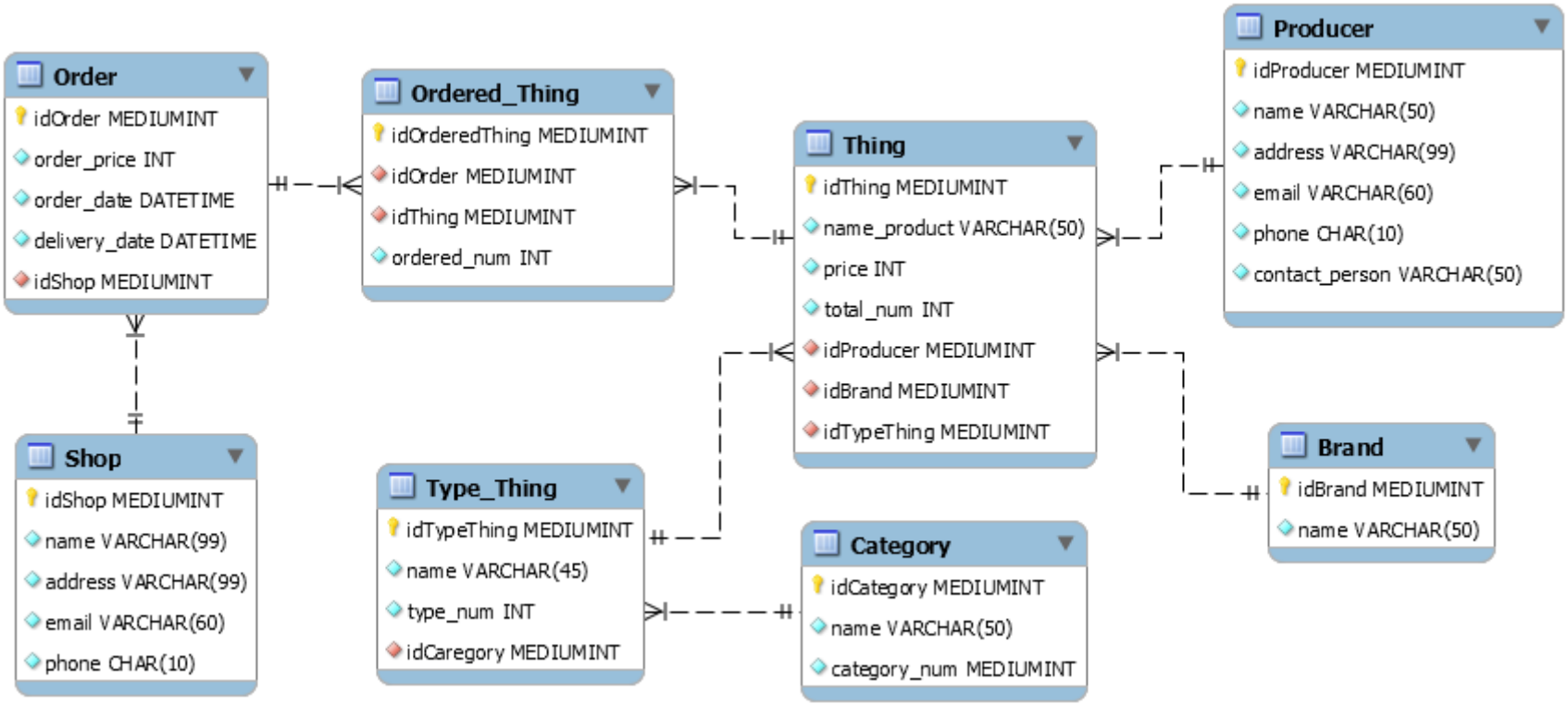
Тема: створення таблиць бази даних засобами SQL.

Мета роботи: побудувати даталогічну модель бази даних; визначити типи, розмірності та обмеження полів; визначити обмеження таблиць; розробити SQL запити для створення спроектованих таблиць.

Даталогічна модель



SQL-запити

```
CREATE DATABASE `Shop` CHARACTER SET utf8;

CREATE TABLE `Shop`.`Producer` (
  `idProducer` MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
  `name` VARCHAR(50) NOT NULL,
  `address` VARCHAR(99) NOT NULL,
  `email` VARCHAR(60) NOT NULL,
  `phone` CHAR(10) NOT NULL,
  `contact_person` VARCHAR(50) NOT NULL,
  PRIMARY KEY (`idProducer`)
);


CREATE TABLE `Shop`.`Shop` (
  `idShop` MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
  `name` VARCHAR(99) NOT NULL,
  `address` VARCHAR(99) NOT NULL,
  `email` VARCHAR(60) NOT NULL,
  `phone` CHAR(10) NOT NULL,
  PRIMARY KEY (`idShop`)
);


CREATE TABLE `Shop`.`Order` (
  `idOrder` MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
  `order_price` INT UNSIGNED NOT NULL,
  `order_date` DATETIME NOT NULL,
  `delivery_date` DATETIME NOT NULL,
  `idShop` MEDIUMINT UNSIGNED NOT NULL,
  PRIMARY KEY (`idOrder`),
  CONSTRAINT `Order_Shop`
    FOREIGN KEY (`idShop`)
    REFERENCES `Shop`.`Shop` (`idShop`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION
);


CREATE TABLE `Shop`.`Brand` (
`idBrand` MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
  `name` VARCHAR(50) NOT NULL,
  PRIMARY KEY (`idBrand`),
  CONSTRAINT `name_UNIQUE` UNIQUE(`name`)
);


CREATE TABLE `Shop`.`Category` (
  `idCategory` MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
  `name` VARCHAR(50) NOT NULL,
```

```
  `category_num` MEDIUMINT UNSIGNED NOT NULL,
  PRIMARY KEY (`idCategory`),
  CONSTRAINT `name_UNIQUE` UNIQUE(`name`)
);

CREATE TABLE `Shop`.`Type_Thing` (
  `idTypeThing` MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
  `name` VARCHAR(45) NOT NULL,
  `type_num` INT UNSIGNED NOT NULL,
  `idCategory` MEDIUMINT UNSIGNED NOT NULL,
  PRIMARY KEY (`idTypeThing`),
  CONSTRAINT `name_UNIQUE` UNIQUE(`name`),
  CONSTRAINT `Type_Thing__Category`
    FOREIGN KEY (`idCategory`)
    REFERENCES `Shop`.`Category` (`idCategory`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION
);


CREATE TABLE `Shop`.`Thing` (
  `idThing` MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
  `name_product` VARCHAR(50) NOT NULL,
  `price` INT UNSIGNED NOT NULL,
  `total_num` INT UNSIGNED NOT NULL,
  `idProducer` MEDIUMINT UNSIGNED NOT NULL,
  `idBrand` MEDIUMINT UNSIGNED NOT NULL,
  `idTypeThing` MEDIUMINT UNSIGNED NOT NULL,
  PRIMARY KEY (`idThing`),
  CONSTRAINT `Thing_Producer`
    FOREIGN KEY (`idProducer`)
    REFERENCES `Shop`.`Producer` (`idProducer`),
  CONSTRAINT `Thing__Brand`
    FOREIGN KEY (`idBrand`)
    REFERENCES `Shop`.`Brand` (`idBrand`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION,
  CONSTRAINT `Type_Thing__Thing`
    FOREIGN KEY (`idTypeThing`)
    REFERENCES `Shop`.`Type_Thing` (`idTypeThing`)
    ON DELETE NO ACTION
    ON UPDATE NO ACTION
);


CREATE TABLE `Shop`.`Ordered_Thing` (
  `idOrderedThing` MEDIUMINT UNSIGNED NOT NULL AUTO_INCREMENT,
  `idOrder` MEDIUMINT UNSIGNED NOT NULL,
  `idThing` MEDIUMINT UNSIGNED NOT NULL,
  `ordered_num` INT UNSIGNED NOT NULL,
  PRIMARY KEY (`idOrderedThing`),
```

```
  CONSTRAINT `Ordered_Thing__Order`
    FOREIGN KEY (`idOrder`)
    REFERENCES `Shop`.`Order` (`idOrder`)
    ON DELETE CASCADE
    ON UPDATE CASCADE,
  CONSTRAINT `Ordered_Thing__Thing`
    FOREIGN KEY (`idThing`)
    REFERENCES `Shop`.`Thing` (`idThing`)
    ON DELETE CASCADE
    ON UPDATE CASCADE
);
```

Результат

```
mysql> DESCRIBE Brand;
+---------+----------------------+------+-----+---------+----------------+
| Field   | Type                 | Null | Key | Default | Extra          |
+---------+----------------------+------+-----+---------+----------------+
| idBrand | mediumint(8) unsigned | NO   | PRI | NULL    | auto_increment |
| name    | varchar(50)          | NO   | UNI | NULL    |                |
+---------+----------------------+------+-----+---------+----------------+
2 rows in set (0.03 sec)

mysql> DESCRIBE Producer;
+----------------+----------------------+------+-----+---------+----------------+
| Field          | Type                 | Null | Key | Default | Extra          |
+----------------+----------------------+------+-----+---------+----------------+
| idProducer     | mediumint(8) unsigned | NO   | PRI | NULL    | auto_increment |
| name           | varchar(50)          | NO   |     | NULL    |                |
| address        | varchar(99)          | NO   |     | NULL    |                |
| email          | varchar(60)          | NO   |     | NULL    |                |
| phone          | char(10)             | NO   |     | NULL    |                |
| contact_person | varchar(50)          | NO   |     | NULL    |                |
+----------------+----------------------+------+-----+---------+----------------+
6 rows in set (0.00 sec)

mysql> DESCRIBE Thing;
+--------------+----------------------+------+-----+---------+----------------+
| Field        | Type                 | Null | Key | Default | Extra          |
+--------------+----------------------+------+-----+---------+----------------+
| idThing      | mediumint(8) unsigned | NO   | PRI | NULL    | auto_increment |
| name_product | varchar(50)          | NO   |     | NULL    |                |
| price        | int(10) unsigned     | NO   |     | NULL    |                |
| total_num    | int(10) unsigned     | NO   |     | NULL    |                |
| idProducer   | mediumint(8) unsigned | NO   | MUL | NULL    |                |
| idBrand      | mediumint(8) unsigned | NO   | MUL | NULL    |                |
| idTypeThing  | mediumint(8) unsigned | NO   | MUL | NULL    |                |
+--------------+----------------------+------+-----+---------+----------------+
7 rows in set (0.00 sec)

mysql> DESCRIBE Type_Thing;
+-------------+----------------------+------+-----+---------+----------------+
| Field       | Type                 | Null | Key | Default | Extra          |
+-------------+----------------------+------+-----+---------+----------------+
| idTypeThing | mediumint(8) unsigned | NO   | PRI | NULL    | auto_increment |
| name        | varchar(45)          | NO   | UNI | NULL    |                |
| type_num    | int(10) unsigned     | NO   |     | NULL    |                |
| idCategory  | mediumint(8) unsigned | NO   | MUL | NULL    |                |
+-------------+----------------------+------+-----+---------+----------------+
4 rows in set (0.00 sec)

mysql> DESCRIBE Category;
+--------------+----------------------+------+-----+---------+----------------+
| Field        | Type                 | Null | Key | Default | Extra          |
+--------------+----------------------+------+-----+---------+----------------+
| idCategory   | mediumint(8) unsigned | NO   | PRI | NULL    | auto_increment |
| name         | varchar(50)          | NO   | UNI | NULL    |                |
| category_num | mediumint(8) unsigned | NO   |     | NULL    |                |
+--------------+----------------------+------+-----+---------+----------------+
3 rows in set (0.00 sec)
```

```
mysql> DESCRIBE Ordered_Thing;
+----------------+----------------------+------+-----+---------+----------------+
| Field          | Type                 | Null | Key | Default | Extra          |
+----------------+----------------------+------+-----+---------+----------------+
| idOrderedThing | mediumint(8) unsigned | NO   | PRI | NULL    | auto_increment |
| idOrder        | mediumint(8) unsigned | NO   | MUL | NULL    |                |
| idThing        | mediumint(8) unsigned | NO   | MUL | NULL    |                |
| ordered_num    | int(10) unsigned      | NO   |     | NULL    |                |
+----------------+----------------------+------+-----+---------+----------------+
4 rows in set (0.00 sec)
```

```
mysql> USE Shop;
Database changed
mysql> DESCRIBE `Order`;
+---------------+----------------------+------+-----+---------+----------------+
| Field         | Type                 | Null | Key | Default | Extra          |
+---------------+----------------------+------+-----+---------+----------------+
| idOrder       | mediumint(8) unsigned | NO   | PRI | NULL    | auto_increment |
| order_price   | int(10) unsigned      | NO   |     | NULL    |                |
| order_date    | datetime              | NO   |     | NULL    |                |
| delivery_date | datetime              | NO   |     | NULL    |                |
| idShop        | mediumint(8) unsigned | NO   | MUL | NULL    |                |
+---------------+----------------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)

mysql> DESCRIBE Shop;
+---------+----------------------+------+-----+---------+----------------+
| Field   | Type                 | Null | Key | Default | Extra          |
+---------+----------------------+------+-----+---------+----------------+
| idShop  | mediumint(8) unsigned | NO   | PRI | NULL    | auto_increment |
| name    | varchar(99)          | NO   |     | NULL    |                |
| address | varchar(99)          | NO   |     | NULL    |                |
| email   | varchar(60)          | NO   |     | NULL    |                |
| phone   | char(10)             | NO   |     | NULL    |                |
+---------+----------------------+------+-----+---------+----------------+
5 rows in set (0.00 sec)
```

```
mysql> SHOW TABLES;
+---------------+
| Tables_in_shop |
+---------------+
| brand         |
| category      |
| order         |
| ordered_thing |
| producer      |
| shop          |
| thing         |
| type_thing    |
+---------------+
```

Висновки

Була побудована даталогічна модель бази даних на основі контекстної діаграми, визначено типи, розмірності та обмеження полів, розроблено запити SQL для створення спроектованих таблиць.