

INSTITUTO SUPERIOR TÉCNICO

SISTEMAS DE INFORMAÇÃO E BASE DE DADOS

MEEC

Assignment 3 - Using The Database

Group 8

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1 A Web Application Using the Database

https://web.ist.utl.pt/~ist425353/project/data_client.php

For the first running example, a person/client and animal who don't exist in the database are used.

1.1 Task 1

Listing 1: connection.php

```
1 <?php
2     $host="db.tecnico.ulisboa.pt";;
3     $user="ist425353";
4     $pass="syhs3545";
5     $dsn = "mysql:host=$host;dbname=$user";
6     try
7     {
8         $connection = new PDO($dsn, $user, $pass);
9     }
10    catch(PDOException $exception)
11    {
12        echo("<p>Error: ");
13        echo($exception->getMessage());
14        echo("</p>");
15        exit();
16    }
17 ?>
```

Listing 2: data_client.php

```
1 <?php
2     session_destroy();
3     session_start();
4 ?>
5 <html>
6 <head>
7     <title> Data Client </title>
8 </head>
9 <body>
10 <font face = "verdana" size = "8">
11 <center>
12     <form action="check_person.php" method="post">
13         
14         <p> <b> <font size="5"> Check Client & Animal </font></b> </p>
15         <table>
16             <tr><td> VAT Client </td><td> <input type="number" name="VAT_client"
17             required/></td></tr>
18             <tr><td> Animal Name </td><td><input type="text" name="animal_name"
19             required/></td></tr>
20             <tr><td> Owner Name </td><td><input type="text" name="owner_name"
21             required/></td></tr>
22         </table>
23         <p><input type="submit" /></p>
24     </form>
25 </center>
26 </font>
27 </body>
28 </html>
```

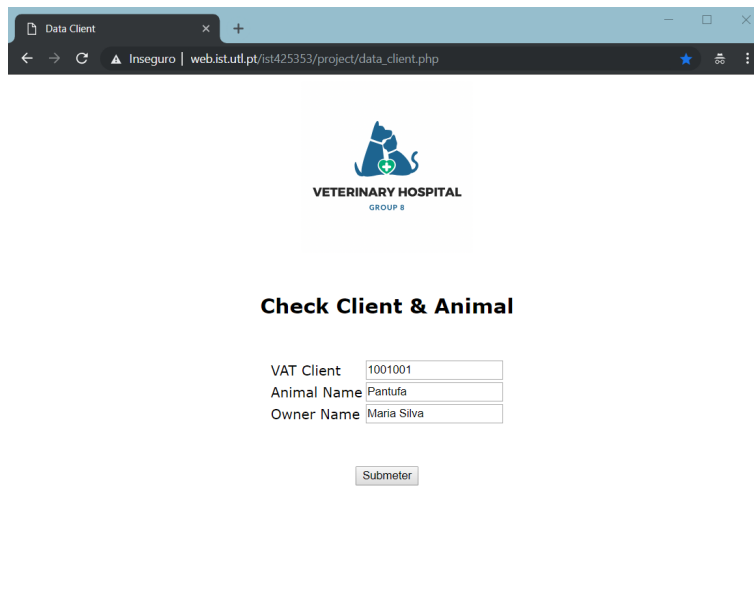


Figure 1: screenshot of data_client.php

Page usage:

1. Add the VAT of the person who's taking the animal to the hospital (VAT client);
2. Add the name of the animal;
3. Add the name of the owner of the animal.

Results in:

1. Checking if the person already exists in the database, if not then add the person as both a person and client in the database. If the person exists, the page checks if it is a client, if not then add the person as a client;
2. Showing a list of animals corresponding to the input information (after submit).

Notes:

1. If a person is taking an animal for the first time to the hospital, it is assumed that the owner's VAT is the same as the client's VAT and that the owner is the one taking the animal to the hospital.

Listing 3: check_person.php

```

1 <?php
2 session_start();
3 ?>
4 <html>
5 <head>
6     <title> Check Person </title>
7 </head>
8 <body>
9     <font face = "verdana" size = "8">
10         <center>
11             
12             <p> <b> <font size="5"> Records </font></b> </p>
13
14         <?php
15         require("connection.php");
16
17         $VAT_client = $_REQUEST['VAT_client'];

```

```

18     $animal_name = $_REQUEST['animal_name'];
19     $owner_name = $_REQUEST['owner_name'];
20
21     $_SESSION["VAT_client"] = $VAT_client;
22     $_SESSION["animal_name"] = $animal_name;
23     $_SESSION["owner_name"] = $owner_name;
24
25     $stmt= $connection->prepare("SELECT * FROM person WHERE person.VAT =:
vat_client;");
26     if ($stmt == FALSE)
27     {
28         $info = $connection->errorInfo();
29         echo("<p>Error: {$info[2]}</p>");
30         exit();
31     }
32     $stmt->bindParam(':vat_client', $VAT_client);
33     $stmt->execute();
34     $result = $stmt->fetchAll();
35
36
37     if ($result == NULL)
38     {
39         echo('<font size="4">This person is not in the database. Would you
like to add a new person and client?</font>');
40         ?>
41         <form>
42             <input type="button" value="Add Person and Client" onclick="window.
location.href='insert_person.php'" />
43         </form>
44         <?php
45     }
46     else
47     {
48         header("Location: check_client.php");
49     }
50     $connection = null;
51     ?>
52 </center>
53 </font>
54 </body>
55 </html>

```

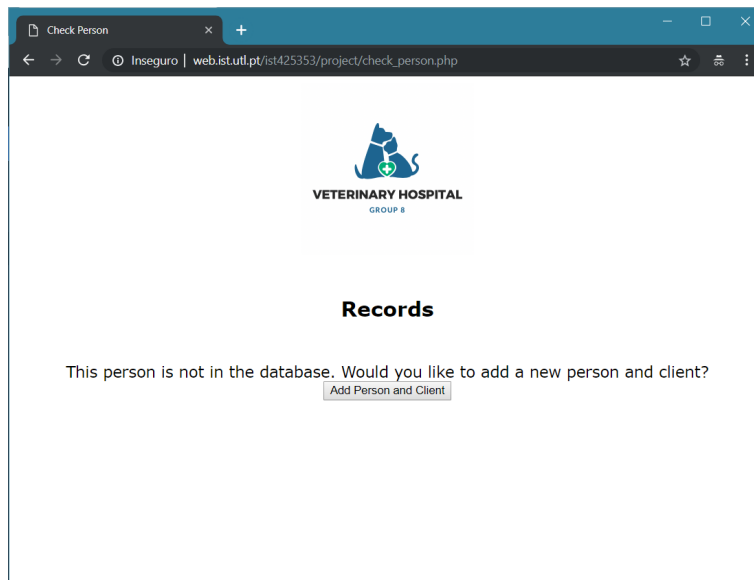


Figure 2: screenshot of check_person.php

Page usage:

1. Warning page. Offers the possibility of adding a person as a person and client in the database.

Results in:

1. The person in question does not exist in the database (failed the check), clicking on the displayed button will add the person as a client and person.

Listing 4: insert_person.php

```

1 <?php
2 session_start();
3
4 $VAT_person = $_SESSION["VAT_client"];
5 ?>
6
7 <html>
8 <head>
9     <title> Data Person </title>
10 </head>
11 <body>
12 <font face = "verdana" size = "8">
13 <center>
14     <form action="insert_person_db.php" method="post">
15         
16         <p> <b> <font size="5"> Personal Information Form </font></b> </p>
17         <table>
18             <?php
19             echo("<tr><td>VAT Person</td><td>$VAT_person</td></tr>");
20             ?>
21             <tr><td> Name </td><td><input type="text" name="pname" required/></td></tr>
22             <tr><td> Street </td><td><input type="text" name="pstreet" required/></td></tr>
23             <tr><td> City </td><td><input type="text" name="pcity" required/></td></tr>
24             <tr><td> ZIP </td><td><input type="number" name="pzip" required/></td></tr>
25             <tr><td> Phone Number </td><td><input type="number" name="pphone"
                required/></td></tr>

```

```

26     </table>
27     <p><input type="submit" /></p>
28 </form>
29 </center>
30 </font>
31 </body>
32 </html>

```

The screenshot shows a web browser window with the address bar displaying 'web.ist.utl.pt/ist425353/project/insert_person.php'. The page features a logo for 'VETERINARY HOSPITAL GROUP B' at the top. Below the logo, the title 'Personal Information Form' is centered. The form consists of several input fields arranged in a table-like structure:

VAT Person	1001001
Name	Maria Silva
Street	Rua José Travassos
City	Lisboa
ZIP	1900
Phone Number	91911911

At the bottom of the form, there is a button labeled 'Submeter'.

Figure 3: screenshot of insert_person.php

Page usage:

1. Fills automatically the VAT of the new person;
2. Add the name of the person/client;
3. Add the address information of the person/client;
4. Add a phone number.

Results in:

1. Inserting a new person with the given information to the database as a client and person (after clicking on submit).

Notes:

1. This page is a consequence of a person not existing in the database. It's of optional usage.

Listing 5: insert_person_db.php

```

1 <?php
2 session_start();
3 ?>
4 <html>
5 <body>
6 <?php
7 require("connection.php");
8
9 $VAT_person = $_SESSION["VAT_client"];
10 $pname = $_REQUEST['pname'];
11 $pstreet = $_REQUEST['pstreet'];

```

```

12 $pcity = $_REQUEST['pcity'];
13 $pzip = $_REQUEST['pzip'];
14 $pphone = $_REQUEST['pphone'];
15
16
17 $stmt= $connection->prepare("INSERT INTO person VALUES (:VAT_person,:pname
    ,:pstreet,:pcity,:pzip);
18 INSERT INTO phone_number VALUES (:VAT_person,:pphone);
19 INSERT INTO client VALUES (:VAT_person);");
20 if ($stmt == FALSE)
21 {
22     $info = $connection->errorInfo();
23     echo("<p>Error: {$info[2]}</p>");
24     exit();
25 }
26
27 $stmt->bindParam(':VAT_person', $VAT_person);
28 $stmt->bindParam(':pname', $pname);
29 $stmt->bindParam(':pstreet', $pstreet);
30 $stmt->bindParam(':pcity', $pcity);
31 $stmt->bindParam(':pzip', $pzip);
32 $stmt->bindParam(':pphone', $pphone);
33 $stmt->execute();
34
35
36 $connection = null;
37 header("Location: check_animal.php");
38 ?>
39 </body>
40 </html>

```

Notes:

1. This page contains only the queries needed to insert a new person and client.

Listing 6: check_client.php

```

1 <?php
2 session_start();
3 ?>
4 <html>
5 <head>
6     <title> Check Client </title>
7 </head>
8 <body>
9     <font face = "verdana" size = "8">
10         <center>
11             
12             <p> <b> <font size="5"> Records </font></b> </p>
13
14             <?php
15             require("connection.php");
16
17             $VAT_client = $_SESSION["VAT_client"];
18
19             $stmt = $connection->prepare("SELECT client.VAT FROM client WHERE
    client.VAT = :VAT_client;");
20             if ($stmt == FALSE)
21             {
22                 $info = $connection->errorInfo();
23                 echo("<p>Error: {$info[2]}</p>");
24                 exit();
25             }

```



```

26     $stmt->bindParam(':VAT_client', $VAT_client);
27     $stmt->execute();
28     $result = $stmt->fetchAll();
29
30     if ($result == NULL)
31     {
32         echo('<font size="4"> This person is not a client in the database.
33         Would you like to add this person as a client </font>');
34         ?>
35         <form>
36         <input type="button" value="Add Person as Client" onclick="window.
37         location.href='insert_client.php'" />
38         </form>
39         <?php
40     }
41     else
42     {
43         header("Location: check_animal.php");
44     }
45     $connection = null;
46     ?>
47 </center>
48 </font>
</body>
</html>

```

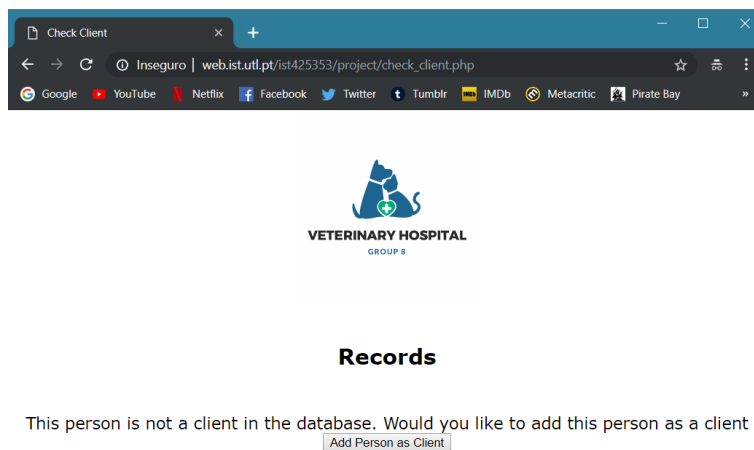


Figure 4: screenshot of check_client.php

Page usage:

1. Warning page. Offers the possibility of adding a person as client in the database (the person already existed in the database).

Results in:

1. The person in question exists in the database, however he/she was not considered as client, clicking on the displayed button will add the person as a client.

Listing 7: insert_client.php

```

1 <?php
2 session_start();
3 ?>
4 <html>
5 <body>
6     <?php
7         require("connection.php");
8
9         $VAT_client = $_SESSION["VAT_client"];
10
11
12 $stmt = $connection->prepare("INSERT INTO client VALUES (:VAT_client);");
13 if ($stmt == FALSE)
14 {
15     $info = $connection->errorInfo();
16     echo("<p>Error: {$info[2]}</p>");
17     exit();
18 }
19 $stmt->bindParam(':VAT_client', $VAT_client);
20
21 $stmt->execute();
22 $result = $stmt->fetchAll();
23
24 $connection = null;
25 header("Location: check_animal.php");
26 ?>
27 </body>
28 </html>

```

Notes:

1. This page contains only the queries needed to promote a person to a client.

Listing 8: check_animal.php

```

1 <?php
2 session_start();
3 ?>
4 <html>
5 <head>
6     <title> Check Animal </title>
7 </head>
8 <body>
9     <font face = "verdana" size = "8">
10         <center>
11             
12             <p> <b> <font size="5"> Records </font></b> </p>
13
14             <?php
15                 require("connection.php");
16
17                 $VAT_client = $_SESSION['VAT_client'];
18                 $animal_name= $_SESSION['animal_name'];
19                 $owner_name = $_SESSION['owner_name'];
20
21
22                 $stmt= $connection->prepare("SELECT animal.name as a_name, person.
23 name as p_name, person.VAT as owner_vat FROM animal, person WHERE animal
24 .name=:animal_name AND
25 animal.VAT=person.VAT AND person.name like CONCAT('%',:owner_name
26 ,'%')");

```

```

24
25
26
27     if ($stmt == FALSE)
28     {
29         $info = $connection->errorInfo();
30         echo("<p>Error: {$info[2]}</p>");
31         exit();
32     }
33
34     $stmt->bindParam(':animal_name', $animal_name);
35     $stmt->bindParam(':owner_name', $owner_name);
36
37     $stmt->execute();
38     $result = $stmt->fetchAll();
39
40
41
42     if ($result==NULL)
43     {
44         echo('<font size="3"><p> No Matching Records Found. </p></font>');
45         ?>
46         <form>
47             <input type="button" value="New Animal" onclick="window.location.
href='insert_animal.php'" />
48         </form>
49         <?php
50     }
51     else
52     {
53
54         echo("<table border=\"0\" cellspacing=\"5\">\n");
55         echo("<tr><td> <b> Animal </b></td><td><b>Owner</b> </td></tr>");
56         foreach($result as $row)
57         {
58             echo("<tr><td>");
59             echo($row['a_name']);
60             echo("</td><td>");
61             echo($row['p_name']);
62             echo("</td><td>");
63             echo("<td><a href=\"list_consults.php?owner_vat=");
64             echo($row['owner_vat']);
65             echo("\>Consults</a></td>\n");
66             echo("</tr>\n");
67
68         }
69         echo("</table>");
70     }
71
72     $connection = null;
73     ?>
74     </center>
75     </font>
76 </body>
77 </html>

```

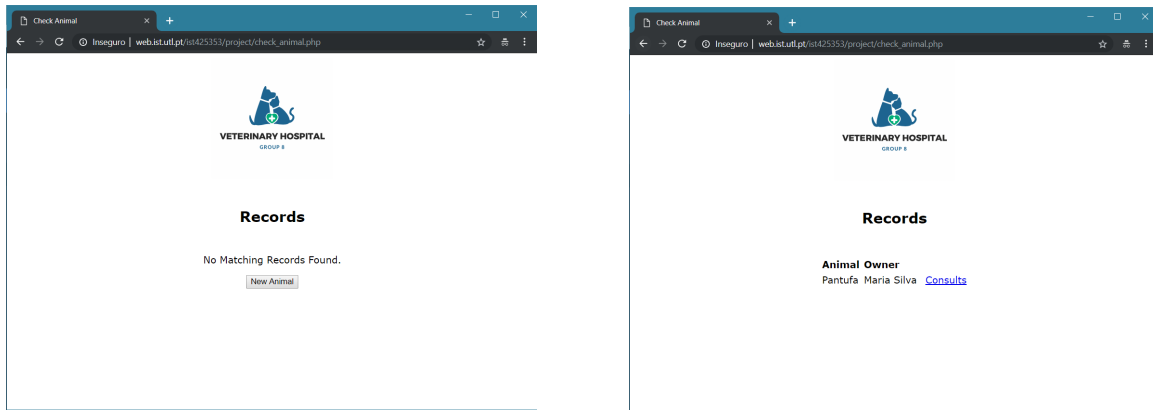


Figure 5: screenshots of check_animal.php

Page usage:

1. Displays the animals that correspond to the input search information. For this running example, the new client does not yet have an associated animal;
2. Clicking on "Consults" shows a list of consults associated to the chosen animal;
3. Clicking on "New Animal" allows the user to add a new animal, associated to the client/owner (this is used in the running example) if the client doesn't have any associated animal.

Results in:

1. Either in the option of inserting a new animal associated to the client/owner;
2. Or in the option of choosing to see records of consults associated to a chosen animal.

Listing 9: insert_animal.php

```

1 <?php
2 session_start();
3
4 $VAT_owner = $_SESSION["VAT_client"];
5 $a_name = $_SESSION['animal_name'];
6 ?>
7
8 <html>
9 <head>
10 <title> Register animal </title>
11 </head>
12 <body>
13 <font face = "verdana" size = "8">
14 <center>
15 <form action="insert_animal_db.php" method="post">
16 
17 <p> <b> <font size="5"> Animal Information Form </font></b> </p>
18 <table>
19 <?php
20 echo("<tr><td>VAT Owner</td><td>$VAT_owner</td></tr>");
21 ?>
22 <?php
23 echo("<tr><td>Name</td><td>$a_name</td></tr>");
24 ?>
25 <tr><td>Species</td> <td>
26 <select name="s_name">
27 <?php
28 require("connection.php");

```

```

29     $stmt = $connection->prepare("SELECT name FROM species ORDER BY name
    ;");
30
31     if ($stmt == FALSE)
32     {
33         $info = $connection->errorInfo();
34         echo("<p>Error: {$info[2]}</p>");
35         exit();
36     }
37
38     $stmt->execute();
39     $result = $stmt->fetchAll();
40
41     foreach($result as $row)
42     {
43         $name = $row['name'];
44         echo("<option value=\"{$name}\">{$name}</option>");
45     }
46     $connection = null;
47     ?>
48     </select>
49 </td></tr>
50
51 <tr><td> Colour </td><td><input type="text" name="colour" required/></td>
></tr>
52 <tr><td> Gender </td><td><input type="text" name="gender" required/></td>
></tr>
53 <tr><td> Birth year </td><td><input type="number" name="birth_year"
required/></td></tr>
54 <tr><td> Age </td><td><input type="number" name="age" required/></td></tr>
>
55 </table>
56 <p><input type="submit" /></p>
57 </form>
58 </center>
59 </font>
60 </body>
61 </html>

```

Register animal

Inseguro | web.ist.utl.pt/ist425353/project/insert_animal.php

VETERINARY HOSPITAL
GROUP 8

Animal Information Form

VAT Owner 1001001

Name Pantufa

Species

Colour

Gender

Birth year

Age

Figure 6: screenshot of insert_animal.php

Page usage:

1. Fills automatically the VAT of the owner and the animal name;
2. Choose the corresponding species from the database;
3. Add colour information;
4. Add gender information;
5. Add year of birth;
6. Add age.

Results in:

1. Inserting a new animal with the given information to the database associated to the owner/-client in question.

Notes:

1. This page is a consequence of a client not having any associated animals.

Listing 10: insert_animal_db.php

```
1 <?php
2 session_start();
3 ?>
4 <html>
5 <body>
6     <?php
7         require("connection.php");
8
9         $VAT_owner = $_SESSION["VAT_client"];
10        $a_name = $_SESSION['animal_name'];
11
12        $species = $_REQUEST['s_name'];
13        $colour = $_REQUEST['colour'];
14        $gender = $_REQUEST['gender'];
15        $birth_year = $_REQUEST['birth_year'];
16        $age = $_REQUEST['age'];
17
18
19        $stmt = $connection->prepare( "INSERT INTO animal VALUES (:a_name, :
20            VAT_owner,:species,
21                                     :colour,:gender, :birth_year, :age);");
22
23        if ($stmt == FALSE)
24        {
25            $info = $connection->errorInfo();
26            echo("<p>Error: {$info[2]}</p>");
27            exit();
28        }
29        $stmt->bindParam(':a_name', $a_name);
30        $stmt->bindParam(':VAT_owner', $VAT_owner);
31        $stmt->bindParam(':species', $species);
32        $stmt->bindParam(':colour', $colour);
33        $stmt->bindParam(':gender', $gender);
34        $stmt->bindParam(':birth_year', $birth_year);
35        $stmt->bindParam(':age', $age);
36
37        $stmt->execute();
38
39        $connection = null;
```

```

40     header('Location: check_animal.php');
41     ?>
42 </body>
43 </html>

```

Notes:

1. This page contains only the queries needed to insert an animal associated to a given owner/-client.

1.2 Task 2

Listing 11: list_consults.php

```

1 <?php
2 session_start();
3 $animal_name= $_SESSION['animal_name'];
4 $owner_vat= $_REQUEST['owner_vat'];
5 $_SESSION['owner_vat'] = $owner_vat;
6 ?>
7 <html>
8 <head>
9     <title> List of Consults </title>
10 </head>
11 <body>
12     <font face = "verdana" size = "8">
13         <center>
14             
15             <b> <font size="5"> <?php echo("<p>Records</p>"); echo("<p><font
16                 size = '4'> $animal_name | $owner_vat</font></p>"); ?> </font></b>
17
18             <?php
19                 require("connection.php");
20
21                 $stmt = $connection->prepare("SELECT date_timestamp FROM consult
22                 WHERE consult.name = :animal_name AND consult.VAT_owner = :owner_vat;");
23                 if ($stmt == FALSE)
24                 {
25                     $info = $connection->errorInfo();
26                     echo("<p>Error: {$info[2]}</p>");
27                     exit();
28                 }
29                 $stmt->bindParam(':animal_name', $animal_name);
30                 $stmt->bindParam(':owner_vat', $owner_vat);
31                 $stmt->execute();
32                 $result = $stmt->fetchAll();
33
34                 echo("<table border=\"0\" cellspacing=\"5\">\n");
35                 echo("<tr><td> <b>DATE</b></td></tr>");
36                 foreach($result as $row)
37                 {
38                     echo("<tr><td>");
39                     echo($row['date_timestamp']);
40                     echo("</td><td>");
41                     echo("<td><a href=\"consult_info.php?date_timestamp=\"");
42                     echo($row['date_timestamp']);
43                     echo("</a>>Consult Info</a></td>");
44                     echo("</td><td>");
45                     echo("<td> <a href=\"data_procedure.php?date_timestamp=\"");
46                     echo($row['date_timestamp']);
47                     echo("</a>> Blood Test Procedure Registration</a></td>\n");
48                 }

```

```

48         echo("</table>");
49
50         echo('<font size="3"><p><b> Register New Consult </b></p></font>')
51     ;
52     ?>
53     <form>
54     <input type="button" value="Register Consult" onclick="window.
55     location.href='data_consult.php'" />
56     </form>
57     <?php
58
59     $connection = null;
60     ?>
61     </center>
62     </font>
63 </body>
64 </html>

```

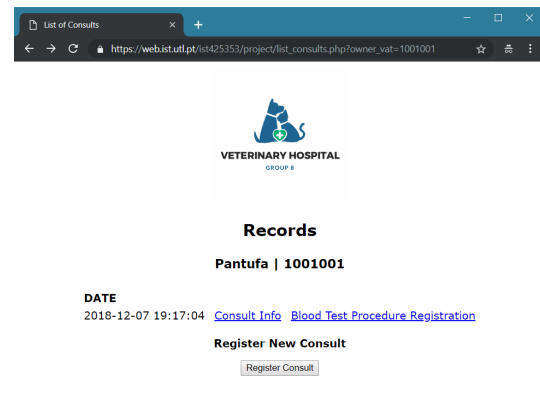
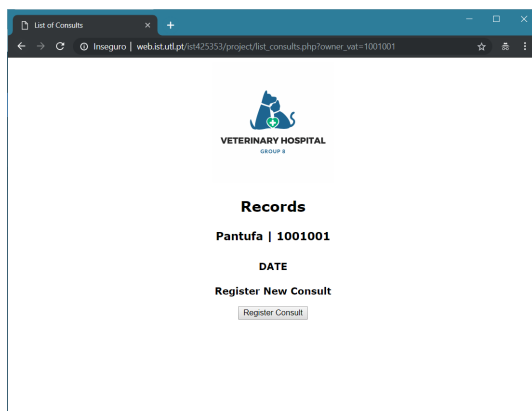


Figure 7: screenshots of list_consults.php

Page usage:

1. Displays the consults that correspond to a given animal. For this running example, the new animal doesn't have yet any consult records;
2. Clicking on "Consult Info" shows all records registered in the chosen consult of a certain animal at a certain time;
3. Clicking on "Blood Test Procedure Registration" allows the user to register a blood test to the chosen consult of a certain animal at a certain time;
4. Clicking on "Register Consult" allows the user to register a new consult associated to the animal (this is used in the running example).

Results in:

1. Either in the option of inserting a new consult associated to the animal;
2. Or in the option of choosing to see records of a certain consult;
3. Or in the option of inserting a new blood test to a certain consult.

Listing 12: data_consult.php

```

1 <?php
2 session_start();
3
4 $VAT_person = $_SESSION['VAT_client'];
5 $animal_name= $_SESSION['animal_name'];
6 $owner_vat= $_SESSION['owner_vat'];
7
8 ?>
9
10 <html>
11 <head>
12     <title> Data Consult </title>
13 </head>
14 <body>
15     <font face = "verdana" size = "8">
16         <center>
17             <form action="register_consult.php" method="post">
18                 
19                 <p> <b> <font size="5"> Consult Information Form </font></b> </p>
20                 <table>
21                     <?php
22                     echo("<tr><td>Animal Name</td><td>$animal_name</td></tr>");
23                     echo("<tr><td>VAT owner</td><td>$owner_vat</td></tr>");
24                     ?>
25                     <tr><td> S </td><td><input type="text" name="s" size="50" required
26 /></td></tr>
27                     <tr><td> O </td><td><input type="text" name="o" size="50" required
28 /></td></tr>
29                     <tr><td> A </td><td><input type="text" name="a" size="50" required
30 /></td></tr>
31                     <tr><td> P </td><td><input type="text" name="p" size="50" required
32 /></td></tr>
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54

```

```

55         </td></tr>
56
57         <tr><td> Weight </td><td><input type="number" name="weight"
required/></td></tr>
58
59         <tr><td>Diagnosis Code </td> <td>
60         <select name="code">
61             <?php
62
63                 $stmt = $connection->prepare("SELECT code FROM diagnosis_code
ORDER BY code;");
64
65                 if ($stmt == FALSE)
66                 {
67                     $info = $connection->errorInfo();
68                     echo("<p>Error: {$info[2]}</p>");
69                     exit();
70                 }
71
72                 $stmt->execute();
73                 $result = $stmt->fetchAll();
74
75                 foreach($result as $row)
76                 {
77                     $code = $row[code];
78                     echo("<option value=\"{$code}\">{$code}</option>");
79                 }
80                 $connection = null;
81             ?>
82         </select>
83     </td></tr>
84
85 </table>
86 <p><input type="submit"/></p>
87 </form>
88 </center>
89 </font>
90 </body>
91 </html>

```

The screenshot shows a web browser window with the address bar displaying 'web.ist.utl.pt/ist425353/project/data_consult.php'. The page header features a logo for 'VETERINARY HOSPITAL GROUP 8'. The main content is a 'Consult Information Form' with the following fields:

- Animal Name: Pantufa
- VAT owner: 1001001
- S: Consulta de Rotina
- O: Teste
- A: Teste
- P: Teste
- VAT Veterinary: 577708490
- Weight: 20
- Diagnosis Code: B-Ob

A 'Submeter' button is located at the bottom of the form.

Figure 8: screenshot of data_consult.php

Page usage:

1. Fills automatically the VAT of the owner and the animal name;
2. Add information about the **S**ubjective observation;
3. Add information about the **O**bjective observation;
4. Add information about the **A**ssessment;
5. Add information about the **P**lan;
6. Choose the corresponding Veterinary doctor from the database;
7. Add weight information;
8. Choose the corresponding diagnosis code from the database.

Results in:

1. Inserting a new consult with the given information to the database associated to a certain animal. The date is computed internally, with basis on the server date.

Notes:

1. When the user inserts a new consult, the date is automatically filled in respect to the date and time at the moment of insertion.

Listing 13: register_consult.php

```
1 <?php
2 session_start();
3 ?>
4 <html>
5 <body>
6   <?php
7     require("connection.php");
8
9     $vat_person = $_SESSION['VAT_client'];
10    $animal_name= $_SESSION['animal_name'];
11    $owner_vat= $_SESSION['owner_vat'];
12
13
14    $S = $_REQUEST['s'];
15    $O = $_REQUEST['o'];
16    $A = $_REQUEST['a'];
17    $P = $_REQUEST['p'];
18    $vat_vet= $_REQUEST['vat_vet'];
19    $weight = $_REQUEST['weight'];
20    $code = $_REQUEST['code'];
21
22    $today= date("Y-m-d H:i:s");
23
24
25    $stmt= $connection->prepare("INSERT INTO consult VALUES (:animal_name, :
26      owner_vat,:today,:S,:O,:A,:P,:vat_person,:vat_vet,:weight);
27    INSERT INTO consult_diagnosis VALUES(:code,:animal_name, :owner_vat,:today
28      );");
29
30    if ($stmt == FALSE)
31    {
32      $info = $connection->errorInfo();
33      echo("<p>Error: {$info[2]}</p>");
34      exit();
35    }
```

```

34 $stmt->bindParam(':animal_name', $animal_name);
35 $stmt->bindParam(':owner_vat', $owner_vat);
36 $stmt->bindParam(':today', $today);
37 $stmt->bindParam(':S', $S);
38 $stmt->bindParam(':O', $O);
39 $stmt->bindParam(':A', $A);
40 $stmt->bindParam(':P', $P);
41 $stmt->bindParam(':vat_person', $vat_person);
42 $stmt->bindParam(':vat_vet', $vat_vet);
43 $stmt->bindParam(':weight', $weight);
44 $stmt->bindParam(':code', $code);
45
46 $stmt->execute();
47 $connection = null;
48 header("Location: list_consults.php?owner_vat=$owner_vat");
49 ?>
50 </body>
51 </html>

```

Notes:

1. This page contains only the queries needed to insert a new consult associated to a certain animal and a certain date and time.

Listing 14: consult_info.php

```

1 <?php
2 session_start();
3 $animal_name= $_SESSION['animal_name'];
4 $owner_vat= $_SESSION['owner_vat'];
5 $timestamp = $_REQUEST['date_timestamp'];
6 ?>
7 <html>
8 <head>
9 <title> Consult Information </title>
10 </head>
11 <body>
12 <font face = "verdana" size = "8">
13 <center>
14 
15 <b> <font size="5"> <?php echo("<p>Consult Information</p>"); echo("<p>
16 ><font size = '4'> $animal_name | $owner_vat | $timestamp</font></p>");
17 ?> </font></b>
18
19 <?php
20 require("connection.php");
21
22 $stmt = $connection->prepare("SELECT species_name, colour, gender,
23 birth_year, age
24 FROM animal WHERE name = :animal_name AND VAT = :owner_vat;");
25 if ($stmt == FALSE)
26 {
27 $info = $connection->errorInfo();
28 echo("<p>Error: {$info[2]}</p>");
29 exit();
30 }
31 $stmt->bindParam(':animal_name', $animal_name);
32 $stmt->bindParam(':owner_vat', $owner_vat);
33 $stmt->execute();
34 $result = $stmt->fetchAll();
35
36 echo("<table border=\"0\" cellpadding=\"5\">\n");
37 foreach($result as $row)
38 {

```

```

36     echo("<tr><td><b>Animal Information</b></td></tr>");
37     echo("<tr><td><b>Species</b></td><td>");
38     echo($row['species_name']);
39     echo("</td></tr>");
40     echo("<tr><td><b>Colour</b></td><td>");
41     echo($row['colour']);
42     echo("</td></tr>");
43     echo("<tr><td><b>Gender</b></td><td>");
44     echo($row['gender']);
45     echo("</td></tr>");
46     echo("<tr><td><b>Birth Year</b></td><td>");
47     echo($row['birth_year']);
48     echo("</td></tr>");
49     echo("<tr><td><b>Age</b></td><td>");
50     echo($row['age']);
51     echo("</td></tr>");
52 }
53 echo("</table>");
54
55 $stmt = $connection->prepare("SELECT s, o, a, p, VAT_client, VAT_vet,
weight
56 FROM consult WHERE name = :animal_name AND VAT_owner = :owner_vat AND
date_timestamp = :dtimestamp;");
57 if ($stmt == FALSE)
58 {
59     $info = $connection->errorInfo();
60     echo("<p>Error: {$info[2]}</p>");
61     exit();
62 }
63 $stmt->bindParam(':animal_name', $animal_name);
64 $stmt->bindParam(':owner_vat', $owner_vat);
65 $stmt->bindParam(':dtimestamp', $timestamp);
66 $stmt->execute();
67 $result = $stmt->fetchAll();
68
69 echo("<p></p>");
70 echo("<table border=\"0\" cellspacing=\"5\">\n");
71 foreach($result as $row)
72 {
73     echo("<tr><td><b>Consult Information</b></td></tr>");
74     echo("<tr><td><b>S</b></td><td>");
75     echo($row['s']);
76     echo("</td></tr>");
77     echo("<tr><td><b>O</b></td><td>");
78     echo($row['o']);
79     echo("</td></tr>");
80     echo("<tr><td><b>A</b></td><td>");
81     echo($row['a']);
82     echo("</td></tr>");
83     echo("<tr><td><b>P</b></td><td>");
84     echo($row['p']);
85     echo("</td></tr>");
86     echo("<tr><td><b>Client VAT</b></td><td>");
87     echo($row['VAT_client']);
88     echo("</td></tr>");
89     echo("<tr><td><b>Veterinary VAT</b></td><td>");
90     echo($row['VAT_vet']);
91     echo("</td></tr>");
92     echo("<tr><td><b>Weight</b></td><td>");
93     echo($row['weight']);
94     echo("</td></tr>");
95 }

```

```

96     echo("</table>");
97
98     $stmt = $connection->prepare("SELECT code
99     FROM consult_diagnosis WHERE name = :animal_name AND VAT_owner = :
owner_vat AND date_timestamp = :dtimestamp;");
100     if ($stmt == FALSE)
101     {
102         $info = $connection->errorInfo();
103         echo("<p>Error: {$info[2]}</p>");
104         exit();
105     }
106     $stmt->bindParam(':animal_name', $animal_name);
107     $stmt->bindParam(':owner_vat', $owner_vat);
108     $stmt->bindParam(':dtimestamp', $timestamp);
109     $stmt->execute();
110     $result = $stmt->fetchAll();
111
112     echo("<p></p>");
113     echo("<table border=\"0\" cellpadding=\"5\">\n");
114     foreach($result as $row)
115     {
116         echo("<tr><td><b>Consult Diagnosis</b></td></tr>");
117         echo("<tr><td><b>Code</b></td><td>");
118         echo($row['code']);
119         echo("</td></tr>");
120     }
121     echo("</table>");
122
123     $stmt = $connection->prepare("SELECT name_med, lab, dosage, regime
124     FROM prescription WHERE name = :animal_name AND VAT_owner = :owner_vat
AND date_timestamp = :dtimestamp;");
125     if ($stmt == FALSE)
126     {
127         $info = $connection->errorInfo();
128         echo("<p>Error: {$info[2]}</p>");
129         exit();
130     }
131     $stmt->bindParam(':animal_name', $animal_name);
132     $stmt->bindParam(':owner_vat', $owner_vat);
133     $stmt->bindParam(':dtimestamp', $timestamp);
134     $stmt->execute();
135     $result = $stmt->fetchAll();
136
137     echo("<p></p>");
138     echo("<table border=\"0\" cellpadding=\"5\">\n");
139     $c = 1;
140     foreach($result as $row)
141     {
142         echo("<tr><td><b>Prescription</b></td><td>");
143         echo($c);
144         echo("</td></tr>");
145         echo("<tr><td><b>Med. Name</b></td><td>");
146         echo($row['name_med']);
147         echo("</td></tr>");
148         echo("<tr><td><b>Lab</b></td><td>");
149         echo($row['lab']);
150         echo("</td></tr>");
151         echo("<tr><td><b>Dosage</b></td><td>");
152         echo($row['dosage']);
153         echo("</td></tr>");
154         echo("<tr><td><b>Regime</b></td><td>");
155         echo($row['regime']);

```

```

156         echo("</td></tr>");
157         $c = $c + 1;
158     }
159     echo("</table>");
160
161
162
163
164     $stmt = $connection->prepare("SELECT descripton
165     FROM procedure_consult WHERE name = :animal_name AND VAT_owner = :
owner_vat AND date_timestamp = :dtimestamp;");
166     if ($stmt == FALSE)
167     {
168         $info = $connection->errorInfo();
169         echo("<p>Error: {$info[2]}</p>");
170         exit();
171     }
172     $stmt->bindParam(':animal_name', $animal_name);
173     $stmt->bindParam(':owner_vat', $owner_vat);
174     $stmt->bindParam(':dtimestamp', $timestamp);
175     $stmt->execute();
176     $result = $stmt->fetchAll();
177
178     echo("<p></p>");
179     echo("<table border=\"0\" cellpadding=\"5\">\n");
180     echo("<tr><td><b>Consult Procedure</b></td></tr>");
181     foreach($result as $row)
182     {
183         echo("<tr><td><b>Procedure </b></td><td>");
184         echo($row['descripton']);
185         echo("</td></tr>");
186     }
187     echo("</table>");
188
189
190     $stmt = $connection->prepare("SELECT indicator_name,value,
type_indicator
191     FROM produced_indicator left outer join indicator on (indicator_name=
indicator.name)
192     WHERE produced_indicator.name = :animal_name AND VAT_owner = :
owner_vat AND date_timestamp = :dtimestamp;");
193     if ($stmt == FALSE)
194     {
195         $info = $connection->errorInfo();
196         echo("<p>Error: {$info[2]}</p>");
197         exit();
198     }
199     $stmt->bindParam(':animal_name', $animal_name);
200     $stmt->bindParam(':owner_vat', $owner_vat);
201     $stmt->bindParam(':dtimestamp', $timestamp);
202     $stmt->execute();
203     $result = $stmt->fetchAll();
204
205
206     echo("<table border=\"1\" cellpadding=\"5\">\n");
207
208     echo("<tr><td><b>Procedure Indicators </b></td></tr>");
209     echo("<tr><td><b>Type</b></td><td> <b>Indicator Name</b> </td><td> <b>
Value </td></tr>");
210
211
212     foreach($result as $row)

```

```

213 {
214
215     if ($row['type_indicator']==1 )
216     {
217         echo("<tr> <td> Blood </td>");
218     }
219     else
220     {
221         echo(" <tr> <td> Urine </td>");
222     }
223
224     echo("<td>");
225     echo($row['indicator_name']);
226     echo("</td>");
227
228     echo("<td>");
229     echo($row['value']);
230     echo("</td></tr>");
231
232 }
233 echo("</table>");
234
235 $connection = null;
236
237 ?>
238
239 </center>
240 </font>
241 </body>
242 </html>

```

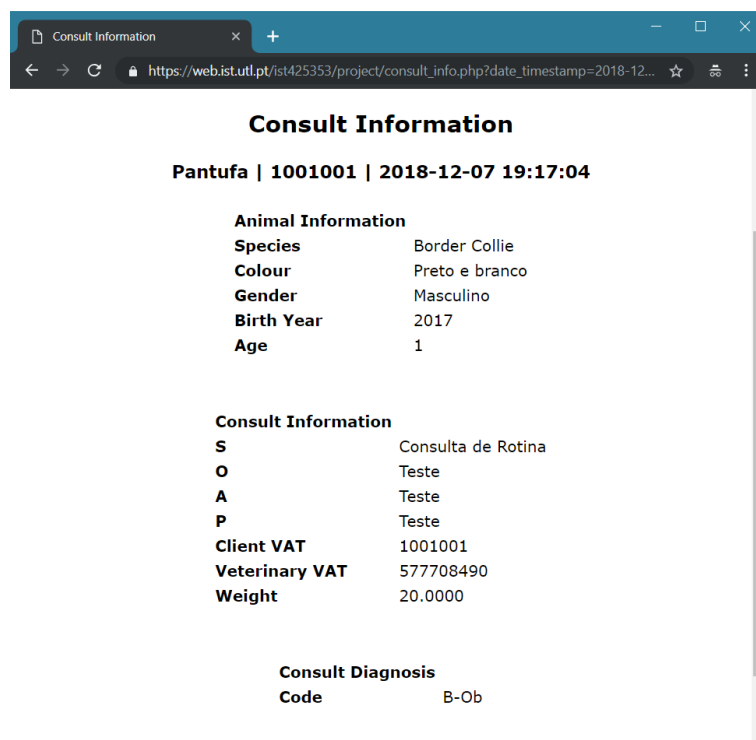


Figure 9: screenshot of consult_info.php

Page usage:

1. This page displays all the information associated to a consult of a certain animal, that oc-

curred at a certain date and time, including animal information, consult information, consult diagnosis, prescriptions and procedures information.

Notes:

1. For this running example the consult doesn't have information filled for all cases (for example, the consult doesn't have blood tests appended to it or prescriptions). Later we show a more complete example.

1.3 Task 3

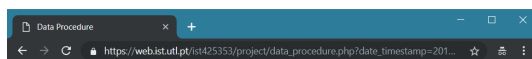
Listing 15: data_procedure.php

```
1 <?php
2 session_start();
3 $animal_name= $_SESSION['animal_name'];
4 $owner_vat= $_SESSION['owner_vat'];
5 $date_timestamp = $_REQUEST['date_timestamp'];
6 $_SESSION['date_timestamp']= $date_timestamp;
7 ?>
8 <html>
9 <head>
10 <title> Data Procedure </title>
11 </head>
12 <body>
13 <font face = "verdana" size = "8">
14 <center>
15 <form action="register_procedure.php" method="POST">
16
17 
18 <p> <b> <font size="5"> Procedure Form </font></b> </p>
19
20 <table>
21 <?php
22 echo("<tr><td>Animal Name</td><td>$animal_name</td></tr>");
23 echo("<tr><td>VAT owner</td><td>$owner_vat</td></tr>");
24 ?>
25 <tr><td>VAT Assistant</td> <td>
26 <select name="vat_ass">
27 <?php
28 require("connection.php");
29 $stmt = $connection->prepare("SELECT vat FROM assistant
ORDER BY vat;");
30 if ($stmt == FALSE)
31 {
32 $info = $connection->errorInfo();
33 echo("<p>Error: {$info[2]}</p>");
34 exit();
35 }
36 $stmt->execute();
37 $result = $stmt->fetchAll();
38 foreach($result as $row)
39 {
40 $vat = $row[vat];
41 echo("<option value=\"\$vat\">$vat</option>");
42 }
43 ?>
44 </select>
45 </td></tr>
46 <tr><td> Indicator Value </td><td><input type="number" name="
value" required/></td></tr>
47 <tr><td> Indicator name</td> <td>
48 <select name="indicator">
```

```

49         <?php
50             $stmt = $connection->prepare("SELECT * FROM indicator
WHERE type_indicator=1 ORDER BY name;");
51             if ($stmt == FALSE)
52             {
53                 $info = $connection->errorInfo();
54                 echo("<p>Error: {$info[2]}</p>");
55                 exit();
56             }
57             $stmt->execute();
58             $result = $stmt->fetchAll();
59             foreach($result as $row)
60             {
61                 echo("<option value=\"{$row[name]}\">{$row[name]} - $row[
units] </option>");
62             }
63             $connection = null;
64         ?>
65     </select>
66 </td></tr>
67 </table>
68 <p><input type="submit"/></p>
69 </form>
70 </center>
71 </font>
72 </body>
73 </html>

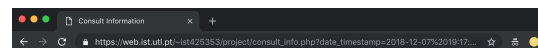
```



VETERINARY HOSPITAL
GROUP 3

Procedure Form

Animal Name Pantufa
VAT owner 1001001
VAT Assistant 283275555
Indicator Value 85
Indicator name Lymphocytes - % of WBC



Consult Information

S Consulta de Rotina
O Teste
A Teste
P Teste
Client VAT 1001001
Veterinary VAT 577708490
Weight 20.0000

Consult Diagnosis
Code B-Ob

Consult Procedure

Procedure Blood Analysis

Type	Indicator Name	Value
Blood	Lymphocytes	85.0000

Figure 10: screenshots of data_procedure.php and the respective updated consult_info.php

Page usage:

1. Fills automatically the name of the animal and the VAT of the owner;
2. Choose the assistant from the database;
3. Add the indicator value;
4. Choose the indicator (blood test indicator) from the database.

Results in:

1. Insertion of the new blood test procedure to a certain consult associated to a certain animal, given the information filled in the form.

Listing 16: register_procedure.php

```

1 <?php
2 session_start();
3 ?>
4 <html>
5 <body>
6     <?php
7         require("connection.php");
8         $actual_dir= dirname("https://$_SERVER[HTTP_HOST]$_SERVER[REQUEST_URI]");
9
10        $animal_name= $_SESSION['animal_name'];
11        $owner_vat= $_SESSION['owner_vat'];
12        $date_timestamp = strtotime($_SESSION['date_timestamp']);
13        $time = getdate($date_timestamp);
14        $y = $time['year'];
15        $m = $time['mon'];
16        $d = $time['mday'];
17        $h = $time['hours'];
18        $i = $time['minutes'];
19        $s = $time['seconds'];
20
21        $vat_ass= $_REQUEST['vat_ass'];
22        $value = $_REQUEST['value'];
23        $indicator = $_REQUEST['indicator'];
24
25        $stmt = $connection->prepare("SELECT COUNT(num)+1 AS n
26        FROM procedure_consult
27        WHERE procedure_consult.name = :animal_name
28        AND procedure_consult.VAT_owner = :owner_vat
29        AND procedure_consult.date_timestamp = '$y-$m-$d $h:$i:$s'");
30        if ($stmt == FALSE)
31        {
32            $info = $connection->errorInfo();
33            echo("<p>Error: {$info[2]}</p>");
34            exit();
35        }
36        $stmt->bindParam(':animal_name', $animal_name);
37        $stmt->bindParam(':owner_vat', $owner_vat);
38        $stmt->execute();
39        $result = $stmt->fetch();
40        $num = $result['n'];
41
42
43        $connection->beginTransaction();
44
45        $stmt1 = $connection->prepare("INSERT INTO procedure_consult VALUES (:
46        animal_name, :owner_vat, '$y-$m-$d $h:$i:$s', :num, 'Blood Analysis');");
47        ;
48        if ($stmt1 == FALSE)
49        {
50            $info = $connection->errorInfo();
51            echo("<p>Error: {$info[2]}</p>");
52            exit();
53        }
54        $stmt2 = $connection->prepare("INSERT INTO test_procedure VALUES (:
55        animal_name, :owner_vat, '$y-$m-$d $h:$i:$s', :num, 'blood');");
56        if ($stmt2 == FALSE)
57        {
58            $info = $connection->errorInfo();
59            echo("<p>Error: {$info[2]}</p>");

```

```

57     exit();
58 }
59
60 $stmt3 = $connection->prepare("INSERT INTO produced_indicator VALUES(:
    animal_name, :owner_vat, '$y-$m-$d $h:$i:$s', :num, :indicator, :value);
    ");
61 if ($stmt3 == FALSE)
62 {
63     $info = $connection->errorInfo();
64     echo("<p>Error: {$info[2]}</p>");
65     exit();
66 }
67
68 $stmt4= $connection->prepare("INSERT INTO performed VALUES(:animal_name, :
    owner_vat, '$y-$m-$d $h:$i:$s', :num, :vat_ass);");
69
70 if ($stmt4 == FALSE)
71 {
72     $info = $connection->errorInfo();
73     echo("<p>Error: {$info[2]}</p>");
74     exit();
75 }
76
77 $stmt1->bindParam(':animal_name', $animal_name);
78 $stmt1->bindParam(':owner_vat', $owner_vat);
79 $stmt1->bindParam(':num', $num);
80
81 $stmt2->bindParam(':animal_name', $animal_name);
82 $stmt2->bindParam(':owner_vat', $owner_vat);
83 $stmt2->bindParam(':num', $num);
84
85 $stmt3->bindParam(':animal_name', $animal_name);
86 $stmt3->bindParam(':owner_vat', $owner_vat);
87 $stmt3->bindParam(':num', $num);
88 $stmt3->bindParam(':indicator', $indicator);
89 $stmt3->bindParam(':value', $value);
90
91 $stmt4->bindParam(':animal_name', $animal_name);
92 $stmt4->bindParam(':owner_vat', $owner_vat);
93 $stmt4->bindParam(':num', $num);
94 $stmt4->bindParam(':vat_ass', $vat_ass);
95
96
97 $result1= $stmt1->execute();
98 $result2= $stmt2->execute();
99 $result3= $stmt3->execute();
100 $result4= $stmt4->execute();
101
102
103 if($result1 && $result2 && $result3 && $result4)
104 {
105
106     $connection->commit();
107     $connection = null;
108     header("Location: $actual_dir/list_consults.php?owner_vat=$owner_vat");
109 }
110
111 else{
112     $connetion->rollback();
113     $connection = null;
114     echo "error";
115 }

```

```
116  
117     ?>  
118 </body>  
119 </html>
```

Notes:

1. This page contains only the needed queries to insert the procedure information in the respective tables and associate that procedure to a certain consult.
2. The insertion of the data was made in the context of a single transaction.

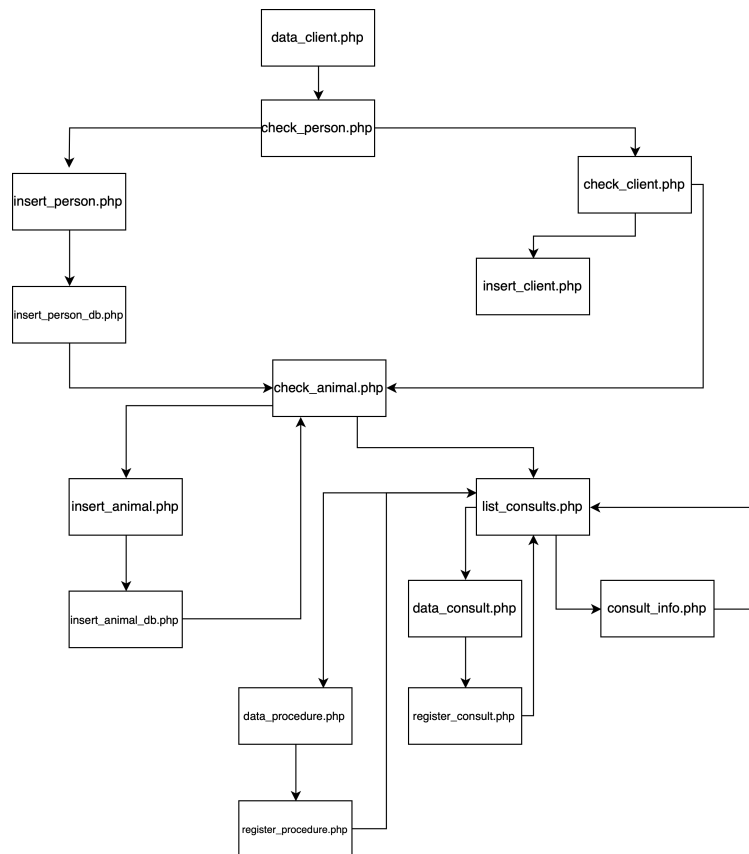


Figure 11: Files diagram

2 Another Example

VETERINARY HOSPITAL
GROUP 8

Check Client & Animal

VAT Client

Animal Name

Owner Name

Figure 12: screenshot of an example of data_client.php

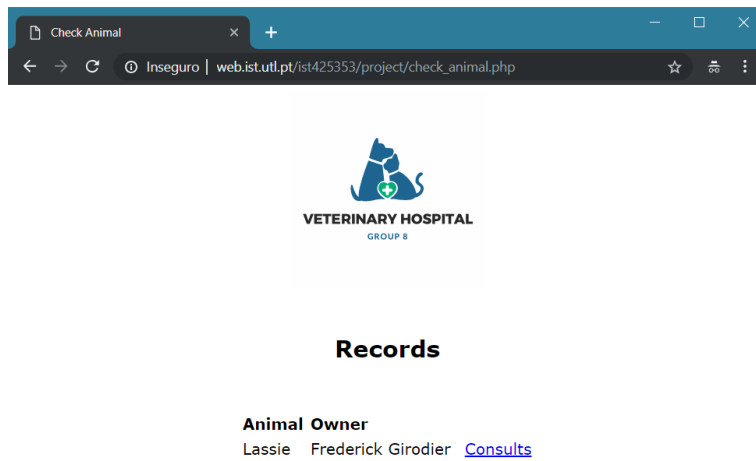


Figure 13: screenshot of an example of check_animal.php

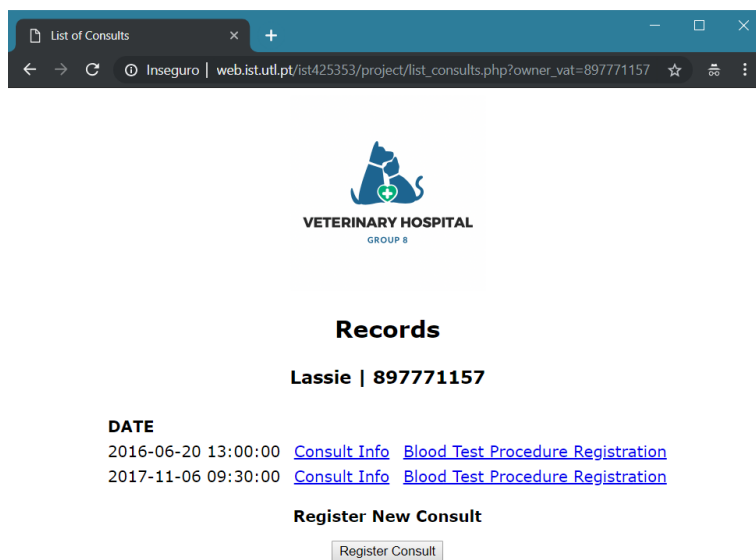


Figure 14: screenshot of an example of list_consults.php

Consult Information

Lassie | 897771157 | 2017-11-06 09:30:00

Animal Information

Species: Labrador
 Colour: Brown
 Gender: Female
 Birth Year: 2015
 Age: 3

Consult Information

S: Asthma
 O: Obese
 A: Loss of mobility, nose condition, asthmatic
 P: Rigorous diet, daily walks, weekly gradually intense exercise

Client VAT: 897771157
 Veterinary VAT: 246943762
 Weight: 49.0000

Consult Diagnosis

Code: B-Ob

Consult Information

Consult Diagnosis Code: B-Ob

Consult Procedure

Procedure: Blood Analysis
 Procedure: Urinalysis

Type	Indicator Name	Value
Blood	Creatinine level	0.5000
Blood	Erythrocyte	40.0000
Blood	Lymphocytes	40.0000
Blood	Monocytes	10.0000
Blood	Neutrophils	45.0000
Blood	Potassium	13.0000
Blood	Sodium	325.0000
Blood	Vitamin D	79.0000
Urine	Bilirubin	0.1000
Urine	Glucose	10.0000
Urine	Ketones	0.0100
Urine	pH	6.0000
Urine	Protein	50.0000
Urine	Specific Gravity	1.0000
Urine	Urine Clarity	3.2500
Urine	Urobilinogen	0.5000

Figure 15: screenshots of an example of consult_info.php with procedures

Data Consult

web.ist.utl.pt/ist425353/project/data_consult.php

VETERINARY HOSPITAL GROUP 8

Consult Information Form

Animal Name: Lassie
 VAT owner: 897771157
 S:
 O:
 A:
 P:
 VAT Veterinary: 577708490
 Weight: 20
 Diagnosis Code: B-Ob

List of Consults

web.ist.utl.pt/ist425353/project/list_consults.php?owner_vat=897771157

VETERINARY HOSPITAL GROUP 8

Records

Lassie | 897771157

DATE

2016-06-20 13:00:00 [Consult Info](#) [Blood Test Procedure Registration](#)
 2017-11-06 09:30:00 [Consult Info](#) [Blood Test Procedure Registration](#)
 2018-12-07 19:26:25 [Consult Info](#) [Blood Test Procedure Registration](#)

Register New Consult

Figure 16: screenshots of an example of insertion of a new consult and the updated list

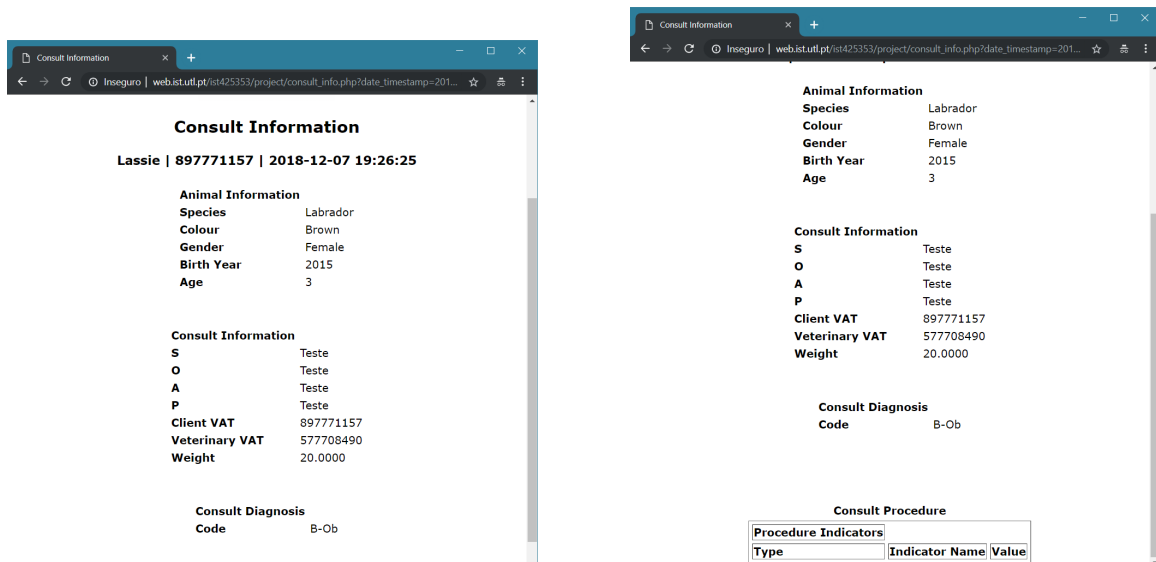


Figure 17: screenshots of an example of the records of the newly inserted consult (without procedures yet)

VETERINARY HOSPITAL
GROUP 8

Procedure Form

Animal Name Lassie

VAT owner 897771157

VAT Assistant 407363612

Indicator Value 85

Indicator name Erythrocyte - % of RBC

Submitter

Figure 18: screenshot of an example of the insertion of a new blood test

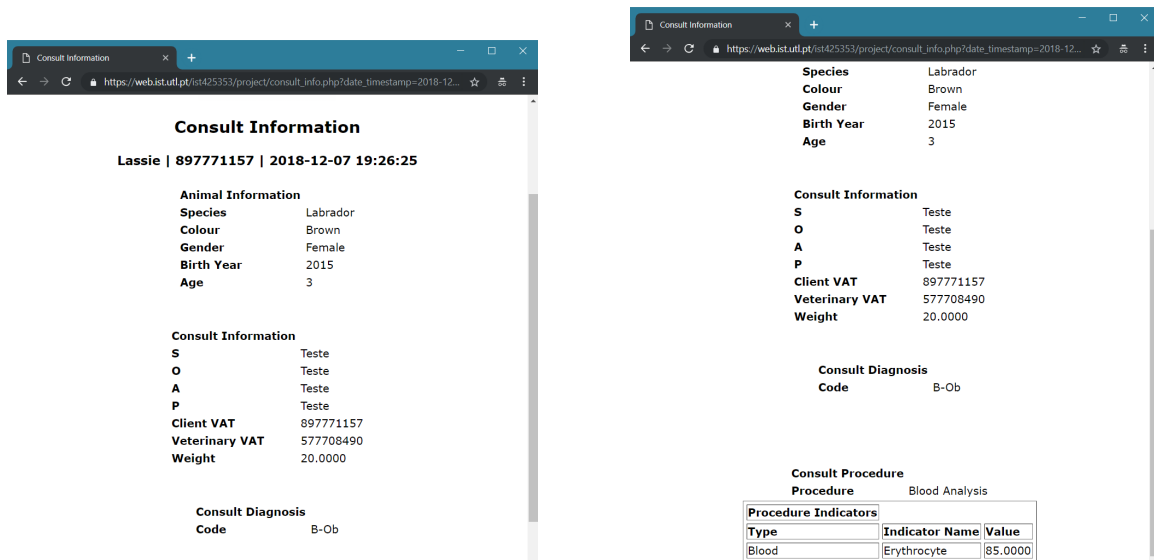


Figure 19: screenshots of an example of the records of the newly inserted consult with the newly inserted blood test

These next screenshots are from another animal/owner. They were added to show prescriptions and different procedures on the consult information page.

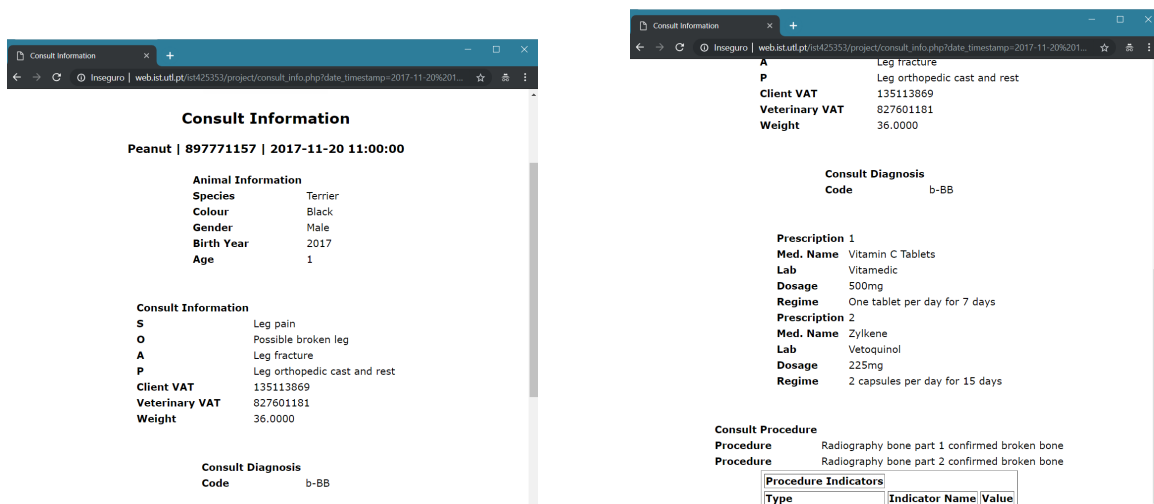


Figure 20: screenshots of an example of a consult information with prescriptions and different procedures

3 Functions, Triggers and Stored Procedures

3.1 TRIGGER update_age

```
1 -- 1 trigger
2 delimiter $$
3 CREATE TRIGGER update_age after insert ON consult for each row
4 BEGIN
5
6 UPDATE animal
7 SET age = YEAR(CURRENT_DATE) - birth_year
8 WHERE animal.name=new.name
9 AND animal.VAT=new.VAT_owner;
10
11 END$$
12
13 delimiter ;
```

```
MySQL [ist163070]> INSERT INTO animal VALUES ('Scooby',849906464, 'Bichon Frise', 'Brown', 'Male', 2013, 2);
Query OK, 1 row affected (0.00 sec)

MySQL [ist163070]> SELECT * FROM animal;
+-----+-----+-----+-----+-----+-----+-----+
| name | VAT | species_name | colour | gender | birth_year | age |
+-----+-----+-----+-----+-----+-----+-----+
| Bailey | 633821481 | Persian | Grey | Female | 2017 | 1 |
| Buddy | 287747154 | Mammal | Grey | Female | 2013 | 5 |
| Charlie | 141597822 | Iguana | Green | Male | 2017 | 1 |
| Charlie | 633821481 | Cat | Yellow | Male | 2015 | 3 |
| Flipflop | 123456788 | Border Collie | Black and white | Male | 2017 | 1 |
| Kiki | 123456788 | Cockatoo | Red, blue, yellow | Female | 2016 | 2 |
| Lassie | 897771157 | Labrador | Brown | Female | 2015 | 3 |
| Mufasa | 789658446 | Siberian | Grey | Male | 2015 | 3 |
| Peanut | 607945198 | Parrot | Red | Male | 2010 | 8 |
| Peanut | 897771157 | Terrier | Black | Male | 2017 | 1 |
| Pluto | 897771157 | Dog | Black | Male | 2010 | 8 |
| Pocas | 700170646 | Rabbit | White | Female | 2018 | 0 |
| Pumba | 176716608 | Crossed Breed | Brown | Male | 2016 | 2 |
| Scooby | 141597822 | Bichon Frise | Brown | Male | 2013 | 5 |
| Scooby | 577708490 | Golden Retriever | Brown | Male | 2014 | 4 |
| Scooby | 849906464 | Bichon Frise | Brown | Male | 2013 | 2 |
| Simba | 577708490 | Australian Shepherd | Black, White and brown | Male | 2010 | 8 |
| Sirius | 849906464 | Snake | Green | Male | 2015 | 3 |
| Waffles | 744022800 | Golden Fish | Red | Female | 2014 | 4 |
| Yara | 789658446 | Labrador | Brown | Male | 2015 | 3 |
+-----+-----+-----+-----+-----+-----+-----+
20 rows in set (0.00 sec)

MySQL [ist163070]> INSERT INTO consult VALUES ('Scooby',849906464, '2018-05-17 11:30:00', 'Skin lesions', 'Swollen Throat, Elevated Temperatura', 'Minor Infection', 'Antibiotic', 577708490, 789658446, 12);
Query OK, 1 row affected (0.00 sec)

MySQL [ist163070]> SELECT * FROM animal;
+-----+-----+-----+-----+-----+-----+-----+
| name | VAT | species_name | colour | gender | birth_year | age |
+-----+-----+-----+-----+-----+-----+-----+
| Bailey | 633821481 | Persian | Grey | Female | 2017 | 1 |
| Buddy | 287747154 | Mammal | Grey | Female | 2013 | 5 |
| Charlie | 141597822 | Iguana | Green | Male | 2017 | 1 |
| Charlie | 633821481 | Cat | Yellow | Male | 2015 | 3 |
| Flipflop | 123456788 | Border Collie | Black and white | Male | 2017 | 1 |
| Kiki | 123456788 | Cockatoo | Red, blue, yellow | Female | 2016 | 2 |
| Lassie | 897771157 | Labrador | Brown | Female | 2015 | 3 |
| Mufasa | 789658446 | Siberian | Grey | Male | 2015 | 3 |
| Peanut | 607945198 | Parrot | Red | Male | 2010 | 8 |
| Peanut | 897771157 | Terrier | Black | Male | 2017 | 1 |
| Pluto | 897771157 | Dog | Black | Male | 2010 | 8 |
| Pocas | 700170646 | Rabbit | White | Female | 2018 | 0 |
| Pumba | 176716608 | Crossed Breed | Brown | Male | 2016 | 2 |
| Scooby | 141597822 | Bichon Frise | Brown | Male | 2013 | 5 |
| Scooby | 577708490 | Golden Retriever | Brown | Male | 2014 | 4 |
| Scooby | 849906464 | Bichon Frise | Brown | Male | 2013 | 5 |
| Simba | 577708490 | Australian Shepherd | Black, White and brown | Male | 2010 | 8 |
| Sirius | 849906464 | Snake | Green | Male | 2015 | 3 |
| Waffles | 744022800 | Golden Fish | Red | Female | 2014 | 4 |
| Yara | 789658446 | Labrador | Brown | Male | 2015 | 3 |
+-----+-----+-----+-----+-----+-----+-----+
20 rows in set (0.01 sec)
```

Figure 21: screenshot of the result of TRIGGER update_age

3.2 TRIGGERS set insert_assistant

```
1 -- 2 triggers
2 delimiter $$
3 CREATE TRIGGER insert_assistant before insert ON assistant for each row
4 BEGIN
5
6     if new.VAT=(SELECT vat FROM veterinary where veterinary.vat= new.vat)
7     then
8         SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'A veterinary doctor cannot
9         simultaneously be an assistant in the hospital';
10    END if;
11 END$$
12
13 delimiter ;
14
15 delimiter $$
16 CREATE TRIGGER insert_vet before insert ON veterinary for each row
17 BEGIN
18
19     if new.VAT=(SELECT vat FROM assistant where assistant.vat= new.vat)
20     then
21         SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'An assistant in the
22         hospital cannot simultaneously be a veterinary doctor';
23    END if;
24 END$$
25
26 delimiter ;
27
28 delimiter $$
29 CREATE TRIGGER insert_assistant before update ON assistant for each row
30 BEGIN
31
32     if new.VAT=(SELECT vat FROM veterinary where veterinary.vat= new.vat
33 ) then
34         SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'A veterinary doctor
35         cannot simultaneously be an assistant in the hospital';
36    END if;
37 END$$
38
39 delimiter ;
40
41 delimiter $$
42 CREATE TRIGGER insert_vet before update ON veterinary for each row
43 BEGIN
44
45     if new.VAT=(SELECT vat FROM assistant where assistant.vat= new.vat
46 ) then
47         SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'An assistant in the
48         hospital cannot simultaneously be a veterinary doctor';
49    END if;
50 END$$
51
52 delimiter ;
```

```
MySQL [ist163070]> SELECT * FROM veterinary;
```

VAT	specialization	bio
246943762	Internal Medicine	Graduated in 2011 from University of Pennsylvania School of Veterinary Medicine. Works in the hospital since 2012.
577708490	Surgery	Graduated in 2012 from University of Pennsylvania School of Veterinary Medicine. Works in the hospital since 2015.
680810229	Anesthesia	Graduated in 2016 from LSU School of Veterinary Medicine. Works in the hospital since 2015.
789658446	Dermatology	Graduated in 2005 from LSU School of Veterinary Medicine. Works in the hospital since 2009.
827601181	Radiology	Graduated in 2001 from UC Davis School of Veterinary Medicine. Works in the hospital since 2002.

```
5 rows in set (0.00 sec)

MySQL [ist163070]> INSERT INTO assistant VALUES (827601181);
ERROR 1644 (45000): A veterinary doctor cannot simultaneously be an assistant in the hospital
```

Figure 22: screenshot of the result of TRIGGER insert__assistant before insert on assistant

3.3 TRIGGERS set insert__phonenummer

```
1 -- 3 triggers
2 delimiter $$
3 create trigger insert_phonenumber before insert on phone_number for each row
4 begin
5     if new.phone = (SELECT phone from phone_number where phone=new.phone)
6     then
7         SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Cannot have the same phone
8         number';
9     END if;
10 end$$
11
12 delimiter ;
13
14 delimiter $$
15 create trigger update_phonenumber before update on phone_number for each
16 row
17 begin
18     if new.phone = (SELECT phone from phone_number where phone=new.phone)
19 then
20     SIGNAL SQLSTATE '45000' SET MESSAGE_TEXT = 'Cannot have the same phone
21     number';
22     END if;
23 end$$
24
25 delimiter ;
```

```
MySQL [ist163070]> SELECT * FROM phone_number;
```

VAT	phone
123456789	3798396280
135113869	2187887871
141597822	5993603401
141597822	9131626460
176716608	4732696800
241819611	1247015695
246943762	5271842306
283275555	237468988
287747154	5214228545
407363612	620369640
577708490	3979331174
607945198	6367462510
639214481	3143426892
657202210	335020218
680810229	4261969611
700170646	337217347
744022800	1185107317
744022800	9156390911
789658446	1381350727
789658446	8936220604
794475858	6523006266
827601181	3597853857
839906464	890350122
897771157	2859362509

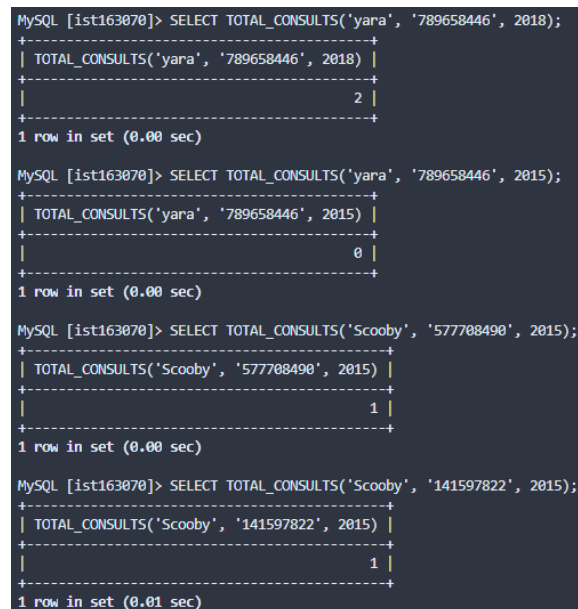
```
24 rows in set (0.00 sec)

MySQL [ist163070]> INSERT INTO phone_number VALUES (897771157, 890350122);
ERROR 1644 (45000): Cannot have the same phone number
```

Figure 23: screenshot of the result of TRIGGER insert_phonenumber before insert on phone_number

3.4 FUNCTION total_consults

```
1 -- 4 Function
2 DELIMITER $$
3 DROP FUNCTION IF EXISTS TOTAL_CONSULTS $$
4 CREATE FUNCTION total_consults(
5     animal_name varchar(255),
6     vat INTEGER,
7     date_year YEAR)
8     RETURNS INTEGER
9     BEGIN
10         DECLARE counter INTEGER;
11         SELECT COUNT(*) INTO counter
12         FROM consult
13         WHERE name = animal_name
14             AND VAT_owner = vat
15             AND EXTRACT(YEAR FROM date_timestamp) = date_year;
16         RETURN counter;
17     END$$
18 DELIMITER ;
```



The screenshot shows a MySQL terminal window with the following commands and results:

```
MySQL [ist163070]> SELECT TOTAL_CONSULTS('yara', '789658446', 2018);
+-----+
| TOTAL_CONSULTS('yara', '789658446', 2018) |
+-----+
| 2 |
+-----+
1 row in set (0.00 sec)
```

```
MySQL [ist163070]> SELECT TOTAL_CONSULTS('yara', '789658446', 2015);
+-----+
| TOTAL_CONSULTS('yara', '789658446', 2015) |
+-----+
| 0 |
+-----+
1 row in set (0.00 sec)
```

```
MySQL [ist163070]> SELECT TOTAL_CONSULTS('Scooby', '577708490', 2015);
+-----+
| TOTAL_CONSULTS('Scooby', '577708490', 2015) |
+-----+
| 1 |
+-----+
1 row in set (0.00 sec)
```

```
MySQL [ist163070]> SELECT TOTAL_CONSULTS('Scooby', '141597822', 2015);
+-----+
| TOTAL_CONSULTS('Scooby', '141597822', 2015) |
+-----+
| 1 |
+-----+
1 row in set (0.01 sec)
```

Figure 24: screenshot of the results of calling FUNCTION total_consults

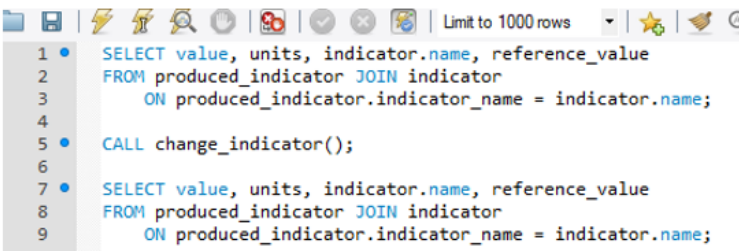
3.5 PROCEDURE change_indicator

```
1 -- 5 Procedure
2 DROP PROCEDURE IF EXISTS CHANGE_INDICATOR;
3 DELIMITER $$
4 CREATE PROCEDURE change_indicator ()
5     BEGIN
6         UPDATE produced_indicator
7         SET VAT_owner = VAT_owner,
8             date_timestamp = date_timestamp,
9             num = num,
10            indicator_name = indicator_name,
11            value = value/10
12         WHERE (VAT_owner, date_timestamp, num, indicator_name, value
13             ) IN (
```

```

13         SELECT VAT_owner, date_timestamp, num,
14         indicator_name, value
15         FROM(
16             SELECT VAT_owner, date_timestamp, num,
17             indicator_name, value
18             FROM produced_indicator JOIN indicator
19             ON produced_indicator.indicator_name
20             = indicator.name
21             WHERE units like '%mg%') AS name_result);
22     UPDATE indicator
23     SET units = REPLACE(units, 'mg', 'cg'),
24     reference_value = reference_value/10
25     WHERE units like '%mg%';
26 END$$
27 DELIMITER ;

```



```

1 SELECT value, units, indicator.name, reference_value
2 FROM produced_indicator JOIN indicator
3 ON produced_indicator.indicator_name = indicator.name;
4
5 CALL change_indicator();
6
7 SELECT value, units, indicator.name, reference_value
8 FROM produced_indicator JOIN indicator
9 ON produced_indicator.indicator_name = indicator.name;

```

value	units	name	reference_value
2.0000	ng/ML	Creatinine level	100.0000
0.5000	ng/ML	Creatinine level	100.0000
3.0000	ng/ML	Creatinine level	100.0000
3.0000	ng/ML	Creatinine level	100.0000
60.0000	ng/mL	Vitamin D	75.0000
79.0000	ng/mL	Vitamin D	75.0000
0.1000	mg/dL	Bilirubin	0.1000
0.1000	mg/dL	Bilirubin	0.1000
7.0000	mg/dL	Glucose	0.0000
10.0000	mg/dL	Glucose	0.0000
0.0500	mg/dL	Ketones	0.0000
0.0100	mg/dL	Ketones	0.0000
18.0000	mg/dL	Potassium	15.0000
13.0000	mg/dL	Potassium	15.0000
55.0000	mg/dL	Protein	50.0000
50.0000	mg/dL	Protein	50.0000
318.0000	mg/dL	Sodium	320.0000
325.0000	mg/dL	Sodium	320.0000
1.0200	mg/dL	Specific Gravity	1.0300
1.0000	mg/dL	Specific Gravity	1.0300
0.5000	mg/dL	Urobilinogen	0.6000
0.5000	mg/dL	Urobilinogen	0.6000
42.0000	% of WBC	Lymphocytes	30.0000
40.0000	% of WBC	Lymphocytes	30.0000
10.0000	% of WBC	Monocytes	6.0000
10.0000	% of WBC	Monocytes	6.0000
55.0000	% of WBC	Neutrophils	50.0000
45.0000	% of WBC	Neutrophils	50.0000
49.0000	% of RBC	Erythrocyte	40.0000
40.0000	% of RBC	Erythrocyte	40.0000
7.0000	pH		7.0000
6.0000	pH		7.0000
6.0000	pH		7.0000
3.0000		Urine Clarity	2.5000
3.2500		Urine Clarity	2.5000
3.2500		Urine Clarity	2.5000

value	units	name	reference_value
2.0000	ng/ML	Creatinine level	100.0000
0.5000	ng/ML	Creatinine level	100.0000
3.0000	ng/ML	Creatinine level	100.0000
3.0000	ng/ML	Creatinine level	100.0000
60.0000	ng/mL	Vitamin D	75.0000
79.0000	ng/mL	Vitamin D	75.0000
0.0100	cg/dL	Bilirubin	0.0100
0.0100	cg/dL	Bilirubin	0.0100
0.7000	cg/dL	Glucose	0.0000
1.0000	cg/dL	Glucose	0.0000
0.0050	cg/dL	Ketones	0.0000
0.0010	cg/dL	Ketones	0.0000
1.8000	cg/dL	Potassium	1.5000
1.3000	cg/dL	Potassium	1.5000
5.5000	cg/dL	Protein	5.0000
5.0000	cg/dL	Protein	5.0000
31.8000	cg/dL	Sodium	32.0000
32.5000	cg/dL	Sodium	32.0000
0.1020	cg/dL	Specific Gravity	0.1030
0.1000	cg/dL	Specific Gravity	0.1030
0.0500	cg/dL	Urobilinogen	0.0600
0.0500	cg/dL	Urobilinogen	0.0600
42.0000	% of WBC	Lymphocytes	30.0000
40.0000	% of WBC	Lymphocytes	30.0000
10.0000	% of WBC	Monocytes	6.0000
10.0000	% of WBC	Monocytes	6.0000
55.0000	% of WBC	Neutrophils	50.0000
45.0000	% of WBC	Neutrophils	50.0000
49.0000	% of RBC	Erythrocyte	40.0000
40.0000	% of RBC	Erythrocyte	40.0000
7.0000		pH	7.0000
6.0000		pH	7.0000
6.0000		pH	7.0000
3.0000		Urine Clarity	2.5000
3.2500		Urine Clarity	2.5000
3.2500		Urine Clarity	2.5000

Figure 25: screenshot of the result of calling PROCEDURE change_indicator

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