|  |  |
| --- | --- |
| **Name:** | **Foo chi jao** |
| **Email:** |  |

**Question 1**

Amazon’s Simple Storage Service (S3) is an object storage service; objects are stored as key/value pairs. Objects can be added or read from S3 either through the web console or through RESTful API.

Read the following documentation of inserting an object into an S3 bucket

<https://docs.aws.amazon.com/AmazonS3/latest/API/API_PutObject.html>

and answer the following questions

1. What content type is supported by S3 in the put object operation?

* MIME type

1. How does S3 ensure payload integrity viz. the object that is uploaded, especially large object, has not been corrupted.

* Calculate MD5 and add it in the content-MD5 header

1. What other algorithms (wrt b) does S3 support? How are these algorithms specified?

* base64-encoded, 32-bit CRC32
* base64-encoded, 32-bit CRC32C
* base64-encoded, 160-bit SHA-1
* base64-encoded, 256-bit SHA-256
* It is specified using the [**x-amz-sdk-checksum-algorithm**](https://docs.aws.amazon.com/AmazonS3/latest/API/API_PutObject.html#API_PutObject_RequestSyntax)header by indicating CRC32 | CRC32C | SHA1 | SHA256

1. How does S3 ensure content confidentiality?

* It uses the AWS KMS key or Amazon S3 managed encryption key

1. What strategy does this operation use to support S3 features (eg. encryption, storage classes, etc.) when an object is uploaded?

In your opinion, how are new S3 features supported by this operation?

* Server side encryption, i.e. not encrypted in transit

1. How does the put operation support caching?

* Yes, standard cache-control

1. How does the operation ensure that all the required parameters (eg. bucket name, encryption key, credentials, etc.) are correct be committing to the put operation?

* Can specify header Expect: 100-continue to ensure that you have all the required parameters before continuing with the PUT operation,
* Text

  Description automatically generated

1. What are the main differences between this operation (PutObject) and PostObject (<https://docs.aws.amazon.com/AmazonS3/latest/API/RESTObjectPOST.html>)

* POST enables browser-based uploads as a way of putting objects in buckets.
* Parameters that are passed to PUT through HTTP Headers are instead passed as form fields to POST in the multipart/form-data encoded message body
  + Theoratically, PUT is only for 1 object. Hence if need small data to be saved, able to combine all of them into a single multipart form and them via 1 POST request instead of 5 PUT request

1. S3 charges includes egress, viz. amount of data transferred out from a S3 bucket. If your server is using S3 for data storage, how do you reduce your S3 charges?

* Compression when PUT/POST data
* Enable caching for immutable data e.g video
* Enable CORS
* Implement chunking e.g. youtube, video is chunked so users can jump straight to the part of the video they are interested in and don’t need to download unnecessary data

**Submission**

Copy this Word document to your repository and commit it.

git add .

git commit -m ‘worksheet02’

git push origin master