SQS Duplication

Sometimes when utilizing SQS it is possible to face the problem of messages being repeatedly processed, a phenomena termed as **SQS Duplication**. The two major reasons why SQS duplication happens are as follows: **Visibility** and **Deletion**.

Let us deal with visibility first. Say that there is an SQS queue and two instances that consume from it. If both instances consume from the same SQS queue at the same time, then the same item in the queue will be processed twice. In order to prevent this, SQS provides us with an option called the visibility timeout, the time period during which a message is invisible to other services which consume from the same SQS queue. If however, the consumer doesn't delete the message within this timeout (perhaps due to a processing delay or failure), the message becomes visible again, leading to its reprocessing by the same or another consumer.

The second reason why SQS duplication may occur be due to a failure in deleting items in the SQS queue once it has been used. Note that SQS does not automatically delete the message. Instead, the consumer must explicitly delete the message using the `DeleteMessage` action after it has been successfully processed.

To avoid this duplication problem however is relatively easy and can be easily mitigated by:

- Setting the visibility timeout appropriately, most likely using the `ChangeMessageVisibilty` API call, allowing enough time for message processing.

- Ensuring that the services which consume the messages from the SQS queue successfully delete a message from the queue after reading it.