Prompt Templates

1 S2R Identification Prompt

1.1 Zero-Shot Prompt Template

In this task, I will provide a bug report for **<system-name>**, where each sentence is labeled using a number. You will identify the sentences that describe the:

Steps to Reproduce (S2Rs): All sentences that describe the actions made on the app to replicate or reproduce the incorrect or unexpected app behavior.

Consider the following factors for identifying S2Rs:

1. An S2R sentence describes the actions made on the app to replicate the incorrect or unexpected app behavior. Actions represent interactions that app users make on regions or GUI components of the app screen. Common actions made on Android apps are Click, Type, Swipe, Pinch, and Long-click. These actions may be described with synonym words.
2. S2R sentences also describe actions that are high-level and can be worded via verbs such as start, open, add, go back, select, insert, refresh, etc.
3. A sentence can describe more information besides the S2Rs; in such cases, the whole sentence is considered to be an S2R sentence.

4. Both OB and S2Rs can exist in a sentence. In these cases, the sentence should be considered as both OB and S2Rs.
5. A sentence that is not an action should not be considered an S2R, even if it is a part of the sequential actions (sentences).

Bug Report:
<bug-report>
Response format:
Please list the numbers of the sentences that describe S2R, using the following format:
S2Rs: list the numbers of the sentences that describe the Steps to Reproduce the bug, separated by commas
Do not provide anything else in the response.

1.2 Few-Shot (FS) Prompt Template

In this task, I will provide a bug report for **<system-name>**, where each sentence is labeled using a number. You will identify the sentences that describe the:

Steps to Reproduce (S2Rs): All sentences that describe the actions made on the app to replicate or reproduce the incorrect or unexpected app behavior.

Target Bug Report:
<bug-report>

Response format:
Please list the numbers of the sentences that describe S2R, using the following format:
S2Rs: list the numbers of the sentences that describe the Steps to Reproduce the bug, separated by commas
Do not provide anything else in the response.

Below, I am providing four examples with the expected output for illustration purposes.

Example Bug Report - 1:
0: Back behaviour broken for Article WebView
1.1: Steps to reproduce:
1.2: 1. Open an article.
1.3: 2. Select a link in the article, allowing the next page to load in the WebView.
1.4: 3. Hit back.
2.1: Observe the the user is taken back to the front page rather than navigating back a page in the WebView.

Expected output for the example bug report - 1:

S2Rs: 1.2, 1.3, 1.4

Example Bug Report - 2:
0: unable to play from folder view since 0.21.0
1.1: Describe the bug
1.2: Since I installed the latest update 0.21.0, I am unable to play media from the folder view.
1.3: Touching a song has no effect, neither has selecting the song by long pressing and then using "add to playlist" or by using the song menu and selecting "play next".
1.4: This is reproducible on all of my songs, all of which used to work before the update.
1.5: Notably, the library view is not affected (everything works as expected there, tried the same songs), only the folder view.
1.6: I have reinstalled the app as well to no effect.
2.1: To Reproduce
2.2: Steps to reproduce the behavior:
3.1: Go to folder view
3.2: Try to play any song by any means provided by the app
4.1: Expected behavior
4.2: The song would play.
5.1: Smartphone (please complete the following information):
5.2: Device: LG V30 (H930)
5.3: Android Version: build 183202318d019, release 8.0.0, sdk 26
5.4: ROM: factory default
5.5: Vinyl Music Player Version: 0.21.0

Expected output for the example bug report - 2:
S2Rs: 1.3, 3.1, 3.2

Example Bug Report - 3:
0: Issue editing fishing spots
1.1: Trying to edit fishing spots adds a new one to the list, and the coordinates of the existing fishing spot are not updated.
2.1: Reproduction steps:
3.1: Edit a Location
3.2: Click a fishing spot to edit
3.3: Change the coordinates
3.4: Save
3.5: There will be two of the same spot showing in the list
3.6: Clicking save again will no add the addition spot (this behaviour is correct)
4.1: Instabug issue

Expected output for the example bug report - 3:
S2Rs: 3.1, 3.2, 3.3, 3.4, 3.6

Example Bug Report - 4:
0: Stats returns an error when the app language is non-English and the device is rotated
1.1: When the app language (set in Account Settings) is set to a language other than English, rotating the device while viewing stats returns the error "Stats couldn't be loaded for the required blog."
1.2: (I couldn't reproduce this issue with the app language set to English.)
2.1: Stats error from the logs:
3.1: "'
02-01 17:48:28.521 5608 5608 E WordPress-STATS: The blog with local_blog_id -1 cannot be loaded from the DB.
"'
4.1: Screenshot before rotating:
5.1: !
5.2: [2016-02-01 17 47
57](https://cloud.githubusercontent.com/assets/8658164/12725868/ad3f2b30-c90c-11e5-844b-73342a848253.png)
6.1: After rotating:
7.1: !
7.2: [2016-02-01 17 48
01](https://cloud.githubusercontent.com/assets/8658164/12725876/b25f14f4-c90c-11e5-9ca7-d44496cbb5f8.png)
8.1: Tested and confirmed in Spanish, German, and Arabic on Nexus 9, Android 6.0.1, app beta v. 5.0-rc-2.

Expected output for the example bug report - 4:
S2Rs: 0, 1.1

1.3 Chain-of-Thought (CoT) Prompt Template

In this task, I will provide a bug report for **<system-name>**, where each sentence is labeled using a number. You will identify the sentences that describe the:

Steps to Reproduce (S2Rs): All sentences that describe the actions made on the app to replicate or reproduce the incorrect or unexpected app behavior.

Target Bug Report:
<bug-report>

Response format:
Please list the numbers of the sentences that describe S2R, using the following format:
S2Rs: list the numbers of the sentences that describe the Steps to Reproduce the bug, separated by commas

Do not provide anything else in the response.

Below, I am providing four examples with the expected output for illustration purposes. For each example, I am also providing an explanation of the output: why the sentences do or do not describe an S2Rs.

Example Bug Report - 1:
0: Back behaviour broken for Article WebView
1.1: Steps to reproduce:
1.2: 1. Open an article.
1.3: 2. Select a link in the article, allowing the next page to load in the WebView.
1.4: 3. Hit back.
2.1: Observe the the user is taken back to the front page rather than navigating back a page in the WebView.

Expected output for the example bug report - 1:
S2Rs: 1.2, 1.3, 1.4

Reasoning for each sentence:

1. Sentence 0 describes a specific functionality of the app (going back on an Article WebView) that is not working as intended, hence, the sentence describes an observed behavior (OB). The sentence does not describe any S2Rs.
2. Sentence 1.1. is a heading of the S2R section of the bug report, but it does not describe any specific S2Rs, hence, the sentence is not considered an S2R.
3. Sentences 1.2, 1.3, and 1.4 describe actions performed by the user to navigate to various web articles. These aim to reproduce the bug, hence, the sentences are S2Rs.
4. Sentence 2.1 describes the result of performing the S2Rs (taking the user back to the front page), which is incorrect. Hence, the sentence describes an OB. At the same time, the sentence describes that the app should take the user back to the page s/he was seeing (navigating back a page in the WebView). This means that the sentence describes an expected behavior (EB).

Example Bug Report - 2:
0: unable to play from folder view since 0.21.0
1.1: Describe the bug
1.2: Since I installed the latest update 0.21.0, I am unable to play media from the folder view.
1.3: Touching a song has no effect, neither has selecting the song by long pressing and then using "add to playlist" or by using the song menu and selecting "play next".
1.4: This is reproducible on all of my songs, all of which used to work before the update.
1.5: Notably, the library view is not affected (everything works as expected there, tried the same songs), only the folder view.
1.6: I have reinstalled the app as well to no effect.
2.1: To Reproduce

2.2: Steps to reproduce the behavior:
3.1: Go to folder view
3.2: Try to play any song by any means provided by the app
4.1: Expected behavior
4.2: The song would play.
5.1: Smartphone (please complete the following information):
5.2: Device: LG V30 (H930)
5.3: Android Version: build 183202318d019, release 8.0.0, sdk 26
5.4: ROM: factory default
5.5: Vinyl Music Player Version: 0.21.0

Expected output for the example bug report - 2:
S2Rs: 1.3, 3.1, 3.2

Reasoning for each sentence:

1. Sentence 0 describes the functionality of the app (playing music from the folder view) is not working from a specific version, hence, the sentence describes an OB. The sentence does not describe any EB or S2Rs.
2. Sentence 1.1 is a heading of the description section of the bug report, but the sentence does not describe the bug, hence, the sentence does not describe an OB, EB, or S2Rs.
3. Sentence 1.2 is semantically similar to sentence 0 and describes the playing functionality of the app is not working from a specific version. Hence, the sentence describes an OB. The sentence does not describe any EB or S2Rs.
4. Sentence 1.3 describes actions conducted by the user (touching a song, long pressing a song, adding to a playlist, and selecting play next) to test the feature but all the actions fail to play the song. As the actions can reproduce the bug, the sentence describes an S2R. Moreover, the sentence also describes the outcome of the reproduction attempt (no effect on playing the song) which is an observed behavior of the user. Hence, the sentence also describes an OB.
5. Sentences 1.4, 1.5, and 1.6 describe additional information about the app misbehavior (when the bug is reproducible and what views are not affected by the bug), but they do not describe any OB, EB, or S2Rs.
6. Sentences 2.1 and 2.2 are the heading of the S2R section of the bug report, but they do not describe any specific S2Rs, hence, they are not S2R.
7. Sentences 3.1 and 3.2 describe actions (go to the folder, play a song) performed by the user to play a song. These aim to reproduce the bug, hence, the sentences describe S2Rs. At the same time, these sentences do not describe any OB or EB.
8. Sentence 4.1 is a heading of the EB section of the bug report, but it does not describe an EB. Additionally, it does not describe OB and S2Rs.
9. Sentence 4.2 describes the correct/expected behavior of the app (the song should play). Hence, the sentence describes an EB. It does not describe any OB or S2Rs.
10. Sentences 5.1 to 5.5 provide the device and application information where the bug is

reproduced. Although this information can help reproduce the bug, they do not describe OB, EB, or S2Rs.

Example Bug Report - 3:
0: Issue editing fishing spots
1.1: Trying to edit fishing spots adds a new one to the list, and the coordinates of the existing fishing spot are not updated.
2.1: Reproduction steps:
3.1: Edit a Location
3.2: Click a fishing spot to edit
3.3: Change the coordinates
3.4: Save
3.5: There will be two of the same spot showing in the list
3.6: Clicking save again will no add the addition spot (this behaviour is correct)
4.1: Instabug issue

Expected output for the example bug report - 3:
S2Rs: 3.1, 3.2, 3.3, 3.4

Reasoning for each sentence:

1. Sentence 0 indicates there is a problem with the editing fishing spots app feature, but it does not describe the problem, hence, it does not describe any OB. It does not describe any EB and S2Rs either.
2. Sentence 1.1 describes in detail the misbehavior of the app feature (editing fishing spots adds a new one to the list, coordinates of the existing one are not updated), hence, the sentence describes an OB.
3. Sentence 2.1 is a heading of the S2Rs section of the bug report, but it does not describe any specific S2Rs. Moreover, it does not describe any OB or EB.
4. Sentences 3.1 to 3.4 describe actions that the user performed to reproduce the app's misbehavior. Hence, these sentences describe S2Rs. They do not describe any OB or EB.
5. Sentence 3.5 describes the app's misbehavior (the list will show two same spots), and hence, the sentence describes an OB.
6. Sentence 3.6 describes an action performed on the app, but it is not for reproducing the bug, hence, the sentence does not describe any S2Rs. At the same time, the sentence describes an app behavior that is correct or expected, hence, the sentence describes an EB.
7. Sentence 4.1 describes the application name by which the bug is reported. Hence, this sentence does not describe an OB, EB, or S2R.

Example Bug Report - 4:
0: Stats returns an error when the app language is non-English and the device is rotated
1.1: When the app language (set in Account Settings) is set to a language other than English,

rotating the device while viewing stats returns the error "Stats couldn't be loaded for the required blog."
1.2: (I couldn't reproduce this issue with the app language set to English.)
2.1: Stats error from the logs:
3.1: "'
02-01 17:48:28.521 5608 5608 E WordPress-STATS: The blog with local_blog_id -1 cannot be loaded from the DB.
"'
4.1: Screenshot before rotating:
5.1: !
5.2: [2016-02-01 17 47 57](https://cloud.githubusercontent.com/assets/8658164/12725868/ad3f2b30-c90c-11e5-844b-73342a848253.png)
6.1: After rotating:
7.1: !
7.2: [2016-02-01 17 48 01](https://cloud.githubusercontent.com/assets/8658164/12725876/b25f14f4-c90c-11e5-9ca7-d44496cbb5f8.png)
8.1: Tested and confirmed in Spanish, German, and Arabic on Nexus 9, Android 6.0.1, app beta v. 5.0-rc-2.

Expected output for the example bug report - 4:
S2Rs: 0, 1.1

Reasoning for each sentence:

1. Sentence 0 describes the incorrect behavior (stats returns an error) under certain situations (app language is non-English), hence, this sentence describes an OB. Moreover, this sentence describes user actions (rotating the device) for reproducing the bug; hence, this sentence describes an S2R.
2. Sentence 1.1 is semantically similar to sentence 0 and conveys a more detailed description of the app's misbehavior. It describes the unexpected app behavior (see the error message) and the required actions for reproducing the bug (set the app language as non-English, rotate the device). As a result, this sentence describes both OB and S2R.
3. Sentence 1.2 describes a condition when the bug is not reproduced (when the app language is set to English), hence, this sentence does not describe an OB, EB, and S2Rs.
4. Sentence 2.1 indicates there is an error and the error log, hence, this sentence describes an OB.
5. Sentences 3.1 to 8.1 describe additional information such as the error log, screenshots before and after rotating the device, and testing configurations. Although this information will be helpful for understanding and resolving the bug, they do not describe the OB, EB, or S2Rs.

2 Individual S2R Extraction Prompt

2.1 Zero-Shot Prompt Template

In this task, I will provide all steps-to-reproduce (S2R) sentences from a bug report of the <app-name> app.

An S2R sentence may describe either a single step or multiple individual steps required to reproduce the bug, often connected by different linkers (e.g., and, while, etc.) or symbols (e.g., >, →, commas, etc.). Your task is to identify and extract the individual sequential steps from the S2R sentences to reproduce a bug.

In cases where multiple steps are embedded in a single S2R, you are required to separate them into individual steps and provide these in the output. If an individual step involves only observing any behavior on the app screen, disregard that step.

Once the individual steps are identified, you must extract actions, object, preposition, and object2, and represent each step as a sentence in the following format:

[action] [object] [preposition] [object2]

Here, the [action] refers to the operation a user must perform within the app (e.g., click, type, etc.), the [object] is the GUI component upon which the action is performed, and [object2] is another text related to the object, connected by a [preposition].

S2R sentences (delimited by triple quotes):
‘‘‘<s2r_sentences_of_a_br>’’’

Response format:
<individual steps in list format>
The output should contain only a list of sentences and sentences should contain words in text format. Do not provide anything else in the response.

2.2 Few-Shot (FS) Prompt Template

In this task, I will provide all steps-to-reproduce (S2R) sentences of the <app-name> Android app bug report.

An S2R sentence may describe either a single step or multiple individual steps required to

reproduce the bug, often connected by different linkers (e.g., and, or, etc.) or symbols (e.g., >, →, commas, etc.). Your task is to identify and extract the individual sequential steps from the S2R sentences to reproduce a bug.

In cases where multiple steps are embedded in a single S2R, you are required to separate them into individual steps and provide these in the output. If an individual step involves only observing any behavior on the app screen, disregard that step.

Once the individual steps are identified, you must extract actions, object, preposition, and object2, and represent each step as a sentence in the following format:

[action] [object] [preposition] [object2]

Here, the [action] refers to the operation a user must perform within the app (e.g., click, type, etc.), the [object] is the GUI component upon which the action is performed, and [object2] is another text related to the object, connected by a [preposition].

Target S2R sentences (delimited by triple quotes):
‘‘‘<s2r_sentences_of_a_br>’’’

Response format:
<individual steps in list format>
The output should contain only a list of sentences and sentences should contain words in text format. Do not provide anything else in the response.

Below, I am providing two examples with the expected responses for illustration purposes.

S2R sentences of example bug report 1:

1. Open an article.

2. Select a link in the article, allowing the next page to load in the WebView.

3. Hit back.

Expected response for example bug report 1 (delimited by triple quotes):

1. Open article.

2. Select link in article.

3. Hit back.

S2R sentences of example bug report 2:

1. Lauch Ultrasonic master in an AVD.

2. Go to settings, add server, enter name, url, user and password.

3. Click on "Test Connection".

Expected response for example bug report 2:

1. Lauch Ultrasonic master

2. Go to settings

3. add server

4. enter name

5. enter url

6. enter user

7. enter password

8. Click on "Test Connection"

2.3 Chain-of-Thought (CoT) Prompt Template

In this task, I will provide all steps-to-reproduce (S2R) sentences of the <app-name> Android app bug report.

An S2R sentence may describe either a single step or multiple individual steps required to reproduce the bug, often connected by different linkers (e.g., and, or, etc.) or symbols (e.g., >, →, commas, etc.). Your task is to identify and extract the individual sequential steps from the S2R sentences to reproduce a bug.

In cases where multiple steps are embedded in a single S2R, you are required to separate them into individual steps and provide these in the output. If an individual step involves only observing any behavior on the app screen, disregard that step.

Once the individual steps are identified, you must extract actions, object, preposition, and

object2, and represent each step as a sentence in the following format:

[action] [object] [preposition] [object2]

Here, the [action] refers to the operation a user must perform within the app (e.g., click, type, etc.), the [object] is the GUI component upon which the action is performed, and [object2] is another text related to the object, connected by a [preposition].

Target S2R sentences (delimited by triple quotes):
‘‘‘<s2r_sentences_of_a_br>’’’

Response format:
<individual steps in list format>
The output should contain only a list of sentences and sentences should contain words in text format. Do not provide anything else in the response.

Below, I am providing two examples with the expected responses with reasoning for illustration purposes.

S2R sentences of example bug report 1:

1. Open an article.

2. Select a link in the article, allowing the next page to load in the WebView.

3. Hit back.

Expected response for example bug report 1:

1. Open article.

2. Select link in article.

3. Hit back.

Reason: There are three S2R sentences in this bug report and all of them represent one individual step each. The first and third S2R sentences are straightforward as they contain only one action and one object. Although the second S2R sentence is long, it also contains one individual step, i.e., “Select a link in the article”. The other portion of the sentence indicates the consequence of the step and is not a step for reproducing the bug. After formatting with action and object the individual step becomes “Select link in article”.

S2R sentences of example bug report 2:

1. Lauch Ultrasonic master in an AVD.

2. Go to settings, add server, enter name, url, user and password.

3. Click on "Test Connection".

Expected response for example bug report 2:

1. Lauch Ultrasonic master

2. Go to settings

3. add server

4. enter name

5. enter url

6. enter user

7. enter password

8. Click on "Test Connection"

Reason: There are three S2R sentences in this bug report. The first sentence indicates one individual step, i.e., “Lauch Ultrasonic master”. However, the second S2R sentence contains six individual steps in one S2R sentence which are separated by comma. The third S2R sentence presents only one individual step. Formatting the eight individual steps results in the individual steps presented in the expected response.

3 S2R Mapping Prompt

3.1 Zero-Shot Prompt-1 Template

Task Description:
In this task, I will provide two inputs:
1. a step-to-reproduce (S2R) sentence from a bug report of the <app_name> app
2. a list of the interactions (operations can be performed on that screen) of the <screen_name> app screen

Your task is to identify the interaction that matches the interaction described in the S2R sentence from the available interactions on this screen.

Input:
S2R Sentence: <s2r_sentence>

Interactions of one screen:
<list_of_interactions_of_one_screen>

If the interaction is identified, return 1; otherwise, return 0. Do not include anything else in the response.

3.2 Zero-Shot Prompt-2 Template

Task Description:
In this task, I will provide two inputs:
1. a step-to-reproduce (S2R) sentence from a bug report of the <app_name> app
2. a list of the interactions (operations can be performed on that screen) of the <screen_name> app screen

Your task is to identify the interaction that matches the interaction described in the S2R sentence from the available interactions on this screen.

Input:
S2R Sentence: <s2r_sentence>

Interactions of one screen:
<list_of_interactions_of_one_screen>

There is at least one matched interaction ID among the available interactions mentioned above. Please return interaction IDs.
If the S2R sentence describes only a single interaction with different keywords (e.g., any, either, or, etc.), you should return only one interaction ID.
Do not include anything else in the response.

3.3 Few-Shot (FS) Prompt-1 Template

Task Description:
In this task, I will provide two inputs:
1. a step-to-reproduce (S2R) sentence from a bug report of the <app_name> app
2. a list of the interactions (operations can be performed on that screen) of the <screen_name> app screen

Your task is to identify the interaction that matches the interaction described in the S2R sentence from the available interactions on this screen.

Input:

S2R Sentence: <s2r_sentence>

Interactions of one screen:
<list_of_interactions_of_one_screen>

If the interaction is identified, return 1; otherwise, return 0. Do not include anything else in the response.

Below, I provide four examples with the expected responses for illustration purposes.

Example S2R-1: “Click a fishing spot to edit”
Interactions of one screen:
“1. Interaction ID = 1; Action = click; GUI Component = [Type = TextView, Identifier = subtitle_text_view, Text = 1 Fishing Spot]; Next Screen = main
2. Interaction ID = 2; Action = click; GUI Component = [Type = ImageButton, Description = Open the navigation drawer men...]; Next Screen = main”
Expected Response: 1

Example S2R-2: “long click the trip”
Interactions of one screen:
“1. Interaction ID = 1; Action = long click; GUI Component = [Type = TableRow]; Next Screen = main
2. Interaction ID = 2; Action = click; GUI Component = [Type = TextView, Text = Payments]; Next Screen = main
3. Interaction ID = 3; Action = click; GUI Component = [Type = TextView, Identifier = option_add_participant]; Next Screen = main
4. Interaction ID = 4; Action = click; GUI Component = [Type = ImageButton]; Next Screen = main
5. Interaction ID = 5; Action = click; GUI Component = [Type = TableRow]; Next Screen = main
6. Interaction ID = 6; Action = click; GUI Component = [Type = ImageView, Description = More options]; Next Screen = main
7. Interaction ID = 7; Action = swipe left; GUI Component = null; Next Screen = main
8. Interaction ID = 8; Action = swipe left; GUI Component = null; Next Screen = main”
Expected Response: 1

Example S2R-3: “Select a link in the article”
Interactions of one screen:
“1. Interaction ID = 1; Action = click; GUI Component = [Type = CheckedTextView, Identifier = design_menu_item_text, Text = Locations]; Next Screen = main
2. Interaction ID = 2; Action = click; GUI Component = [Type = LinearLayoutCompat]; Next Screen = main”
Expected Response: 0

Example S2R-4: “Enter "test" in the "Secret" field”

Interactions of one screen:
“1. Interaction ID = 1; Action = click; GUI Component = [Type = Button, Identifier = buttonUnlock, Text = UNLOCK]; Next Screen = main
2. Interaction ID = 2; Action = type; GUI Component = [Type = EditText, Identifier = passwordEdit]
3. Interaction ID = 3; Action = click; GUI Component = [Type = Button, Identifier = buttonUnlock, Text = UNLOCK]; Next Screen = main
4. Interaction ID = 4; Action = type; GUI Component = [Type = EditText, Identifier = passwordEdit]
5. Interaction ID = 5; Action = click; GUI Component = [Type = LinearLayout, Identifier = container_content]
6. Interaction ID = 6; Action = click; GUI Component = [Type = Button, Identifier = buttonUnlock, Text = UNLOCK]; Next Screen = settings”
Expected Response: 0

3.4 Few-Shot (FS) Prompt-2 Template

Task Description:
In this task, I will provide two inputs:
1. a step-to-reproduce (S2R) sentence from a bug report of the <app_name> app
2. a list of the interactions (operations can be performed on that screen) of the <screen_name> app screen

Your task is to identify the interaction that matches the interaction described in the S2R sentence from the available interactions on this screen.

Input:
S2R Sentence: <s2r_sentence>

Interactions of one screen:
<list_of_interactions_of_one_screen>

There is at least one matched interaction ID among the available interactions mentioned above. Please return interaction IDs.
If the S2R sentence describes only a single interaction with different keywords (e.g., any, either, or, etc.), you should return only one interaction ID.
Do not include anything else in the response.

Below, I provide two examples with the expected responses for illustration purposes.

Example S2R-1: “Click a fishing spot to edit”
Interactions of one screen:
“1. Interaction ID = 1; Action = click; GUI Component = [Type = TextView, Identifier = subtitle_text_view, Text = 1 Fishing Spot]; Next Screen = main

2. Interaction ID = 2; Action = click; GUI Component = [Type = ImageButton, Description = Open the navigation drawer men...]; Next Screen = main”
Expected Response: 1

Example S2R-2: “long click the trip”
Interactions of one screen:
“1. Interaction ID = 1; Action = long click; GUI Component = [Type = TableRow]; Next Screen = main
2. Interaction ID = 2; Action = click; GUI Component = [Type = TextView, Text = Payments]; Next Screen = main
3. Interaction ID = 3; Action = click; GUI Component = [Type = TextView, Identifier = option_add_participant]; Next Screen = main
4. Interaction ID = 4; Action = click; GUI Component = [Type = ImageButton]; Next Screen = main
5. Interaction ID = 5; Action = click; GUI Component = [Type = TableRow]; Next Screen = main
6. Interaction ID = 6; Action = click; GUI Component = [Type = ImageView, Description = More options]; Next Screen = main
7. Interaction ID = 7; Action = swipe left; GUI Component = null; Next Screen = main
8. Interaction ID = 8; Action = swipe left; GUI Component = null; Next Screen = main”
Expected Response: 1

3.5 Chain-of-Thought (CoT) Prompt-1 Template

Task Description:
In this task, I will provide two inputs:
1. a step-to-reproduce (S2R) sentence from a bug report of the <app_name> app
2. a list of the interactions (operations can be performed on that screen) of the <screen_name> app screen

Your task is to identify the interaction that matches the interaction described in the S2R sentence from the available interactions on this screen.

Input:
S2R Sentence: <s2r_sentence>

Interactions of one screen:
<list_of_interactions_of_one_screen>

If the interaction is identified, return 1; otherwise, return 0. Do not include anything else in the response.

Below, I provide four examples with the expected responses and reasoning of the expected responses for illustration purposes.

Example S2R-1: “Click a fishing spot to edit”

Interactions of one screen:
“1. Interaction ID = 1; Action = click; GUI Component = [Type = TextView, Identifier = subtitle_text_view, Text = 1 Fishing Spot]; Next Screen = main
2. Interaction ID = 2; Action = click; GUI Component = [Type = ImageButton, Description = Open the navigation drawer men...]; Next Screen = main”
Expected Response: 1
Reasoning: The S2R “Click a fishing spot to edit” represents an action where a user should CLICK on a GUI component named “Fishing Spot”. The actions of both interactions on the current screen are CLICK. However, GUI component information, i.e., text reveals that interaction-1 is the “Fishing Spot” component. On the other hand, the GUI attributes of interaction-2, i.e., “Type = ImageButton, Description = Open the navigation drawer men...” indicates that it is interaction is not related to the “fishing spot”, and hence, not related to the current S2R. Therefore, there is a corresponding interaction on the current screen for the given S2R and that is interaction-1.

Example S2R-2: “long click the trip”
Interactions of one screen:
“1. Interaction ID = 1; Action = long click; GUI Component = [Type = TableRow]; Next Screen = main
2. Interaction ID = 2; Action = click; GUI Component = [Type = TextView, Text = Payments]; Next Screen = main
3. Interaction ID = 3; Action = click; GUI Component = [Type = TextView, Identifier = option_add_participant]; Next Screen = main
4. Interaction ID = 4; Action = click; GUI Component = [Type = ImageButton]; Next Screen = main
5. Interaction ID = 5; Action = click; GUI Component = [Type = TableRow]; Next Screen = main
6. Interaction ID = 6; Action = click; GUI Component = [Type = ImageView, Description = More options]; Next Screen = main
7. Interaction ID = 7; Action = swipe left; GUI Component = null; Next Screen = main
8. Interaction ID = 8; Action = swipe left; GUI Component = null; Next Screen = main”
Expected Response: 1
Reasoning: “The S2R “long click the trip” means that a user should perform “long click” operation on a component, i.e., the trip. Among the interactions of the current screen, there is only one interaction with “Action = long click”. Although the GUI attributes such as text and identifier are not present for this interaction, “Type = TableRow” indicates that the user can perform a “long click” operation on a table row corresponding to the trip. None of the other interactions, i.e., 2 to 8, is a “long click” action and does not indicate a component that can correspond to “trip”. Hence, there is a corresponding interaction on the current screen for the given S2R and that is interaction-1.”

Example S2R-3: “Select a link in the article”
Interactions of one screen:
“1. Interaction ID = 1; Action = click; GUI Component = [Type = CheckedTextView, Identifier = design_menu_item_text, Text = Locations]; Next Screen = main

2. Interaction ID = 2; Action = click; GUI Component = [Type = LinearLayoutCompat]; Next Screen = main”
Expected Response: 0
Reasoning: “The S2R “Select a link in the article” means the user should “click” on an “article” on the current screen. Although the actions of the two interactions on the current screen are “click”, their GUI component information does not correspond to an “article”. The component of interaction-1 is a “CheckedTextView” type component related to “Locations”, not with “article”. The component of interaction-2 is a “LinearLayoutCompat” type component with no relevant information indicating an “article”. Hence, there is no relevant interaction on the current screen for the given S2R.”

Example S2R-4: “Enter "test" in the "Secret" field”
Interactions of one screen:
“1. Interaction ID = 1; Action = click; GUI Component = [Type = Button, Identifier = buttonUnlock, Text = UNLOCK]; Next Screen = main
2. Interaction ID = 2; Action = type; GUI Component = [Type = EditText, Identifier = passwordEdit]
3. Interaction ID = 3; Action = click; GUI Component = [Type = Button, Identifier = buttonUnlock, Text = UNLOCK]; Next Screen = main
4. Interaction ID = 4; Action = type; GUI Component = [Type = EditText, Identifier = passwordEdit]
5. Interaction ID = 5; Action = click; GUI Component = [Type = LinearLayout, Identifier = container_content]
6. Interaction ID = 6; Action = click; GUI Component = [Type = Button, Identifier = buttonUnlock, Text = UNLOCK]; Next Screen = settings”
Expected Response: 0
Reasoning: “The S2R “Enter "test" in the "Secret" field” indicates a user should “type” the “test” value into the “Secret” EditText field. Among the six interactions on the current screen, there are two interactions (i.e., 2 and 4) with “Action = type” and “GUI Component = [Type = EditText]”. The “Identifier” attribute of these two GUI components is “passwordEdit”. That means they do not match with the “Secret field” of the current S2R as the GUI component information is not related to the “Secret field”. Hence, although there are two “type” interactions on the current screen, they do not match with the S2R. The actions of the other four interactions are not “type”, nor does the GUI component information indicate that they correspond to the “Secret field” component. Hence, there is no relevant interaction on the current screen for the given S2R.”

3.6 Chain-of-Thought (CoT) Prompt-2 Template

Task Description:
In this task, I will provide two inputs:
1. a step-to-reproduce (S2R) sentence from a bug report of the <app_name> app
2. a list of the interactions (operations can be performed on that screen) of the <screen_name> app screen

Your task is to identify the interaction that matches the interaction described in the S2R sentence from the available interactions on this screen.

Input:
S2R Sentence: <s2r_sentence>

Interactions of one screen:
<list_of_interactions_of_one_screen>

There is at least one matched interaction ID among the available interactions mentioned above. Please return interaction IDs.
If the S2R sentence describes only a single interaction with different keywords (e.g., any, either, or, etc.), you should return only one interaction ID.
Do not include anything else in the response.

Below, I provide two examples with the expected responses and reasoning of the expected responses for illustration purposes.

Example S2R-1: “Click a fishing spot to edit”
Interactions of one screen:
“1. Interaction ID = 1; Action = click; GUI Component = [Type = TextView, Identifier = subtitle_text_view, Text = 1 Fishing Spot]; Next Screen = main
2. Interaction ID = 2; Action = click; GUI Component = [Type = ImageButton, Description = Open the navigation drawer men...]; Next Screen = main”
Expected Response: 1
Reasoning: The S2R “Click a fishing spot to edit” represents an action where a user should CLICK on a GUI component named “Fishing Spot”. The actions of both interactions on the current screen are CLICK. However, GUI component information, i.e., text reveals that interaction-1 is the “Fishing Spot” component. On the other hand, the GUI attributes of interaction-2, i.e., “Type = ImageButton, Description = Open the navigation drawer men...” indicates that it is interaction is not related to the “fishing spot”, and hence, not related to the current S2R. Therefore, there is a corresponding interaction on the current screen for the given S2R and that is interaction-1.

Example S2R-2: “long click the trip”
Interactions of one screen:
“1. Interaction ID = 1; Action = long click; GUI Component = [Type = TableRow]; Next Screen = main
2. Interaction ID = 2; Action = click; GUI Component = [Type = TextView, Text = Payments]; Next Screen = main
3. Interaction ID = 3; Action = click; GUI Component = [Type = TextView, Identifier = option_add_participant]; Next Screen = main
4. Interaction ID = 4; Action = click; GUI Component = [Type = ImageButton]; Next Screen = main
5. Interaction ID = 5; Action = click; GUI Component = [Type = TableRow]; Next Screen = main

6. Interaction ID = 6; Action = click; GUI Component = [Type = ImageView, Description = More options]; Next Screen = main
7. Interaction ID = 7; Action = swipe left; GUI Component = null; Next Screen = main
8. Interaction ID = 8; Action = swipe left; GUI Component = null; Next Screen = main"
Expected Response: 1
Reasoning: "The S2R "long click the trip" means that a user should perform "long click" operation on a component, i.e., the trip. Among the interactions of the current screen, there is only one interaction with "Action = long click". Although the GUI attributes such as text and identifier are not present for this interaction, "Type = TableRow" indicates that the user can perform a "long click" operation on a table row corresponding to the trip. None of the other interactions, i.e., 2 to 8, is a "long click" action and does not indicate a component that can correspond to "trip". Hence, there is a corresponding interaction on the current screen for the given S2R and that is interaction-1."