Modern Information Systems WS 11/12

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1 Database Schema

1.1 Entity-Relationship Diagram

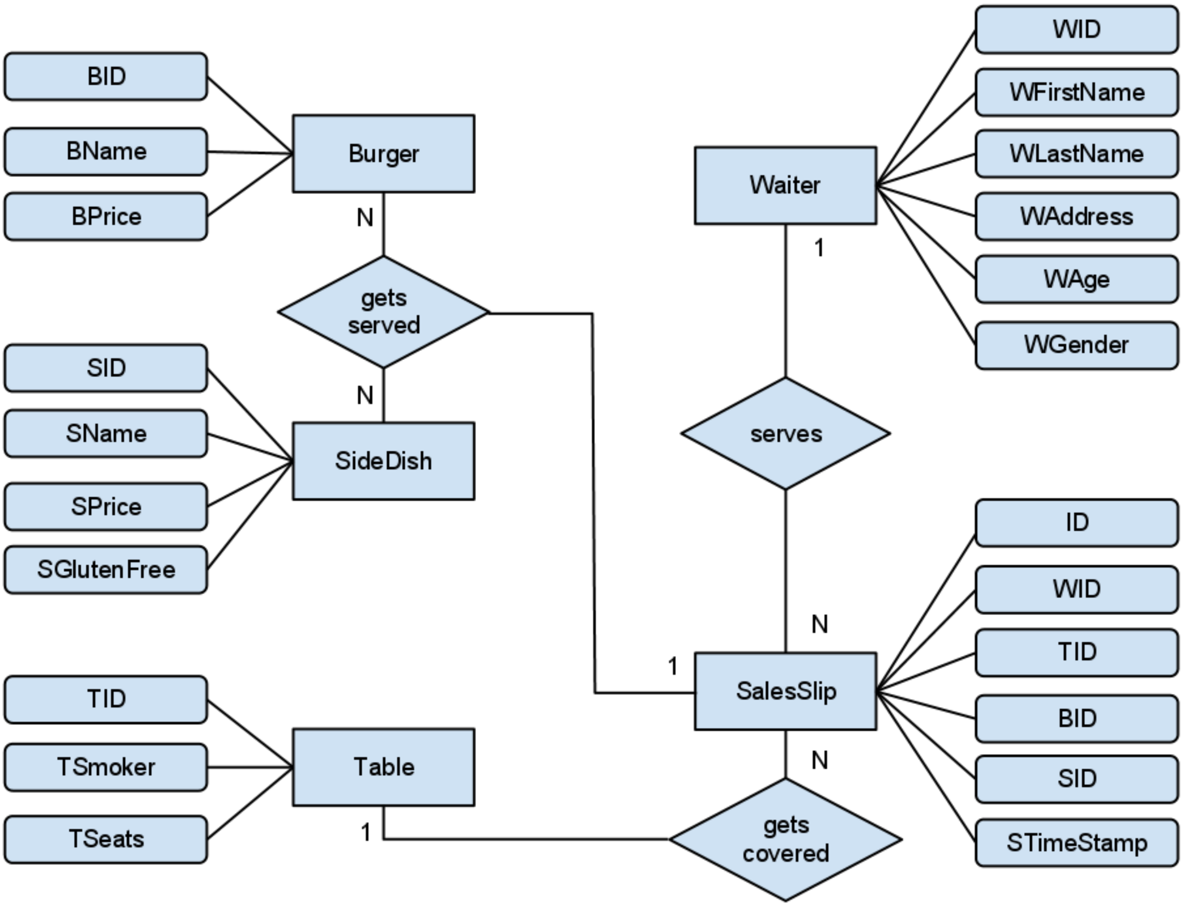


Abbildung 1: Entity-Relationship Diagram

1.2 Domains

Name	DataType	Description
WID	Integer	Waiter ID
WFirstName	String	Firstname of the waiter
WLastName	String	Lastname of the waiter
WAddress	String	Address of the waiter
WAge	Integer	Age of the waiter
WGender	Integer	Gender of the waiter
TID	Integer	Table ID
TSmoker	Boolean	Smokertable?
TSeats	Integer	Amount of seats
BID	Integer	Burger ID
BName	String	Name of the burger
BPrice	Integer	Price of the burger
SID	Integer	Sidedish ID
SName	String	Name of the sidedish
SPrice	Integer	Price of the sidedish
SGlutenfree	Boolean	Glutenfree?
ID	Integer	Sales Slip ID
WID	Integer	Waiter ID
TID	Integer	Table ID
BID	Integer	Burger ID
SID	Integer	Sidedish ID
STimeStamp	TimeStamp	The actual timestamp

1.3 Relations

Waiter	Table	Burger	SideDish	SalesSlip
WID	TID	BID	SID	ID
WFirstName	TSmoker	BName	SName	WID
WLastName	TSeats	BPrice	SPrice	TID
WAddress			SGlutenFree	BID
WAge				SID
WGender				STimeStamp

1.3.1 Additional Description

The domains WID, TID, BID and SID are the foreign keys in the relation SalesSlip.

1.4 Functional Dependencies

- Waiter(WID, WFirstName, WLastName, WAddress, WAge, WGender)
  - WID → WFirstName
  - WID → WLastName
  - WID → WAddress
  - WID → WAge
  - WID → WGender
- Table(TID, TSmoker, TSeats)
  - TID → TSmoker
  - TID → TSeats

- Burger(BID, BName, BPrice)
    - BID → BName
    - BID → BPrice
- SideDish(SID, SName, SPrice, SGlutenFree)
    - SID → SName
    - SID → SPrice
    - SID → SGlutenFree
- SalesSlip(ID, WID, TID, BID, SID, STimeStamp)
    - ID → WID
    - ID → TID
    - ID → BID
    - ID → SID
    - ID → STimeStamp

1.4.1 Additional Description

Every domain in the relation is only identifiable by a unique primary key. Therefore there are no indirect key dependencies and the database is in the 3rd normal form.

2 Practical Implementation

For all primary keys auto increment values are used. This is done to assign a unique identifier to every relation who contains a primary key automatically.

2.1 Waiter

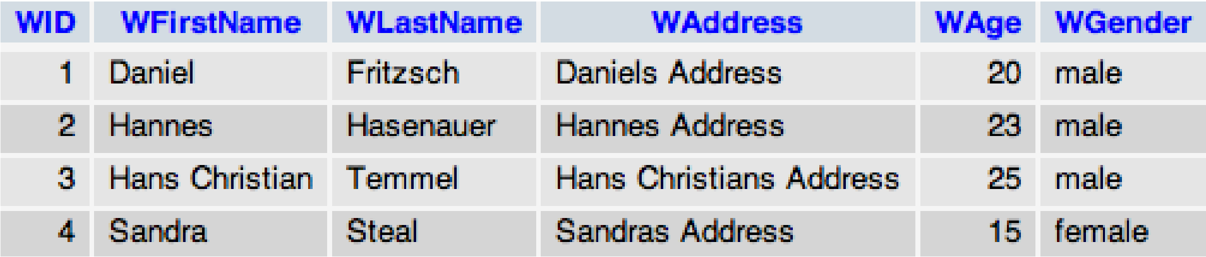
2.1.1 Relation

```
CREATE TABLE IF NOT EXISTS ‘Waiter‘ (
‘WID‘int(5) unsigned NOT NULL AUTO_INCREMENT,
   ‘WFirstName‘  varchar(30) NOT NULL,
   ‘WLastName‘   varchar(30) NOT NULL,
   ‘WAddress‘    varchar(100) NOT NULL,
   ‘WAge‘        int(3) NOT NULL,
   ‘WGender‘     varchar(10) NOT NULL,
   PRIMARY KEY (‘WID‘)
);
```

2.1.2 Data

```
INSERT INTO ‘Waiter‘ (‘WFirstName‘, ‘WLastName‘, ‘WAddress‘, ‘WAge‘, ‘WGender‘) VALUES
   (’Daniel’, ’Fritzsch’, ’Daniels Address’, 20, ’male’);
INSERT INTO ‘Waiter‘ (‘WFirstName‘, ‘WLastName‘, ‘WAddress‘, ‘WAge‘, ‘WGender‘) VALUES
   (’Hannes’, ’Hasenauer’, ’Hannes Address’, 23, ’male’);
INSERT INTO ‘Waiter‘ (‘WFirstName‘, ‘WLastName‘, ‘WAddress‘, ‘WAge‘, ‘WGender‘) VALUES
   (’Hans Christian’, ’Temmel’, ’Hans Christians Address’, 25, ’male’);
INSERT INTO ‘Waiter‘ (‘WFirstName‘, ‘WLastName‘, ‘WAddress‘, ‘WAge‘, ‘WGender‘) VALUES
   (’Sandra’, ’Steal’, ’Sandras Address’, 15, ’female’);
```

2.1.3 Screenshot



WID	WFirstName	WLastName	WAddress	WAge	WGender
1	Daniel	Fritzsch	Daniels Address	20	male
2	Hannes	Hasenauer	Hannes Address	23	male
3	Hans Christian	Temmel	Hans Christians Address	25	male
4	Sandra	Steal	Sandras Address	15	female

Abbildung 2: Waiter

2.2 Table

2.2.1 Relation

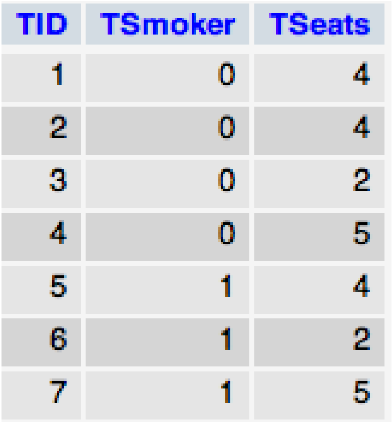
```
CREATE TABLE IF NOT EXISTS ‘Table‘ (
   ‘TID‘       int(5) unsigned NOT NULL AUTO_INCREMENT,
   ‘TSmoker‘   tinyint(1) NOT NULL DEFAULT FALSE,
   ‘TSeats‘    int(2) unsigned NOT NULL,
   PRIMARY KEY (‘TID‘)
);
```

2.2.2 Data

```
-- NonSmoking Tables
INSERT INTO ‘Table‘ (‘TSeats‘) VALUES (4);
INSERT INTO ‘Table‘ (‘TSeats‘) VALUES (4);
INSERT INTO ‘Table‘ (‘TSeats‘) VALUES (2);
INSERT INTO ‘Table‘ (‘TSeats‘) VALUES (5);

-- Smoking Tables
INSERT INTO ‘Table‘ (‘TSmoker‘, ‘TSeats‘) VALUES (true, 4);
INSERT INTO ‘Table‘ (‘TSmoker‘, ‘TSeats‘) VALUES (true, 2);
INSERT INTO ‘Table‘ (‘TSmoker‘, ‘TSeats‘) VALUES (true, 5);
```

2.2.3 Screenshot



TID	TSmoker	TSeats
1	0	4
2	0	4
3	0	2
4	0	5
5	1	4
6	1	2
7	1	5

Abbildung 3: Table

2.3 Burger

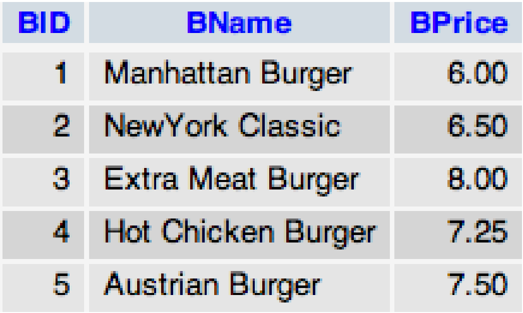
2.3.1 Relation

```
CREATE TABLE IF NOT EXISTS ‘Burger‘ (
   ‘BID‘     int(5) unsigned NOT NULL AUTO_INCREMENT,
   ‘BName‘   varchar(25) NOT NULL,
   ‘BPrice‘  float(4,2) NOT NULL,
   PRIMARY KEY (‘BID‘)
);
```

2.3.2 Data

```
INSERT INTO ‘Burger‘ (‘BName‘, ‘BPrice‘) VALUES
   (’Manhattan Burger’, 6);
INSERT INTO ‘Burger‘ (‘BName‘, ‘BPrice‘) VALUES
   (’NewYork Classic’, 6.5);
INSERT INTO ‘Burger‘ (‘BName‘, ‘BPrice‘) VALUES
   (’Extra Meat Burger’, 8);
INSERT INTO ‘Burger‘ (‘BName‘, ‘BPrice‘) VALUES
   (’Hot Chicken Burger’, 7.25);
INSERT INTO ‘Burger‘ (‘BName‘, ‘BPrice‘) VALUES
   (’Austrian Burger’, 7.5);
```

2.3.3 Screenshot



BID	BName	BPrice
1	Manhattan Burger	6.00
2	NewYork Classic	6.50
3	Extra Meat Burger	8.00
4	Hot Chicken Burger	7.25
5	Austrian Burger	7.50

Abbildung 4: Burger

2.4 SideDish

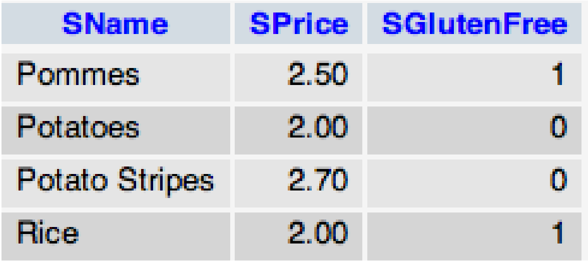
2.4.1 Relation

```
CREATE TABLE IF NOT EXISTS ‘SideDish‘ (
   ‘SID‘          int(5) unsigned NOT NULL AUTO_INCREMENT,
   ‘SName‘        varchar(15) NOT NULL,
   ‘SPrice‘       float(4,2) NOT NULL,
   ‘SGlutenFree‘  tinyint(1) NOT NULL DEFAULT FALSE,
   PRIMARY KEY (‘SID‘)
);
```

2.4.2 Data

```
INSERT INTO ‘SideDish‘ (‘SName‘, ‘SPrice‘, ‘SGlutenFree‘) VALUES
   (’Pommes’, 2.5, true);
INSERT INTO ‘SideDish‘ (‘SName‘, ‘SPrice‘) VALUES
   (’Potatoes’, 2);
INSERT INTO ‘SideDish‘ (‘SName‘, ‘SPrice‘) VALUES
   (’Potato Stripes’, 2.7);
INSERT INTO ‘SideDish‘ (‘SName‘, ‘SPrice‘, ‘SGlutenFree‘) VALUES
   (’Rice’, 2, true);
```

2.4.3 Screenshot



SName	SPrice	SGlutenFree
Pommes	2.50	1
Potatoes	2.00	0
Potato Stripes	2.70	0
Rice	2.00	1

Abbildung 5: SideDish

2.5 SalesSlip

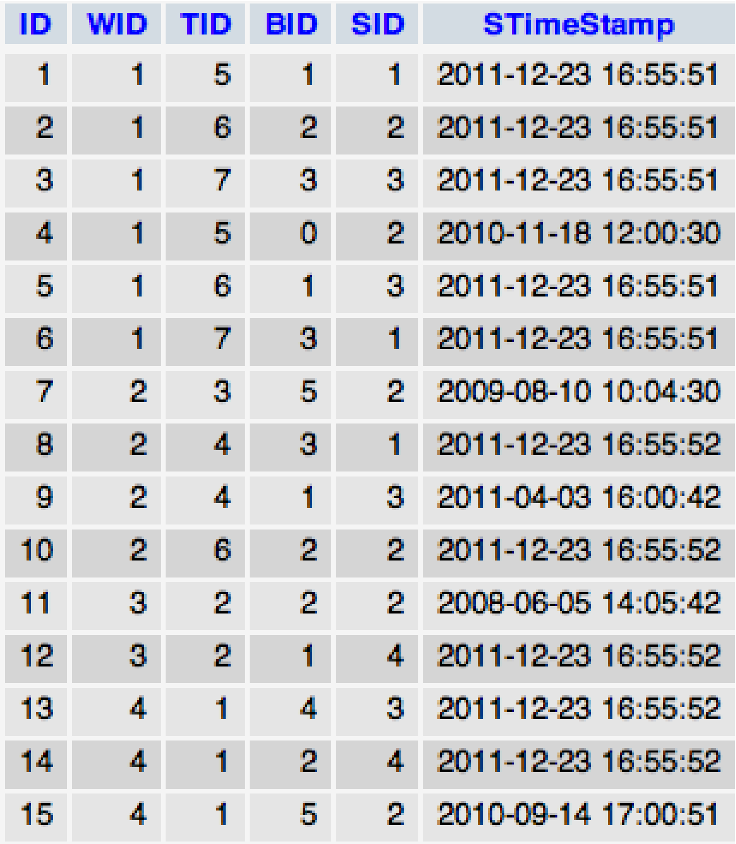
2.5.1 Relation

```
CREATE TABLE IF NOT EXISTS ‘SalesSlip‘ (
   ‘ID‘        int(100) unsigned NOT NULL AUTO_INCREMENT,
   ‘WID‘         int(5) unsigned NOT NULL,
   ‘TID‘         int(5) unsigned NOT NULL,
   ‘BID‘         int(5) unsigned,
   ‘SID‘         int(5) unsigned,
   ‘STimeStamp‘ timestamp NOT NULL DEFAULT CURRENT_TIMESTAMP,
   PRIMARY KEY (‘ID‘)
);
```

2.5.2 Data

```
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (1, 5, 1, 1);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (1, 6, 2, 2);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (1, 7, 3, 3);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘, ‘STimeStamp‘) VALUES
   (1, 5, 0, 2, ’2010-11-18 12:00:30’);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (1, 6, 1, 3);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (1, 7, 3, 1);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘, ‘STimeStamp‘) VALUES
   (2, 3, 5, 2, ’2009-08-10 10:04:30’);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (2, 4, 3, 1);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘, ‘STimeStamp‘) VALUES
   (2, 4, 1, 3, ’2011-04-03 16:00:42’);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (2, 6, 2, 2);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘, ‘STimeStamp‘) VALUES
   (3, 2, 2, 2, ’2008-06-05 14:05:42’);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (3, 2, 1, 4);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (4, 1, 4, 3);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘) VALUES
   (4, 1, 2, 4);
INSERT INTO ‘SalesSlip‘ (‘WID‘, ‘TID‘, ‘BID‘, ‘SID‘, ‘STimeStamp‘) VALUES
   (4, 1, 5, 2, ’2010-09-14 17:00:51’);
```

2.5.3 Screenshot



ID	WID	TID	BID	SID	STimeStamp
1	1	5	1	1	2011-12-23 16:55:51
2	1	6	2	2	2011-12-23 16:55:51
3	1	7	3	3	2011-12-23 16:55:51
4	1	5	0	2	2010-11-18 12:00:30
5	1	6	1	3	2011-12-23 16:55:51
6	1	7	3	1	2011-12-23 16:55:51
7	2	3	5	2	2009-08-10 10:04:30
8	2	4	3	1	2011-12-23 16:55:52
9	2	4	1	3	2011-04-03 16:00:42
10	2	6	2	2	2011-12-23 16:55:52
11	3	2	2	2	2008-06-05 14:05:42
12	3	2	1	4	2011-12-23 16:55:52
13	4	1	4	3	2011-12-23 16:55:52
14	4	1	2	4	2011-12-23 16:55:52
15	4	1	5	2	2010-09-14 17:00:51

Abbildung 6: SalesSlip

3 XSL

The user is able to get a overall statistic of all waiters and their serves. There are 2 stylesheets available. One stylesheet for an overview over all tables and one stylesheet for an overview over just the table where smoking is allowed. There are also 2 methods for transformation, either the result is created on the server or on the client side.

4 Relevant Code Snippets

4.1 Adding a new Burger

```
<form action="addBurger.php" method="POST">
    <table width="600" border="0" cellspacing="0" cellpadding="0">
      <tr>
        <td width="128">Name:</td>
        <td width="472"><input type="text" name="bName"></input></td>
      </tr>
      <tr>
        <td>Price</td>
        <td><input type="text" name="bPrice"></input></td>
      </tr>
    </table>

    <input type="submit" value="Submit"></input>
</form>

<?php
    if (isset ($_POST["bName"]) && $_POST["bPrice"]) {

        $bName  = $_POST["bName"];
        $bPrice = $_POST["bPrice"];
        $query  = "INSERT INTO `Burger` (`BID`, `BName`, `BPrice`)
                   VALUES (NULL, '$bName', '$bPrice');";

        mysql_query($query) or die (mysql_error());
        echo ("Burger $bName has been added to database");
    }
?>
```

Listing 1: addBurger.php

This file is used to add a new burger to the database.

4.2 Delete a Burger

```
<form action="deleteBurger.php" method="POST">
<?php
    if(isset ($_POST["burger"])) {
        $burger = $_POST["burger"];
        $query  = "DELETE FROM `Burger` WHERE BName='$burger';";

        mysql_query($query) or die (mysql_error());
    }
    $burgers = mysql_query("select * from `Burger`;") or die (mysql_error());
?>

<select name="burger">
<?php
    while($burger = mysql_fetch_array($burgers)) {
        echo ('<option value="' . $burger["BName"] . '">' .
            $burger["BName"] . '</option>');
    }
?>
```

```
</select>

<input type="submit" value="delete">
</form>

<?php
    if(isset ($_POST["burger"])) {
        $burger = $_POST["burger"];

        echo ("'$burger' has been deleted!");
    }
?>
```

Listing 2: deleteBurger.php

This file is used to delete an existing burger from the database.

4.3 Get burgers that are served by a given waiter to a specific table

```
<form action="getBurgers.php" method="POST">

<?php
    $waiters = mysql_query("select * from `Waiter`") or die(mysql_error());
    $tables  = mysql_query("SELECT * from `Table`")  or die(mysql_error());
?>

<select name="waiter">
    <?php
        while($waiter = mysql_fetch_array($waiters)) {
            if ($_POST["waiter"] == $waiter["WID"]) {
                echo '<option selected = yes value="'.$waiter["WID"].'">'.
                    $waiter["WLastName"]." ".$waiter["WFirstName"].
                    '</option>';
            } else {
                echo '<option value="'.$waiter["WID"].'">' .
                    $waiter["WLastName"]." ".$waiter["WFirstName"].
                    '</option>';
            }
        }
    ?>

</select>
<select name="table">
    <?php
        while($table = mysql_fetch_array($tables)) {
            if ($_POST["table"] == $table["TID"]) {
                echo '<option selected = yes value="'.$table["TID"].'">'.
                    "Table Number: ".$table["TID"].'</option>';
            } else {
                echo '<option value="'.$table["TID"].'">'."Table Number: ".
                    $table["TID"].'</option>';
            }
        }
    ?>

```

```
<?php

    if (isset ($_POST["waiter"]) && isset ($_POST["table"])) {

        $wid    = $_POST["waiter"];
        $tid    = $_POST["table"];
        $waiter = mysql_query("select * from Waiter where WID = $wid");
        $name   = mysql_fetch_object($waiter);

        $result = mysql_query("select BName from Burger where BID in
                                (select BID from SalesSlip where
                                 WID = $wid and TID = $tid)");

        while ($burger = mysql_fetch_array($result)) {
            echo $burger["BName"] . " at table " . $tid . " by "
                    . $name->WFirstName . " " . $name->WLastName;
        }
    }
?>
```

Listing 3: getBurgers.php

Gets all burgers that are served by a given waiter to a specific table.

4.4 Get all burgers that have been served by a a specific waiter

```
<form action="waiterStatistic.php" method="POST">
  <table width="600" border="0" cellspacing="0" cellpadding="0">
  <tr>
    <td width="125">Waiter:</td>
    <td width="475"><?php
    $waiters = mysql_query("select * from Waiter") or die (mysql_error());
?>

<select name="waiter">
    <?php
        while ($waiter = mysql_fetch_array($waiters)) {
            if ($_POST["waiter"] == $waiter["WID"]) {
                echo '<option selected = yes value = "'.$waiter["WID"].'">'.
                        $waiter["WLastName"]." ".$waiter["WFirstName"].
                        '</option>';
            } else {
                echo '<option value = "'.$waiter["WID"].'"> '.
                        $waiter["WLastName"]." ".$waiter["WFirstName"].
                        '</option>';
            }
        }
    ?>
</select>
</td>
  </tr>
  <tr>
    <td>Smoker Table:</td>
    <td>


    <?php
    if (isset ($_POST[”smokertable”]))
                echo '<input type=”checkbox” name=”smokertable” checked>';
        else
                echo '<input type=”checkbox” name=”smokertable”>';
    ?>
    </td>
  </tr>
</table>

</form>
<?php
    if (isset ($_POST[”waiter”])) {
        $wid = $_POST[”waiter”];

        if (isset($_POST[”smokertable”]))
            $smoker = 1;
        else
            $smoker = 0;

        $result =
                mysql_query(”SELECT * FROM Burger WHERE BID IN
                            (SELECT BID FROM ‘SalesSlip‘ WHERE WID = $wid
                            AND TID IN (SELECT TID FROM ‘Table‘ WHERE
                            TSmoker = $smoker AND TID IN
                            (SELECT TID FROM ‘SalesSlip‘ WHERE WID = $wid))
                            )”);

        while ($burger = mysql_fetch_array($result)) {
            echo $burger[”BName”]; ?><br><?php
        }
    }
?>
```

Listing 4: waiterStatistic.php

You can choose a waiter to see the statistic of the Burgers that have been served by him.

4.5 Update the price of a burger

```
<form action=”updateBurgerPrice.php” method=”POST”>
<table width=”600” border=”0” cellspacing=”0” cellpadding=”0”>
  <tr>
    <td width=”40”>Burger:</td>
    <td width=”475”>
    <?php
        $burgers = mysql_query(”select * from ‘Burger‘;”)
                    or die (mysql_error());
    ?>
    <select name=”burger” onchange=”this.form.submit()”>
    <?php
        if (!isset($_POST[”burger”])) {
    ?>
    <option>–</option>

    <?php }
        while($burger = mysql_fetch_array($burgers)) {
            if ($_POST[”burger”] == $burger[”BID”]) {
                echo ('<option selected value=”' . $burger[”BID”] . '”>' .
                      $burger[”BName”] . '</option>');
            } else {
                echo ('<option value=”' . $burger[”BID”] . '”>' .
                      $burger[”BName”] . '</option>');
            }
        }
    ?>

<?php }
    if (!isset($_POST[”burger”]) && !isset($_POST[”updatePrice”]))
        return;

    if (!isset($_POST[”updatePrice”])){
        $bid = $_POST[”burger”];
        $result = mysql_query(”select * from ‘Burger‘ where BID = $bid”);
        $price = mysql_fetch_array($result);
        echo $price[”BName”] . ” currently is ” . $price[”BPrice”] . ”$”;
    }
?>

<form action=”updateBurgerPrice.php” method=”POST”>
    If you want to change the price of the currently selected Burger enter
    the new value here: <br>
    <?php
        $bid = $_POST[”burger”];
        echo '<input type=”hidden” name=”burger” value=”'.$bid.'”>';
    ?>
    <input type=”text” name=”updatePrice”></input> [0-99] <br>
    <br />
    <input type=”submit” value=”update”>
</form>

<?php
    if (isset($_POST[”updatePrice”])) {
        $newPrice = $_POST[”updatePrice”];
        $bid = $_POST[”burger”];
        $result = mysql_query(”select * from ‘Burger‘ where BID = $bid”);
        $name = mysql_fetch_array($result);

        if (is_numeric($newPrice) && $newPrice >=0 && $newPrice <= 99) {
            mysql_query(”UPDATE ‘Burger‘ SET BPrice='$newPrice'
            WHERE BID=$bid”);

            echo”Changed the price of ”.$name[”BName”].” to ”.$newPrice.”$”;
        } else
            echo ”Please enter the price as an integer value [0-99]”;
    }
?>
```

Listing 5: updateBurgerPrice.php