Pune Institute of Computer Technology, Pune-43
DEPARTMENT OF INFORMATION TECHNOLOGY
(Academic Year – 2021-22)
UNIT TEST - II

Subject : Web Application Development   Subject Code : 314453

Class : TE   Div: IX, X, XI   [Max. Marks : 30]

Date : 28/04/2022   Day: 28/4/2022   Duration : 1 Hour

Instructions to the candidate:

1. All questions are compulsory

2. Draw neat diagram wherever necessary.

Que. No.	Questions	

1-a	**Explain Node.JS Events and Node.JS Functions with example.**
	Answer: Node. js applications are event-driven, **the events are triggered on its associated event handler**. An event handler is nothing but a callback function called when an event is triggered. The main loop listens to the event triggers and then calls the corresponding event handler.
	// Importing events
	const EventEmitter = require('events');
	
	// Initializing event emitter instances
	var eventEmitter = new EventEmitter();
	
	// Registering to myEvent
	eventEmitter.on('myEvent', (msg) => {
	console.log(msg);
	});
	
	// Triggering myEvent
	eventEmitter.emit('myEvent', "First event");
	
	Node jsFunctions are first class citizens in Node's JavaScript, similar to the browser's JavaScript. A function can have attributes and properties also. It can be treated like a class in JavaScript.
	function Display(x) {
	   console.log(x);
	}
	
	Display(100);	

1-b	W**hat is ExpressJS? How to Configure Routes?** ExpressJS is a web application framework that provides you with a simple API to build websites, web apps and back ends. With ExpressJS, you need not worry about low level protocols, processes, etc. Express provides a minimal interface to build our applications. It provides us the tools that are required to build our app. It is flexible as there are numerous modules available on **npm**, which can be directly plugged into Express. It is very flexible and pluggable. Routes: Routing defines the way in which the client requests are handled by the application endpoints. **Implementation of routing in Node.js:** There are two ways to implement routing in node.js which are listed below: ● By Using Framework	L1

	● Without using Framework
	Using Framework: Node has many frameworks to help you to get your server up and running. The most popular is Express.js.
	Routing with Express in Node: Express.js has an "app" object corresponding to HTTP. We define the routes by using the methods of this "app" object. This app object specifies a callback function, which is called when a request is received. We have different methods in app object for a different type of request.
	For handling all HTTP methods (i.e. GET, POST, PUT, DELETE etc.) use app.all() method:
	
	var express = require('express')
	
	var app = express()
	
	app.all('/', function(req, res) {
	  console.log('Hello Sir')
	  next() // Pass the control to the next handler
	   })	

2-a	**Write a short note on NoSQL and MongoDB**
	
	NoSQL databases use a different approach. Based on a data model there are a few types of databases in the NoSQL world:
	
	Key-Value Stores
	
	    Key-Value Store is effectively an associative array stored on a disk; it is a single key lookup, a dictionary so to speak.
	
	    An example of this type of database is *Redis*.
	
	Column Stores
	
	Column stores, on the other hand, change this approach a bit: they store data in so-called *columned families* (i.e., in column order).
	
	For example:
	
	    ● First, Ids of all records are saved.
	    ● Then, all of their names, etc.
	
	Graph Stores
	
	Graph stores use *graph* structures for queries, with *nodes*, *edges*, and *properties*, to represent and store data.
	
	They are used for storing a network of connections or relationships (e.g., social networks).
		L1

	Graph stores are a bit different from other NoSQL databases since they originated from a different problem with relational databases–they have a number of small records with a lot of relationships between them. An example of such a database is *AllegroGraph*. ***Document Stores*** One of the most popular types of NoSQL databases is **Document stores**, which revolves around the concept of a document. **Documents** are self-describing structures and usually similar to each other, but they don't have to be the same. Unlike the rows in relational databases, where every row has to follow the same schema, documents can vary from each other and still belong to the same collection. *MongoDB* and *Couchbase* are examples of document stores. ***Multi-Model Databases*** **Multi-model** databases are designed to handle *multiple* data models against a *single* integrated backend	
2-b	**What is Mobile Web? Which are Mobile Devices?** Answer: Mobile web involves **accessing websites via smartphones and tablets**. It is an entirely distinct media. A smartphone is a mobile phone that includes numerous functions such as accessing Internet, downloading and using apps, checking email, and incorporates elements such as GPS and camera, etc. Mobile device is a general term for any handheld computer or smartphone. **Tablets, e-readers, smartphones, PDAs, portable music players, smartwatches, and fitness trackers with smart capabilities** are all mobile devices.	
3-a	What is jQuery Mobile Framework? Explain features. How to set up jQuery Mobile. Answer: **jQuery Mobile Framework** The jQuery Mobile framework is uncomplicated and flexible. Since the framework's configuration interface is mark-up driven, developers can easily build their complete basic application interfaces in HTML, with minimal or no JavaScript code. Complex tasks requiring several lines of JavaScript code, such as Ajax calls and DOM manipulation, can easily be realized with few lines of code in mobile jQuery. For example, if we want a user to click and hide some text after a page has been created in the DOM, but before enhancement is complete, we can simply use the **pagecreate** event handler. This is something that would require several lines code to accomplish without jQuery Mobile. **Set up jQuery Mobile** - Download the zip file and extract all files. - Create a library (or lib) folder inside of your application (inside the www folder).	

	● Create a jquery-mobile folder inside the lib folder (I've named mine jqm). ● Place all of the jquery-mobile files that you have extracted inside of the jquery-mobile folder. You can now link to these files in your index.html file. In the code below the javascript and css files are included by URL. You can alternatively follow the bullet points above and include it by the path it's located at on your local machine, i.e.: ``` <link href="lib/jqm/jquery.mobile-1.4.5.min.css" rel="stylesheet" /> ... <script type="text/javascript" src="lib/jqm/jquery.mobile-1.4.5.min.js"></script> ```	
3-b	**Write a short note on - AWS Cloud and Web Application on AWS** AWS (Amazon Web Services) is a comprehensive, evolving cloud computing platform provided by Amazon that includes a mixture of infrastructure as a service (IaaS), platform as a service (PaaS) and packaged software as a service (SaaS) offerings. AWS services can offer an organization tools such as compute power, database storage and content delivery services.AWS launched in 2006 from the internal infrastructure that Amazon.com built to handle its online retail operations. AWS was one of the first companies to introduce a pay-as-you-go cloud computing model that scales to provide users with compute, storage or throughput as needed.AWS offers many different tools and solutions for enterprises and software developers that can be used in data centers in up to 190 countries. Groups such as government agencies, education institutions, nonprofits and private organizations can use AWS services. **How AWS works** AWS is separated into different services; each can be configured in different ways based on the user's needs. Users should be able to see configuration options and individual server maps for an AWS service. **Web Application on AWS** AWS **provides on-demand access to scalable web and application servers, storage, databases, content delivery, cache, search, and other application services** that make it easier to build and run apps that deliver a great customer experience.	

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