A complement clause is a clause introduced by a complementizer like that or whether. A complement clause is attached to a preceding noun, adjective or verb. In the sentence ‘The news that she was dead shocked us all’, ‘that she was dead’ is a noun complement clause attached to the noun news. In ‘I am sure that she is coming’, ‘that she is coming’ is an adjective-complement clause attached to the adjective sure.

In ‘My mother suggested that I should consult a doctor’, ‘that I should consult a doctor’ is a verb-complement clause attached to the verb suggested.

In some cases the complementizer may be optionally omitted.

I am sure she is coming. OR I am sure that she is coming.
My mother suggested I should consult a doctor. OR My mother suggested that I should consult a doctor.

Note that a noun-complement clause is different from a relative clause, even though the two often look similar.

Complementizer

The label complementizer refers to that part of speech which includes the words which introduce complement clauses. Examples are that and whether. If is also a complementizer when it means whether.

She said that she wasn’t coming.
I don’t know whether she will come.
She asked me if I was coming.