Database 1

Project 2

Part 1, 2

Team members:

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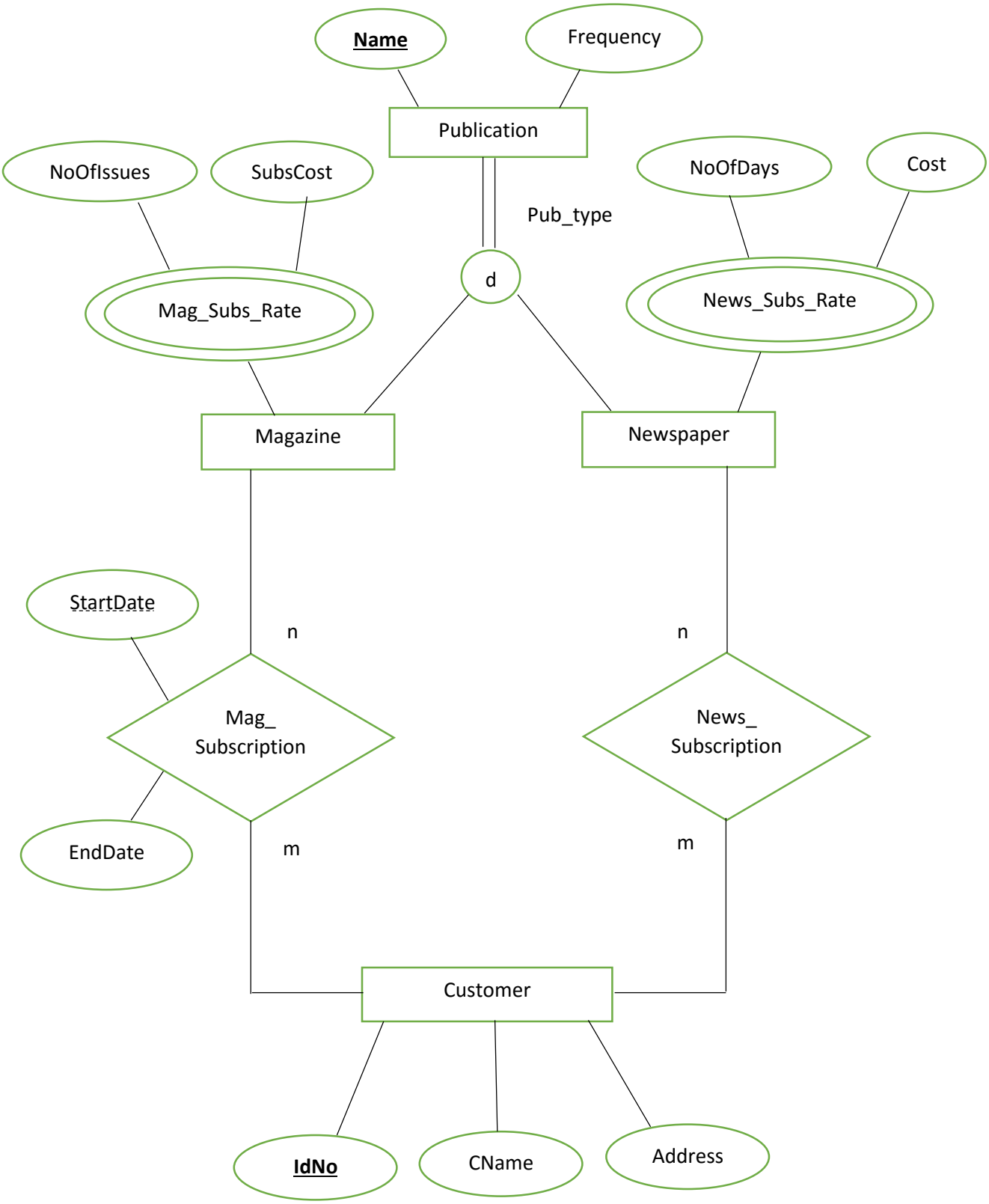
EER Diagram:


Name
Frequency
Publication
NoOfIssues
SubsCost
Pub_type
NoOfDays
Cost
d
Mag_Subs_Rate
News_Subs_Rate
Magazine
Newspaper
StartDate
n
n
Mag_
Subscription
News_
Subscription
EndDate
m
m
Customer
IdNo
CName
Address

Missing Requirements:

1. Requirements did not mention anything about a customer buying pattern. A customer can buy a specific no. of issues of a magazine at different dates.

   Solu: Making the start Date of subscription as a part of primary key will solve this problem.

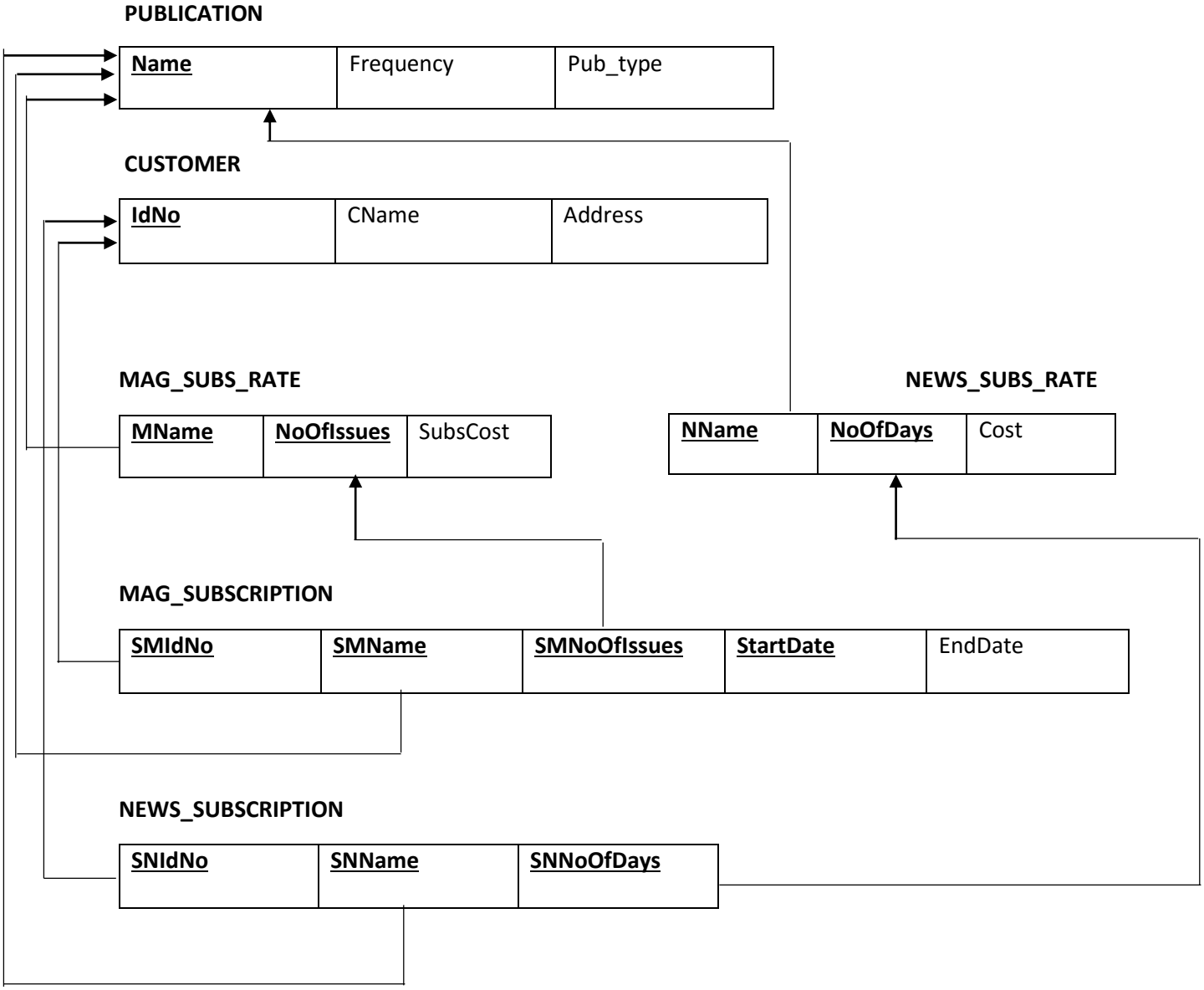
Assumptions:

1. Each publication is either magazine or newspaper but not both. i.e. magazine and newspaper are disjoint.
2. Each publication can have only one frequency.
3. Each magazine has a unique name but a list of no. of issues. So, subscription rate is multivalued attribute.

EER to Relational Mapping Choices:

1. As magazine and newspaper both are disjoint, so we created a single table called publication having those attributes and added an attribute “Pub_type” to specify whether a publication is magazine or newspaper.
2. As magazine and newspaper subscription rates are multivalued attributes, so we created two separate tables for each of them.
3. As for magazine subscription, a customer can buy same no. of issues of same magazine at different dates. So, we added start date to primary key. Same goes with newspaper subscription as a single newspaper can have different no. of days.
4. Customer is a regular entity so we simply created a table for that.

Relational Schema:



CREATE TABLE Statements:

CUSTOMER:

```
CREATE TABLE `customer` (
  `IdNo` int(11) NOT NULL,
  `CName` varchar(45) NOT NULL,
  `Address` varchar(45) NOT NULL,
  PRIMARY KEY (`IdNo`)
) ;
```

PUBLICATION:

```
CREATE TABLE `publication` (
  `Name` varchar(30) NOT NULL,
  `Frequency` varchar(45) NOT NULL,
  `Pub_type` varchar(45) NOT NULL,
  PRIMARY KEY (`Name`)
) ;
```

MAG_SUBS_RATE:

```
CREATE TABLE `mag_subs_rate` (
  `MName` varchar(30) NOT NULL,
  `NoOfIssues` int(11) NOT NULL,
  `SubsCost` int(11) NOT NULL,
  PRIMARY KEY (`MName`,`NoOfIssues`),
  KEY `index2` (`MName`),
  KEY `index3` (`NoOfIssues`),
  CONSTRAINT `FK_MName` FOREIGN KEY (`MName`) REFERENCES `publication` (`Name`) ON DELETE CASCADE ON UPDATE CASCADE
) ;
```

NEWS_SUBS_RATE:

```
CREATE TABLE `news_subs_rate` (
  `NName` varchar(30) NOT NULL,
  `NoOfDays` int(11) NOT NULL,
  `Cost` int(11) NOT NULL,
  PRIMARY KEY (`NName`,`NoOfDays`),
  KEY `two` (`NoOfDays`),
  CONSTRAINT `FK_NName` FOREIGN KEY (`NName`) REFERENCES `publication` (`Name`) ON DELETE CASCADE ON UPDATE CASCADE
) ;
```

MAG_SUBSCRIPTION:

```
CREATE TABLE `mag_subscription` (
  `SMIdNo` int(11) NOT NULL,
  `SMName` varchar(30) NOT NULL,
  `SMNoOfIssues` int(11) NOT NULL,
  `StartDate` date NOT NULL,
  `EndDate` date NOT NULL,
  PRIMARY KEY (`SMIdNo`,`SMName`,`SMNoOfIssues`,`StartDate`),
  KEY `FK_MName_idx` (`SMName`),
  KEY `FK_NoOfIss_idx` (`SMNoOfIssues`),
  CONSTRAINT `FK_MId` FOREIGN KEY (`SMIdNo`) REFERENCES `customer` (`IdNo`) ON DELETE NO ACTION ON UPDATE NO ACTION,
  CONSTRAINT `FK_NoOfIss` FOREIGN KEY (`SMNoOfIssues`) REFERENCES `mag_subs_rate` (`NoOfIssues`) ON DELETE NO ACTION ON UPDATE NO ACTION,
  CONSTRAINT `FK_SMName` FOREIGN KEY (`SMName`) REFERENCES `publication` (`Name`) ON DELETE NO ACTION ON UPDATE NO ACTION
) ;
```

NEWS_SUBSCRIPTION:

```
CREATE TABLE `news_subscription` (
  `SNIdNo` int(11) NOT NULL,
  `SNName` varchar(30) NOT NULL,
  `SNNoOfDays` int(11) NOT NULL,
  PRIMARY KEY (`SNIdNo`,`SNName`,`SNNoOfDays`),
  KEY `FK_SNName_idx` (`SNName`),
  KEY `FK_NoOfDays_idx` (`SNNoOfDays`),
  CONSTRAINT `FK_NoOfDays` FOREIGN KEY (`SNNoOfDays`) REFERENCES `news_subs_rate` (`NoOfDays`) ON DELETE NO ACTION ON UPDATE NO ACTION,
  CONSTRAINT `FK_SNId` FOREIGN KEY (`SNIdNo`) REFERENCES `customer` (`IdNo`) ON DELETE NO ACTION ON UPDATE NO ACTION,
  CONSTRAINT `FK_SNName` FOREIGN KEY (`SNName`) REFERENCES `publication` (`Name`) ON DELETE NO ACTION ON UPDATE NO ACTION
);
```