**Answer Questions**

**Software**

Describe the following in one sentence or less:

ASP.NET​  Master Pages

Master Pages provide templates for other pages to create a consistent look and behavior for all pages in your web application.

User Controls

When you need functionality in a control that is not provided by the built-in ASP.NET Web Server Controls, you can create composite or user controls that contain markup and existing Web server controls, then treat the controls as a unit and define properties and methods for them.

Server Controls

In ASP.NET, Server Controls are the building blocks of the graphical user interface that consist of HTML Server Controls, Web Server Controls and Validation Server Controls.

Data Source Controls

Data Source Controls are types of server controls, for example SQLDataSource, that allow you to connect and retrieve data, and provide data binding to different data sources.

Data Bound Controls

These are web controls, for example a GridView or ListView control, that can be bound to data source controls to make it easy to display and modify data in your web application.

Design Patterns

MVC

A design pattern used to separate business logic from presentation, where Model represents an object carrying data, View represents the visualization of the data that model contains, and Controller controls the data flow into model object and updates the view whenever data changes while keeping Model and View separate.

Singleton

A design pattern that involves only one class which is responsible to instantiate itself, to make sure it creates not more than one instance and provides a global point of access to that instance.

Provider

A Provider design pattern is a contract between an API and the Business Logic/Data Abstraction Layer. The provider is the implementation of the API separate from the API itself.

What is the difference between ​ ASP.NET​  and ASP?

ASP stands for Active Server Pages, also known as Classic ASP which is Microsoft’s server-side technology and used to create dynamic and user-friendly web pages. ASP.NET was developed by Microsoft to allow programmers to build dynamic web sites, web applications or web services. It is an open source server-side web application framework designed for Web development to produce dynamic web pages. The main difference between ASP and ASP.NET is that ASP is Interpreted Language because ASP uses VBScript; whereas ASP.NET is Compiled Language because ASP.NET uses .NET Languages like C#, VB.NET, which are compiled to MSIL (Microsoft Intermediate Language).

What is the difference between ​ ASP.NET, ColdFusion, and JSP?

ASP.NET – Active Server Pages released by Microsoft, uses compiled language, i.e. C#, VB.NET

ColdFusion – A rapid development platform for building modern web applications, built on Java and uses the Apache Tomcat J2EE container.

JSP – Java Server Pages released by Sun Microsystems, uses Java language

Describe how MVC is implemented in ​ ASP.NET

MVC separates application responsibility in to 3 main layers. The Model represents the business logic, objects that are passed between controller and view. The View is represented by the presentation logic. It accepts the data in the ViewData objects passed to it by the Controller and renders them. The Controller is represented by the application logic. In MVC incoming requests are handled by the controllers. A Controller is a class inheriting from the built-in Controller class which implements the IController interface.

How can open source and .NET be compliant?

The latest version of ASP.NET (5.0) has .NET Core open source.

Describe the last web application you created, regardless of language it was implemented in, and describe its function:

The last major web application I created was Private Investment One-Stop application for Cambridge Associates, a 3-tiered client server application developed in C# within the Visual Studio 2012, .NET Framework 4.0 and SQL Server 2012 development environment. The application was a financial tracking and reporting system, providing consultants with information on firms and their associated funds. Users had the option to enter and update firm or fund information as needed and have the report data displayed on screen or printed.

List some Frameworks that you know of other than .NET in other languages / platforms:

Ruby on Rails – Ruby

Django – Python

PHP Framework – PHP

**Database  ​**

Describe the following in one sentence or less:

Database

A database is an organized form of data for easy access, storing, retrieval and managing of data.

Tables

A table is a set of data that are organized in a model with Columns and Rows.

Views

A View is a virtual table which consists of a subset of data contained in a table.

Columns

Columns are sets of data represented vertically in a table.

Stored Procedures

A Stored Procedure is a set of SQL statements that have been previously created and stored into the SQL server database to perform some operation, such as retrieving result set from tables, insert, update, delete data etc.

Functions

Can be a built-in function to perform calculations that return aggregate or scalar values, or user-defined function that can accept parameters, perform complex calculations, and returns scalar or table values.

Name some of the differences between Microsoft Access and SQL Server Express

Microsoft Access is file based, has built-in forms, reports and other utilities to build your own user interface for your backend database tables. It utilizes Jet SQL and the max file size is 2GB. It is usually used for fairly small scale applications with five users or less.

SQL Server Express is a scaled down version of Microsoft SQL Server using a Client/Server model. It supports many of the advanced features of MS SQL Server such as stored procedures, views, functions, XML support, etc., but it has no interface development tools as with Access. You would need a front end-environment like C# Express to create a user interface. It utilizes Transact-SQL and the max file size is 4GB, 10GB for SSE R2. It is used for small to medium scale applications.

Why is SQL Server better than MySQL or vice versa?

MySQL is geared more toward selecting data so it can be displayed, updated and saved again. MySQL is weaker in the areas of inserting and deleting data. But it is an excellent choice, for data storage and referencing data. Although like stored procedures, triggers, views, and cursors became a part of the MySQL database server in MySQL version 5.0, it does not have a rich feature set in terms of development functions and capabilities in SQL Server. SQL Server offers better all-round security features, as Microsoft’s Baseline Security Analyzer helps administrators ensure that the SQL Server installation is up to date. MySQL has no such tool to do so. Overall SQL Server seems to provide a more secure, scalable and efficient database.

**Systems**

Describe the following in one sentence or less:

Web Server

A Web Server handles client side and server side validations and helps to deliver Web content that can be accessed through the Internet protocols. A Web Server can be located on the same or another computer. Examples are Microsoft IIS or Apache.

Operating System

An Operating System controls and coordinates the use of hardware among the different processes and applications, for example Windows 8 or 10 or Apple’s iOS.

Database Server

A Database Server is used to refer to the back-end system of a database application using client/server architecture. The back-end, sometimes called a database server, performs tasks such as data design, storage, data manipulations, archiving, and other non-user specific tasks. Examples: Oracle, MS SQL Server, MySQL (Open source), IBM DB2, etc.

GAC

Global Assembly Cache (GAC) is where all shared .NET assembly resides, useful if an assembly needs to be shared among several applications on the same computer.

Web.Config

Web.Config is the main settings and configuration file for an ASP.NET web application. The file is an XML document that defines the configuration information regarding the web application.

CMS

CMS stands for content management system. It has several tools like joomla, drupal to create websites and manage the content in web pages from a central interface.

Portal

Portals provide site users with a single point of access to multiple types of information and applications, aggregating content and functionality.

CRM

CRM stands for Customer Relationship Management. It is a strategy and practice that companies use to manage and analyze customer interactions and data throughout the customer lifecycle.

Source Control

Source Control means to put source code under a repository with access controls to the users using software like TFS or Git.

What is the difference between Apache and IIS?

Apache is free and IIS is packaged with Windows OS. Apache can run on almost any OS including UNIX, Apple’s OS X, and on most Linux Distributions, whereas IIS only runs on Windows OS. Apache comes from the community itself while IIS has a dedicated staff to answer most problems while support.

Does ​ ASP.NET​  run on non-Windows operating systems? If so, how?

With the development of .NET open source, it is possible to run ASP.NET on Apache, for example, by installing Mono, the open source .NET project, where you can install a plugin for Apache that will handle ASP pages or by utilizing the most recent version ASP.NET 5.0

How do you develop an ASP.NET application locally and deploy it remotely?  Describe any scenario.

It would be developed locally using Visual Studio .NET and tested by deploying the web application to IIS on the local computer. Once fully tested and ready to deploy to Production, we need to publish the application and send the deployment files to a staging area. At Production deployment, the Webmaster will deploy the files to the Production web server and the DBA will deploy any new changes, i.e. stored procedures, UDF’s, table schema updates, etc. to the Production database server.

How do you run asp.net ​applications in the "cloud?" This is purposely an open ended question.

You would need to migrate or convert the application to Windows Azure or utilize the more recent ASP.NET 5 and DNX although developing on OS X and Linux are in an early Beta/Preview state. More research would be needed to explain in detail with either solution.

**Interfaces**

Describe the following in one sentence or less:

Wireframes

A wireframe is a static blueprint or schematic of a user interface, used as a visual aid in identifying basic functionality and navigation requirements, focusing on what the user interface or screen does, rather than how it looks.

Photoshop Mocks

Screen mock ups that include elements of screen design, style or graphics.

HTML / CSS / JavaScript Mock

Utilizing HTML/CSS/JavaScript code to create prototypes and screen mock ups.

Theming

Preset packages containing graphical appearance details used to customize the look and feel of a piece of computer software or of an operating system.

Layouts

The process of calculating the position of objects in space subject to various constraints, for example, computing of the position of the paragraphs, tabs, sentences, words and letters of a text in a page layout.

Native App

A native app is an app for certain mobile devices (smartphone, tablet, etc.) installed directly onto the device.

Hybrid App

In mobile computing, hybrid apps are those that combine elements of both native and Web applications, hosted inside a native application that utilize a mobile platform’s WebView.

Mobile Web App

Internet-enabled apps that have specific functionality for mobile devices, accessed through the mobile device’s web browser, not needed to be downloaded or installed on the device.

Why is a wireframe needed when building interfaces? Why is not?

Wireframes are developed to prototype distribution of existing site content for testing and iteration before the graphic interface and code are developed.

If given an HTML/CSS/JS theme, how would you go about implementing the theme into a Dynamic web application OR an existing CMS? Choose one scenario and describe your strategy.

After researching, I would have to incorporate the theme into some sort of JQuery or JQuery UI, using a JQuery plugin to let the user select the theme from a dropdown list.

What is a responsive layout / design?

Responsive design is an approach to web page creation that makes use of flexible layouts, flexible images and cascading style sheet media queries, to build web pages that detect the visitor’s screen size and orientation and change the layout accordingly.

**Demonstrate Ability**

**Systems**

To install the latest version of Appleseed please follow the below instructions:

1) Download Microsoft Web PI: ​ http://www.microsoft.com/web/downloads/platform.aspx

2) Add the below address as a feed inside options:

http://updates.agileworks.com.uy:81/home/Appleseed

3) Click on the Appleseed Folder and install the package.  This way it does a more formal install for you. It will then redirect you to setup and you can use a db you have created to install the software.

Additional Notes:

Refer to the Appleseed Portal Installation PDF for additional help. It is very important to follow the Environment Setup Instructions. Be sure to set up your website or virtual directory and database before attempting to install Appleseed.

Refer to <https://www.iis.net/configreference/system.applicationhost/applicationpools> for help in setting up the Application Pool.

After creating the website or virtual directory on IIS, check the Handler Mappings and ISASI Filters to make sure there are handlers and filters for the ASP.NET 4.0 Environment. If they are missing you will need to install IIS ASP.NET version 4. If you are using IIS 7 execute the following at the command prompt:

C:\windows\system32>C:\Windows\Microsoft.NET\Framework\v4.0.30319\aspnet\_regiis.exe -i

If an error occurs or if you are running IIS 8 or above, you will need to install IIS ASP.NET version 4.5

C:\windows\system32>dism /online /enable-feature /all /featurename:IIS-ASPNET45

After creating the database and installing Appleseed, if you are experiencing database issues, you will need to create a new user Login for Appleseed (IIS APPPOOL\’application name’) under the Security->Logins folder. Right click on the user you just created and go to properties. Establish a mapping for the database you created by selecting User Mapping on the left and clicking on the checkbox next to the database you need to map. In the database role membership section for the selected database, click on “db owner” and save changes.

Local Setup

Setup a web server on your computer to show a single ​ ASP.NET page that displays a variable stored in web.config file on an ​ ASP.NET Label or Literal control.

Install Appleseed locally. Windows is strongly recommended.

Successfully set up local web server and ASP.NET page. See screenshot on attachment Display\_Web\_Config\_Variable.png

FTP Deployment

Given FTP access, deploy the application to a remote website so that it can be seen from the outside world over the internet.

Install Appleseed remotely. Windows is strongly recommended.

  Unable to complete

Cloud

Setup an instance on a public cloud and deploy this application (Amazon, or Azure, or otherwise). It's your choice whether to use a scalable platform or an instance.

 Install Appleseed on the cloud. Windows is strongly recommended. Ask for resources to help you if needed.

Unable to complete

**Database**

Create a Database schema that supports the following two related types of information: Books and Locations

The implementation of the columns and what types they should should be based on the descriptive names below.

Books

BookID ­ Primary Key

BookName

BookAuthor

BookISBN

BookDescription

Locations

LocationID ­ Primary Key

LocationName

LocationDescription

LocationAddress

LocationLatitude

LocationLongitude

Populate the Books table with 5 the following books and 5 of your favorite books using your choice of data entry. All relevant data can be gathered from Amazon.com. CSV Import is preferred. (Show CSV file)

  Good to Great

Getting Things Done

Managing a Professional Service Organization

Enterprise Architecture as Business Strategy

12 Essential Skills for Software Architects

Gather 100 pieces of sample data from ​ <http://www.generatedata.com/> (except for Latitude Longitude) and import into the Locations table.

Describe how you'd get the Lat/Lon for each of the addresses in that table and keep it current.

You could use the Google Maps Geocode Reverse API to enter the address which would return the Lat/Lon. You would have to process the addresses when you initially populate the table, then call the control to update the Locations table whenever an address is updated.

Deploy these table remotely ­ whether on standard or cloud hosting. Use whatever method works. SQL Server Enterprise Manager's data import/export is highly encouraged.

See SQL scripts located on the BooksAndLocationsWeb->Documents & Scripts->Database Scripts folder.

**Interface**

Create a Master Page with a Header / Footer and Top Navigation using a responsive layout framework of your choice (SiteMaster.master)

Create three Pages that inherit from your Master page (Default.aspx, BooksView.aspx, and LocationsView.aspx)

The Top Navigation should have the following links:

Home­>Default.aspx

Books­>BooksEdit.aspx

Locations­>LocationsEdit.aspx

**Default.aspx (Home)**

The default page should show the data for the Books and Locations tables.

Books

Using a DataList, ListView, Repeater, or GridView or MVC display the book data so that it looks like a catalog of books on an ecommerce site, without a buy link of course. Make use of all fields, except BookID.

Please use your judgment on the design. Create a wireframe first, get it approved.

BookName

BookAuthor

BookISBN ­> use to generate link to Amazon

BookDescription

Locations

Using a third party mapping component, either gmap3 (jQuery), Artem Google Maps, or MVC display the location data so that the location data shows up on a Google or Bing map. Make use of the following fields, except LocationID.

Please use your judgment on the design. Create a wireframe first, get it approved.

LocationName

LocationDescription

LocationAddress

**BooksView.aspx (Books)**

Use GridView and FormView to create edit forms for the Books table in ASP.NET using a SQLDataSource

**LocationsView.aspx (Locations)**

Use GridView and FormView to create edit forms for the Locations table in ASP.NET using a SQLDataSource