevin Peterson	Aishes Series	Simon Taufel	Suresh	Squad_iu	Sydney
2009	23-Aug	9:30 PM	Sri Lanka	England	T20	England	Kumar Sangakara	Champions Cup	Billy Borden	Alim Darr	Squad_ikw	Lords
2009	21-Jun	3:00 AM	Bangladesh	India	ODI	India	Sachin Tendulkar	Micro max Cup	John Stewart	Bradman	Squad_imw	Chitgon
2009	1-Feb	11:28 PM	West Indies	Pakistan	TEST	Pakistan	Umar Gul	Airtel Series	Bradman	Alim Darr	Squad_iqw	Lahore
2008	16-Feb	3:30 PM	India	Pakistan	ODI	India	Zaheer Khan	India-Pak Series	Suresh	Alim Darr	Squad_if	Nagpur
2007	23-Nov	3:00 AM	India	Sri Lanka	ODI	Sri Lanka	Jayawardhane	Tata Cup	Alim Darr	John Stewart	Squad_ihs	Kathmandu
2007	16-Mar	10:00 AM	Pakistan	England	ODI	England	Anderson	Champions Cup	Alim Darr	Ramesh	Squad_iiu	Lahore
2006	12-May	11:00 PM	India	Australia	TEST	Australia	Brett Lee	Tata Cup	Bradman	Simon Taufel	Squad_it	Sydney
2005	28-Feb	12:00 AM	Australia	New Zealand	T20	Australia	Shane Warne	Champions Cup	Billy Borden	Suresh	Squad_im	Perth

Period	Team	Captain
2008-2013	India	MS Dhoni
2009-2013	Australia	Michael Clarke
2007-2013	South Africa	Grahm Smith
2009-2011	Pakistan	Mohd. Hafeez
2005-2010	New Zealand	Stephen Flaming
2009-2013	England	Andrew Strauss
2007-2010	West Indies	Deran Bravo
2008-2011	Sri Lanka	Jayawardhane
2007-2010	Bangladesh	Mohd. Asif
2010-2013	New Zealand	Rose Taylor
2005-2007	India	Saurabh Ganguly
2005-2008	Australia	Ricky Ponting
2005-2009	Pakistan	Younis Khan
2005-2008	England	Naseer Hussain
2005-2008	Sri Lanka	Kumar Sangakara

3rd Normal Form

- The above relation tables, in the second normal form still contain redundancies as the attributes like Captain is Dependent on team where as it can also be identified from date, time and year.
- Similarly for Squad.
- Also teams names are repeated a no. of times in the above table.
- Also series name and type are repeated a no. of times. so we can break it further as

CRICKET_Matches

Year	Date	Time	Team1.id	Team2.id	Winner	Man Of the match	Umpire 1	Umpire 2	Match Type.Id	Place
2013	23-Jan	10:30 AM	T_1	T_2	T_1	Sehwag	Simon Taufel	Billy Borden	M_1	Mumbai
2013	1-Jan	11:00 AM	T_1	T_4	T_4	Kallis	Alim Darr	Shepherd	M_1	Johanesberg
2011	5-Mar	5:30 AM	T_9	T_4	T_9	Morkel	Billy Borden	Ramesh	M_3	Karachi
2011	18-Feb	5:30 PM	T_8	T_3	T_3	Eoin Morgan	Shepherd	Simon Taufel	M_3	Bangalore
2010	16-Dec	5:30 AM	T_3	T_1	T_1	Virat Kohli	Ramesh	Alim Darr	M_2	Delhi
2010	18-Jul	2:00 PM	T_3	T_2	T_3	Kevin Peterson	Simon Taufel	Suresh	M_1	Sydney
2009	23-Aug	9:30 PM	T_6	T_3	T_3	Kumar Sangakara	Billy Borden	Alim Darr	M_2	Lords
2009	21-Jun	3:00 AM	T_7	T_1	T_1	Sachin Tendulkar	John Stewart	Bradman	M_1	Chitgon
2009	1-Feb	11:28 PM	T_5	T_9	T_9	Umar Gul	Bradman	Alim Darr	M_3	Lahore
2008	16-Feb	3:30 PM	T_1	T_9	T_1	Zaheer Khan	Suresh	Alim Darr	M_1	Nagpur
2007	23-Nov	3:00 AM	T_1	T_6	T_6	Jayawardhane	Alim Darr	John Stewart	M_1	Kathmandu
2007	16-Mar	10:00 AM	T_6	T_3	T_3	Anderson	Alim Darr	Ramesh	M_1	Lahore
2006	12-May	11:00 PM	T_1	T_2	T_2	Brett Lee	Bradman	Simon Taufel	M_3	Sydney
2005	28-Feb	12:00 AM	T_2	T_8	T_2	Shane Warne	Billy Borden	Suresh	M_2	Perth

Series Name	Teams
Aishes Series	T_1,T_2,T_3
Airtel Series	T_1,T_3,T_4,T_9,T_5
Micromax Cup	T_9,T_4,T_1,T_7
Champions Cup	T_6,T_3,T_9,T_2,T_8
India-Pak Series	T_1,T_9
Tata Cup	T_1,T_2,T_6

Team.id	Team Name	Squad
T_1	India	Squad_if
T_2	Australia	Squad_ih
T_3	England	Squad_ifs
T_4	South Africa	Squad_ihs
T_5	West Indies	Squad_ikj
T_6	Sri Lanka	Squad_iiu
T_7	Bangladesh	Squad_ikw
T_8	New Zealand	Squad_imw
T_9	Pakistan	Squad_iqw

Period	Team	Captain
2008-2013	T_1	MS Dhoni
2009-2013	T_2	Michael Clarke
2007-2013	T_4	Grahm Smith
2009-2011	T_9	Mohd. Hafeez
2005-2010	T_8	Stephen Flaming
2009-2013	T_3	Andrew Strauss
2007-2010	T_5	Deran Bravo
2008-2011	T_6	Jayawardhane
2007-2010	T_7	Mohd. Asif
2010-2013	T_8	Rose Taylor
2005-2007	T_1	Saurabh Ganguly

Match Type.Id	Match Type
M_1	ODI
M_2	T20
M_3	Test

2005-2008	T_2	Ricky Ponting
2005-2009	T_9	Younis Khan
2005-2008	T_3	Naseer Hussain
2005-2008	T_6	Kumar Sangakara

Now this is in 3rd Normal Form in which every non-key attribute key is determined by a primary key.

BCNF Normal Form

A relation is in BCNF only and only when it is in 3NF and non- Prime Attributes do not determine any prime or non-prime attributes

CRICKET_Matches										
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2007	23-Nov	3:00 AM	T_1	T_6	T_6	Jayawardhane	U_4	U_7	M_1	Kathmandu
2007	16-Mar	10:00 AM	T_6	T_3	T_3	Anderson	U_4	U_8	M_1	Lahore
2006	12-May	11:00 PM	T_1	T_2	T_2	Brett Lee	U_3	U_1	M_3	Sydney
2005	28-Feb	12:00 AM	T_2	T_8	T_2	Shane Warne	U_2	U_5	M_2	Perth

Series Name	Teams
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T_6	Sri Lanka	Squad_iiu
T_7	Bangladesh	Squad_ikw
T_8	New Zealand	Squad_imw

T_9	Pakistan	Squad_iqw
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Match Type.Id	Match Type
M_1	ODI
M_2	T20
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Umpire.Id	Umpire
U_1	Simon Taufel
U_2	Billy Borden
U_3	Bradman
U_4	Alim Darr
U_5	Suresh
U_6	Shephard
U_7	John Stewart
U_8	Ramesh