Job Interview Questions Series

RESTful JAVA WEB SERVICES

INTERVIEW QUESTIONS
YOU'LL MOST LIKELY BE ASKED

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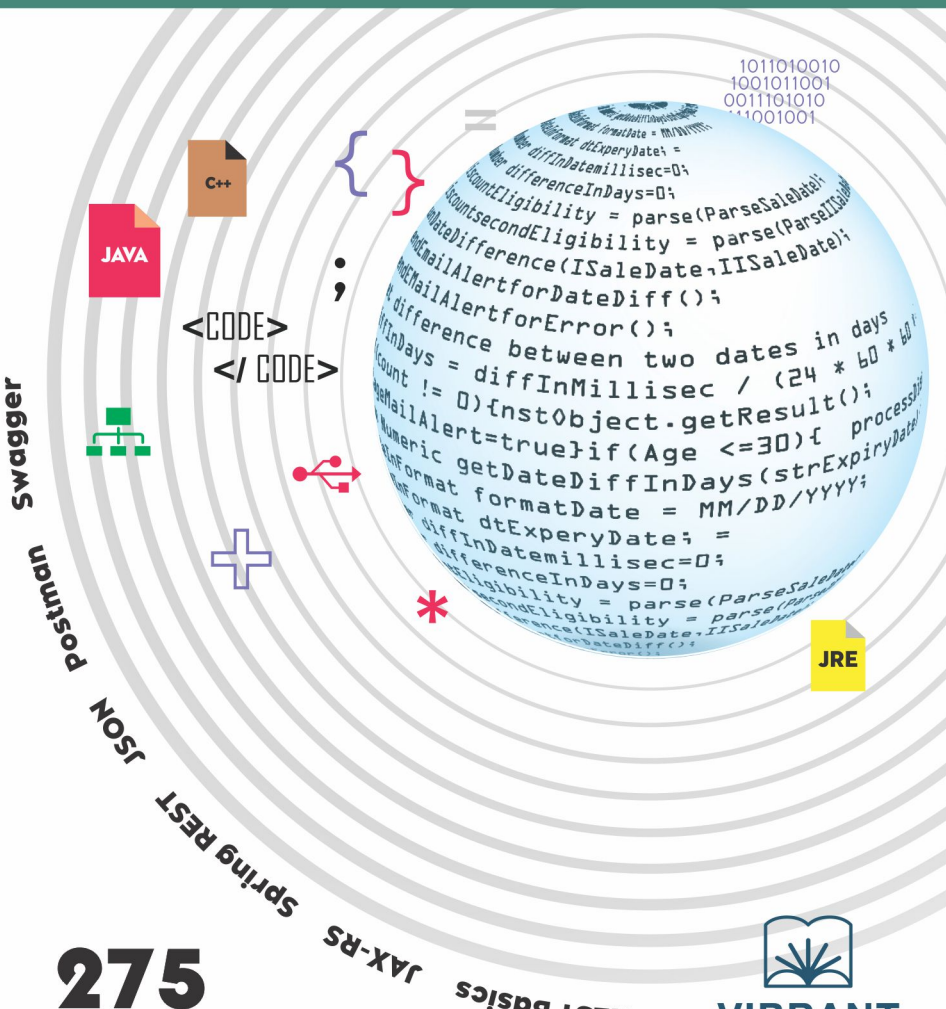

275
Interview Questions

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Thank you for an overwhelming response to *RESTful Java Web Services Interview Questions You'll Most Likely Be Asked: First Edition*

We are excited to announce a complete revamp to the set of RESTful Java Web Services interview questions in the Second Edition. The new edition includes fresh 275 interview questions spread across a wide range of topics. Some of the topics included are:

REST Basics	*JSON*
JAX-RS	*Postman*
Spring REST	*Swagger*

The interview questions are representation of most popular questions asked at technical interviews of leading software companies. Along with these technical questions, this book includes 75 HR interview questions. All the questions are followed by detailed and self-explanatory solutions.

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THIS BOOK IS AVAILABLE IN E-BOOK and PAPERBACK FORMAT.

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Review these typical interview questions and think about how you would answer them. Read the answers listed; you will find best possible answers along with strategies and suggestions.

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Chapter 1

Introduction to REST

1: What is REST?

Answer:

REST stands for REpresentational State Transfer. It is an architectural style for developing web services. In a REST application, the REST server exposes various services and client applications access those services. It makes use of the HTTP protocol, so the REST client and server communicate via HTTP. The data exchanged between the client and server can be in different formats like plain text, XML, HTML or JSON. So, a REST client requests a REST service via a URI, the REST service processes the client request and sends back the data in the appropriate format.

2: Which are the six principles on which REST API is based?

Answer:

a) **Client server –** Concerns should be separated between clients and servers. This allows client and server applications to be developed independently.

b) **Stateless –** The communication between the client and server should be stateless. The server need not remember the state of the client.

c) **Layered System –** Layered system simply means there can be several layers on the server side, but the client application need not be aware of this. So, your server code may be on one machine, database on another, etc. Multiple hierarchies such as gateways, firewalls, proxies can also be present between the client and server.

d) **Cache –** Responses from the server should be cacheable where possible in order to improve performance for the client.

e) **Uniform Interface –** The services provided by a REST application must be exposed via URIs. All interactions between client, server and intermediary components are based on the uniformity of their interfaces.

f) **Code on demand –** In addition to static data like XML or JSON, the REST application can send code like JavaScript, Applets which can be downloaded and executed by client applications.

3: Why is a REST service considered stateless?

Answer:

A REST application uses the HTTP protocol. HTTP is considered

to be stateless. Statelessness simply means that the server does not store any state information about the client application. So, a client application needs to send all possible data that the server will require in order to process the client request. If at all the application needs to store some state specific data, this needs to be stored on the client side and sent with each HTTP request. At the server side, each HTTP request is processed independently.

4: Explain the differences between SOAP and REST.

Answer:

Both SOAP and REST technologies are used to create web services. However, there are some differences between the two:

a) SOAP is a protocol like HTTP whereas REST is an architectural style for developing web services - it can use any underlying protocol.

b) Though REST applications mostly use HTTP as the underlying protocol, they can use SOAP as well. However, a SOAP application cannot use REST.

c) SOAP uses the JAX-WS Java API, REST uses the JAX-RS Java API.

d) SOAP application provides its services via a WSDL file. A REST application, on the other hand, exposes its services using URIs.

e) When SOAP is used, only XML data format can be used. When REST is used, you can use XML, JSON, HTML or plain text as the data format.

5: What are the steps in building a RESTful API?

Answer:

The following are the steps involved in building a RESTful application:

a) **Identify resources –** Central to REST are resources. We need to model resources that are of interest to the consumers.

b) **Identify endpoints –** Next, we need to design URIs that map resources to endpoints.

c) **Identity actions –** We need to identity the HTTP methods that can be used to perform operations on the resources.

d) **Identity responses –** We need to identify the supported resource representation for the request and response along with the right status code to be returned.

6: What are the benefits of using a REST API?

Answer:

REST is an architectural style. It has several features that make it very powerful and easy to use:

a) It is independent of language or technology. So, the REST server can be written in any programming language and the REST client can be written in any programming language.

b) It is platform independent. So, the server can be on any operating system like Windows, Unix, etc. and the client can be on a different operating system.

c) It allows the application to scale easily. Since the client and server side are developed separately, each side can be scaled easily without affecting the other.

7: Explain the HATEOAS principle in REST with an example.

Answer:

HATEOAS stands for Hypermedia As The Engine Of Application State. This principle allows embedding links to other resources or services in a REST response. So, the REST client need not know about the services provided by a REST application. As and when the client requests information, along with information, the server provides links to other services that the client can access. Consider the following REST request which queries a REST service for employee information:

GET /employees/123

This will return a response as follows:

```
<employee>
    <employee_id>123</employee_id>
    <name>John Smith</name>
 <department>Admin</department>
    <link rel="payroll"
href="/employees/123/payroll" />
</employee>
```

So, along with the employee information, a link is provided which can be used by the client application to fetch payroll information for the employee.

8: How is a REST application different from an ordinary web application?

Answer:

Just like an ordinary web application, a REST application uses the HTTP protocol for the communication between the client and server application. However, there are couple of differences between the two:

a) Normally, a web application serves content in HTML format. A REST application can serve content in XML, JSON or HTML format.

b) The end users of a web application are humans who access the web application via their browsers. Though a REST application may be accessed via a browser for testing purpose, they are generally used by software applications itself which are known as REST clients.

9: Explain the principles of the Uniform Interface constraint.

Answer:

The Uniform Interface principle states that there should be a uniform interface between clients and servers. It consists of the following four principles:

a) **Resource identification –** Resource needs to be identified. A URI needs to be provided in order to identify and access a resource.

b) **Resource representation –** The resource needs to be serialized into a representation before being sent to a client.

c) **Self-descriptive messages –** Each message sent to the client needs to have information about how that message should be processed.

d) **HATEOAS –** Hypermedia As The Engine Of Application State (HATEOAS) allows embedding links to other resources or services provided by a REST server in a REST response.

10: What does the term "messaging" refer to in the context of a REST application?

Answer:

In a REST application, the client and the server communicate with each other via the HTTP protocol. So, the client application sends an HTTP request and the REST server sends an HTTP response. This is referred to as messaging. Each message consists of the message data and metadata, that is data about the message data. So, an HTTP Request consists of the HTTP Method being requested, parameters if any and request headers which is the metadata. So, also an HTTP Response consists of the Response Headers and actual data being requested.

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RESTful Java Web Services Interview Questions You'll Most Likely Be Asked: Second Edition is a perfect companion to stand ahead above the rest in today's competitive job market. Rather than going through comprehensive, textbook-sized reference guides, this book includes only the information required immediately for job search to build an IT career. This book puts the interviewee in the driver's seat and helps them steer their way to impress the interviewer.

Includes:

- 200 RESTful Java Web Services Interview Questions, Answers and proven strategies for getting hired as an IT professional
- Dozens of examples to respond to interview questions
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