

---

# **S3 - Homework 1 - SDEV400**

***Release 1.0.0***

**Craig Poma**

**Apr 06, 2021**



**CONTENTS:**

<b>1</b>	<b>Indices and tables</b>	<b>1</b>
<b>2</b>	<b>SDEV400 - Homework 1 - Using S3</b>	<b>3</b>
	<b>Python Module Index</b>	<b>9</b>



## INDICES AND TABLES

- genindex
- modindex



## SDEV400 - HOMEWORK 1 - USING S3

```
__filename__ = "sdev400_homework1.py"
__coursename__ = "SDEV 400 - Secure Programming in the Cloud"
__author__ = "Craig Poma"
__copyright__ = "Craig Poma"
__credits__ = ["Craig Poma"]
__license__ = "MIT"
__version__ = "1.0.0"
__maintainer__ = "Craig Poma"
__email__ = "craig.poma@faculty.umgc.edu"
__status__ = "Baseline"
__docformat__ = 'reStructuredText'
```

### REQUIREMENTS:

#### Assignment general requirements for options / menu items:

- Creates a S3 bucket with the name consisting of your firstname, lastname and a random 6-digit suffix.
  - ERROR CHECKING - First and Last name can only contain valid **name** characters (i.e. A-Z, a-z, and -). The application does not allow a name to have an apostrophe (') as it is not DNS safe. A name should not contain numbers except for the randomly generated 6-digit suffix.
  - ERROR CHECKING - Bucket names can only be 3 - 63 characters in length
  - ERROR CHECKING - Should not create a bucket with the same name that already exists. Bucket names must be unique.
- Puts objects in a previously created bucket.
  - Implemented to use the error.log that application generates while running. This could be enhanced to ask for a specific file to be uploaded, but this wasn't a requirement.
- Deletes an object in a bucket.
  - All objects in the bucket will be listed. There is no **paging**, the list could be long.
  - ERROR CHECKING - You cannot select a bucket outside of the range of listed buckets for the object source.
  - ERROR CHECKING - You cannot select an object outside of the range of listed objects to delete.
- Deletes a bucket.
  - All available buckets will be listed. There is no **paging**, the list could be long.

- Bucket must be empty.
- ERROR CHECKING - The application will print an error if the selected bucket is not empty.
- ERROR CHECKING - You cannot select a bucket outside of the range of listed buckets for target bucket.
- Copies and object from one bucket to another.
  - All available buckets will be listed. There is no **paging**, the list could be long.
  - Source and Destination bucket selected must be different.
  - ERROR CHECKING - If the user attempts to select the same Destination as the Source an error message will be printed.
  - ERROR CHECKING - You cannot select a bucket outside of the range of listed buckets for Source or Destination.
  - ERROR CHECKING - You cannot select an object outside of the range of listed objects to copy.
- Downloads an existing object from a bucket.
  - All objects in the bucket will be listed. There is no **paging**, the list could be long.
  - Will download the selected object and place it in the current directory. The file downloaded will be named **temp\_file**
- Exit the program. Upon exit, the application should list the date and time

```
sdev400_homework1.confirm_continue (default_prompt=' Do you want to continue? (Y or N):',  
                                     exit_message='Thanks for trying the Application. You have  
                                     selected to exit.', seperator_count=88, exit_app=True)
```

Confirm user wishes to proceed

### Parameters

- **default\_prompt(str)** – Value string to place in the input prompt. Default: Do you want to continue? (Y or N):
- **exit\_message(str)** – Value string to place if application exit occurs. Default: Thanks for trying the Application. You have selected to exit.
- **seperator\_count(str)** – Border of \* chars count surrounding messages. Default: 88
- **exit\_app(bool)** – Should application exit on 'No'. Default: True

### Return type str

**Returns selection(str):** Returns YES if successful.

```
sdev400_homework1.copy_bucket_object (s3_handle=None)
```

Copy an object from one bucket to another

Based off AWS S3 Sample - copy\_object.py - Dated 2019-2-12

**Parameters s3\_handle(boto3.session.Session.client('s3'))** – Access object to S3

### Return type None

**Returns None**

**Raises AttributeError:** S3 Handle not initialized for access to AWS S3

**Raises botocore.exceptions.ClientError.AllAccessDisabled:** S3 Access Disabled



`sdev400_homework1.create_bucket (bucket_name=None, s3_handle=None, region=None)`

Create an S3 bucket in a specified region

If a region is not specified, the bucket is created in the S3 default region (us-east-1).

Based off AWS S3 Sample - create\_bucket.py - Dated 2019-06-24

**Parameters**

- **bucket\_name(str)** – Bucket to create
- **s3\_handle(boto3.session.Session.client('s3'))** – Access object to S3
- **region(str)** – String region to create bucket in, e.g., 'us-west-2'

**Return type bool**

**Returns** True if bucket created, else False

**Raises AttributeError:** S3 Handle not initialized for access to AWS S3

**Raises botocore.exceptions.ClientError.AllAccessDisabled:** S3 Access Disabled

`sdev400_homework1.create_s3_bucket_by_name (s3_handle=None, region=None)`

Create a bucket based on user first and last name plus random 6 digit suffix. If the name ends up be greater than 63 characters an error will be logged. Bucket names must be between 3 and 63 characters in length.

**Parameters**

- **s3\_handle(boto3.session.Session.client('s3'))** – Access object to S3
- **region(str)** – String region to create bucket in, e.g., 'us-west-2'

**Return type None**

**Returns** None

`sdev400_homework1.delete_a_bucket (s3_handle=None)`

Delete a bucket

Based off AWS S3 Sample - delete\_bucket.py - Dated 2019-2-12

**Parameters** **s3\_handle(boto3.session.Session.client('s3'))** – Access object to S3

**Return type None**

**Returns** None

**Raises AttributeError:** S3 Handle not initialized for access to AWS S3

**Raises botocore.exceptions.ClientError.AllAccessDisabled:** S3 Access Disabled

`sdev400_homework1.delete_a_bucket_object (s3_handle=None)`

Delete an object from a bucket

Based off AWS S3 Sample - delete\_object.py - Dated 2019-2-12

**Parameters** **s3\_handle(boto3.session.Session.client('s3'))** – Access object to S3

**Return type None**

**Returns** None

**Raises AttributeError:** S3 Handle not initialized for access to AWS S3

**Raises botocore.exceptions.ClientError.AllAccessDisabled:** S3 Access Disabled

`sdev400_homework1.delete_bucket (bucket_name=None, s3_handle=None)`

Delete an empty S3 bucket

If the bucket is not empty, the operation fails.

Based off AWS S3 Sample - delete\_bucket.py - Dated 2019-2-12

**Parameters**

- **bucket\_name (str)** – Bucket to delete
- **s3\_handle (boto3.session.Session.client ('s3'))** – Access object to S3

**Return type bool**

**Returns** True if the referenced bucket was deleted, otherwise False

**Raises AttributeError:** S3 Handle not initialized for access to AWS S3

**Raises botocore.exceptions.ClientError.AllAccessDisabled:** S3 Access Disabled

`sdev400_homework1.generic_output_msg (log_message=None)`

Write log to file and screen/console

**Parameters log\_message (str)** – String to output to logs file and screen/console

**Return type None**

**Returns None**

`sdev400_homework1.get_bucket_object (s3_handle=None)`

Get an object from a bucket

Based off AWS S3 Sample - get\_object.py - Dated 2019-2-13

**Parameters s3\_handle (boto3.session.Session.client ('s3'))** – Access object to S3

**Return type None**

**Returns None**

**Raises AttributeError:** S3 Handle not initialized for access to AWS S3

**Raises botocore.exceptions.ClientError.AllAccessDisabled:** S3 Access Disabled

`sdev400_homework1.get_bucket_selection (s3_handle=None, bucket_prompt='Which bucket?:')`

Select a Bucket

**Parameters**

- **s3\_handle (boto3.session.Session.client ('s3'))** – Access object to S3
- **bucket\_prompt (str)** – Prompt for bucket input request

**Return type str**

**Returns selection(str):** Bucket name selected

`sdev400_homework1.list_buckets (s3_handle=None)`

List the objects in an Amazon S3 bucket

Based off AWS S3 Sample - s3-python-example-list-buckets.py - Dated 2018-06-25

**Parameters s3\_handle (boto3.session.Session.client ('s3'))** – Access object to S3

**Returns None**

**Raises `AttributeError`:** S3 Handle not initialized for access to AWS S3

**Raises `botocore.exceptions.ClientError.AllAccessDisabled`:** S3 Access Disabled

`sdev400_homework1.main()`

SDEV400 - Homework 1 - Using S3

`sdev400_homework1.put_object(dest_bucket_name=None, dest_object_name=None, src_data=None, s3_handle=None)`

Add an object to an Amazon S3 bucket

The `src_data` argument must be of type bytes or a string that references a file specification.

Based off AWS S3 Sample - `put_object.py` - Dated 2019-2-15

#### Parameters

- **`dest_bucket_name(str)`** – Destination bucket location
- **`dest_object_name(str)`** – Object name when placed into bucket
- **`src_data(str)`** – String reference to file for upload
- **`src_data(bytes)`** – bytes of data for upload
- **`s3_handle(boto3.session.Session.client('s3'))`** – Access object to S3

**Return type** bool

**Returns** True if `src_data` was added to `dest_bucket/dest_object`, otherwise False

**Raises `AttributeError`:** S3 Handle not initialized for access to AWS S3

**Raises `botocore.exceptions.ClientError.AllAccessDisabled`:** S3 Access Disabled

**Raises `botocore.exceptions.ClientError.NoSuchKey`:** Source/Destination Bucket does not exist

**Raises `botocore.exceptions.ClientError.InvalidRequest`:** Invalid request

`sdev400_homework1.select_bucket_object(bucket_name=None, s3_handle=None)`

List the objects in an Amazon S3 bucket. Allows the user to select one for action.

Based off AWS S3 Sample - `list_objects.py` - Dated 2019-2-13

#### Parameters

- **`bucket_name(str)`** – Bucket to query and list object contained
- **`s3_handle(boto3.session.Session.client('s3'))`** – Access object to S3

**Return type** dict

**Returns** selection(dict): Selected bucket object. If error, return None.

**Raises `AttributeError`:** S3 Handle not initialized for access to AWS S3

**Raises `botocore.exceptions.ClientError.AllAccessDisabled`:** S3 Access Disabled

`sdev400_homework1.upload_object_to_bucket(s3_handle=None)`

Upload error.log to selected bucket

**Parameters** `s3_handle(boto3.session.Session.client('s3'))` – Access object to S3

**Return type** None

**Returns** None

`sdev400_homework1.validate_constraint` (*default\_prompt=None*, *zero\_valid=True*,  
*exit\_on\_error=True*, *max\_range=None*)

Capture and Validate value types

**Parameters**

- **default\_prompt (str)** – Message prompt for requesting value.
- **zero\_valid (bool)** – Is zero (0) a valid value? Default: True
- **max\_range (bool)** – Bound the value entered to less than this range, if set. Default: None

**Return type int**

**Returns selection(int):** if valid integer entered.

**Return type str**

**Returns selection(str):** 'ERROR', if invalid integer entered.

`sdev400_homework1.validate_name` (*default\_prompt=None*)

Capture and Validate Name meets naming requirement

**Parameters default\_prompt (str)** – Value string to place in the input prompt

**Return type str**

**Returns selection(str):** Name (First or Last) validated to match A-Z, a-z, and -. Must be DNS compliant so, apostrophe (') not treated as a valid name character (i.e. O'Brian will not work - it isn't DNS compliant). Name will be returned lowercase to match S3 requirement of lowercase bucket names.

## PYTHON MODULE INDEX

### S

sdev400\_homework1, 3

## INDEX

\spxentryconfirm_continue()\spxextrain sdev400_homework1, 4	module
\spxentrycopy_bucket_object()\spxextrain sdev400_homework1, 4	module
\spxentrycreate_bucket()\spxextrain sdev400_homework1, 4	module
\spxentrycreate_s3_bucket_by_name()\spxextrain module sdev400_homework1, 5	module
\spxentrydelete_a_bucket()\spxextrain sdev400_homework1, 5	module
\spxentrydelete_a_bucket_object()\spxextrain sdev400_homework1, 5	module
\spxentrydelete_bucket()\spxextrain sdev400_homework1, 5	module
\spxentrygeneric_output_msg()\spxextrain sdev400_homework1, 6	module
\spxentryget_bucket_object()\spxextrain sdev400_homework1, 6	module
\spxentryget_bucket_selection()\spxextrain sdev400_homework1, 6	module
\spxentrylist_buckets()\spxextrain sdev400_homework1, 6	module
\spxentrymain()\spxextrain module sdev400_homework1, 7	
\spxentrymodule \spxentrysdev400_homework1, 3	
\spxentryput_object()\spxextrain sdev400_homework1, 7	module
\spxentrysdev400_homework1 \spxentrymodule, 3	
\spxentryselect_bucket_object()\spxextrain sdev400_homework1, 7	module
\spxentryupload_object_to_bucket()\spxextrain sdev400_homework1, 7	module
\spxentryvalidate_constraint()\spxextrain sdev400_homework1, 7	module
\spxentryvalidate_name()\spxextrain sdev400_homework1, 8	module