Web Application Development with php and Oracle

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Ex 0. Download and Install Zend Server (Apache+php)

1. You can go to www.zend.com and request/download the latest version of **zend server**.

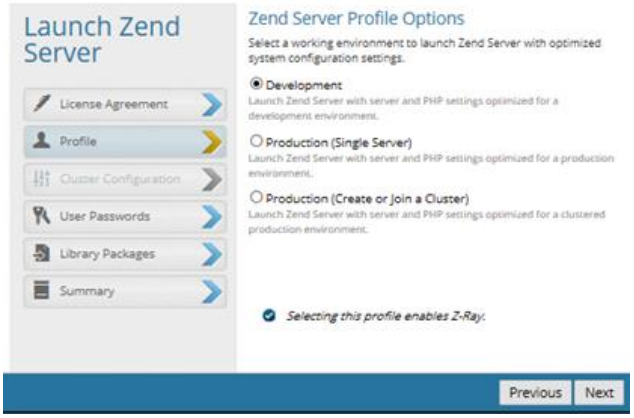
Note. This file is already in the CBA computer lab, find it under _____ .

Step 1. This is the server copy so -- Do NOT double-click!!! Do NOT drag!!!
COPY this file and **PASTE** it to _____.

Step 2. _____ it should start!

Note. If you are a Windows 8 user, please see Appendix A for installation.

2. During Installation ...
• For **Profile**, choose **Development** (instead of Production).
• For **User Password**: You need to specify the password for the user **Admin**. Specify one and do not forget!
• The default port is 80. If this port is already in use, you may specify another port such as 8088. Make a note of it.



Ex 1. Write your first hello world php program

1. Go to **C:\program files(x86)\Zend\Apache2\htdoc** ← **this is your root directory! Important!**
2. Create a folder **myphp** here. Go into this folder.
3. Open a text editor, write your first Hello World program.

hello.php

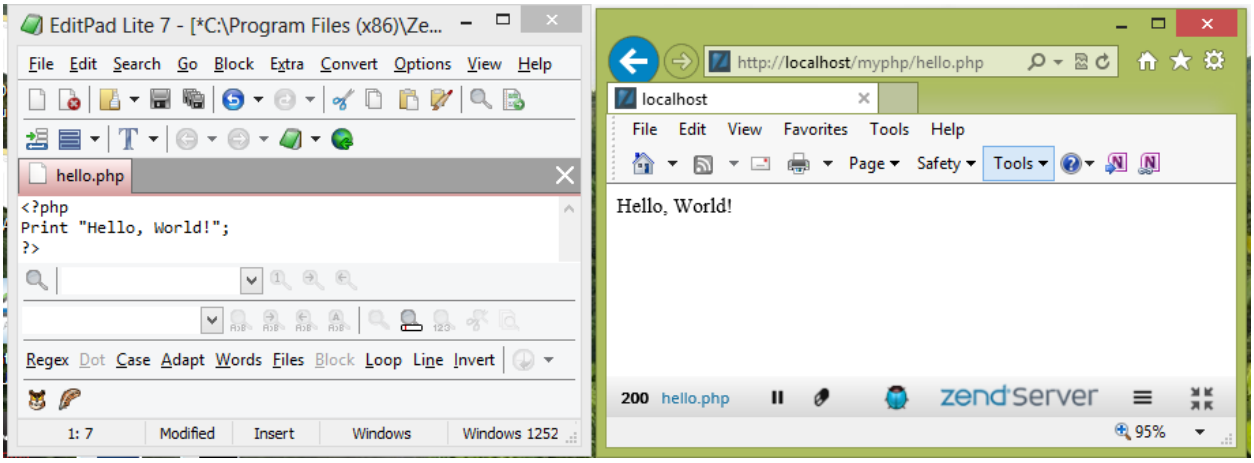
```
<?php
  echo "Hello, world!";
?>
```

Save it under this folder and call it **hello.php**.

4. Open a browser, write this into the your web address URL:
http://localhost/myphp/hello.php

ps-If you have specified a different port, like 8088, then you should this instead:
http://localhost:8088/myphp/hello.php

You should see your program running!! ☺


EditPad Lite 7 - [*C:\Program Files (x86)\Ze...
File Edit Search Go Block Extra Convert Options View Help
hello.php
<?php
Print "Hello, World!";
?>
Regex Dot Case Adapt Words Files Block Loop Line Invert
1: 7
Modified
Insert
Windows
Windows 1252
http://localhost/myphp/hello.php
localhost
File Edit View Favorites Tools Help
Page Safety Tools
Hello, World!
200 hello.php
zend server
95%

Topic 1. php Basics

Oracle has a complete reference on php syntax, please visit:
http://docs.oracle.com/cd/B28359_01/appdev.111/b28845/toc.htm

To write a php block:

```
<?php
blah blah blah
?>
```

To print: echo or print; they are the same. Also, single quotes and double quotes are the same.

```
echo 'Hello world';
print 'Hello world';
```

You can add line break

```
echo 'hello <br> world';
echo 'hello world <br>';
```

Declare variables

Must start with dollar sign, case sensitive, ends with semi-colon.

```
$vCNum = 101;
$vCName = 'Andy';
```

Concatenate strings: Use period (.)

```
$vLastname = 'Smith';
$vFirstName = 'John';
$vPrintName =  $vLastname . ', '. $vFirstName;
```

--

Ex 2. Write html and php to receive screen input

Step 1. First, write a html program to receive a screen input
Step 2. Call the php program in the html program
Step 3. In the php program, use global variable **$_REQUEST** to get the input from html

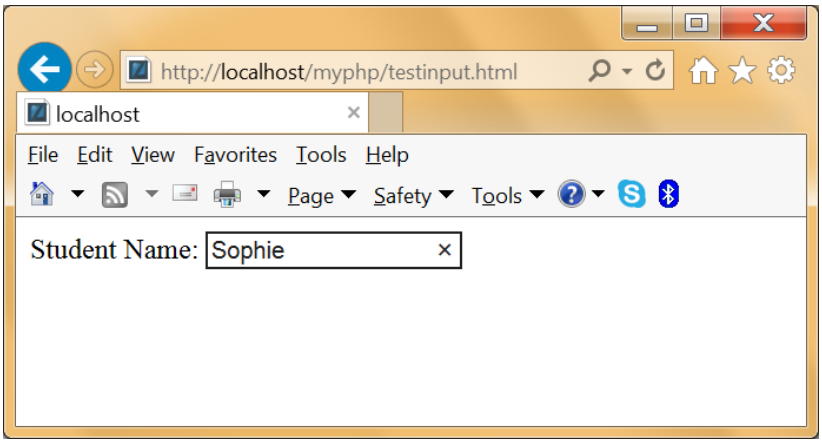
Input.html

```
<form action="input.php" method="post"
<p><label>Student Name: <input type="text" name="vSName_form" /></label></p>
</form>
```

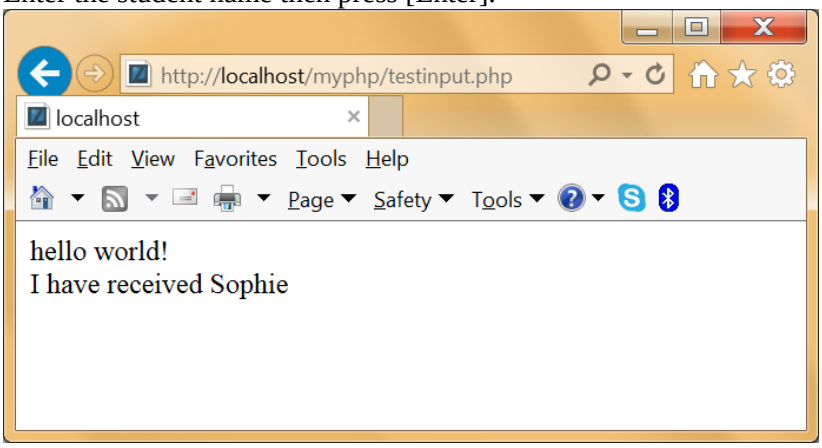
Input.php

```
<?php
  echo 'hello world! <br>';
  $vSName_php = $_REQUEST['vSName_form'];
  echo "I have received " . $vSName_php;
?>
```

Now run **Input.html**, you will first see:



Enter the student name then press [Enter]:



You can see that 'Sophie' has been captured by php variable **$vSName_php** – voila!!

Topic 2. Data feed from Oracle!

To connect to Oracle 11g, the php code is:

```
$conn = oci_connect(username, password, ConnectionString);
```

To connect to CBA's cab 11g, the connection string is (from TNSNames.ora file)

```
$db="(DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = CBA-DBSrv01.campus.ad.csulb.edu)(PORT = 1521)))
    (CONNECT_DATA =
      (SID = orcl)
      (SERVER = DEDICATED)))";

$conn = oci_connect('MyUser', 'MyPW', $db);
```

Note1: You need to change it to your own user name and password!!
Note2: There are several ways to connect depend on different Oracle and php version, see Appendix B.

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Ex 3. Display an entire table from Oracle

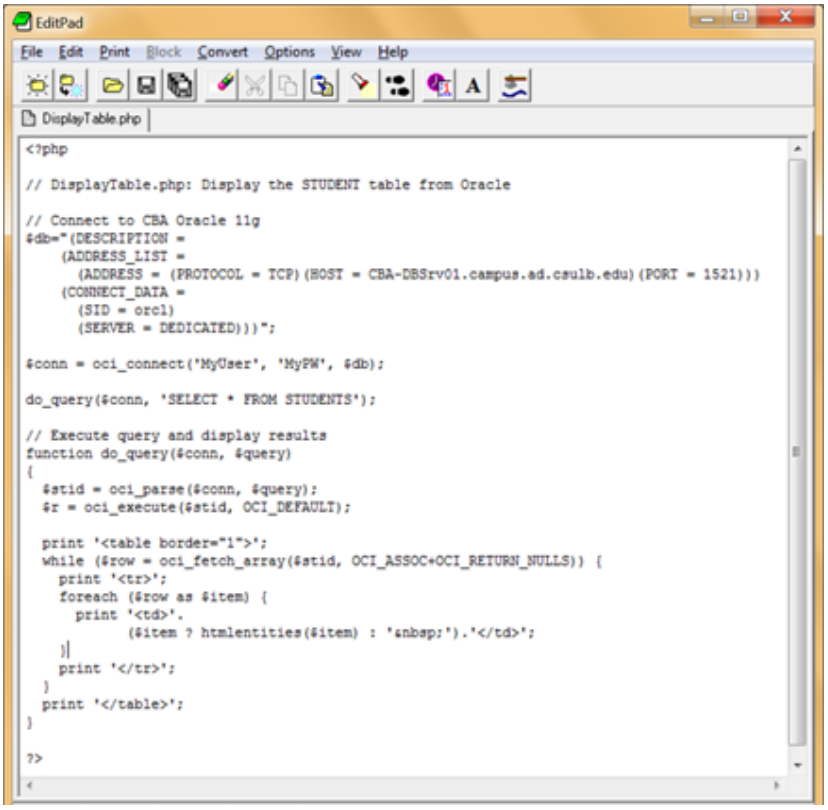
1. Log into Oracle Sql*Plus and create a **STUDENTS** table. Insert a few records.

2. Write the following php program **DisplayTable.php** to display the entire **STUDENTS** table.

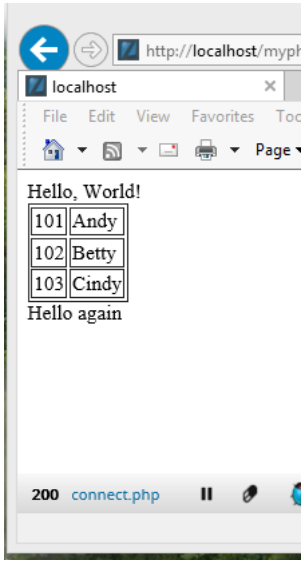
DisplayTable.php

```
<?php
// Create a database connection
$db="(DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = CBA-DBSrv01.campus.ad.csulb.edu)(PORT = 1521)))
    (CONNECT_DATA =
      (SID = orcl)
      (SERVER = DEDICATED)))";
$conn = oci_connect('MyUser', 'MyPW', $db);

// Call function to execute query and display the STUDENTS table
do_query($conn, 'SELECT * FROM STUDENTS');

function do_query($conn, $query)
{
  $stid = oci_parse($conn, $query);
  $r = oci_execute($stid, OCI_DEFAULT);

  print '<table border="1">';
  while ($row = oci_fetch_array($stid, OCI_ASSOC+OCI_RETURN_NULLS)) {
    print '<tr>';
    foreach ($row as $item) {
      print '<td>'.
            ($item ? htmlentities($item) : ' ').'</td>';
    }
    print '</tr>';
  }
  print '</table>';
}

?>
```

Run **DisplayTable.php** and you will see the followngs! ☺



http://localhost/myphp/DisplayTable.php



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Ex 4. Display One Record based on user input from Oracle

1. First, write a **DisplayRec.htm** file to receive screen input and call DisplayRec.php

DisplayRec.htm

```
<form action="DisplayRec.php" method="post"
<p><label>Student Number: <input type="text" name="vSNum_form" /></label></p>
</form>
```

2. Then write a **DisplayRec.php** to get record(s) based on screen input:

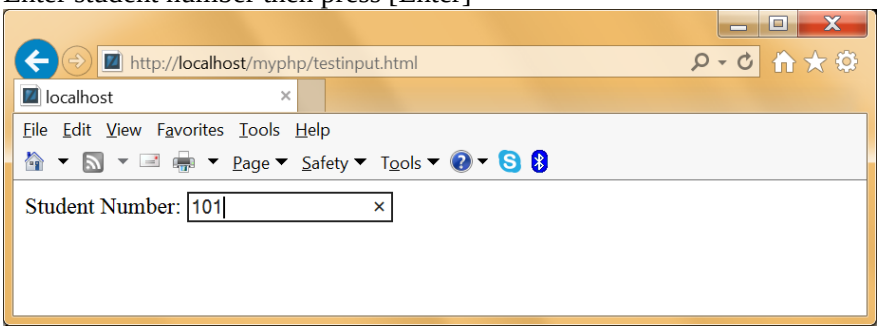
DisplayRec.php

```
<?php
// Create a database connection
$db="(DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = CBA-DBSrv01.campus.ad.csulb.edu)(PORT = 1521)))
    (CONNECT_DATA =
      (SID = orcl)
      (SERVER = DEDICATED)))";
$conn = oci_connect('MyUser', 'MyPW', $db);

// get user input
$vSNum_php = $_REQUEST['vSNum_form'];

// Call function to execute query and display output based on user input
do_query($conn, 'SELECT * FROM STUDENTS where snum=' . $vSNum_php);

function do_query($conn, $query)
{
  $stid = oci_parse($conn, $query);
  $r = oci_execute($stid, OCI_DEFAULT);
```

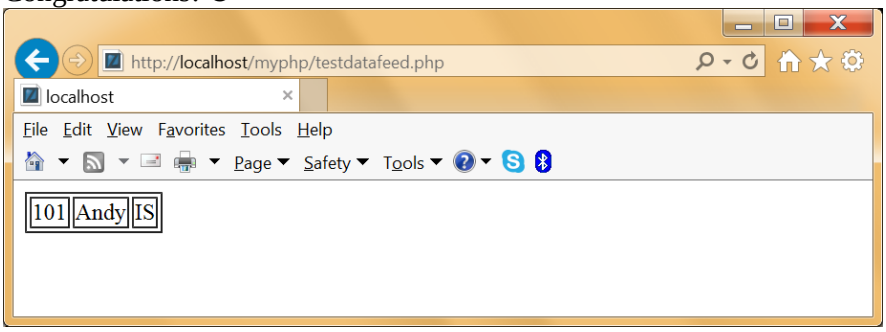
```
  print '<table border="1">';
  while ($row = oci_fetch_array($stid, OCI_ASSOC+OCI_RETURN_NULLS)) {
    print '<tr>';
    foreach ($row as $item) {
      print '<td>'.
            ($item ? htmlentities($item) : ' ').'</td>';
    }
    print '</tr>';
  }
  print '</table>';
}

?>
```

3. Now, run your **DisplayRec.html**

Enter student number then press [Enter]



Congratulations! ☺



3. Call stored procedure from Oracle

Yes, you can call pl/sql stored procedures/functions/packages where heavy duty data processing is done. Now your world is finally complete!! ☺

Here is a good reference:
http://www.oracle.com/technetwork/articles/fuecks-sps-095636.html

Exercise 5. Call a stored procedure with OUT Parameter

1. First, go to Oracle and create a procedure **MyAddMe** with 2 IN parameters (SNum, CallNum) and 1 OUT parameter (Msg):

```
Create or Replace Procedure MyAddMe (
        p_snum IN enrollments.snum%type,
        p_callnum IN enrollments.callnum%type,
        p_msg OUT varchar2) as
begin
   insert into enrollments values (p_snum, p_Callnum, null);
   commit;
   p_Msg := 'Congrat! Student '|| p_snum ||' you are enrolled in '||p_CallNum;
exception
   when others then
      p_Msg := 'Too bad something is wrong. See unreadable Oracle error message good luck -->
'||SqlErrM;
end;
/
```

2. Now, write a html program **CallProc.htm** to receive the two screen inputs:

CallProc.htm

```
<form action="CallProc.php" method="post"
<p><label>Student Number: <input type="text" name="vSNum_form" /></label></p>
<p><label>Call Number: <input type="text" name="vCallNum_form" /></label></p>
<input type="submit" value="Submit">
</form>
```

3. Then, write a php pgoram **CallProc.php** to call **MyAddMe** with screen input. It sends in SNum and CallNum you received from the screen, then print (echo) the OUT Msg on the screen.

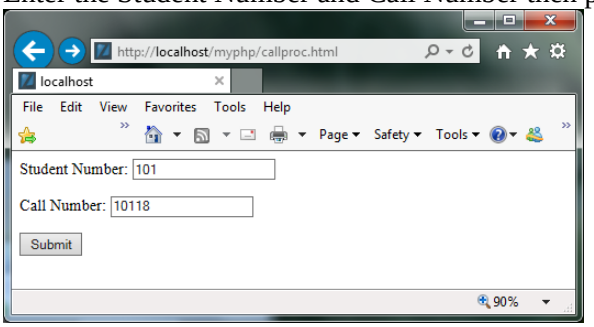
CallProc.php

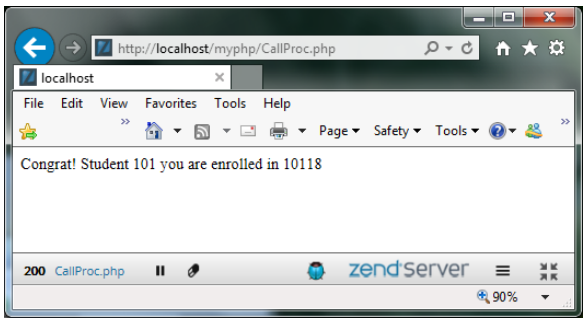
```
<?php
// Create a database connection
$db="(DESCRIPTION =
    (ADDRESS_LIST =
      (ADDRESS = (PROTOCOL = TCP)(HOST = CBA-DBSrv01.campus.ad.csulb.edu)(PORT = 1521)))
    (CONNECT_DATA =
      (SID = orcl)
      (SERVER = DEDICATED)))";
$conn = oci_connect('MyUser', 'MyPW', $db);

// accept screen input
$vSnum_php = $_REQUEST['vSNum_form'];
$vCallNum_php = $_REQUEST['vCallNum_form'];

// create SQL statement to call MyAddMe (IN,IN,OUT)
$sql = 'BEGIN MyAddME(:vSnum, :vCallnum, :vMsg); END; ';
$stmt = oci_parse($conn, $sql);
```

```
// bind screen input to parameters
oci_bind_by_name ($stmt, ':vSnum', $vSnum_php, 32);
oci_bind_by_name ($stmt, ':vCallNum', $vCallNum_php, 32);
oci_bind_by_name ($stmt, ':vMsg', $vMsg_php, 1000);

// Execute the SQL statement
oci_execute ($stmt);

// Print the out parameter
print "$vMsg_php\n";
```

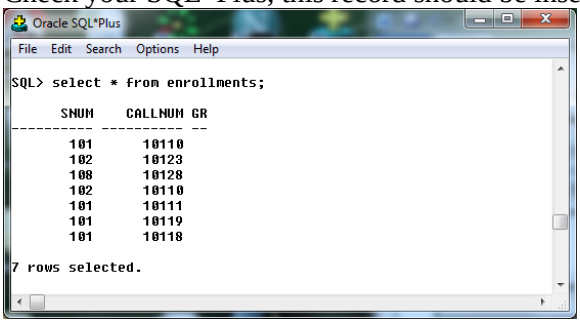
4. Run your **CallProc.htm**, and you will see this:

Enter the Student Number and Call Number then press Submit:

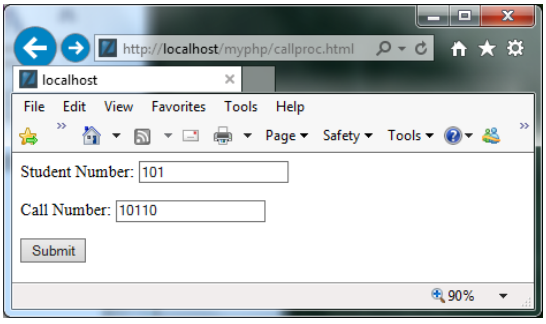


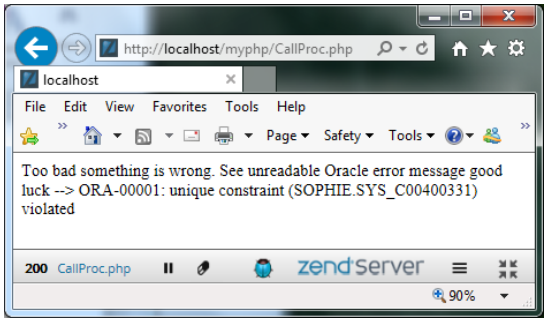


Check your SQL*Plus, this record should be inserted!!



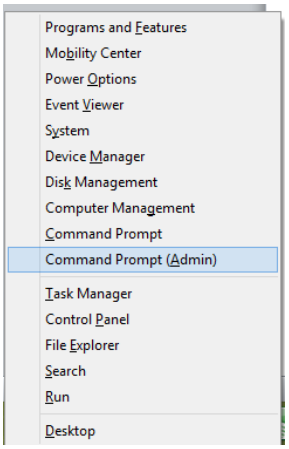
5. I have a composite primary key (SNum, Callnum). Now I am going to to insert 101, 10110 again and trigger the primary key exception with an error msg ☺





Appendix A. Zend Server Installation For Window 8 Users

Window 8 has extra security against writing a file to your C: drive, so you need to invoke the Command window and run it manually with extra instruction to write the log file.



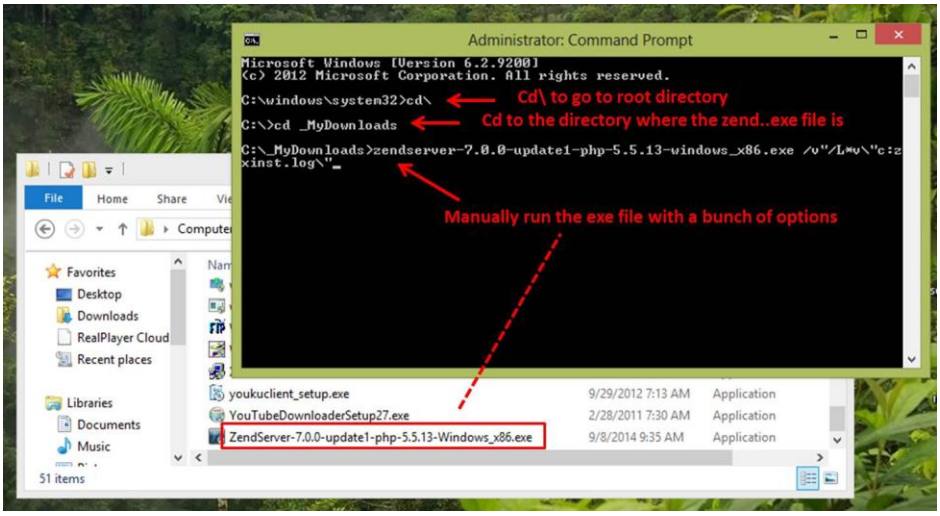
1. Press **[Win] [x]** to open the Start menu. Select **Command Prompt (Admin)**

2. You will see the Command window. Enter the following **bold-faced** commands (as illustrated)

```
C:\windows\system32>cd\
C:\cd _MyDownloads
C:\_MyDownloads>zendserver-7.0.0-update1-php-5.5.13-windows_x86.exe
/v"/L*v\"c:zsinst.log\""
```

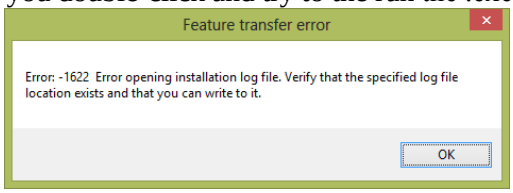
3. The installation should start

On second thought, I could have renamed my .exe file to a shorter and simpler name! Mine is already working now so I don't want to risk it ☺ You can try!



Note 1. I also grant full permission on my C drive. I am not sure if this step is needed though. Just to share with you~
Open Window Explorer, right-mouse-click on C drive, choose Property → Security tab → grand full permission to everybody (probably not the last guy Users…)

Note 2. Here is the error msg if you double-click and try to the run the .exe file…



Appendix B. Oracle Connection String

There are several ways to connect to Oracle depend on Oracle and php versions.

Note 1. For Oracle 10g, the connection string is:

$conn = oci_connect(username, password, //host/service);

For instance, connecting to CBA Lab's 10g server, it is

```
$conn = oci_connect('MyUser', 'MyPW', '//134.139.81.33/cba10g');
```

Note 2. For Oracle 11g and 12c, the connection string is:

$conn = oci_connect(username, password, //host/service/instance);

To find your host, service, and instance of your home computer, you need to first find an important file called **TNSNAMES.ORA**. This file is under your Oracle home directory, then under the ... **\NETWORK\ADMIN** folder.

Where is your Oracle home? For Oracle 12c, your Oracle home is **c:\app\username\product\12.*x*.*x*\db_home*x*\...**)

Open **TNSNAMES.ORA** in notepad:

```
ORCL =
  (DESCRIPTION =
    (ADDRESS = (PROTOCOL = TCP)(HOST = localhost)(PORT = 1521))
    (CONNECT_DATA =
      (SERVER = DEDICATED)
      (SERVICE_NAME = orcl.168.1.103)
    )
  )
```

In this case:

Host: **localhost**
Service: **orcl.168.1.103**
Instance: **orcl**

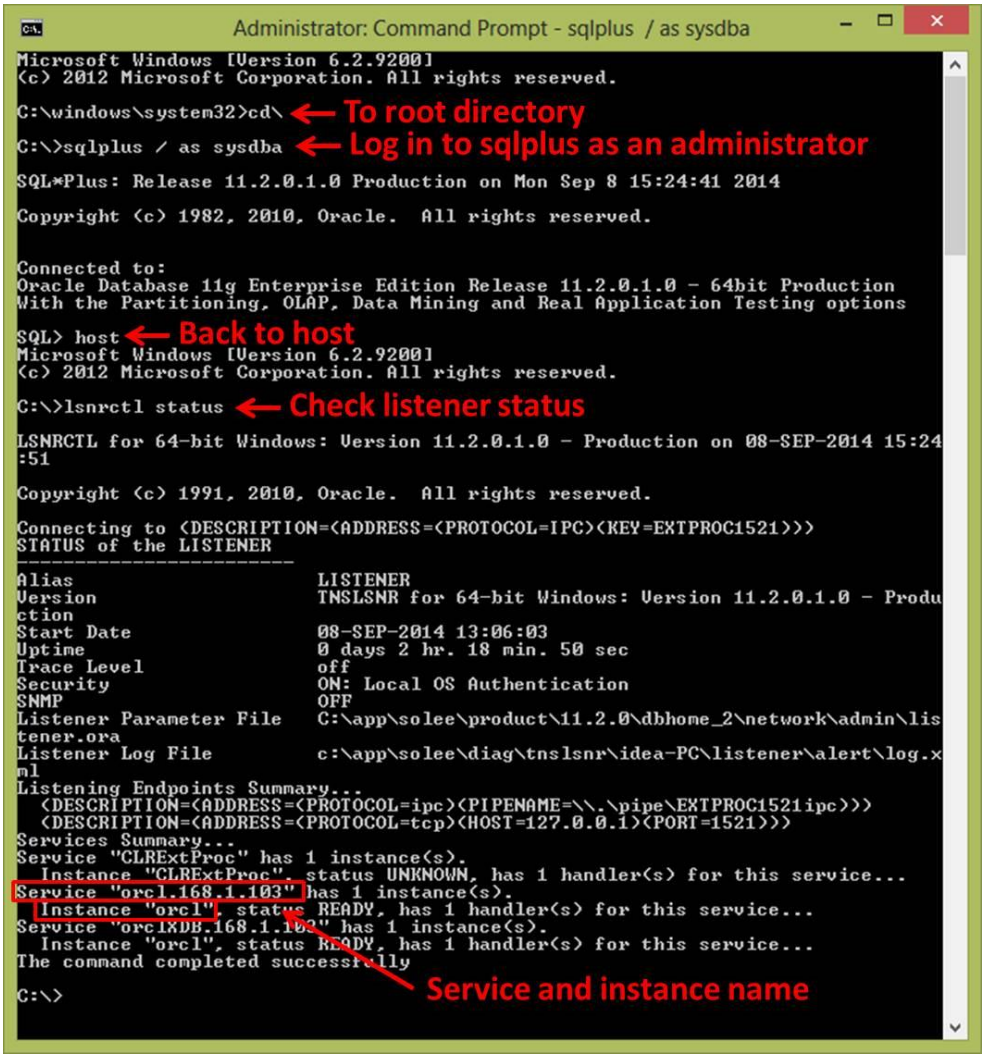
So your connection string is:

```
$conn = oci_connect('MyUser','MyPW','//localhost/orcl.168.1.103/orcl');
```

Note3. You can also look up service and instance namd and status by the **lsnrctl** (Listener Control) command.

Listener is a Oracle program. It has to be running so Oracle can receive SQL commands. You can make sure your service and instance are running by using listener control **lsnrctl** commands:

Open Command as a Administration and follow the following steps:



If they are not running, you can go to Control Panel → Services, and manually Stop and Start the listener. Or you can use **`lsnrctl stop`** and **`lsnrctl start`** at the command line.