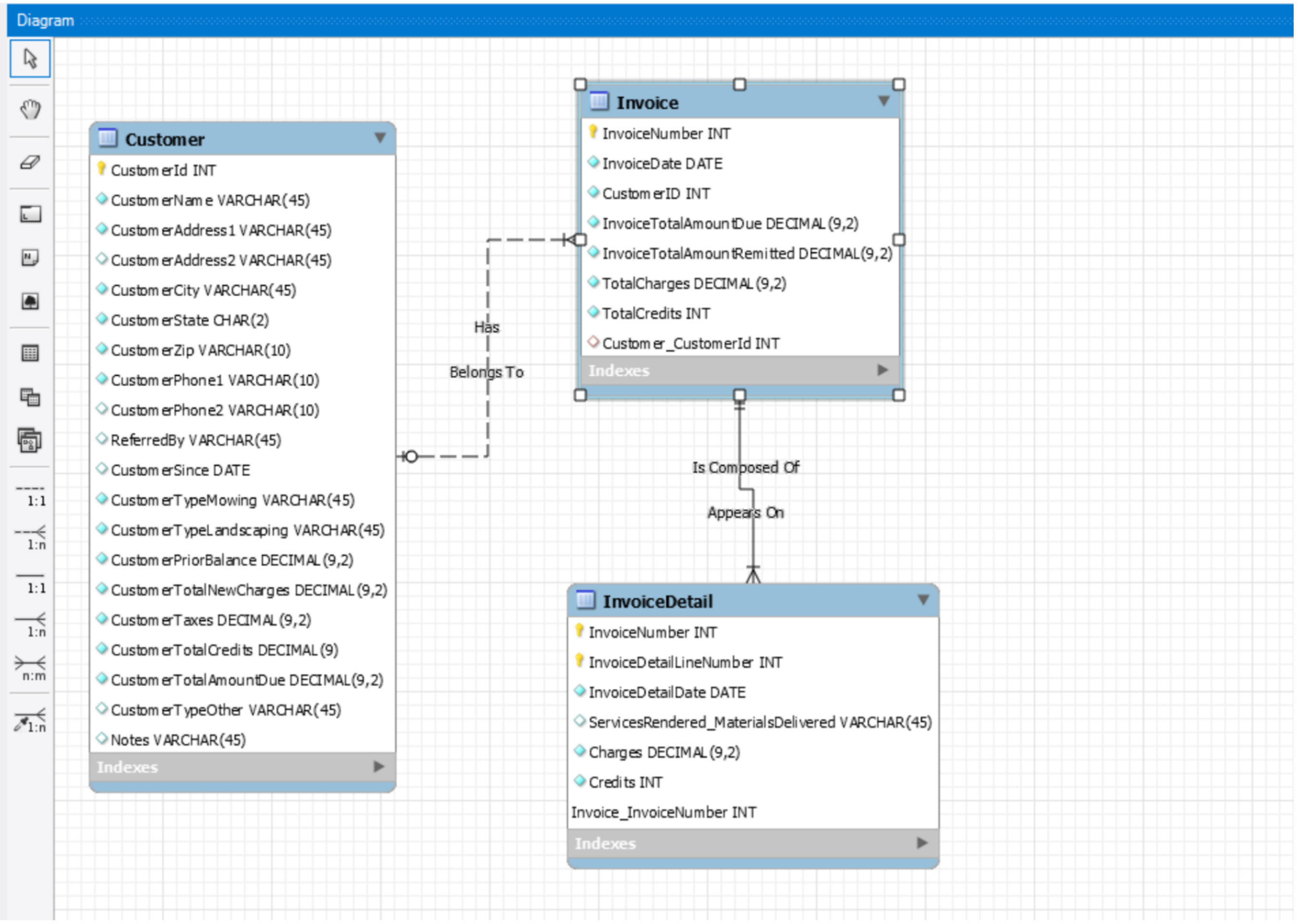
Homework #2
Muntaha Pasha

## Part 1: Data Model



**Customer**

CustomerId INT
CustomerName VARCHAR(45)
CustomerAddress1 VARCHAR(45)
CustomerAddress2 VARCHAR(45)
CustomerCity VARCHAR(45)
CustomerState CHAR(2)
CustomerZip VARCHAR(10)
CustomerPhone1 VARCHAR(10)
CustomerPhone2 VARCHAR(10)
ReferredBy VARCHAR(45)
CustomerSince DATE
CustomerTypeMowing VARCHAR(45)
CustomerTypeLandscaping VARCHAR(45)
CustomerPriorBalance DECIMAL(9,2)
CustomerTotalNewCharges DECIMAL(9,2)
CustomerTaxes DECIMAL(9,2)
CustomerTotalCredits DECIMAL(9)
CustomerTotalAmountDue DECIMAL(9,2)
CustomerTypeOther VARCHAR(45)
Notes VARCHAR(45)
Indexes

**Invoice**

InvoiceNumber INT
InvoiceDate DATE
CustomerID INT
InvoiceTotalAmountDue DECIMAL(9,2)
InvoiceTotalAmountRemitted DECIMAL(9,2)
TotalCharges DECIMAL(9,2)
TotalCredits INT
Customer_CustomerId INT
Indexes

**InvoiceDetail**

InvoiceNumber INT
InvoiceDetailLineNumber INT
InvoiceDetailDate DATE
ServicesRendered_MaterialsDelivered VARCHAR(45)
Charges DECIMAL(9,2)
Credits INT
Invoice_InvoiceNumber INT
Indexes

## Part 2: DDL Scripts

```
-- MySQL Script generated by MySQL Workbench

-- Sat Feb 16 13:52:58 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';


-- -----------------------------------------------------
```

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```
-- 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) GENERATED ALWAYS AS () VIRTUAL,
  `CustomerState` CHAR(2) NOT NULL,
  `CustomerZip` VARCHAR(10) NOT NULL,
  `CustomerPhone1` VARCHAR(10) NOT NULL,
  `CustomerPhone2` VARCHAR(10) NULL,
  `ReferredBy` VARCHAR(45) NULL,
  `CustomerSince` DATE NULL,
  `CustomerTypeMowing` VARCHAR(45) NOT NULL,
  `CustomerTypeLandscaping` VARCHAR(45) NOT NULL,
  `CustomerPriorBalance` DECIMAL(9,2) NOT NULL,
  `CustomerTotalNewCharges` DECIMAL(9,2) NOT NULL,
  `CustomerTaxes` DECIMAL(9,2) NOT NULL,
  `CustomerTotalCredits` DECIMAL(9) NOT NULL,
  `CustomerTotalAmountDue` DECIMAL(9,2) NOT NULL,
  `CustomerTypeOther` VARCHAR(45) 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` (
  `InvoiceNumber` INT NOT NULL AUTO_INCREMENT,
  `InvoiceDate` DATE NOT NULL,
  `CustomerID` INT NOT NULL,
  `InvoiceTotalAmountDue` DECIMAL(9,2) NOT NULL,
  `InvoiceTotalAmountRemitted` DECIMAL(9,2) NOT NULL,
  `TotalCharges` DECIMAL(9,2) NOT NULL,
  `TotalCredits` INT NOT NULL,
  `Customer_CustomerId` INT NULL,
  PRIMARY KEY (`InvoiceNumber`),
  CONSTRAINT `fk_Invoice_Customer1`
    FOREIGN KEY (`Customer_CustomerId`)
    REFERENCES `mydb`.`Customer` (`CustomerId`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;

CREATE INDEX `fk_Invoice_Customer1_idx` ON `mydb`.`Invoice` (`Customer_CustomerId` ASC) VISIBLE;



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

CREATE TABLE IF NOT EXISTS `mydb`.`InvoiceDetail` (
  `InvoiceNumber` INT NOT NULL AUTO_INCREMENT,
  `InvoiceDetailLineNumber` INT NOT NULL,
  `InvoiceDetailDate` DATE NOT NULL,
  `ServicesRendered_MaterialsDelivered` VARCHAR(45) NULL,
  `Charges` DECIMAL(9,2) NOT NULL,
  `Credits` INT NOT NULL,
  `Invoice_InvoiceNumber` INT NOT NULL,
  PRIMARY KEY (`InvoiceNumber`, `InvoiceDetailLineNumber`, `Invoice_InvoiceNumber`),
  CONSTRAINT `fk_InvoiceDetail_Invoice`
    FOREIGN KEY (`Invoice_InvoiceNumber`)
    REFERENCES `mydb`.`Invoice` (`InvoiceNumber`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION)
ENGINE = InnoDB;


CREATE INDEX `fk_InvoiceDetail_Invoice_idx` ON `mydb`.`InvoiceDetail` (`Invoice_InvoiceNumber`
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 & Thought Process

1) I had to assume that customers had multiple possible invoices, so I used an independent one to many relationship between Customers and Invoice.
2) Invoices are composed OF invoice details, so I used a dependant one to many.
3) I had to make the assumption that customer ID was inside the invoice table, otherwise making the connection would've been hard.
4) I had to assume that some table values like zip codes could be VARCHAR of 10 instead of ints, because when I researched online it said INT values are mostly used for operations like addition and subtraction.
5) I had to assume a lot of customer information and invoice information was NOT NULL, because it's important to have a good amount of information for each customer.