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Bh.Notes: WEB X.0

IT Semester 6

A series of Important Concepts/Questions
highly recommended for MU Exam

'C' SCHEME - 2019-2020

Q1. Explain the concept of Evolution of WebX.0 (P4-Appeared 1 time) (3-7M)

Ans: Evolution of Web X.0:

- The Web's evolution, which we call Web X.0, or Web X.Y, movement, is aimed at harnessing the potential of the Web in a more interactive and collaborative manner with an emphasis on social interaction.

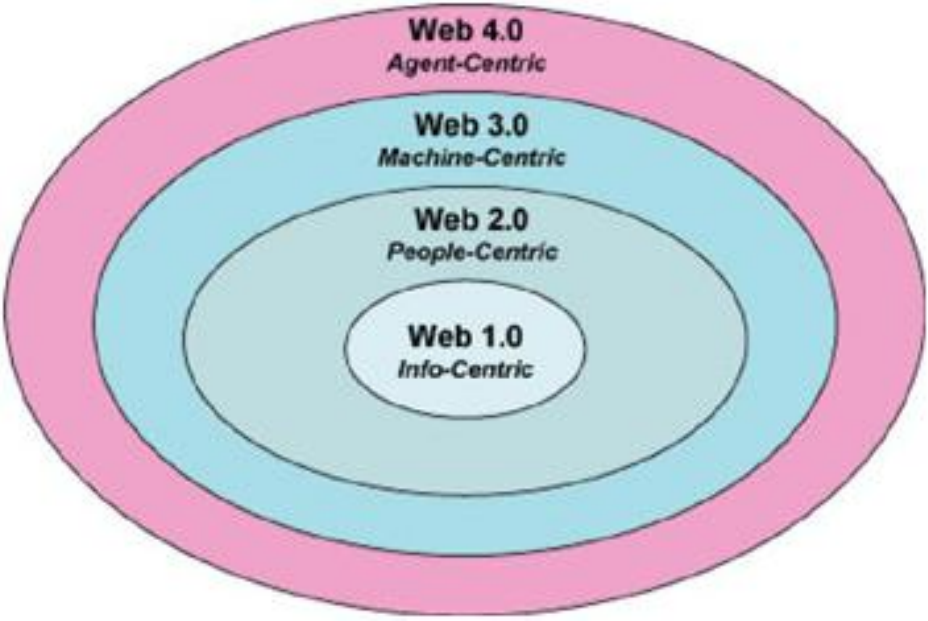

Figure: Registration of Web X.0

- One way of identifying them is based on what they do and who or what is at the core of their action. The first stage, Web 1.0, is about connecting information;
- Web 2.0 is about connecting people; Web 3.0 is about integrating data, knowledge, and applications on the Web and putting them to

work in ways that make the Web more meaningful and about making Web as a collaborative platform;

- Web 4.0 is about harnessing the power of human and machine intelligence on a ubiquitous Web, where both people and computers not only interact but also reason and assist each other in smart ways.

Web 1.0

- The traditional Web—now called Web 1.0 – is primarily a one-way publishing medium. The primary objective has been to publish information for easy access by anyone using a standard Web browser through the Internet.
- Subsequently, it was put to use for commercial applications and online transactions giving birth to the emergence of electronic commerce, or e-commerce. Foundations for the Web were set in this phase.
- The major developments and advancements were protocols such as HTTP, markup languages such as HTML and XML, Web-centric languages such as Java and JavaScript, Web browsers, Web development platforms and tools, the creation of Web sites academic activities, the use of the Web for commercial purposes for the first time, the emergence of some new innovative Web business models, and the growth of Web portals.

Web 2.0

- Web 2.0 allows - and encourages - all the users to create, share, and distribute information and images. In fact, Web 2.0 has caused a social revolution in the use of Web, and caused a paradigm shift from being a publishing medium to a participative medium. In other

words, Web 2.0 technologies and applications have democratized the Web. Hence, it can be called as democratic Web.

- Web 2.0 encompasses Web technologies and services, such as blogs, social networking sites, wikis, communication tools, and folksonomies that emphasize sharing of content among users and online collaboration. It is also a highly interactive, dynamic application platform for fielding new kinds of applications.

Web 3.0

- Web 3.0 refers to a third generation of Web technologies and services that emphasize a machine-facilitated understanding of information on the Web in order to facilitate information aggregation and to offer a more productive and intuitive user experience.
- Web 3.0 is also called Semantic Web or meaningful Web. Under the umbrella of Semantic Web and Web 3.0, currently, significant developments are taking place and new Web 3.0 applications have begun to emerge.

Web 4.0

- The objective of Web 4.0 is to add further sophistication and higher levels of intelligence.
- For instance, in a Web 4.0 application, your software agent(s) roaming on the Internet or simply residing on your computer could reason and communicate with other such agents and systems and work collaboratively to accomplish things on your behalf. Web 4.0 is also known as "intelligent Web" or "smart Web."

Q2. Difference between Javascript and TypeScript(P4-Appeared 1 time) (3-7M)

Ans:TypeScript Vs. JavaScript

Sr No.	Javascript	Typescript
1.	It doesn't support strongly typed or static typing.	It supports strongly typed or static typing features.
2.	Netscape developed it in 1995.	Anders Hejlsberg developed it in 2012.
3.	JavaScript source file is in ".js" extension.	TypeScript source file is in ".ts" extension.
4.	It is directly run on the browser.	It is not directly run on the browser.
5.	It is just a scripting language.	It supports object-oriented programming concepts like classes, interfaces, inheritance, generics, etc.
6.	It doesn't support optional parameters.	It supports optional parameters.
7.	It is interpreted language that's why it highlighted the errors at runtime.	It compiles the code and highlighted errors during the development time.
8.	JavaScript doesn't support modules.	TypeScript gives support for modules.
9.	In this, numbers, strings are the objects.	In this, number, string are the interface.

10.	JavaScript doesn't support generics.	TypeScript supports generics.

Q3. Explain the Need for AngularJS in real websites(P4-Appeared 1 time) (3-7M)

Ans: Need for Angular JS:
intuitive and declarative interface

- HTML is used to define the web applications interface while using Angular. HTML is considered to be intuitive and declarative in nature. It is lesser convoluted than defining an interface in JavaScript.
- The execution of the app can also be determined by HTML. The developers directly define what they want, instead of scrutinizing the flow of the program and what gets loaded first. Angular takes into consideration all of the dependencies.

Efficient usage of MVC

- Innumerous frameworks require the developer to split the application into MVC components. The developer has to further write a code to join them up.
- MVC in Angular can be implemented easily and efficiently as it only requires the user to split the application into MVC components. Angular manages and takes care of the rest by serving as a pipeline that connects them.

Lesser Code

- Since we don't need to write the code for the MVC pipeline, the length and the complexity of our code decreases. Additionally, we define the view by using HTML, which proves to be concise. We also

use data binding, which simply means that we do not have to put the data into the view manually.

- Filters, on the other hand, allow the user to manipulate data on the view level without changing the controllers.

DataModels are POJO

- The data models defined in Angular are POJO i.e. Plain Old Java Objects. They do not require functions such as getter and setter. Properties can be added or altered directly in addition to looping over objects and arrays.

Directives

- AngularJS consists of a feature knows as Directives that allow the developer to build custom HTML tags that serve as new as well as custom widgets. Additionally, they can manipulate DOM attributes.

Dependency Injection

- A built-in dependency injection subsystem is present in AngularJS. Dependency Injection can be defined as a software design pattern that deals with how the components get hold of their dependencies.
- The AngularJS injector subsystem assists the developer in creating components, resolving their dependencies and providing them to the other components as requested.

High Performance

- Robust features such as Filters, Animations, Form Validation, API Client and Routing make AngularJS a powerful framework. These features enhance the web development and make it efficient and simple.

Filters

- Filters in AngularJS allow the developer to format the data without changing the original format.

- Angular contains multiple filters to format data of different data types.

Q4. Explain the usage of Mongoose for Structured Schema and Validation. (P4-Appeared 1 time) (3-7M)

Ans: Mongoose:

- Mongoose schema types are used to define a particular data structure for a MongoDB document. Schema types are useful for managing a definition for path defaults, strings, numbers, validation, getters, setter, field selection, and general queries.
- Mongoose is a Node.js-based Object Data Modeling (ODM) library for MongoDB. It is akin to an Object Relational Mapper (ORM) such as SQLAlchemy for traditional SQL databases.
- The problem that Mongoose aims to solve is allowing developers to enforce a specific schema at the application layer. In addition to enforcing a schema, Mongoose also offers a variety of hooks, model validation, and other features aimed at making it easier to work with MongoDB.
- Every Schema Types in Mongoose refers to a Collection and organizes the structure of a document. It supports data validation, queries, field selection etc.
- Following are the valid Schema Types supported by Mongoose:
    1. String
    2. Number
    3. Date
    4. Buffer
    5. Boolean
    6. Mixed

7. ObjectID
8. Array

- The benefit of using Mongoose is that we have a schema to work against in our application code and an explicit relationship between our MongoDB documents and the Mongoose models within our application.
- The downside is that we can only create blog posts and they have to follow the above defined schema. If we change our Mongoose schema, we are changing the relationship completely, and if you're going through rapid development, this can greatly slow you down. validators validate the value before storing it to the database.

Property	Description
match	RegExp, It creates a validator which examines if the given value matches with the expression.
enum	Array, It establishes a validator which tests if the provided value exists in the array.
minlength	Number, It creates a validator which examines if the value length is not less than the provided number.
maxlength	Number, It establishes a validator which examines if the value length is not more than the provided number.

Q5. Explain the concept of Flask Request Object (P4-Appeared 1 time) (3-7M)

Ans: Flask Request Object

- In the client-server architecture, the request object contains all the data that is sent from the client to the server. As we have already discussed in the tutorial, we can retrieve the data at the server side using the HTTP methods.
- The data from a client's web page is sent to the server as a global request object. In order to process the request data, it should be imported from the Flask module. Important attributes of request object are listed below -
    1. Form - It is a dictionary object containing key and value pairs of form parameters and their values.
    2. args - parsed contents of query string which is part of URL after question mark (?).
    3. Cookies - dictionary object holding Cookie names and values.
    4. files - data pertaining to uploaded file.
    5. method - current request method.

SN	Attribute	Description
1	Form	It is the dictionary object which contains the key-value pair of form parameters and their values.

2	args	It is parsed from the URL. It is the part of the URL which is specified in the URL after question mark (?).
3	Cookies	It is the dictionary object containing cookie names and the values. It is saved at the client-side to track the user session.
4	files	It contains the data related to the uploaded file.
5	method	It is the current request method (get or post).

Q6. Compare Flask and Django(P4-Appeared 1 time) (3-7M)

Ans :

Flask	Django
Python web framework built for rapid development.	Python web framework built for easy and simple projects.
Flask is WSGI framework.	Django is a Full Stack Web Framework.
Flask provides support for API.	Django doesn't have any support for API.
Support Visual Debug.	No support for Visual Debug.

Flask allows you to use multiple types of databases.	Django doesn't offer multiple types of databases.
Flask has no default support for forms, but you can use WTForms to fill the gap.	Django comes Form with which can be integrate with the ORM and the admin site.
Flask does not offer dynamic HTML pages.	Django offers dynamic HTML pages.
The request based object is imported from the flask module, which is a global variable in Flask.	All views are set as an individual parameter in the Django.
Flask is much younger platform compared to Django.	Django is a very mature framework.
Flask offers a diversified working style.	Django offers a Monolithic working style.
It supports an extension which could be implemented in the framework.	Django has its own module library. So, it stores several prewritten codes.
The structure of the project layout for Flask web framework is random.	The structure of the project layout for the Django is conventional.

Flask web framework uses a Ninja2 template design.	Django web framework helps you to utilizes the View web templating system.

Q7. Short note on Wikis and RSS Feeds(P4-Appeared 1 time) (3-7M)

Ans: Wikis:

- A wiki is a website that can be collaboratively authored and edited. The most famous wiki is Wikipedia, but wikis can be used to a great advantage on a smaller scale as well.
- RSS (Really Simple Syndication) is a handy way to make information come to YOU. It's an XML file format that allows content to be distributed to those who subscribe to it.
- When you see one of these icons - - or terms like "syndicate this site," you'll know you can subscribe! You view your subscriptions using a content aggregator, also called a newsreader.
- Libraries use wikis for any project in which more heads are better than one. Wikis can be used to host student-created pathfinders and projects, teen-written book reviews, library documentation or policies, and guides to .... whatever! RSS is a great way to keep up-to-date in the field and filter information by subscribing to blog feeds. It brings the gift of
- serendipity - you find out things you didn't know you wanted to know! RSS can be used to "push" information to your audience by embedding feeds on your website. Share news, automatically updates new book lists and feature teen-interest content.

RSS Feed:

- RSS, in full really simple syndication, formerly called RDF site summary or rich site summary, the format used to provide subscribers with new content from frequently updated websites.
- An RSS feed is a set of instructions residing on the computer server of a website, which is given upon request to a subscriber's RSS reader, or aggregator.
- The feed tells the reader when new material—such as a news article, a blog posting, or an audio or a video clip—has been published on the website.
- The aggregator monitors any number of sites' feeds and centrally organizes and displays the new material for the user. The user then has a single source where all of the latest content is automatically available.
- Although full-featured software packages are available for RSS reading, many Web browsers include simple aggregators. Personal Web portals also read RSS feeds, offering the additional benefit of portability, since they can be accessed from any computer.
- Of similar utility are dedicated aggregator websites. Because RSS is a fairly simple standard, with feeds are written in the Web-authoring language XML, even a small-scale site can easily incorporate it as a feature.

Q8. more questions are available in Brainheaters app....

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