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**Algorithm 1** DetectUITarpit

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```
1: function DETECTUITARPIT( $xml_1, xml_2, threshold$ )
2:    $similarity \leftarrow \text{COMPAREXML}(xml_1, xml_2)$ 
3:   if  $similarity > 90$  then
4:      $sim\_count \leftarrow sim\_count + 1$ 
5:     if  $sim\_count \geq threshold$  then
6:        $sim\_count \leftarrow 0$ 
7:       return True
8:     end if
9:   end if
10:  return False
11: end function
```

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**Algorithm 2** CompareXML

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```
1: function COMPAREXML( $xml_1, xml_2$ )
2:    $tree_1, tree_2 \leftarrow \text{Simplify } xml_1, xml_2 \text{ and construct trees}$ 
3:    $score, total \leftarrow \text{COMPARETREE}(tree_1, tree_2)$ 
4:   return 100.0 if  $total = 0$  else  $(score/total) \times 100$ 
5: end function
```

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**Algorithm 3** Main Exploration Loop

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```
1: function START(input_manager)
2:   count  $\leftarrow$  0
3:   while count < max_event_count do
4:     Update UI state and snapshots
5:     Start the APP if essential
6:     if LLM mode is active then
7:       event  $\leftarrow$  GENERATELLMEVENT
8:     else if Detect(last_state_xml, current_state_xml) then
9:       Activate LLM Mode
10:      event  $\leftarrow$  GENERATELLMEVENT
11:    else
12:      event  $\leftarrow$  GENERATERANDOMEVENT
13:    end if
14:    Execute(event)
15:    count  $\leftarrow$  count + 1
16:  end while
17:  Clean up and exit
18: end function
```

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**Algorithm 4** GenerateLLMEvent

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```
1: function GENERATELLMEVENT
2:   if Continuing LLM Sequence then
3:     Build Next Action Prompt
4:     response  $\leftarrow$  CALLLLM
5:     response  $\leftarrow$  VALIDITEBYLLM
6:     act  $\leftarrow$  PARSEACTION(response)
7:   else
8:     Build Meaning Prompt
9:     r1  $\leftarrow$  CALLLLM
10:    Build Task Prompt
11:    r2  $\leftarrow$  CALLLLM
12:    Build First Action Prompt
13:    r3  $\leftarrow$  CALLLLM
14:    response  $\leftarrow$  VALIDITEBYLLM
15:    act  $\leftarrow$  PARSEACTION(response)
16:  end if
17:  Set LLM Mode to act.hasNext
18:  return WRAPASU2EVENT(act)
19: end function
```

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