

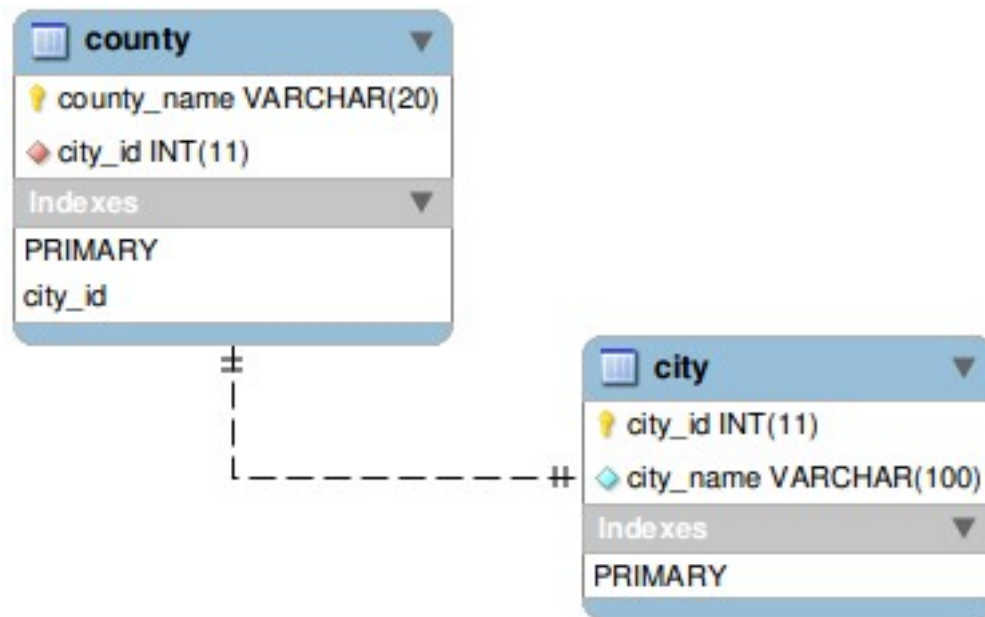
ER MODEL RELATIONSHIPS

ver 08.04.2011

ONE-TO-ONE

1. Both entities mandatory

Each city has a country associated.



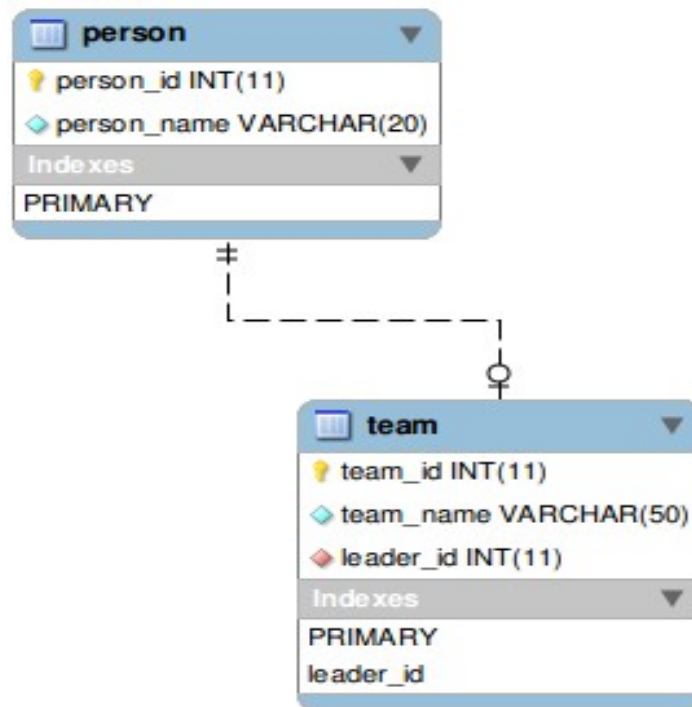
```
CREATE TABLE `city` (  
  `city_id` INT NOT NULL AUTO_INCREMENT ,  
  `city_name` VARCHAR( 100 ) NOT NULL ,  
  PRIMARY KEY ( `city_id` )  
 ) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
```

```
CREATE TABLE `county` (  
  `county_name` VARCHAR( 20 ) NOT NULL ,  
  `city_id` INT NOT NULL ,  
  PRIMARY KEY ( `county_name` ) ,  
  INDEX ( `city_id` )  
 ) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
```

```
ALTER TABLE `county` ADD FOREIGN KEY ( `city_id` ) REFERENCES  
`city` (  
  `city_id`  
 ) ON DELETE CASCADE ON UPDATE CASCADE ;
```

2. One entity mandatory, one optional

Each team has a leader but a person can be a leader at most one department (not all persons are chosen as leaders).



```

CREATE TABLE `team` (
  `team_id` INT NOT NULL ,
  `team_name` VARCHAR( 50 ) NOT NULL ,
  `leader_id` INT NOT NULL ,
  PRIMARY KEY ( `team_id` ),
  UNIQUE (
  `leader_id`
  )
) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
  
```

```

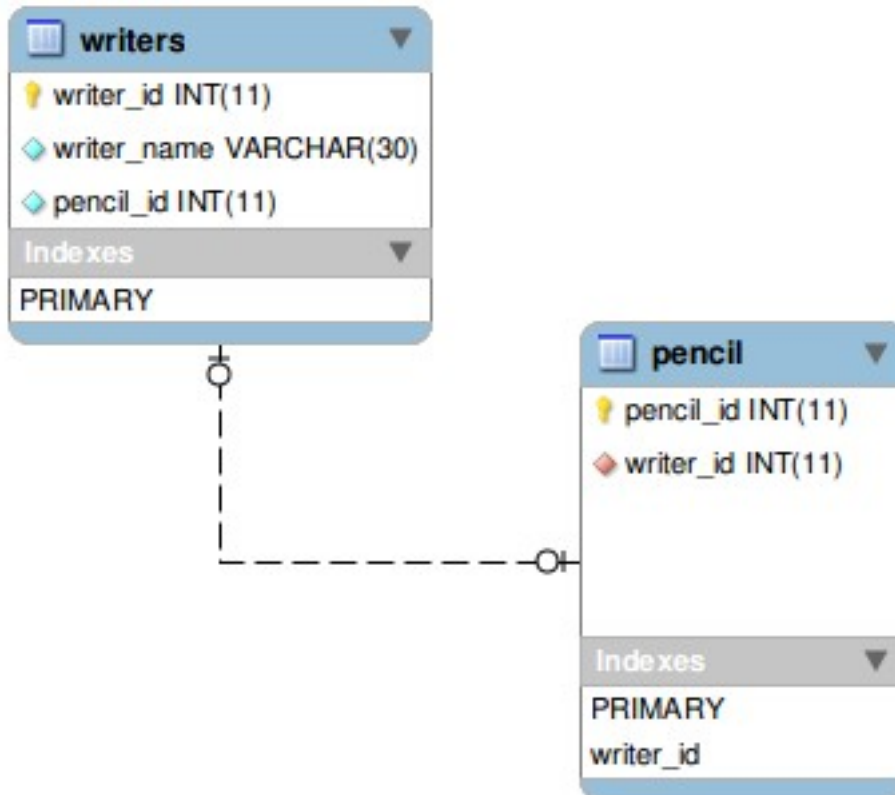
CREATE TABLE `person` (
  `person_id` INT NOT NULL AUTO_INCREMENT PRIMARY KEY ,
  `person_name` VARCHAR( 20 ) NOT NULL
) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
  
```

```

ALTER TABLE `team` ADD FOREIGN KEY ( `leader_id` ) REFERENCES
`person` (
  `person_id`
);
  
```

3. Both entities optional

Some pencils are allocated to writers, but not necessarily to all writers.



```
CREATE TABLE `writers` (
  `writer_id` INT NOT NULL AUTO_INCREMENT PRIMARY KEY ,
  `writer_name` VARCHAR( 30 ) NOT NULL ,
  `pencil_id` INT NOT NULL
) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
```

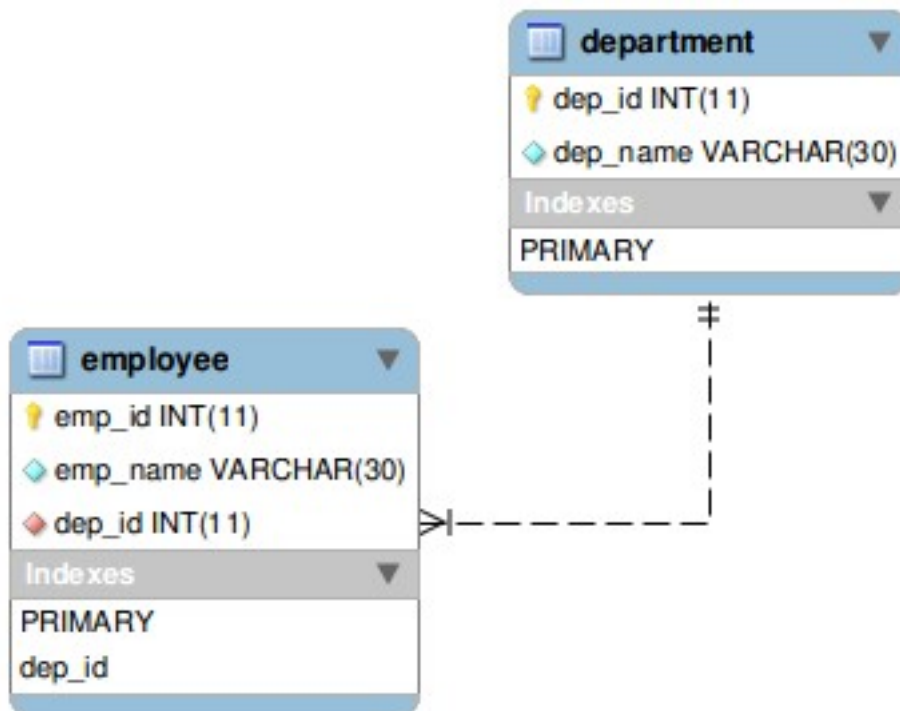
```
CREATE TABLE `pencil` (
  `pencil_id` INT NOT NULL ,
  `writer_id` INT NULL ,
  PRIMARY KEY ( `pencil_id` )
) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
```

```
ALTER TABLE `pencil` ADD FOREIGN KEY ( `writer_id` ) REFERENCES
`writers` (
  `writer_id`
) ON DELETE SET NULL ON UPDATE CASCADE ;
```

ONE-TO-MANY

1. Both entities mandatory

Every employee works in exactly one department and each department has at least one employee.



```

CREATE TABLE IF NOT EXISTS `department` (
  `dep_id` int(11) NOT NULL,
  `dep_name` varchar(30) COLLATE utf8_unicode_ci NOT NULL,
  PRIMARY KEY (`dep_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
  
```

```

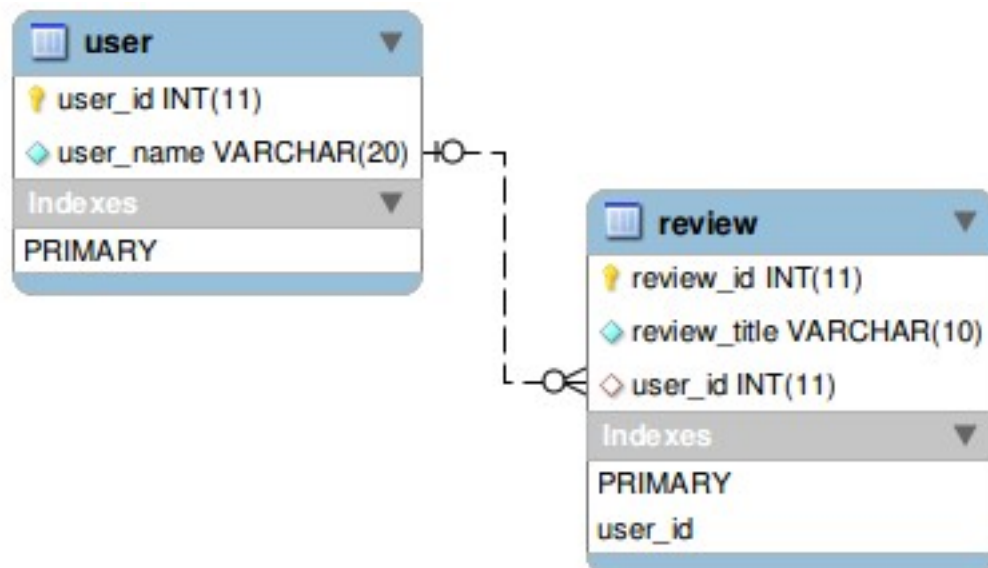
CREATE TABLE `employee` (
  `emp_id` INT NOT NULL ,
  `emp_name` VARCHAR( 30 ) NOT NULL ,
  `dep_id` INT NOT NULL ,
  PRIMARY KEY ( `emp_id` ) ,
  INDEX ( `dep_id` )
) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
  
```

```

ALTER TABLE `employee` ADD FOREIGN KEY ( `dep_id` ) REFERENCES
`department` (
  `dep_id`
) ON DELETE RESTRICT ON UPDATE CASCADE ;
  
```

2. One entity mandatory, one optional

Each regular user provide a review, but a review is not necessarily produced by an user.



```

CREATE TABLE IF NOT EXISTS `user` (
  `user_id` int(11) NOT NULL,
  `user_name` varchar(20) COLLATE utf8_unicode_ci NOT NULL,
  PRIMARY KEY (`user_id`)
) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_
  
```

```

CREATE TABLE `review` (
  `review_id` INT NOT NULL ,
  `review_title` VARCHAR( 10 ) NOT NULL ,
  `user_id` INT NULL ,
  PRIMARY KEY ( `review_id` ) ,
  INDEX ( `user_id` )
) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
  
```

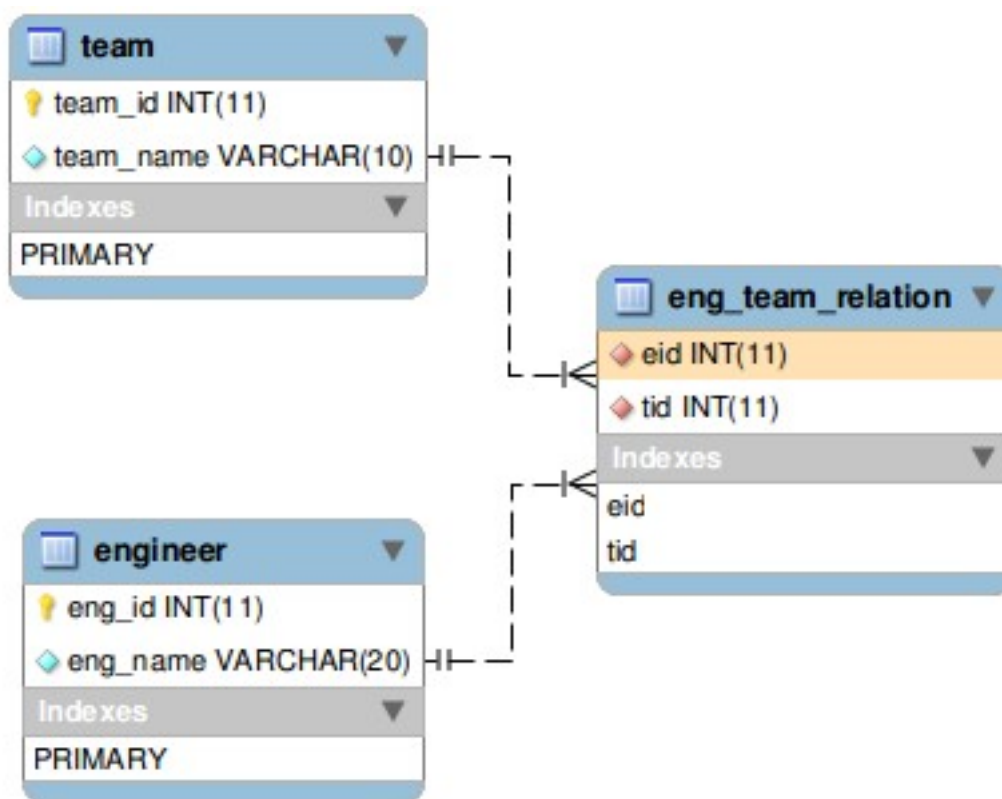
```

ALTER TABLE `review` ADD FOREIGN KEY ( `user_id` ) REFERENCES
`user` (
  `user_id`
) ON DELETE SET NULL ON UPDATE CASCADE ;
  
```

MANY-TO-MANY

1. Both entities optional

Each team could have none, one or many engineers.
Each engineer could be included in one, more teams and not at all.



```
CREATE TABLE `engineer` (  
  `eng_id` INT NOT NULL ,  
  `eng_name` VARCHAR( 20 ) NOT NULL ,  
  PRIMARY KEY ( `eng_id` )  
) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
```

```
CREATE TABLE `team` (  
  `team_id` INT NOT NULL ,  
  `team_name` VARCHAR( 10 ) NOT NULL ,  
  PRIMARY KEY ( `team_id` )  
) ENGINE = InnoDB CHARACTER SET utf8 COLLATE utf8_unicode_ci;
```

```
CREATE TABLE IF NOT EXISTS `eng_team_relation` (  
  `eid` INT(11) NOT NULL,  
  `tid` INT(11) NOT NULL,  
  PRIMARY KEY (`eid`, `tid`),  
  FOREIGN KEY (`eid`) REFERENCES `engineer` (`eng_id`),  
  FOREIGN KEY (`tid`) REFERENCES `team` (`team_id`)
```

```
`eid` int(11) NOT NULL,  
`tid` int(11) NOT NULL,  
KEY `eid` (`eid`,`tid`),  
KEY `tid` (`tid`)  
) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;  
  
ALTER TABLE `eng_team_relation`  
  ADD CONSTRAINT `eng_team_relation_ibfk_2` FOREIGN KEY (`tid`)  
REFERENCES `team` (`team_id`) ON DELETE CASCADE ON UPDATE CASCADE,  
  ADD CONSTRAINT `eng_team_relation_ibfk_1` FOREIGN KEY (`eid`)  
REFERENCES `engineer` (`eng_id`) ON DELETE CASCADE ON UPDATE  
CASCADE;
```