

Python Developer Applicant Programming Test

Description

Design and implement a RESTful web API that can be used to maintain a database of GUIDs (Globally Unique Identifier) and associated metadata. The API must expose commands to perform CRUD operations (Create, Read, Update, Delete). The application should use a cache layer to quickly serve the most recently used GUIDs. GUIDs should be 32 hexadecimal characters, all uppercase. The GUIDs should be valid only for a limited period of time, with a default of 30 days from the time of creation, if an expiration time is not provided. The expiration time should be formatted in Unix Time. Input and output data should be valid JSON format. Validations should be put in place to make sure input data conforms the specified formats. Code must be documented.

Bonus points if the solution is fully asynchronous.

Commands specification

Create

Creates a new GUID and stores it in the database along with the metadata provided. If a GUID is not specified, the system should generate a random one.

Example 1

URL: POST /guid/9094E4C980C74043A4B586B420E69DDF

Input:

```
{
  "expire": "1427736345",
  "user": "Cylance, Inc."
}
```

Output:

```
{
  "guid": "9094E4C980C74043A4B586B420E69DDF",
  "expire": "1427736345",
  "user": "Cylance, Inc."
}
```

Example 2

URL: POST /guid

Input:

```
{
  "user": "Cylance, Inc."
}
```

Output:

```
{
  "guid": "9094E4C980C74043A4B586B420E69DDF",
  "expire": "1427736345",
  "user": "Cylance, Inc."
}
```

Read

Returns the metadata associated to the given GUID.

Example

URL: GET /guid/9094E4C980C74043A4B586B420E69DDF

Output:

```
{
"guid": "9094E4C980C74043A4B586B420E69DDF",
"expire": "1427736345",
"user": "Cylance, Inc."
}
```

Update

Updates the metadata associated to the given GUID. The GUID itself cannot be updated using this command.

Example

URL: POST /guid/9094E4C980C74043A4B586B420E69DDF

Input:

```
{
"expire": "1427822745",
}
```

Output:

```
{
"guid": "9094E4C980C74043A4B586B420E69DDF",
"expire": "1427822745",
"user": "Cylance, Inc."
}
```

Delete

Deletes the GUID and its associated data.

Example

URL: DELETE /guid/9094E4C980C74043A4B586B420E69DDF

No output.

Error code returns

The following response codes should be returned by the service:

- 200's on accepted/successful requests
- 400's on client errors
- 500's on server errors

Suggestions

- Use the Tornado web framework for the RESTful interface
- Use Redis for the cache
- Use MySQL or MongoDB to store data permanently