AWS Key management service (AWS KMS) is an encryption and key management web service.

\*This is the guide that describes the operation that you can call programmatically\*

--High recommendation to use the AWS SDKs to make programmatic api calls to AWS KMS--

The commonly used api operations

* Encrypt
  + Encrypts plaintext into ciphertext by using a customer master key (CMK). The Encrypt operation has two primary use cases:
    - YOu can encrypt small amounts of arbitrary data, suca as a personal identifier or database password or other sensitive information
    - YOu can use the Encrypt operation to move encrypted data from one AWS region to another
* Decrypt
  + Decrypts ciphertext that was encrypted by a AWS KMS customer master key (CMK using any of the following operations:
    - Encrypt
    - GenerateDataKEy
    - GenerateDataKeyPair
    - GenerateDataKeyWithoutPlaintext
    - GenerateDataKeyPairWithoutPlaintext
  + You can use this operation to decrypt a ciphertext that was encrypted under a symmetric or asymmetric CMK. When the CMK is asymmetric, you must specify the CMK and the encryption algorithm that was used to encrypt the ciphertext.
* GenerateDataKey
  + Generates a unique symmetric data key for client-side encryption
  + This operation returns a plaintext copy of the data key and a copy that is encrypted under a customer master key (CMK) that you specify. You use the plaintext key to encrypt your data outside of aws kms and store the encrypted data key with the encrypted data.
* GenerateDataKeyWithoutPlaintext
  + Generates a unique asymmetric data key pair.
  + The GenerateDataKeyWithoutPlaintext operation returns a plaintext public key and a copy of the private key that is encrypted under the symmetric cmk you specify.
  + The difference between this operation and the generateDataKey operation is that this operation does not return a plaintext private key

SSM or Security Manager

<https://www.1strategy.com/blog/2019/02/28/aws-parameter-store-vs-aws-secrets-manager/>

<https://docs.aws.amazon.com/AWSCloudFormation/latest/UserGuide/dynamic-references.html>