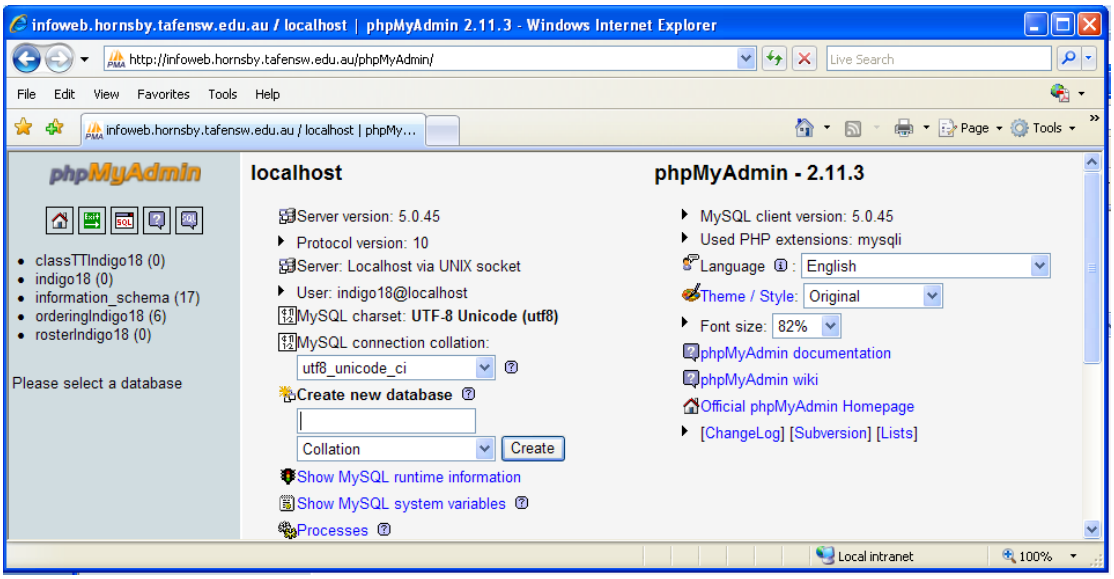
Creating a Database

In this section

Now that we have learnt how to design and query a database it is time to create our own database.

- Login to phpMyAdmin



Creating a Database using SQL

To create a database you use the following SQL command (you do not have permission to do this in TAFE, but can try at home on a simulated server).

```
CREATE DATABASE someDBName
```

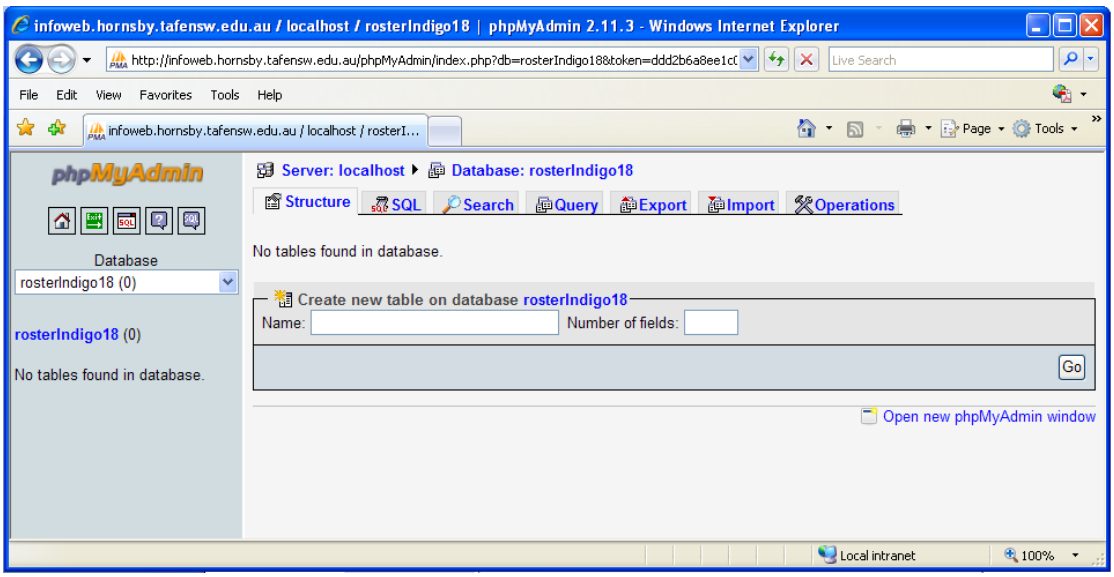
Deleting a Database using SQL

To delete a database you use the following SQL command (you do not have permission to do this in TAFE, but can try at home on a simulated server).

```
DROP DATABASE someDBName
```

- Select the database '**roster*yourName*'** (eg rosterIndigo04 or rosterLime12 or rosterNight05 or rosterTeal13, or whichever name you have been given).

You will then be shown the following screen:



Creating Tables using SQL

To create a table you use the following command

```
CREATE TABLE tableName
(
  fieldName1 data_type,
  fieldName2 data_type,
. . . .
)
```

- Type the following in an SQL window to create ***tblEmployee***

```
CREATE TABLE tblEmployee
(
  employeeID BIGINT(20) NOT NULL AUTO_INCREMENT PRIMARY KEY,
  employeeFirstName VARCHAR(50) NOT NULL,
  employeeLastName VARCHAR(50) NOT NULL,
  employeeDOB DATE DEFAULT NULL,
  employeePayrate DECIMAL(10,2) DEFAULT NULL,
  employeeAddress VARCHAR(255) DEFAULT NULL,
  employeePHONE VARCHAR(50) DEFAULT NULL
)
```

- To create a second table click on the link at the top of page **roster*YourName***

- Type the following in an SQL window to create ***tblRoster***

```
CREATE TABLE tblRoster
(
  rosterID BIGINT(20) NOT NULL AUTO_INCREMENT PRIMARY KEY,
  employeeID BIGINT(20) NOT NULL,
  rosterDate DATE DEFAULT NULL,
  rosterStartTime VARCHAR(20) DEFAULT NULL,
  rosterEndTime VARCHAR(20) DEFAULT NULL,
  positionCode CHAR(4) DEFAULT NULL
)
```

- To create a third table click on the link at the top of page **roster*YourName***

- Type the following in an SQL window to create ***tblPosition***

```
CREATE TABLE tblPosition
(
  positionCode CHAR(4) NOT NULL PRIMARY KEY,
  positionDescription TEXT DEFAULT NULL
)
```

Deleting Tables using SQL

To delete a table you use the following SQL command
`DROP TABLE tableName`

- You will now proceed to delete two (2) tables

- Type the following in an SQL window to delete ***tblEmployee***

```
DROP TABLE tblEmployee
```

Click ***OK*** when asked to confirm

- Type the following in an SQL window to delete ***tblRoster***

```
DROP TABLE tblRoster
```

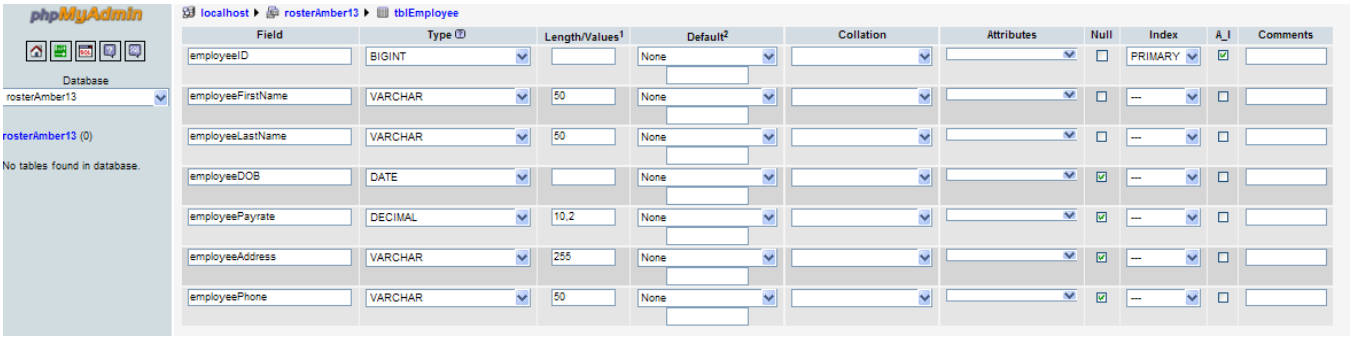
Click ***OK*** when asked to confirm

Creating Tables using phpMyAdmin facility

- In the '**Create new table..'** textbox type the table name '***tblEmployee'*** with ***7*** fields
- Type the following field names, type, length, etc as shown below:

Field	Type	Length	Null	Extra	
employeeID	BIGINT		not null	auto-increment	PK
employeeFirstName	VARCHAR	50	not null		
employeeLastName	VARCHAR	50	not null		
employeeDOB	DATE		null		
employeePayrate	DECIMAL	10,2	null		
employeeAddress	VARCHAR	255	null		
employeePhone	VARCHAR	50	null		

The window should look like the following:



Note
1. make sure the ***employeeID*** is set to Auto_Increment in the **A_I** check box
2. also select **PRIMARY** at the **Index** list box, for ***employeeID*** field.

Make sure the ***employeePayrate*** is set to decimal 10,2. This means the value will be displayed to 2 decimal places.

Click on the **Save** button.

See the SQL code which was generated from by this action (looks familiar?)

- You can now create a second table called ***'tblRoster'***. It will contain 6 fields.
- Type the following field names, type, length, etc as shown below:

Field	Type	Length	Null	Extra	
rosterID	BIGINT		not null	auto-increment	PK
employeeID	BIGINT		not null		
rosterDate	DATE		null		
rosterStartTime	VARCHAR	20	null		
rosterEndTime	VARCHAR	20	null		
positionCode	CHAR	4	not null		

- Click on the **Save** button

Inserting the data using SQL

Now that we have created the tables we can insert data into the tables.

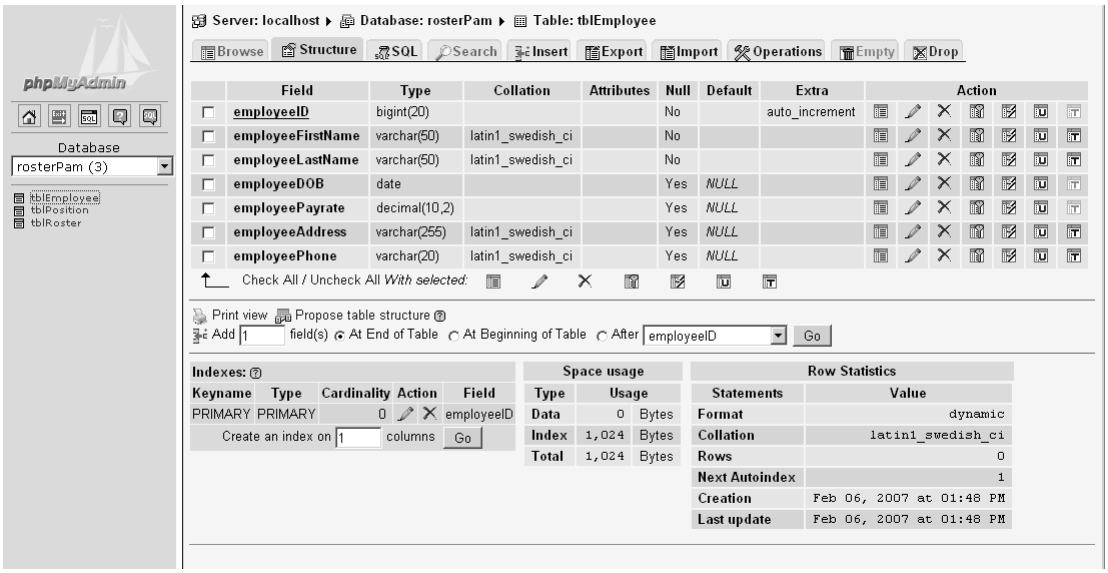
- Type the following command in an SQL window

```
INSERT INTO tblPosition (positionCode, positionDescription)
VALUES ('WASH', 'WASHING'),('REST', 'RESTAURANT')
```

This statement will have inserted 2 records into the table **tblPosition**

Inserting Data using phpMyAdmin facility

- Click on the **tblEmployee** link.



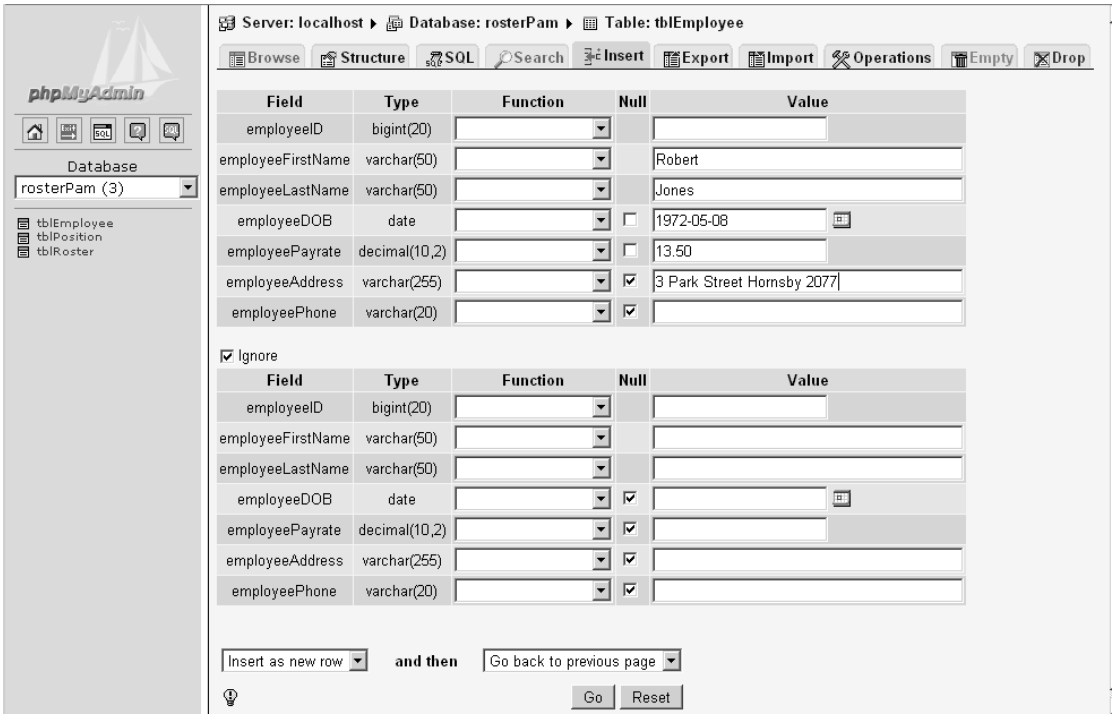
- Click on the **Insert** tab and enter the first record (in the boxes in the Value column):

First name	Last name	DOB	Pay rate	Address	Phone
Robert	Jones	8/5/1972	$13.50	3 Park Street Hornsby 2077	94766234

Note:

1. Do not enter an employeeID – this is an auto-increment field so will be generated automatically.
2. Date must be entered in reverse order i.e. yyyy-mm-dd

It should look like (shown on next page):



- Click on the **Go** button and look at the SQL statement (this should be familiar too).

- Repeat these steps to insert the following employees

First name	Last name	DOB	Pay rate	Address	Phone
Brent	Walker	5/12/1974	$10.50	56 Pacific HWY Hornsby 2077	95561234
Cathy	Parker	20/10/1970	$12.50	27 Walker Street Hornsby 2077	94551234
Jane	Smith	10/10/1980	$12.50	100 George Street Hornsby 2077	98745212

- Now select **tblRoster** and insert the following data

rosterID	employeeID	rosterDate	rosterStartTime	rosterEndTime	positionCode
1	1	2000-08-20	14:30	20:30	WASH
2	1	2000-08-21	12:30	18:30	REST
3	2	2000-08-20	14:00	20:30	WASH
4	2	2000-08-22	14:30	20:30	REST
5	3	2000-08-23	12:30	18:30	WASH
6	4	2000-08-23	12:30	21:30	WASH

Data Dictionary

Below the table in the right hand pane there is a link called "Data Dictionary".

- Click on this link to view the data dictionary. Note – there is a print button if so a user can have a hard copy if they desire.

Alter Table

You can use this command to change structural stuff of a table, for example, add, delete or modify columns in an existing table. The syntax is:

To add a column/field in an existing table

```
ALTER TABLE tableName ADD fieldname data_type
```

To delete a column/field in an existing table
```
ALTER TABLE tableName DROP COLUMN fieldname
```

- Add a field/column to ***tblPosition*** called ***ratePerHour*** with data type ***decimal(6,2)***
- Delete this column

Activity 1.

Q1. Select just the names and phone numbers from the employee table.

Q2. Select the positions and position codes from the position table

Q3. Select the roster date and position code from the roster table.

Q4. Display the roster for the date 23/08/2000.

Q5. Display all employees with an employee id greater than 2. Note the number 2 is of type integer so we do not have to put it in quotes.

Q6. Retrieve the employees name, address and phone number. If they were born before 1973 and their pay rate is greater than $13.00.

Q7. Retrieve the roster for the 20/08/2000 and the position code is equal to 'WASH'

Q8. Display the employees sorted by name.

Q9. Display the employees in the reverse order.

Q10. Display the highest rosterID.

Q11. Display the lowest rosterID.

Q12. Count the number of rows in the positions table

Q13. Retrieve the dates Jane Smith works. Display her name.

Q14. Retrieve the roster table, but display the full position description instead of 'WASH' and 'REST'. (Hint you will need to select from both the roster table and the positions table)

Q15. Retrieve the names and phone numbers of all the employees who work on 23/08/2000.

Q16. Retrieve the names and phone numbers who work in the position 'REST'.

Q17. Repeat question 16 but this time display the full description for the position i.e. 'Restaurant'. (Hint you need to join 3 tables)

Q18. Change the pay rate of employee 3 to be $14.00

Q19. Change the start time of rosterID 1 to be 10:00

Q20. Change the pay rate of employee 2 to $13.00 and change their phone number to 992233445.

Q21. Delete the rows in the roster table for the 20/08/2000.

Q22. Insert the following record into tblRoster

rosterID	rosterDate	startTime	endTime	positionCode	empID
	2006-05-03	12:00	4:00	WASH	4

Activity 2 - **Work on database called** *ProductsYourName:*

Q1. Create the following tables using SQL:

tblProduct

productNo	SMALLINT	UNSIGNED	ZEROFILL	NOT NULL	AUTOINCREMENT	PK	
productDesc	VARCHAR(50)						
units	SMALLINT	UNSIGNED					
itemCode	CHAR(2)			NOT NULL			
warehouseNo	TINYINT	UNSIGNED		NOT NULL			
price	DECIMAL(6,2)						

tblWarehouse

warehouseNo	TINYINT	UNSIGNED	NOT NULL	AUTOINCREMENT	PK
warehouseName	VARCHAR(20)				
warehouseMgr	VARCHAR(50)				

tblItem

itemCode	CHAR(2)	NOT NULL	PRIMARY KEY
itemDesc	VARCHAR(20)		

Q2. Insert the following data using phpMyAdmin facility:

tblProduct					
productNo	**productDesc**	**units**	**itemCode**	**warehouseNo**	**price**
1	Shaver	104	PC	2	59.99
2	Ice cream maker	68	HW	3	39.95
3	Hair dryer	112	PC	1	16.99
4	Bread maker	34	HW	3	199.96
5	Microwave oven	11	AP	2	149.99
6	Electric wok	95	HW	3	39.99
7	Refrigerator	8	AP	3	159.99
8	Make-up mirror	44	PC	1	29.99
9	Luxury spa	20	PC	3	109.96
10	Juice extractor	82	HW	2	49.96

*Insert the following data using SQL

tblWarehouse		
warehouseNo	**warehouseName**	**warehouseMgr**
1	Northside	Larry Holmes
2	Westside	Geoff Field
3	Eastside	Liam Smith

*Insert the following data using SQL

tblItem	
itemCode	**itemDesc**
AP	Appliances
HW	Homewares
PC	Personal Care

Use **SQL queries** for the questions that follow:

Q3. Display all the products.
Required output:

productNo	productDesc	units	itemCode	warehouseNo	price
00001	Shaver	104	PC	2	59.99
00002	Ice cream maker	68	HW	3	39.95
00003	Hair dryer	112	PC	1	16.99
00004	Bread maker	34	HW	3	199.96
00005	Microwave oven	11	AP	2	149.99
00006	Electric wok	95	HW	3	39.99
00007	Refrigerator	8	AP	3	159.99
00008	Make-up mirror	44	PC	1	29.99
00009	Luxury spa	20	PC	3	109.96
00010	Juice extractor	82	HW	2	49.96

Q4. Display the warehouse number and the warehouse name.
Required output:

warehouseNo	warehouseName
1	Northside
2	Westside
3	Eastside

Q5. Display the products in alphabetical order. Display product name along with their item code and price.
Required output:

productDesc	itemCode	price
Bread maker	HW	199.96
Electric wok	HW	39.99
Hair dryer	PC	16.99
Ice cream maker	HW	39.95
Juice extractor	HW	49.96
Luxury spa	PC	109.96
Make-up mirror	PC	29.99
Microwave oven	AP	149.99
Refrigerator	AP	159.99
Shaver	PC	59.99

Q6. List all products where the units on hand are under 50.
Required output:

productDesc	units	itemCode
Bread maker	34	HW
Microwave oven	11	AP
Refrigerator	8	AP
Make-up mirror	44	PC
Luxury spa	20	PC

Q7. List all products costing between $25 and $100.
Required output:

productDesc	units	price
Shaver	104	59.99
Ice cream maker	68	39.95
Electric wok	95	39.99
Make-up mirror	44	29.99
Juice extractor	82	49.96

Q8. List products in item code order.
Required output:

productNo	productDesc	itemDesc
00005	Microwave oven	Appliances
00007	Refrigerator	Appliances
00002	Ice cream maker	Homewares
00004	Bread maker	Homewares
00006	Electric wok	Homewares
00010	Juice extractor	Homewares
00001	Shaver	Personal Care
00003	Hair dryer	Personal Care
00008	Make-up mirror	Personal Care
00009	Luxury spa	Personal Care

Q9. List all the products that are homewares.
Required output:

productNo	productDesc	itemCode
00002	Ice cream maker	HW
00004	Bread maker	HW
00006	Electric wok	HW
00010	Juice extractor	HW

Q10. List all products held in the Northside warehouse.
Required output:

productNo	productDesc	units	price
00003	Hair dryer	112	16.99
00008	Make-up mirror	44	29.99

Q11. List full product details in price order, from the most expensive to the cheapest.
Required output:

productDesc	units	itemDesc	warehouseName	price
Breadmaker	34	Homewares	Eastside	199.96
Refrigerator	8	Appliances	Eastside	159.99
Microwave oven	11	Appliances	Westside	149.99
Luxury spa	20	Personal Care	Northside	109.96
Shaver	104	Personal Care	Westside	59.99
Juice extractor	82	Homewares	Westside	49.96
Electric wok	95	Homewares	Eastside	39.99
Ice cream maker	68	Homewares	Eastside	39.95
Make-up mirror	44	Personal Care	Northside	29.99
Hairdryer	112	Personal Care	Northside	16.99

Q12. Update the price of the bread maker to $250.50

Q13. Insert a new record into ***tblItem***, with itemCode "GD" and itemDesc "Gardening".

Q14. Insert 3 new records into ***tblProduct*** that could belong to the itemCode "GD", such as a lawn mower, wheelbarrow, garden umbrella.

Q15. List all products that belong to either Homewares, Appliances or Gardening.

Q16. Find the sum of product prices grouped by itemCode.

Q17. Find all products that start with "L".

Q18. Add a new warehouse with name of "Southside" and manager "Joe Tarragano"

Q19. Update products so that any "PC" items are stored in the new warehouse.

Q20. Count how many products are stored in the new warehouse, warehouse number 4.

Q21. List products, their item type and the warehouse they are stored in.

They should be listed in warehouse name order, within that, item type order, and within that, product description order.

Required output:

warehouseName	itemDesc	productDesc
Eastside	Appliances	Refrigerator
Eastside	Homewares	Bread maker
Eastside	Homewares	Electric wok
Eastside	Homewares	Ice cream maker
Southside	Personal Care	Hair dryer
Southside	Personal Care	Luxury spa
Southside	Personal Care	Make-up mirror
Southside	Personal Care	Shaver
Westside	Appliances	Microwave oven
Westside	Homewares	Juice extractor

Q22. Add a field called "email" to tblWarehouse of data type varchar (150).

Q23. Delete this field.