Web Research

1. The World Wide Web Consortium: http://www.w3c.org

a. How did the W3C get started?

In October 1994, Tim Berners-Lee founded the World Wide Web Consortium (W3C) at the Massachusetts Institute of Technology, Laboratory for Computer Science [MIT/LCS] in collaboration with CERN, where the Web originated (see information on the original CERN Server), with support from DARPA and the European Commission. In April 1995, INRIA (Institut National de Recherche en Informatique et Automatique) became the first European W3C host, followed by Keio University of Japan (Shonan Fujisawa Campus) in Asia in 1996. In 2003, ERCIM (European Research Consortium in Informatics and Mathematics) took over the role of European W3C Host from INRIA. In 2013, W3C announcedBeihang University as the fourth Host.

(Source: Facts About W3C– www.w3c.org)

b. Who can join the W3C? What does it cost to join?

W3C invites the public to participate in W3C via discussion lists, events, blogs, translations, and other means described below. Participation in Community and Business Groups is open to all. Participation in W3C Working Groups (and other types) is open to W3C Members and other invited parties. W3C groups work with the public through specification reviews as well as contributions of use cases, tests, and implementation feedback.

In order to promote a diverse Membership that represents the interests of organizations around the world, W3C fees vary depending on the annual revenues, type, and location of headquarters of an organization. For instance, as of 2019-01-01, a small company in India would pay 1,905 USD annually, a non-profit in the United States would pay 7,900 USD, and a large company in France would pay 59,500 EUR.

(Source: Membership– www.w3c.org)

c. The W3C home page lists a number of technologies. Choose one that interests you, click on its link, and read the associated pages. List three facts or issues you discover:

Web Design and Applications:

1. HTML is the language for describing the structure of Web pages. HTML gives authors the means to:

-Publish online documents with headings, text, tables, lists, photos, etc.

-Retrieve online information via hypertext links, at the click of a button.

- Design forms for conducting transactions with remote services, for use in searching for information, making reservations, ordering products, etc.

-Include spread-sheets, video clips, sound clips, and other applications directly in their documents.

With HTML, authors describe the structure of pages using *markup.* The *elements* of the language label pieces of content such as "paragraph," "list," "table," and so on.

2. CSS is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, Cor printers. CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred to as the ***separation of structure (or: content) from presentation.***

3. XHTML is a variant of HTML that uses the syntax of XML, the Extensible Markup Language. XHTML has all the same elements (for paragraphs, etc.) as the HTML variant, but the syntax is slightly different. Because XHTML is an XML application, you can use other XML tools with it (such as XSLT, a language for transforming XML content).

(Source: Web Design and Applications – www.w3c.org)

2. The Internet Society: http://www.isoc.org

a. Why was the Internet Society created?

The Internet Society was created because:
The Internet Society supports and promotes the development of the Internet as a global technical infrastructure, a resource to enrich people's lives, and a force for good in society.
With goals for the Internet to be open, globally-connected, secure, and trustworthy.
(Source: Mission- www.isoc.org)

b. Determine which local chapter is closest to you. Visit its website. List the website's URL and an activity or service that the chapter provides?

URL: https://www.sfbayisoc.org/

Chapters organise events, projects and activities that all work to support the Internet Society's mission while addressed the unique issues in their local area. The SF-Bay Area Chapter works on:

-Educational events:

Educating members or the general public about Internet-related issues such as security,

broadband access, IPV6, child safety, network neutrality, and much more.

-Community programs:

Helping to Ensuring Internet access for economically disadvantaged people or those with

disabilities, covering areas such as hardware, software, distribution and best practices.

-Public policy programs:

Informing policy and decision makers about Internet issues such as net neutrality, copyright protection, censorship, or human rights.

-Networking events:

Helping members connect with like-minded people who share an interest in bringing the benefits of the Internet to everyone.

(Source: Chapter FAQs- www.sfbayisoc.org)

c. How can you join the Internet Society? What does it cost to join? Would you recommend that a beginning Web developer join the Internet Society? Why or why not?

How to Join:

1. Join the Internet Society (global) by filling out the application form.

2. You will be given a choice of joining a chapter: select San Francisco Bay Area.

3. You will receive an email with your membership info.

Why to Join:

Becoming a member of the Internet Society gives you a voice in the global effort for an Internet open to all. Membership is free and open to anyone, anywhere. Benefits of membership of the San Francisco Bay Area Chapter include:

-Exclusive access to Internet Society webinars and e-learning courses.

-Free or discounted access to (paid) Chapter events and relevant partner events.

-Access to grants, fellowships and funding sources which can help you implement your local Internet-related projects.

-Expanding your global network and learning from people who are using technology to improve lives in the San Francisco Bay Area and beyond.

-Being part of a like-minded community working for open Internet access.

-Collaborating on projects that address Internet issues right here in the San Francisco Bay Area.

-Networking with the people who make the Internet work.

-Staying updated on the latest news on global Internet governance, tech policy and Internet technologies.

(Source: Join Us- www.sfbayisoc.org)

3. HTTP/2:

a. Who developed HTTP/2?

HTTP/2 was developed by the IETF's HTTP Working Group, which maintains the HTTP protocol. It's made up of a number of HTTP implementers, users, network operators and HTTP experts.

(Source: Who Made HTTP/2-http2.github.io)

b. When was the HTTP/2 proposed standard published?

In 2012 the group of Google engineers behind the project decided to create a new protocol based on the technology, and that started the story that leads us to the current HTTP/2 draft.

(Source: What You Need to Know about HTTP/2-www.engadget.com)

c. Describe three methods used by HTTP/2 intended to decrease latency and provide for quicker loading of web pages in browsers?

HTTP/2 provides an optimized transport for HTTP semantics. HTTP/2 supports all of the core features of HTTP/1.1 but aims to be more efficient in several ways.

The basic protocol unit in HTTP/2 is a frame. Each frame type serves a different purpose. For example, HEADERS and DATA frames form the basis of HTTP requests and responses; other frame types like SETTINGS, WINDOW_UPDATE, and PUSH_PROMISE are used in support of other HTTP/2 features.

Multiplexing of requests is achieved by having each HTTP request/ response exchange associated with its own stream. Streams are largely independent of each other, so a blocked or stalled request or response does not prevent progress on other streams.

Flow control and prioritization ensure that it is possible to efficiently use multiplexed streams. Flow control helps to ensure that only data that can be used by a receiver is transmitted. Prioritization ensures that limited resources can be directed to the most important streams first.

HTTP/2 adds a new interaction mode whereby a server can push responses to a client. Server push allows a server to speculatively send data to a client that the server anticipates the client will need, trading off some network usage against a potential latency gain. The server does this by synthesizing a request, which it sends as a PUSH_PROMISE frame. The server is then able to send a response to the synthetic request on a separate stream.

Because HTTP header fields used in a connection can contain large amounts of redundant data, frames that contain them are compressed. This has especially advantageous impact upon request sizes in the common case, allowing many requests to be compressed into one packet.

(Source: Hypertext Transfer Protocol Version 2 (HTTP/2) - tools.ietf.org)