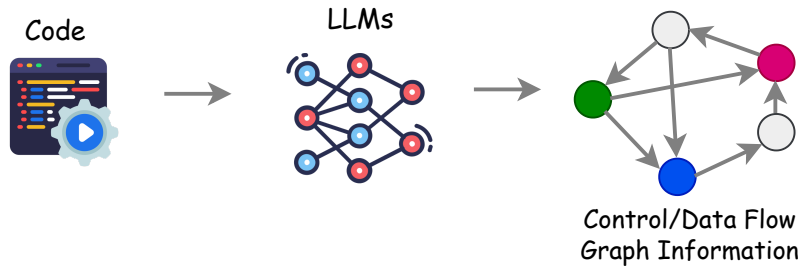
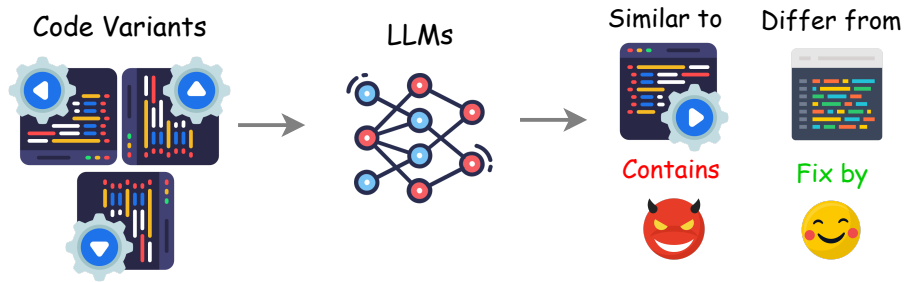


Structure Reasoning



Semantic Reasoning



Counterfactual

Question: What happens if we replace the following code snippet `{X}` with the proposed variants `{Y}`? Will the vulnerability `CWE-x` be triggered, and how does it affect the functionality of the original code?

- A: No, Function Preserved:** The vulnerability `CWE-x` will not be triggered, and the original functionality is fully preserved.
- B: No, Function Impaired:** The vulnerability `CWE-x` will not be triggered, but the functionality of the original code is impaired.
- C: Yes:** The vulnerability `CWE-x` will still be triggered.
- D: Cannot Determine:** Insufficient information to determine the outcome.

Answers

A:

```
If (0) {  
  Var B= VulFunc( Var B )  
  Var C = Func( Var B )  
}
```

B:

```
If (0) {  
  Var B= VulFunc( Var B )  
  If (1) { Bypass }  
  Else {  
    Var C = Func( Var B )  
  }  
}
```

C:

```
If (1) {  
  Var B= VulFunc( Var B )  
  Var C = Func( Var B )  
}
```

D: No idea.. ❌

DataFlow-wise

Question: Given that the parameter or function `{x}` is modified before the execution of the function `{y}`, evaluate the potential impact on the outcomes of `{y}`. Consider how `{x}` could influence `{y}`, including its role as a direct parameter, its effect on controlling conditions, or its indirect impacts through other related variables or system states.

- A:** The change to `{x}` directly alters the arguments passed to `{y}`.
- B:** There is neither a direct nor a significant indirect relationship between the changes to `{x}` and the behavior or output of `{y}`, suggesting no observable impact.
- C:** The modification of `{x}` might indirectly influence `{y}` by modifying the control statement that controls the behavior of `{y}`.
- D:** It is not possible to determine the effect without additional context.

Answers

A:

```
Var C = Func( Var A Var B )
```

B:

```
Var A = 1+1  
Var C = Func( Var B )
```

C:

```
If( Var A != Var B ) {  
  Var C = Func( Var B )  
}
```

D: No idea.. ❌

Goal-Driven

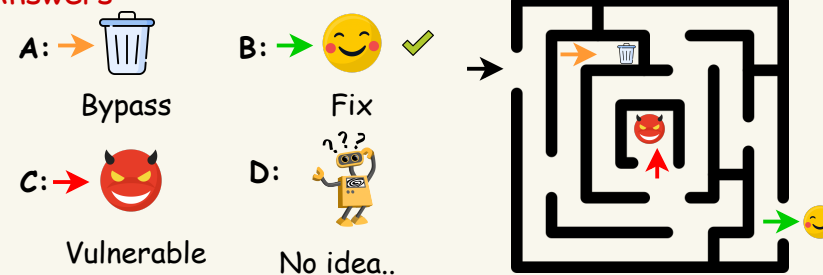
Question: Examine the following code snippet. Which set of [Masked] will not trigger `CWE-x` weakness while maintaining the original functionality of the code?

Code Snippet

```
[Mask1] {  
  Var B= VulFunc( Var B )  
}  
[Mask2] { Bypass }  
[Mask3] {  
  Var C = Func( Var B )  
}
```

- A:** [Mask1] = If (0), [Mask2] = If (1), [Mask3] = If (0) ❌
- B:** [Mask1] = If (0), [Mask2] = If (1), [Mask3] = If (1) ✅
- C:** [Mask1] = If (1), [Mask2] = If (0), [Mask3] = If (0) ❌
- D: Cannot Determine:** Insufficient information to determine the outcome. ❌

Answers



ControlFlow-wise

Question: How does modifying the control structure `{x}` affect the behavior or output of `{y}`?

- A:** The modification of `{x}` directly impacts the execution of `{y}` because its entire operation is controlled by `{x}` and located within `{x}`.
- B:** Modifying `{x}` has no impact on the behavior or output of `{y}`.
- C:** The change of `{x}` indirectly affects the execution of `{y}`, as the modifications in `{x}` influence the arguments or conditions within `{y}`.
- D:** It is not possible to determine the effect without additional context.

Answers

A:

```
If (1) {  
  Var C = Func( Var B )  
}
```

B:

```
If (1) { Var A = 1+1  
  Var C = Func( Var B )  
}
```

C:

```
If (1) {  
  Var C = 1 + Var B )  
  Var D = Func( Var C )  
}
```

D: No idea.. ❌

Predictive

Question: Considering the code snippet variants provided below, which variant would trigger `CWE-x` (not `CWE-y` or bypass)?

A:

```
If(1) {  
  Var B= VulFunc2( Var B )  
  If(0) { Bypass }  
  If(0) {  
    Var C = Func( Var B )  
  }  
}
```

 ❌

B:

```
If(1) {  
  Var B= VulFunc1( Var B )  
  If(0) { Bypass }  
  If(0) {  
    Var C = Func( Var B )  
  }  
}
```

 ✅

C:

```
If(0) {  
  Var B= VulFunc1( Var B )  
  If(1) { Bypass }  
  If(0) {  
    Var C = Func( Var B )  
  }  
}
```

 ❌

D: No idea.. ❌

Answers