**WEB SERVICES**

420-511-VA

#### **LAB-2-**

In this LAB students are supposed to look more into HTTP and related technologies.

Students are supposed to research information on their own and give a brief and comprehensive answer, each in their own words.

1. Describe what was done in LAB-1:

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| In Lab 1.1, we used sockets to understand how programs communicate. The same IP address and port were used because it was done on the same machine. And in Lab 1.2 we tried to imitate how the communication between a web browser and an HTTP server works using the programs that were used in Lab1.1. We added request lines in program 1 and response lines in program 2. In the second part of Lab 1.2, we tried communicating with Apache through port 80 and modifying some lines in the programs to see what the response will be. |

1. What is HTTP?

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| HTTP is a protocol that is used to transfer resources (HTML files, audio files, images, etc.) between a client and a server. |

1. To what layer in the TCP/IP stack does HTTP belong?

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| Application Layer |

1. What other protocols belong to the same layer as HTTP?

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1. Which organization maintains and develops HTTP? include a link to the official HTTP specifications:

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| TheWorld Wide Web Consortium (W3C) <https://www.w3.org/> |

1. What is the current version in use of HTTP and what will be the next version?

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| HTTP/2 is the current version in use of HTTP and HTTP/3 will be the next version. |

1. HTTP is responsible for establishing client/server connection and handling communication error checking, correct?

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| No, it is the TCP (Transmission Control Protocol) that is responsible for establishing client/server connection and handling communication error checking. |

1. What are the two types of HTTP Messages?

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| The two types of HTTP messages are request and response. |

1. What is the application that is used by users to handle HTTP requests and responses over the internet?

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| API (Application Programming Interface) is used by users to handle HTTP requests and responses over the internet. |

1. What does MIME type mean, give examples?

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| A MIME type is a label that is used to classify/identify a type of data. It is used so that a software can know how to handle the data. Some examples are application/javascript  application/json, application/xml, audio/mpeg, audio/webm, image/gif, image/jpeg, text/css, text/html, text/javascript, video/mp4, and many more. |

1. What is a Media Type and what is the difference between MIME type and Media Type?

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| Media Type is the proper technical term while MIME Type is the former name for Media Type. |

1. What is an URI, a URL and what is the difference between the two?

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| URL is a type of URI. It helps to identify a web resource using the location. Meanwhile, URI helps to identify a web resource either by name, location or both.URI the superset of URL. |

1. Could we specify the TCP port number in a URL, give an example?

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| Yes, we could specify the TCP port number in a URL. An example is <https://abcd.com:8041> wherein 8041 is the port number in a URL. |

1. Could the Web Server and Web Browser establish a secure connection using a username and password, what would be the format of the URL give an example?

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1. What is an HTTP Request composed of? It is usually sent by which application to which application? Give an example of a request:

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1. What is an HTTP Response composed of? It is usually sent by which application to which application? Give an example of a response:

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1. What is the first line of an HTTP Request called, and what goes on it, give an example?

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1. What is the first line of an HTTP Response called, and what goes on it, give an example?

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1. What are HTTP Methods, or verbs, for?

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1. List five main commonly used HTTP Methods and state their purpose:

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1. What are HTTP Headers, what are they composed of, give an example?

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1. What is ‘content-type’, is it included in Requests or Responses, give an example?

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1. What is an HTTP Status Code, give three sample Status Codes and their meanings:

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1. What does the HTTP Body contain?

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1. The HTTP Body must be enclosed within the tags <body></body>, correct?

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1. What Data formats could be included in the HTTP Body?

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1. Could the HTTP Body contain data of a document or Video file, in what format?

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1. The information included in HTTP Requests and Responses are binding and reliable, for example if the browser receives a response with a header field “server: Apache” it is guaranteed that the web server is an Apache server?

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1. How does the browser tell the Web Server what content types it can read, give an example?

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1. A Browser must download all objects related to a Web page in one HTTP transaction. Is that correct?

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1. What are the major components of a Web Browser?

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1. What is AJAX and what is it used for, what are its benefits?

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1. What is the XMLHttpRequest, and what is it used for?

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1. What is a canonical URL, give an example?

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**REFERENCE BOOK**

HTTP: the definitive guide

1st ed. / Gourley, David.

O'Reilly, 2002.

ISBN: 9781565925090