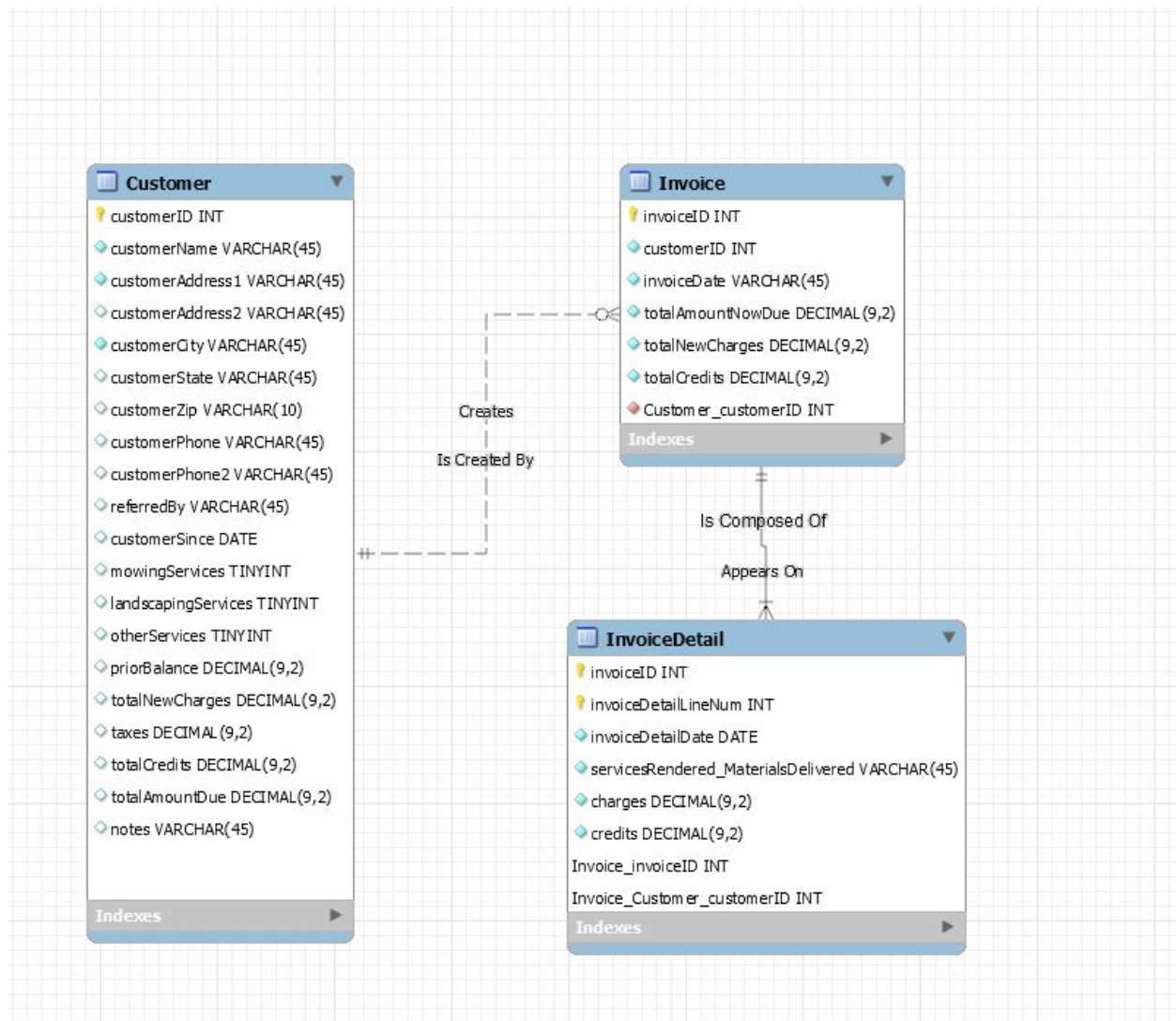


## Part One: Data Model



## Part 2: Generated DDL

```
-- MySQL Script generated by MySQL Workbench
-- Sat Sep 28 00:59:18 2019
-- Model: New Model   Version: 1.0
-- MySQL Workbench Forward Engineering
```

```
SET @OLD_UNIQUE_CHECKS=@@UNIQUE_CHECKS, UNIQUE_CHECKS=0;
```

```
SET @OLD_FOREIGN_KEY_CHECKS=@@FOREIGN_KEY_CHECKS,
FOREIGN_KEY_CHECKS=0;
SET @OLD_SQL_MODE=@@SQL_MODE,
SQL_MODE='ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO
_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZERO,NO_ENGINE_SUBSTITUTION';
```

```
-- -----
-- Schema mydb
-- -----
```

```
-- -----
-- Schema mydb
-- -----
```

```
CREATE SCHEMA IF NOT EXISTS `mydb` DEFAULT CHARACTER SET utf8 ;
USE `mydb` ;
```

```
-- -----
-- Table `mydb`.`Customer`
-- -----
```

```
DROP TABLE IF EXISTS `mydb`.`Customer` ;
```

```
CREATE TABLE IF NOT EXISTS `mydb`.`Customer` (
  `customerID` INT NOT NULL AUTO_INCREMENT,
  `customerName` VARCHAR(45) NOT NULL,
  `customerAddress1` VARCHAR(45) NOT NULL,
  `customerAddress2` VARCHAR(45) NULL,
  `customerCity` VARCHAR(45) NOT NULL,
  `customerState` VARCHAR(45) NULL,
  `customerZip` VARCHAR(10) NULL,
  `customerPhone` VARCHAR(45) NULL,
  `customerPhone2` VARCHAR(45) NULL,
  `referredBy` VARCHAR(45) NULL,
  `customerSince` DATE NULL,
  `mowingServices` TINYINT NULL,
  `landscapingServices` TINYINT NULL,
  `otherServices` TINYINT NULL,
  `priorBalance` DECIMAL(9,2) NULL,
  `totalNewCharges` DECIMAL(9,2) NULL,
  `taxes` DECIMAL(9,2) NULL,
  `totalCredits` DECIMAL(9,2) NULL,
  `totalAmountDue` DECIMAL(9,2) NULL,
  `notes` VARCHAR(45) NULL,
  PRIMARY KEY (`customerID`))
```

ENGINE = InnoDB;

-----  
-- Table `mydb`.`Invoice`  
-----

DROP TABLE IF EXISTS `mydb`.`Invoice` ;

CREATE TABLE IF NOT EXISTS `mydb`.`Invoice` (  
 `invoiceID` INT NOT NULL AUTO\_INCREMENT,  
 `customerID` INT NOT NULL,  
 `invoiceDate` VARCHAR(45) NOT NULL,  
 `totalAmountNowDue` DECIMAL(9,2) NOT NULL,  
 `totalNewCharges` DECIMAL(9,2) NOT NULL,  
 `totalCredits` DECIMAL(9,2) NOT NULL,  
 `Customer\_customerID` INT NOT NULL,  
 PRIMARY KEY (`invoiceID`),  
 CONSTRAINT `fk\_Invoice\_Customer`  
 FOREIGN KEY (`Customer\_customerID`)  
 REFERENCES `mydb`.`Customer` (`customerID`)  
 ON DELETE NO ACTION  
 ON UPDATE NO ACTION)  
ENGINE = InnoDB;

CREATE INDEX `fk\_Invoice\_Customer\_idx` ON `mydb`.`Invoice` (`Customer\_customerID`  
ASC) VISIBLE;

-----  
-- Table `mydb`.`InvoiceDetail`  
-----

DROP TABLE IF EXISTS `mydb`.`InvoiceDetail` ;

CREATE TABLE IF NOT EXISTS `mydb`.`InvoiceDetail` (  
 `invoiceID` INT NOT NULL,  
 `invoiceDetailLineNum` INT NOT NULL,  
 `invoiceDetailDate` DATE NOT NULL,  
 `servicesRendered\_MaterialsDelivered` VARCHAR(45) NOT NULL,  
 `charges` DECIMAL(9,2) NOT NULL,  
 `credits` DECIMAL(9,2) NOT NULL,  
 `Invoice\_invoiceID` INT NOT NULL,  
 `Invoice\_Customer\_customerID` INT NOT NULL,

```
PRIMARY KEY (`invoiceID`, `invoiceDetailLineNum`, `Invoice_invoiceID`,
`Invoice_Customer_customerID`),
CONSTRAINT `fk_InvoiceDetail_Invoice1`
FOREIGN KEY (`Invoice_invoiceID`, `Invoice_Customer_customerID`)
REFERENCES `mydb`.`Invoice` (`invoiceID`, `Customer_customerID`)
ON DELETE NO ACTION
ON UPDATE NO ACTION)
ENGINE = InnoDB;
```

```
CREATE INDEX `fk_InvoiceDetail_Invoice1_idx` ON `mydb`.`InvoiceDetail` (`Invoice_invoiceID`
ASC, `Invoice_Customer_customerID` ASC) VISIBLE;
```

```
SET SQL_MODE=@OLD_SQL_MODE;
SET FOREIGN_KEY_CHECKS=@OLD_FOREIGN_KEY_CHECKS;
SET UNIQUE_CHECKS=@OLD_UNIQUE_CHECKS;
```

### **Part 3: Assumptions**

- Created Surrogate key for Customer, which was customerID, because there was no good existing primary key options. This uses auto-increment.
- Created Surrogate key for Invoice, which was invoiceID, because there was no good existing primary key options. This uses auto-increment.
- Created Surrogate key for InvoiceDetail, which was invoiceDetailLineNum, because there was no good existing primary key options. This represents which line the invoice detail is on, on the invoice (line 1, line 2, line 3, etc). Not auto-increment.