

Interview Assignments

Technical Skills and Prerequisites

1. Java, C, C++
2. AJAX, HTML, DOM, jQuery
3. Android,
4. NodeJS, MySQL, NoSQL,
5. IntelliJ IDEA IDE
6. GIT Version Control System, Unix, Mac
7. Unit Testing Frameworks (Choose your own or as per the requirement)

Rules:

1. Learn to create a account in github.com and create a workspace for individual programming assignments.
2. Add the README file which shall explain and instruct the evaluator to use and test the code.
3. Follow the coding standards that includes the commenting of the code at the right places, formatting, rational naming of variables and functions.
4. Each function should be unit tested using any unit testing framework for all the extreme cases.
5. The README file shall also shall mention about the information about the usage and implementation of unit testing.
6. Candidates can make any valid assumptions, if any required to connect missing information, to complete the assignments.
7. The assignments shall be evaluated for well-organized, efficient, transparently documented, object oriented and modular code.
8. Candidate's individual approach to solving problems and analytical skills shall also be judged and verified. Please avoid using code from any open source or third-party solutions.
9. **Any team-worked solutions shall not be considered for evaluation.**

Assignment I:

Setup the nodejs platform on your computer. Write a short piece of Javascript on the NodeJS platform code to asynchronously download and display 10 images after 10 seconds on a blank web page. All the images should be of same size. The javascript code should generate HTML to position the images in a 5 x 2 grid pattern, and the Javascript should asynchronously replace a "Loading ..." icon with the actual image once it is downloaded. In addition, all the images should be clickable links that simply reload the same page.

Ensure that the code functions correctly and looks identical on IE7, Firefox and Chrome browsers.

Assignment 2:

Download the CSV file from the link -

<https://www.dropbox.com/s/i5b8umowel3sqII/Data%20-%20Sheet1.csv>

1. Convert the csv file to a json doc and write the contents to a json file
2. Write the convertor in JavaScript, Java and C++

Assignment 3:

1. Use the same data file that is downloaded for assignment 2.
2. Write a HTML file that shall display the contents in a table. Read the contents using jQuery and display the results in a html table. Use twitter bootstrap for styling the html page.

Assignment 4:

1. Use the above downloaded csv data file and read the contents using a json file.
2. Store the contents in the memory using java collections.
3. Write a java program that shall take the productname as the input from console and list the names of the persons who has consumed a particular product (e.g) when we enter the the product name 'Green Tea' the program should list the first and last names of the person who has used that product.
4. The Java Program shall also read a person's last name from the console and list the name of the product the person has used. Use valid class modeling and data structures to fit the data.

Assignment 5:

Create a Employee Database for an organization. Each employee may or may not have a manager. One employee may have many subordinates. This can grow upto any level. Write SQL schemas for MySQL and load the tables with dummy data. Write the following queries

1. Find all the sub-ordinates for a given employee
2. Find the manager of an employee

Assumptions

1. Employee Schema contains ID (primary key), name, designation and email
2. One employee shall have only one manager.

Assignment 6:

Write a java program that sets-up a publisher subscriber pattern. Set up a console reader to read messages and publish the messages to the subscriber. The subscriber should print the message to the console indicating the user that it has received the message from the publisher indicating the message details and the time of receiving the message.

Assignment 8:

Set up a similar publisher subscriber functionality mentioned in the previous assignment in javascript using asynchronous functions. Instead of reading the message from the console, Make the publisher to produce 10 messages in a frequency of one message for every 5 seconds and print the messages using the subscriber to the console.

Assignment 9:

Write a simple android program to display the message on an android activity about the data connectivity of the device. When the data connectivity is switched off the message should say "internet connectivity not available" and when the data connectivity is available the message should say "internet connectivity is available"

Assignment 10:

A bounding box in a two-dimensional cartesian space (x,y) space is calculated so that it contains all the given (x,y) points. Create a bounding box class with four bounding points that shall be called as NW, NE, SW, SE coordinates. Write a Java program that shall take 10 points (x,y) from the console and computes the bounding box based on the minimum and maximum of the xth and the yth values of 10 points.