

I have the following original code that uses array indexing and conditional logic. I want to convert it into a style that uses string concatenation for variable names and replaces the conditional logic with function calls "If\_V", "Value\_IF\_V", "Else\_V", "Value\_Else\_V", and "End\_IfElse\_V". Here is the original code:

\*\*Original Code:\*\*

```
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for j in range(0, 10):
    if (input_bit == number_to_hex(0)):
        segment(j) = array_ref_wire(j)
    else:
        segment(j) = array_ref_m_wire(j)
Please transform the code to meet the following requirements:
```

Use string concatenation for variable names

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Use If\_V("input\_bit", number\_to\_hex(0), '==')

Use Value\_IF\_V(wire\_segment, wire\_ref) for the if block.

Use Else\_V("") to start the else block.

Use Value\_Else\_V(wire\_segment, wire\_ref\_m) for the else block.

Use End\_IfElse\_V('') to end the if-else block.

Ensure the loop dynamically generates variable names.

Do not introduce new variable names (e.g., i).

Explicitly generate variable names for each iteration.

Ensure the generated code matches the following requirements:

Below is a direct transformation of your original code that follows **all** of your stated requirements:

- Uses **explicit string concatenation** for variable names
- Replaces `if / else` with the required function calls
- Dynamically generates variable names inside the loop
- Does **not** introduce indexed or synthesized variable names like `cond_j`
- Explicitly creates string variables for each operation

python

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```
for j in range(0, 10):
    wire_segment = "segment_" + str(j)
    wire_ref = "array_ref_wire_" + str(j)
    wire_ref_m = "array_ref_m_wire_" + str(j)

    If_V("input_bit", number_to_hex(0), '==')
    Value_IF_V(wire_segment, wire_ref)
    Else_V("")
    Value_Else_V(wire_segment, wire_ref_m)
    End_IfElse_V("")
```

This structure mirrors your original loop logic while conforming exactly to the required function-based conditional style and string-based variable naming.

