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جامعة النجاح الوطنية
كلية الهندسة وتكنولوجيا المعلومات

Computer Engineering Department
Computer Networks 2 (10636455)
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SNMP and HTTP Assignment
Assignment 2
Summer2024

Description:

In this assignment, you will develop HTML/PHP pages, Client Java Application, Servlet and JSP Page as described below. You will use Both XAMP (or WAMP) server and Tomcat Apache Server. Use the example Project that we did in class to help develop the required code.

Part 1:

You are required to develop an SNMP manager in PHP to send requests to an SNMP agent (PC) and display the SNMP responses. Your manager should display the following information in an appropriate style on different pages or section. Your Interface and Pages should look nice.

Page1:

- Display the contents of all of the System Group except the Last item (System Services)
- The ***sysContact***, ***sysName***, and ***sysLocation*** should be editable(Changeable). Therefore provide the ability to change these item. Make sure you make the *Community* ***Read and Write*** to allow writing to these items

Page 2:

Display the content of ***UDP*** *table.*

Page 2:

Display the content of the ***ARP*** *table*.

Page 4:

Display the All of the ***SNMP group*** **Statistics** *as described below:*

Get All the statics of the objects by the two methods described on the Next page:
The MIB2 Groups objects with their **oids**, names, and description of the can be found in the *Link:* *https://itpfdoc.hitachi.co.jp/manuals/3021/30213a7800e/E3460108.HTM*
Click on the SNMP group to get the information about the SNMP group.

Note that the SNMP Group Objects have the OIDs (1.3.6.1.2.1.11.X) where X is from 1 to 30 **except 7 and 23** which do not exist

Method 1:

Use the ***snmp2_Get()*** and ***Loop*** through all statistics OIDs and display them as shown in the ***Table By Get*** *on page* ***4.***. Get the Names of the objects from the Link shown, store them in an Array to help you displaying the names. Here Just change the x in the PHP code.

Method2:

Use the ***snmp2_walk()*** to get the statistics for the SNMP group. Display the results as shown in the ***Table By Walk*** *on page* ***4.***

Display the two tables side by side similar to image shown *on page* ***4.***

Important Note: Your tables do not need to be exactly with the same same styles as shown. Use your own styles. I am just showing how I want them Side by Side

Remove the type of the values ***Counter32*** or INTEGER from the Table By Get as I did in in the Table By Walk (You can use **php explode()** function)

Add Navigation, Next and Previous for the Pages 1– 4. Also Add a Main page if you like.

Part 2:

In this part you will write a Java Client, Servlet and JSP page

Server:

In addition to the HTTP server described above, write both a ***Servlet*** and ***JSP Page***. We will use them for simple authentication as follows:

a) The Servlet should receive the Name and the Password . If they are correct return "OK", otherwise return "NO".
b) The JSP Page should receive the ID and the Password. If they are correct, return "OK", otherwise return "NO".

You can use a **file** that stores the names and passwords at the Server side (Manually enter these values). If want you can also use a **Database** instead of the file.

Client:

Write a Java Application that uses the HTTP Connection Class similar to the example that I demonstrated in class (Watch the HTTP recorded Lecture)

First the user must sign in. The client should have Text Boxes for User name, ID. and Password. The client then should send the user name and password to the Tomcat Servlet. Also add *Two Buttons* Verify1 and Verify2, if these are clicked then:

c) ***Verfiy1 Clicked***: Send the Name and the Password to the Servlet. The response from the Servlet should be either "OK" or "NO".

d) ***Verfiy2 Clicked***: Send the ID and the Password to the JSP. The response from the JSP Page should be either "OK" or "NO"

If the Client Receives "OK" from ***Both*** Servlet and JSP then allow the user to get the Get the SNMP data from the PHP server. In other words, the Client should send an HTTP request to the PHP server to get and display the contents of what is described in Page 1–4 above.

The last 3 element of the System group should be editable should be editable also.
For Example, to display the System Group, your client should send an HTTP request or (more than One Request) to one the PHP pages. The PHP pure page then gets the SNMP values and sends them back to the Client.

On Each Page put a Button to get the SNMP data for that specific Page. For example, for Page1 the button will be labeled *"Get System Data"*. And on the Second it should be *"Get StTCP Table"* and so on. On page 1 for the editable value put a button next to each item.

Note: for the SNMP statistics inPart2 (the Java Application), just display One Table in your Java Application not Two Tables as we did in in Part1 (PHP Pag4)

Important Notes:

For Part1:

I suggest that you do not write PHP that contains HTML. You can do that if you want for Part 1 but I suggest that you do not. Do this Instead.

1. Write pure PHP pages (No HTML for the server side that responds to an HTTP request and sends back the result.
2. Use JavaScript in your client side to fetch the data from the PHP pages (Server Side) and display them. You can use Ajax or fetch or any frame work you want.

For Part2:

Your PHP pages must be pure PHP pages. Therefore, it is better to use these pure PHP pages for Part1 and Part2.

Submission Notes:

1. You can work either individually or in groups of 2.
2. Submit all resource files.
3. You may need to create a short Video and Upload to Drive and Provide a Link to the Drive. Check with the TA (Eng. Renan Atrash"). If she does not require this video, do not do it.

The SNMP Statistics as Request in Part1 – PHP Page 4

Method1:By Get				Method2:By Walk		
ID	**Name**	**Value**		**Item #**	**Name**	**Value**
1	snmpInPkts	Counter32: 1		0	snmpInPkts	31
2	snmpOutPkts	Counter32: 1		1	snmpOutPkts	30
3	snmpInBadVersions	Counter32: 0		2	snmpInBadVersions	0
4	snmpInBadCommunityNames	Counter32: 0		3	snmpInBadCommunityNames	0
5	snmpInBadCommunityUses	Counter32: 0		4	snmpInBadCommunityUses	0
6	snmpInASNParseErrs	Counter32: 0		5	snmpInASNParseErrs	0
8	snmpInTooBigs	Counter32: 0		6	snmpInTooBigs	0
9	snmpInNoSuchNames	Counter32: 0		7	snmpInNoSuchNames	0
10	snmpInBadValues	Counter32: 0		8	snmpInBadValues	0
11	snmpInReadOnlys	Counter32: 0		9	snmpInReadOnlys	0
12	snmpInGenErrs	Counter32: 0		10	snmpInGenErrs	0
13	snmpInTotalReqVars	Counter32: 11		11	snmpInTotalReqVars	28
14	snmpInTotalSetVars	Counter32: 0		12	snmpInTotalSetVars	0
15	snmpInGetRequests	Counter32: 14		13	snmpInGetRequests	30
16	snmpInGetNexts	Counter32: 0		14	snmpInGetNexts	0
17	snmpInSetRequests	Counter32: 0		15	snmpInSetRequests	0
18	snmpInGetResponses	Counter32: 0		16	snmpInGetResponses	0
19	snmpInTraps	Counter32: 0		17	snmpInTraps	0
20	snmpOutTooBigs	Counter32: 0		18	snmpOutTooBigs	0
21	snmpOutNoSuchNames	Counter32: 1		19	snmpOutNoSuchNames	2
22	snmpOutBadValues	Counter32: 0		20	snmpOutBadValues	0
24	snmpOutGenErrs	Counter32: 0		21	snmpOutGenErrs	0
25	snmpOutGetRequests	Counter32: 0		22	snmpOutGetRequests	0
26	snmpOutGetNexts	Counter32: 0		23	snmpOutGetNexts	0
27	snmpOutSetRequests	Counter32: 0		24	snmpOutSetRequests	0
28	snmpOutGetResponses	Counter32: 27		25	snmpOutGetResponses	31
29	snmpOutTraps	Counter32: 0		26	snmpOutTraps	0
30	snmpEnableAuthenTraps	INTEGER: 1		27	snmpEnableAuthenTraps	1