1. **Name three scenarios, in which a web search engine such as Google will not index a web page and explain each scenario briefly.**

    1. Website owners don't want the indexing
        - Owners can add Googlebot to their robot.txt file so that google will ignore it
    2. Search engines consider the content as irrelevant or duplicate
        - If multiple URLs on a site are returning the exact same content, it might be marked as duplicate and ignored.
        - Pages that are not linked anywhere on the Web
    3. Pages are only accessible through special tools like TOR
        - Google is unable to index them as it can not view them

2. **Name three examples of what an e-business can do when it knows the IP address of a user/visitor. Example each example briefly.**

    1. Can restrict access to certain content due to licensing issues based on location
        - US Netflix is able to offer more titles than Peru Netflix
    2. Offer targeted ads relevant to the user's location
        - German BBC users will receive different ads than Irish BBC users
    3. Offer personalized content based on the activity of that a user
        - Youtube will recommend different videos based on the users recent browsing history

3. **You run an e-Business and you want to know if a visitor of your website uses a proxy server. Name three options to find out an explain each option in one sentence.**

    1. E-Businesses can use a list of known proxy server IP's and compare them to the IP that a user is connecting to see if they are connecting via a proxy server.
    2. E-Businesses can check if multiple different users are connecting from the same IP, indicating that they are using the same proxy server as they should have their own individual IP.
    3. E-Businesses can cross-reference the location from which the user created their account and the IP that they are connecting from.

4. **The Merriam Webster dictionary defines the Internet as "An electronic communication network that connects computer networks and organizational computer facilities around the world". Discuss the definition (what is good and what is missing)?**

    The Merriam definition is good definition as it correctly identifies the capital "I" internet connects networks of computers all over the world as opposed to the lowercase

"i" internet which is a group of interconnected computers. This definition, however, is missing a key aspect of the Internet which is that computers using it must follow certain standards if they want to be a part of the Internet. The definition could be more complete by simply changing it to:

"An electronic communication network that connects computer networks and organizational computer facilities following certain standards around the world".

5. **When developing a web application, what is the advantage of using "localhost" compared to using the server's external IP?**

    Developers use "localhost" instead of a server's external IP when developing a web application as they are able to test their application. When running on localhost, there is little delay when using the web application as you are connecting to your own machine rather than an external server. Furthermore, developers are able to test their web applications without the worry of network errors and are able to focus on the application itself rather than the systems that allow it to go live.

6. **Explain in less than 100 words what "API" stands for, what the difference is between an API and a software library, and provide one example to illustrate the difference between an API and a software library.**

    An API stands for an Application Programming Interface and is a set of functions and procedures allowing the creation of applications that access the features or data of a service. An API differs from a software library as it is the outward-facing part of an application while a software library refers to code that you can call from your own code to deal with common tasks. An example of this is how one might use java swing library to create an application, but would use the Twitter API to make access Twitter's data.

7. **A company owns a big collection of movies and has a catalog with all the metadata for the movies (title, year, …). The company wants to provide a REST Web Service to enable third parties to retrieve information about those movies. The base URL is http://rest.company.com/. Write out the URLs that would be used to retrieve the following information?**

    1. A list of all movies
    2. All metadata of a particular movie
    3. The actors in a particular movie

    GET http://rest.company.com/movies
    GET http://rest.company.com/movies/$movieTitle
    GET http://rest.company.com/movies/$movieTitle/actors

8. **The image shows a SOAP request to retrieve the stock price for Google from the Web Service stockprice.org. How would a similar request look like for a RESTful Web Service? Write down the HTTP method and complete URL.**

    GET http://www.api.stockprice.org/stockprice/$Google

9. **When should a REST Web Service use the HTTP PUT method, and when should it use the HTTP Post method. Explain and provide an example in less than 100 words.**

    PUT is used when you want to update a resource completely through a specific resource. For instance, if you know that an article resides at http://example.org/article/1234, you can PUT a new resource representation of this article directly through a PUT on this URL. If you don't know the actual location, for instance when you add a new article, but do not have any idea where to store it, you can POST it to an URL, and let the server decide the actual URL.