What are modals of speculation?
Modal auxiliary verbs express degrees of certainty. In other words, they describe a fact or situation that is definite, probable, possible, or impossible. However, despite the degree of certainty (or uncertainty), the speaker may be wrong. Here we'll focus on speculating about past events. For example:

A: Kelly must have gone somewhere tropical for vacation, because she's sunburned.
B: Actually, she got some free tickets for a tanning salon. She didn't go anywhere last week.

What is the sentence structure?
The sentence structure is as follows:

subject | modal verb | (negation) | have | past participle | object/complement

Mary | must | (not) | have | done | well on the test.
Jennifer | could | (not) | have | made | as much money as she claims.

How are modals of speculation used?
Commonly used modals for past events include the following:

must have: + She must have gone somewhere tropical for vacation because she's sunburned.
- She must not (mustn't) have enjoyed her trip skiing because she broke her leg!

may have: + Alex may have spent some time in Paris because he often talks about the city.
- Alex may not have enjoyed Paris because he rarely talks about the city.

Must have expresses a definite situation, and must not have / could not have an impossible one. When we use may have / may not have, we aren't as certain. And when expressing weak probability, use might have / might not have / could have.
might have:
  + The economy **might have gotten** worse without the tax cuts.
  - The tech bubble **might not have happened** if people had invested more carefully.

could have:
  + Romney **could have won** the 2012 election if he had responded.
  - McCain **could not** (couldn't) have won the 2008 Presidential election.

*Is there additional information on modals of speculation?*
Yes, there is. When speculating about past events, the sentence must use *have + past participle*. For example: *have seen* / *have done* / *have gone*. However, the phrase or sentence which provides the reason doesn't have to use the present perfect tense.

  Kelly must have gone somewhere tropical for vacation because she is sunburned.
  Tim might not have studied hard enough because he didn't pass the test.

In the first sentence, we can understand that Kelly is sunburned now, and so people think she went on vacation. In the second sentence, Tim didn't pass the test, and so people believe he didn't study.