

<p>BSCCS2003: Practice Questions with Solutions</p> <p>Week 6</p>

1. As per the normal convention, what does “v1” represent in the following URL:
<https://en.wikipedia.org/w/rest.php/v1/search/page?q=earthlimit=1> [MCQ]
- ☐ verbose
 - ✓ ☒ version
 - ☐ virtual
 - ☐ None of the above

<p>Solution: Here, “v1” represents the version of the API (Reference: timeframe 3:15 in Lecture 6.4).</p>
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2. Which of the following statements is true about REST APIs? [MCQ]
- ☐ A REST API is an API that corresponds to the design principles of the REST (representational state transfer).
 - ☐ REST APIs communicate via HTTP requests that can be used to perform database functions like creating, reading, updating, and deleting (or CRUD) records within a resource.
 - ☐ A resource is delivered to a client in any format including JavaScript Object Notation (JSON), HTML, XML, or plain text.
 - ✓ ☒ All of the above

<p>Solution: All of the above statements are correct about REST APIs.</p>
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3. Which of the following statements is/are valid about the REST? [MSQ]
- ☐ REST is a programming language.
 - ✓ ☒ REST adheres to stateless communication.
 - ✓ ☒ Every resource is identified using unique identifiers also called as URI (or uniform resource identifier).
 - ✓ ☒ In the REST architecture, clients send requests to retrieve resources, and servers send responses to these requests.

Solution: REST is not a programming language. It is an architectural style for defining standards between computer systems on the internet, which makes easier for systems to communicate with each other.

4. Which of the following statements is/are true about caching in REST APIs? [MSQ]
- ✓ Caching allows storing server response in proxy frontend so that a client needs not to make request to the server for same resources repeatedly.
 - ✓ Caching improves the overall quality of service and reduce load on the servers.
 - ☐ Browsers treat all GET and POST requests cacheable by default.
 - ☐ Caching optimizes the network by increasing the latency.

Solution: Option 3) This statement is partially correct. As GET requests are cacheable by default, whereas POST requests are not cacheable by default.
Option 4) Caching optimizes the network by reducing the latency.

5. Which of the following statements is/are true about the proxy server? [MCQ]
- ☐ Proxy server can be used to control what part of the application is accessible to an unauthorized user.
 - ☐ A proxy server is a server application that acts as an intermediary between a client requesting a resource and the server providing that resource.
 - ✓ Both option 1 and 2
 - ☐ None of the above.

Solution: Both option 1 and 2 are true about proxy server.

6. Which of the following statements is/are true about client-server computing? [MSQ]
- ✓ The client-server computing works with a system of request and response.
 - ☐ The client and server are not bound to follow common protocol to establish communication.
 - ✓ The client requests services from the server. The server processes the request and returns the result to the client.
 - ☐ All of the above

Solution: Option 2) In client-server computing, both the client and server should communicate via a computer network and should follow a common protocol to communicate.

7. Which of the following is/are true regarding GET HTTP Method? [MSQ]

- ✓ It should be safe in context of REST.
- ✓ It should be idempotent in context of REST.
- ✓ It is allowed in HTML forms.
- ☐ GET Request has a body.

Solution: An HTTP method is safe if it does not alter the state of the server. GET request is used to get the representation of a resource. It does not alter the state of the server. It is idempotent because single or multiple GET request has the same impact on the state of the server. It is allowed in the HTML forms. And GET request does not have body. Data is embedded in URL.

8. Which of the following is true regarding the DELETE HTTP method? [MCQ]

- ☐ It should be safe in context of REST.
- ✓ It should be idempotent in context of REST.
- ☐ It is allowed in HTML forms.
- ☐ It should be cacheable in context of REST.

Solution: An HTTP method is safe if it does not change the state of the server. DELETE request is used to delete the resource. It changes the state of a server. So it is not safe. It is idempotent because single or multiple identical DELETE request to delete a resource will have the same impact. It is not cacheable because its response can not be cached.

9. Which of the following is an invalid JSON object?

[MCQ]

- ☐ {
 "Name" : "xyz",
 "Age" : 21,
 "place" : "chennai"
}
- ☐ {
 "Name" : "xyz",
 "Over18" : true,
 "place" : "chennai"
}
- ☒ {
 1 : "xyz",
 "Age" : 21,
 "place" : "chennai"
}
- ☐ {
 "1" : "xyz",
 "Age" : 21,
 "place" : "chennai"
}

Solution: A JSON object is a collection of key : value pairs, where a key must be a string and value can be a number, string, object, true, false, array or null.

10. Consider the following Python code and choose the correct statements.

```
import json
My_dictionary = {
    "name": "John",
    "age": 28,
    "city": "Chennai"
}
out = json.dumps(My_dictionary)
```

[MSQ]

- ✓ The Python object 'My_dictionary' will be converted into a JSON string.
- The method 'json.dumps()' converts every Python object into a JSON string.
- ✓ The Python object 'My_dictionary.keys()' will be converted into JSON array.
- None of the above.

Solution: The method 'json.dumps' converts a Python object into its equivalent JSON object. A python dictionary gets converted into string, while a list gets converted into an array.

11. Which of the following is/are true for API authentication?

[MSQ]

- ✓ Many APIs are protected to avoid abuse by overloading servers.
- ✓ An authenticated user requires a token to be able to work with the API.
- The API key is the most secure way to protect the API.
- ✓ API keys can be easily retrieved.

Solution: Many APIs are meant only for specific users and are often protected to prevent their abuse due to server overloading. An authenticated user of the API possesses a token that it needs to provide during logging in into the API. This can also be done by API keys, which is a one time key to log in. However, API keys can be copied and are therefore less secure unless they are combined by some other protection.

12. Which of the following is a valid JSON?

[MCQ]

☐ {
 "Age": 27,
 "firstName": "John",
 "lastName": Smith,
 "married": true,
 "phone_numbers": [
 "212-555-1234",
 "212-666-5678"
]
}

☒ {
 "Age": 27,
 "firstName": "John",
 "lastName": "Smith",
 "married": true,
 "phone_numbers": [
 "212-555-1234",
 "212-666-5678"
]
}

☐ {
 "Age": "27",
 "firstName": "John",
 "lastName": "Smith",
 "married": True,
 "phone_numbers": [
 "212-555-1234",
 "212-666-5678"
]
}

☐ {
 "Age": "27",
 "firstName": "John",
 "lastName": "Smith",
 "married": true,
 "phone_numbers": (
 "212-555-1234",
 "212-666-5678"
)
}

Solution: Option 1: The 'lastName' is a string object and should have a string value. Here, it acts as a defined variable.

Option 2: It is a valid JSON file.

Option 3: The boolean output 'True' is converted to 'true' according to javascript.

Option 4: The tuple object in python is stored as array in JSON. In option 4, it is stored in a tuple.