

5.

Category Name	Unit Effect
Category Label	One and Multiple Effects
Description	Here, the effect of the causal expression is one (or single), and there is no disjunction and conjunctions in the sentence
Example of One Effect	If password is less than three characters, then trigger login error window
Example of Multiple Effects	If password rules are satisfied, send a login notification to the user's email and redirect the page to the user homepage

Annotation Guideline for the Causality Categorization and Distribution

Kindly note that this guideline should be followed accordingly to ensure uniformity in the annotation process for our causality management framework. All the seven categories, sub-category labels, description and explanation are given below:

1.

Category Name	Causality
Category Label	Causal and Non-causal
Description	An expression is causal when there is a relation between two events (ev1 and ev2), such that ev1 causes ev2 to occur. Here, ev1 is the cause and ev2 is the effect
Example of Causal	When the checkout button is clicked, then a payment gateway page is displayed
Example of Non-causal	Each user will be able to update their profile within the software

2.

Category Name	Marked
Category Label	Marked and unmarked
Description	Marked causality is identified when a certain cue phrase (or expression) is used and identified in the sentence
Example of Causal	The user index page should show an error when an incorrect login detail is supplied to the system
Example of Non-causal	The homepage theme is red

3.

Category Name	Explicit
Category Label	Implicit and Explicit
Description	When a sentence has sufficient details about the causal information relating the cause and effect
Example of Implicit	The background process determines the frontend display
Example of Explicit	The default page loads when network connectivity is poor

4.

Category Name	Unit Cause
Category Label	One cause and multiple causes
Description	Here, the causal expression is one (or single), and there is no disjunction and conjunctions in the sentence
Example of One Cause	If password is less than three characters , then trigger login error window
Example of Multiple Causes	If password is less than three characters or does not contain upper case letter , then trigger login error window

5.

Category Name	Unit Effect
Category Label	One and Multiple Effects
Description	Here, the effect of the causal expression is one (or single), and there is no disjunction and conjunctions in the sentence
Example of One Effect	If password is less than three characters, then trigger login error window
Example of Multiple Effects	If password rules are satisfied, send a login notification to the user's email and redirect the page to the user homepage

6.

Category Name	Unit Sentence
Category Label	One and Multiple Sentence Causality
Description	In this scenario, the causal relation and causal identifiers are not necessarily in the same sentence. Hence, the causal relation could extend beyond a single sentence to two or more sentences
Example of One Sentence Causality	The user cannot login to the system because he does not have the authentication code
Example of Multiple Sentence Causality	The user does not have authentication code. Hence, he cannot login to the system

7.

Category Name	Event Link
Category Label	Event link or no event link
Description	In this type of causal analysis, there is a link between the causal relation, such that the cause in an expression is linked to the effect in another expression and vice versa
Example of Event Link	Making remarks to the high usage of system requirements which is attributed to the number of simultaneous background process running, it is advised that the number of app activities that requires background process should be reduced to maximum of two or three.

