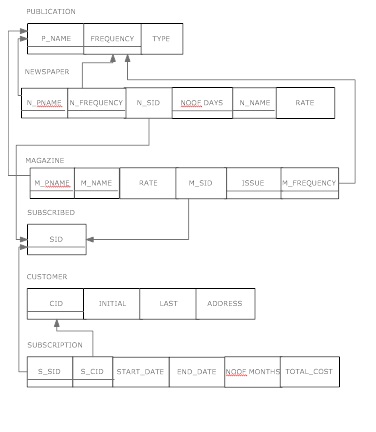
**Information:**

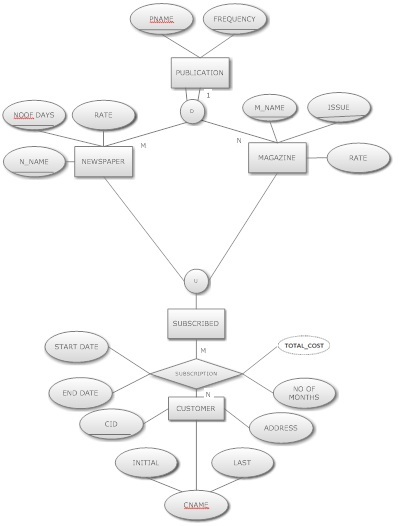
**Name: Jaganmohan Chandramohan**

**ID: 1000772027**

**Relational Schema Diagram Design:**

****

**EER DIAGRAM:**



**Entity types**

**Customer** is an entity type that holds the details of the customer.

**CId** - Id for customer ***(Primary key)***

**Initial –** Initial name of customer

**Last –** Last name of customer

**Address –** Address of the customer

**Publication** is a super class entity which is been inherited by Magazine and Newspapers.

**P\_Name** –Name of the Publication ***(Unique key)***

**Type –** Type of publication (Newspaper or Magazine)

**Frequency –** Frequency of the Publication ***(Composite Primary Key)***

**Magazine** is specialization of Publication, which hold all the details of magazine

**M\_Pname** – Publication Name ***(Composite Primary Key) (Foreign key to P\_Name of Publication)***

**M\_name** – Name of Magazine ***(Composite Primary key)***

**M\_Frequency –** Type of magazine (Weekly, Monthly, Yearly) ***(Composite Primary Key)(Foreign***

***Key to Frequency of Publication)***

**Issue –** No of Issues ***(Composite Primary Key)***

**Rate –** Rate of Magazine per Issue

**M\_SID –** Subscription Id for each Magazine ***(Unique id) (Foreign Key to SID of Subscribed)***

**Newspaper** is specialization of Publication, which hold all the details of Newspaper

**N\_Pname** – Publication Name ***(Composite Primary Key) (Foreign key to P\_Name of Publication)***

**N\_name** – Name of Magazine ***(Composite Primary key)***

**N\_Frequency –** Type of magazine (Weekly, Monthly, Yearly) ***(Composite Primary Key)(Foreign***

***Key to Frequency of Publication)***

**No of Days –** No of Days ***(Composite Primary Key)***

**Rate –** Rate of Magazine per Issue

**N\_SID –** Subscription Id for Each Newspaper ***(Unique id) (Foreign Key to SID of Subscribed)***

**Subscribed** is a union of the Newspaper and Magazine

**SID –** Id’s of the Newspaper and Magazine that a customer subscribes ***(Primary key)***

**Relation – Relation**

**Subscription** is a M:N relation between subscribed and customer with attributes:

**S\_SID –** Subscription Id ***(Foreign key to SID of Customer)***

**S\_CID –** Customer Id ***(Foreign key to CID of Customer)(Auto\_increment)***

**Start\_Date –** Start Date of Subscription

**End\_Date -** End Date of Subscription

**No of Months** – Number of issues of Newspaper

**Total\_cost** – Total cost of the issues subscribed by a customer. (Derived attribute from issues, rate, start\_date)

**REASON TO CHANGE THE SCHEMA:**

1. **Defect in first schema**: In Previous model we made two assumptions, the publication name has either newspaper or magazine. If the publication has newspaper type, then it can have only one newspaper (i.e.) Under each publication there can be only one type (newspaper or magazine) and under that there can be only one value(Newspaper name or magazine name depending on the type)

**Solution for the first schema in second schema:** But in the new model we have made changes in such a way that under each publication type there can be both type (newspaper or magazine or both) and under which it can have N number of values (Newspaper name or magazine name or both names)

1. **Defect in first schema:** In previous model we only had rate attribute that holds the basic cost of one magazine or newspaper and we planned on displaying the total cost of subscription based on the number of issues only in the output (i.e.) we didn’t store the total cost of subscription in the database, rather we decided to display the total cost calculated from number of issues and start date using program, only when the user or administrator asks for it.

**Solution for the first schema in second schema:**

In the new model we have created a new attribute called total\_cost in subscription table that would hold the total cost of all the subscriptions, a person makes.

**QUERIES:**

create database project2;

use project2;

create table publication(p\_name varchar(50),frequency char(10) not null,type char(10) not null,primary key(p\_name,frequency,type))engine innodb;

create table newspaper(n\_pname varchar(50),n\_name varchar(50),noof\_days int(10),n\_sid varchar(10),n\_frequency char(10),rate int(10),primary key(n\_pname,n\_frequency,noof\_days,n\_name))engine innodb;

create table magazine(m\_pname varchar(50),m\_name varchar(50),issue int(10),m\_sid varchar(10),m\_frequency char(10),rate int(10),primary key(m\_pname,m\_frequency,issue,m\_name))engine innodb;

create table subscribed(sid varchar(10) not null primary key)engine innodb;

create table customer(cid INT(10) not null AUTO\_INCREMENT primary key,initial varchar(2),last varchar(20),address varchar(40))engine innodb;

create table subscription(s\_sid varchar(10),s\_cid int(10),start\_date date,end\_date date,noof\_months int(10),total\_cost int(10),primary key(s\_sid,s\_cid))engine innodb;

alter table newspaper add foreign key(n\_pname,n\_frequency) references publication(p\_name,frequency);

alter table newspaper add foreign key(n\_sid) references subscribed(sid);

alter table magazine add foreign key(m\_pname,m\_frequency) references publication(p\_name,frequency);

alter table magazine add foreign key(m\_sid) references subscribed(sid);

alter table subscription add foreign key(s\_sid) references subscribed(sid);

alter table subscription add foreign key(s\_cid) references customer(cid);

show tables;

show create table publication;

show create table newspaper;

show create table magazine;

show create table subscribed;

show create table customer;

show create table subscription;

**RESULTS:**

mysql> source creation\_queries.sql

Query OK, 1 row affected (0.00 sec)

Database changed

Query OK, 0 rows affected (0.11 sec)

Query OK, 0 rows affected (0.03 sec)

Query OK, 0 rows affected (0.02 sec)

Query OK, 0 rows affected (0.00 sec)

Query OK, 0 rows affected (0.02 sec)

Query OK, 0 rows affected (0.01 sec)

Query OK, 0 rows affected (0.01 sec)

Records: 0 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected (0.01 sec)

Records: 0 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

Query OK, 0 rows affected (0.03 sec)

Records: 0 Duplicates: 0 Warnings: 0

+--------------------+

| Tables\_in\_project2 |

+--------------------+

| customer |

| magazine |

| newspaper |

| publication |

| subscribed |

| subscription |

+--------------------+

6 rows in set (0.00 sec)

+-------------+--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| Table | Create Table |

+-------------+--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| publication | CREATE TABLE `publication` (

`p\_name` varchar(50) NOT NULL DEFAULT '',

`frequency` char(10) NOT NULL,

`type` char(10) NOT NULL,

PRIMARY KEY (`p\_name`,`frequency`,`type`)

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+-------------+--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

1 row in set (0.00 sec)

+-----------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| Table | Create Table |

+-----------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| newspaper | CREATE TABLE `newspaper` (

`n\_pname` varchar(50) NOT NULL DEFAULT '',

`n\_name` varchar(50) NOT NULL DEFAULT '',

`noof\_days` int(10) NOT NULL DEFAULT '0',

`n\_sid` varchar(10) DEFAULT NULL,

`n\_frequency` char(10) NOT NULL DEFAULT '',

`rate` int(10) DEFAULT NULL,

PRIMARY KEY (`n\_pname`,`n\_frequency`,`noof\_days`,`n\_name`),

KEY `n\_sid` (`n\_sid`),

CONSTRAINT `newspaper\_ibfk\_2` FOREIGN KEY (`n\_sid`) REFERENCES `subscribed` (`sid`),

CONSTRAINT `newspaper\_ibfk\_1` FOREIGN KEY (`n\_pname`, `n\_frequency`) REFERENCES `publication` (`p\_name`, `frequency`)

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+-----------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

1 row in set (0.00 sec)

+----------+--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| Table | Create Table |

+----------+--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| magazine | CREATE TABLE `magazine` (

`m\_pname` varchar(50) NOT NULL DEFAULT '',

`m\_name` varchar(50) NOT NULL DEFAULT '',

`issue` int(10) NOT NULL DEFAULT '0',

`m\_sid` varchar(10) DEFAULT NULL,

`m\_frequency` char(10) NOT NULL DEFAULT '',

`rate` int(10) DEFAULT NULL,

PRIMARY KEY (`m\_pname`,`m\_frequency`,`issue`,`m\_name`),

KEY `m\_sid` (`m\_sid`),

CONSTRAINT `magazine\_ibfk\_2` FOREIGN KEY (`m\_sid`) REFERENCES `subscribed` (`sid`),

CONSTRAINT `magazine\_ibfk\_1` FOREIGN KEY (`m\_pname`, `m\_frequency`) REFERENCES `publication` (`p\_name`, `frequency`)

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+----------+--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

1 row in set (0.00 sec)

+------------+------------------------------------------------------------------------------------------------------------------------+

| Table | Create Table |

+------------+------------------------------------------------------------------------------------------------------------------------+

| subscribed | CREATE TABLE `subscribed` (

`sid` varchar(10) NOT NULL,

PRIMARY KEY (`sid`)

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+------------+------------------------------------------------------------------------------------------------------------------------+

1 row in set (0.00 sec)

+----------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| Table | Create Table |

+----------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| customer | CREATE TABLE `customer` (

`cid` int(10) NOT NULL AUTO\_INCREMENT,

`initial` varchar(2) DEFAULT NULL,

`last` varchar(20) DEFAULT NULL,

`address` varchar(40) DEFAULT NULL,

PRIMARY KEY (`cid`)

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+----------+-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

1 row in set (0.00 sec)

+--------------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| Table | Create Table |

+--------------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

| subscription | CREATE TABLE `subscription` (

`s\_sid` varchar(10) NOT NULL DEFAULT '',

`s\_cid` int(10) NOT NULL DEFAULT '0',

`start\_date` date DEFAULT NULL,

`end\_date` date DEFAULT NULL,

`noof\_months` int(10) DEFAULT NULL,

`total\_cost` int(10) DEFAULT NULL,

PRIMARY KEY (`s\_sid`,`s\_cid`),

KEY `s\_cid` (`s\_cid`),

CONSTRAINT `subscription\_ibfk\_2` FOREIGN KEY (`s\_cid`) REFERENCES `customer` (`cid`),

CONSTRAINT `subscription\_ibfk\_1` FOREIGN KEY (`s\_sid`) REFERENCES `subscribed` (`sid`)

) ENGINE=InnoDB DEFAULT CHARSET=latin1 |

+--------------+-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------+

1 row in set (0.00 sec)

mysql> notee