



Certified LabVIEW Developer Recertification

(CLD-R) Exam

Preparation Guide



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LabVIEW Certification Overview

The National Instruments LabVIEW Certification Program consists of the following three certification levels:

- Certified LabVIEW Associate Developer (CLAD)
- Certified LabVIEW Developer (CLD)
- Certified LabVIEW Architect (CLA)

The CLD certification is a prerequisite to taking the CLA exam. There are no exceptions to this requirement for each exam.

Each certification level requires recertification to maintain a valid certification status. Please see the [Recertification Policy and Process](#) for more information.

Exam Overview

CLD-R exam details:

- Product version: LabVIEW 2021
- Format: Multiple choice, 40 questions
- Duration: 1 hour
- Passing grade: 70%

The exam validates problem-solving skills, knowledge, and experience in the development of measurement and automation applications using LabVIEW. The exam does not involve any software development or any hardware-related questions.

The use of resources available in LabVIEW, such as the *LabVIEW Help* and examples are not allowed during the exam.



For general questions or comments, please fill out this [form](#) or email us at services@ni.com.

Exam Topics

The topics for the CLD-R exam include all the topics listed in the CLAD and CLD preparation guides.

Because of the nature of the CLD exam, some important CLD topics are not thoroughly tested in the CLD exam. The CLD-R exam intends to emphasize those topics and also test on some of the newer features from the last two releases of LabVIEW.

The CLD-R exam tests your experience as a CLD and your ability to evaluate a short application scenario and select the most appropriate solution or answer.

The following table lists the CLD-R topics and the approximate coverage of the topics on the exam:

#	Exam Topic	Percent Coverage
1.	Architecture / Project	10.0%
2.	Events	10.0%
3.	Error handling	10.0%
4.	Debugging	12.5%
5.	Performance	10.0%
6.	Timing	10.0%
7.	Recursion / Reentrancy	5.0%
8.	Testing	5.0%
9.	Calling external code	2.5%
10.	Shared variables	2.5%

11.	VI server	10.0%
12.	File IO	7.5%
13.	New features	5.0%

Exam Topics (Overview)

Topic	Subtopic
1. Architecture/Project	a. Project hierarchy and libraries b. Design pattern / architecture selection c. Data structures, data communications, and synchronization methods
2. Events	a. User interface events b. Dynamic and user defined events
3. Error handling	a. Error handling b. Error reporting
4. Debugging	a. Debugging tools, techniques and practices b. Problem identification and rectification
5. Performance	a. Tools and techniques b. Performance identification and improvement
6. Timing	a. Timing functions and mechanisms b. Timed structures and functions
7. Reentrancy and Recursion	a. Reentrant execution types b. Recursion applications

8. Testing	<ul style="list-style-type: none"> a. Functional testing b. Performance testing c. Stress testing d. Usability testing e. Regression testing f. Configuration testing g. Integration testing h. Error testing
9. External code	<ul style="list-style-type: none"> a. Interfacing with external code <ul style="list-style-type: none"> i. DLLs ii. CINS
10. Shared variables	<ul style="list-style-type: none"> a. Single process shared variables
11. VI Server	<ul style="list-style-type: none"> a. Class hierarchy, references, property nodes, and invoke nodes b. Dynamically loading and running VIs c. Recursion
12. File IO	<ul style="list-style-type: none"> a. Types and applications of File IO
13. New features	<ul style="list-style-type: none"> a. New features in LabVIEW 8.6, 2009

CLD Exam Preparation Resources

Use the following resources for additional exam preparation:

- [LabVIEW Documentation](#)
 - LabVIEW Core 1, 2 and 3

These courses are available [on-demand](#), as video recordings online that can be reviewed at your own pace. Some courses may be available in live [instructor-led](#) formats, like Classroom or Virtual.



Certified LabVIEW Developer Recertification Exam
Test Booklet 1



Certified LabVIEW Developer Recertification Exam Test Booklet 1

Note: The use of the computer or any reference materials is NOT allowed during the exam.

Instructions:

If you did not receive this exam in a sealed envelope stamped "NI Certification," **DO NOT ACCEPT** this exam. Return it to the proctor immediately. You will be provided with a replacement exam.

- Please do not ask the proctor for help. If you believe the intent of a question is not clear, you may note that question, and your reasons for choosing the answer you believe best fits the question.
- This examination may not be taken from the examination area or reproduced in any way. You may not keep any portion of this exam after you have completed it.

Exam Details:

- Time allocated: 1 hour
- Type of exam items: Multiple choice
- Number of exam items: 40 questions
- Passing Grade: 70%

IMPORTANT: When you have completed this exam, place it in the provided envelope with your answer sheet and SEAL the envelope. Give the sealed envelope to your proctor.

Answer Sheet:



To quickly check your answers against the solutions on the Solutions Page, record your answers on this Answers Sheet. Detach this page and record your answers as you go along. This page is not included in the actual CLD-R exam; it is included here for practice purposes only. The Solutions Page is at the end of the Sample Exam.

1. _____
2. _____
3. _____
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- 29. _____
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- 34. _____
- 35. _____
- 36. _____
- 37. _____
- 38. _____
- 39. _____
- 40. _____

Sample Exam Items:

1. Consider the following scenario: You must create a control system where a PID calculation determines the value of an analog output based upon an analog input and a double-precision setpoint. Which of the following is the most appropriate mechanism to transfer the setpoint from your user interface loop to your control loop?
 - a. A queue with a data type of analog waveform.
 - b. A functional global variable with logic to hold the maximum.
 - c. A global variable
 - d. A queue with a data type of double.

2. Consider the following scenario: You have multiple acquisition loops which all increment a shared counter. Which of the following is the most appropriate mechanism to share the counter between the loops?
 - a. A queue with a 32-bit integer data type.
 - b. A functional global with operations to get the current value of the counter and set a new value for the counter.
 - c. A global variable
 - d. A functional global variable with operations to get the current value of the counter and increment the value of the counter.

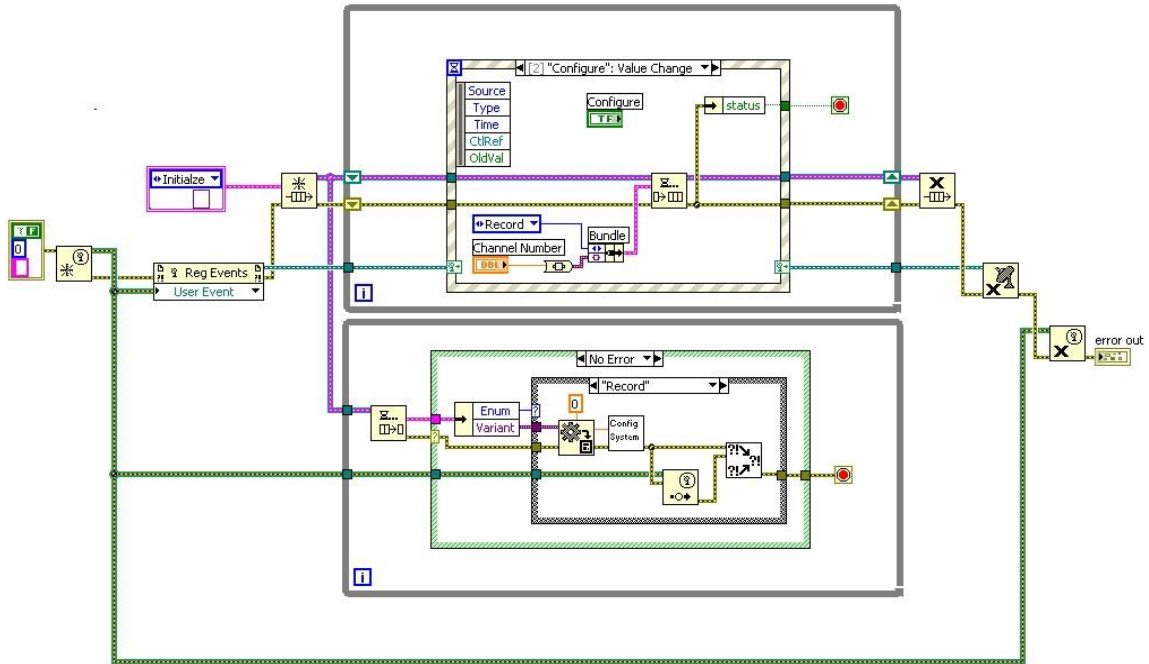
3. Consider the following scenario:

You must create an application which queries a database for configuration settings and transmits them to a remote device upon a request from the remote device. For each request, the remote device sends a profile name and the database replies with a matching set of configuration settings. The database query may take time to execute so you have placed it in a separate loop from the code which communicates with the remote device.



Which of the following is the most important consideration when transferring a request for new configuration settings between the loops?

- a. The data transfer must be lossless and must include information on the time between updates.
 - b. The data transfer must have low latency between the loops and always transmit the most recent value.
 - c. The data transfer must be lossless and must have a low latency between the loops.
 - d. The data transfer must have low latency between the loops and must latch the most recent value so that it cannot be overwritten by other loops.
4. You have a VI called “General Error Handler.vi” which has the potential of causing a cross-linking issue. Which of the following actions will not help resolve the issue?
- a. Include the VI in a project (.lvproj).
 - b. Include in a project library (.lvlib).
 - c. Rename the VI to include a distinct prefix.
 - d. Include the VI in a LabVIEW class (.lvclass).
5. Which VI is responsible for passing data from the bottom loop to the top loop in the block diagram shown below?



Dequeue Element



a. Generate User Event



b. Merge Errors.vi



c. Variant To Data

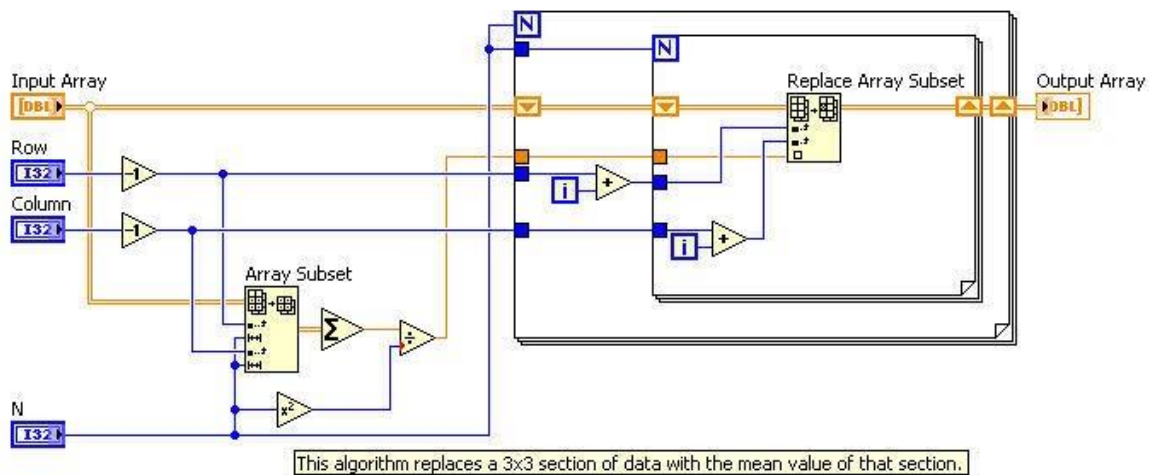


d.

6. Which of the following statements about events is true?

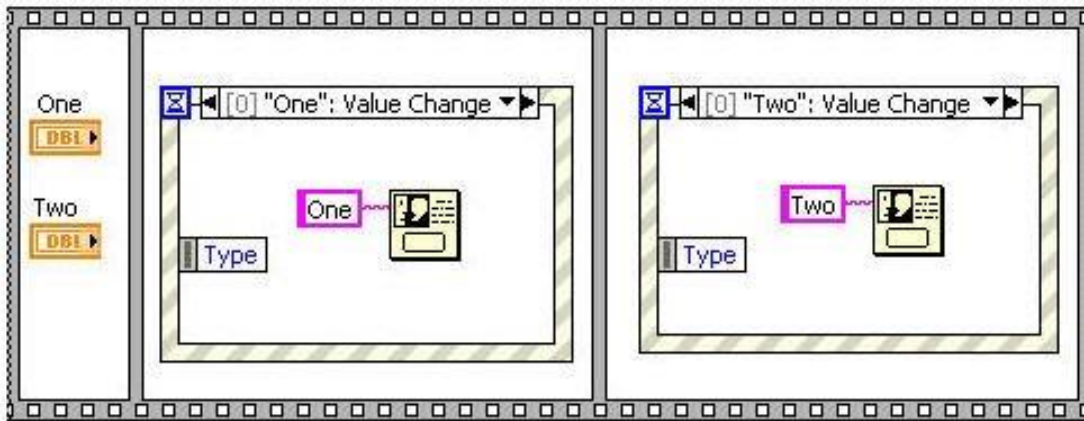
- a. The timeout event causes an event to fire every x ms where x is the value wired to the timeout terminal.
- b. When you press and release a button with a mechanical action of Latch When Released it creates two value change events.

- c. Setting the “lock front panel until the event case for this event completes” option on an event will ignore any events that occur during the processing of that event.
 - d. When processing a filter event, wiring a corresponding terminal from the Event Data Node to the Event Filter Node has the same effect as leaving the Event Filter Node unwired.
7. Your application has a performance requirement to complete certain operations within a specified time period. After testing your implementation, you determine that one of the operations intermittently fails to meet its performance requirement. Using the Profile Performance and Memory tool, you identify a single subVI as the main performance bottleneck. The block diagram of the subVI is shown below. The VI is currently set at the "Normal" priority level. Which of the following techniques would be most effective in decreasing the subVI's execution time?



- a. Place a To Double Precision Float function after the Square function to eliminate the coercion dot
- b. Use an In Place Element Structure to replace the Array Subset and Replace Array Subset functions
- c. Set the subVI's Priority property to "subroutine"

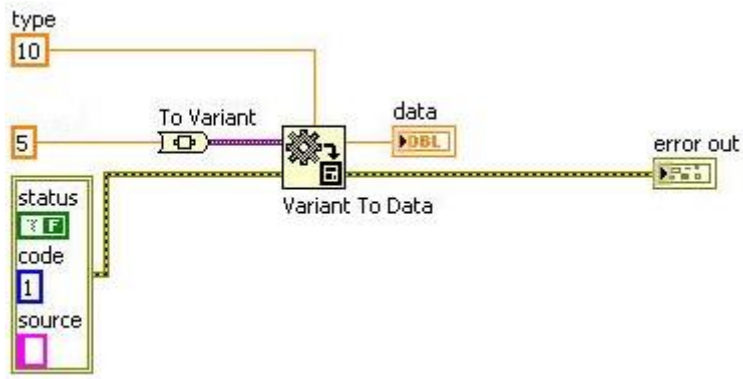
- d. Replace the mean calculation with the built-in Mean.vi from the Probability & Statistics palette
- 8. The following block diagram, both the Event structures are configured to Not lock the front panel until the event case completes. What will be the VI's response if the two control values are changed?



- a. Since there is no While loop, the VI does not wait for any event and finishes execution. No dialogs are displayed
 - b. The VI front panel stops responding if Two's value is changed before One's value is changed
 - c. The VI runs as expected if Two's value is changed before One's value is changed
 - d. The VI's front panel stops responding when any of the control value is changed
9. Which of the following functions or structures executes normally when you pass an error cluster with a True value for the status element to the "error in" terminal of the structure or function?
- a. Timed loop
 - b. Write to Text File
 - c. Call Library Function

d. Close File

10. What is the value in the **data** indicator after executing the following code?



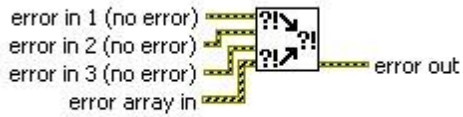
- a. 5
- b. 10
- c. 0
- d. NaN

11. Which of the following is a valid custom error code range?

- a. 3500 to 6000
- b. -8999 to 3000
- c. 5000 to 9999
- d. -9999 to 9999

12. Which of the following is true in case of Merge Errors VI?

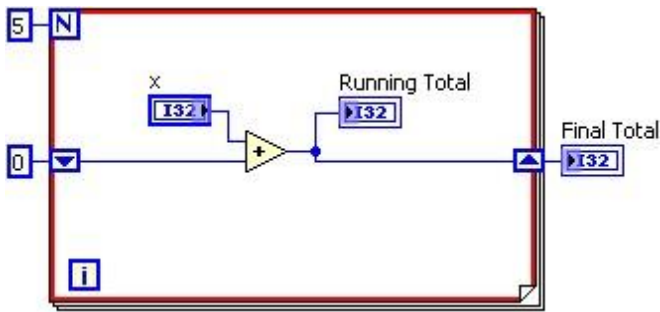
Merge Errors.vi



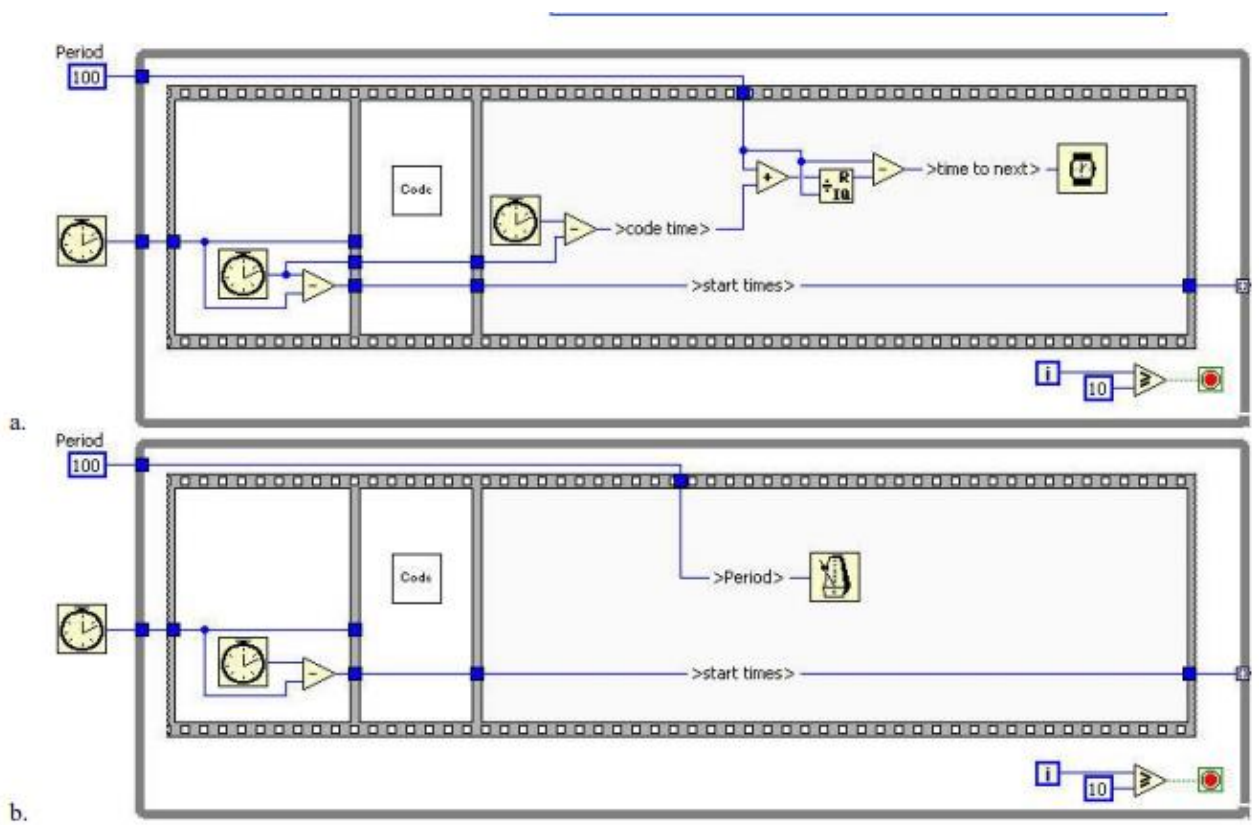
Merges error I/O clusters from different functions.

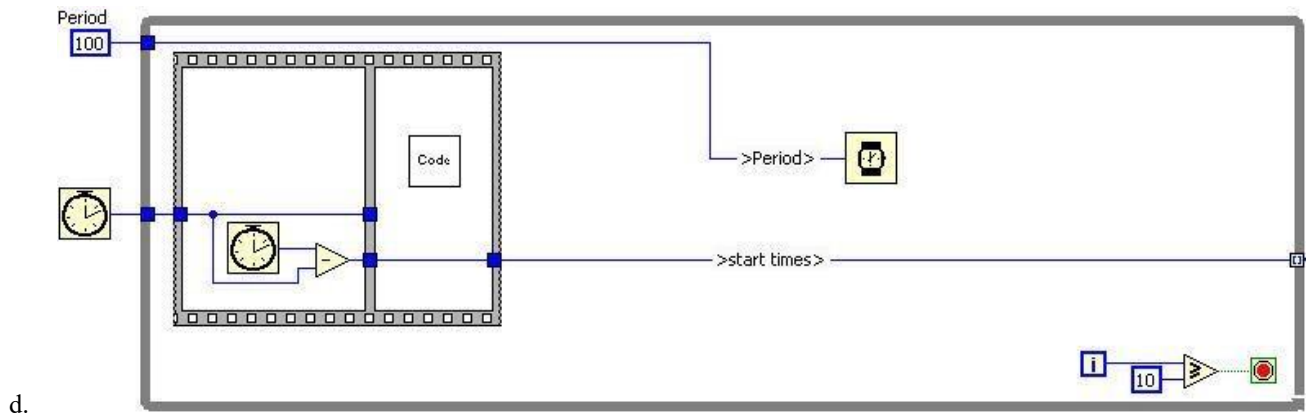
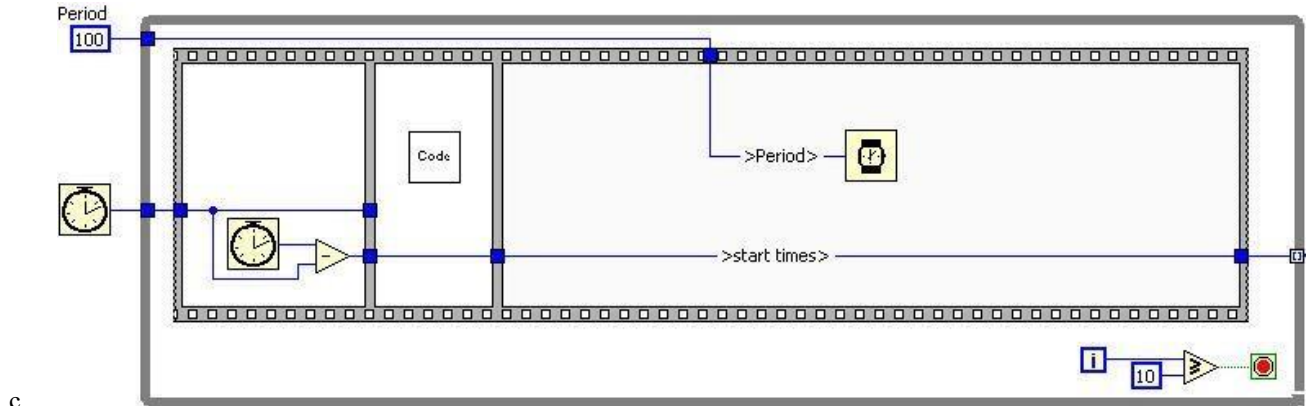
- If more than one input has errors, the input with the most severe error (decided based on error code number), is passed as the output of this VI.
- If more than one input has errors, the first input (Top-down) which has error, is passed as the output and other inputs are ignored.
- If the inputs have a mixture of errors and warnings, the first input (Top-down) which has error/warning is passed as output.
- If the inputs have warnings only, it ignores the warnings and does the job of 'Clear Errors.vi'.

13. How many times does the following VI pause (breakpoint is inside the loop)?



- 0
- 4
- 6
- 5



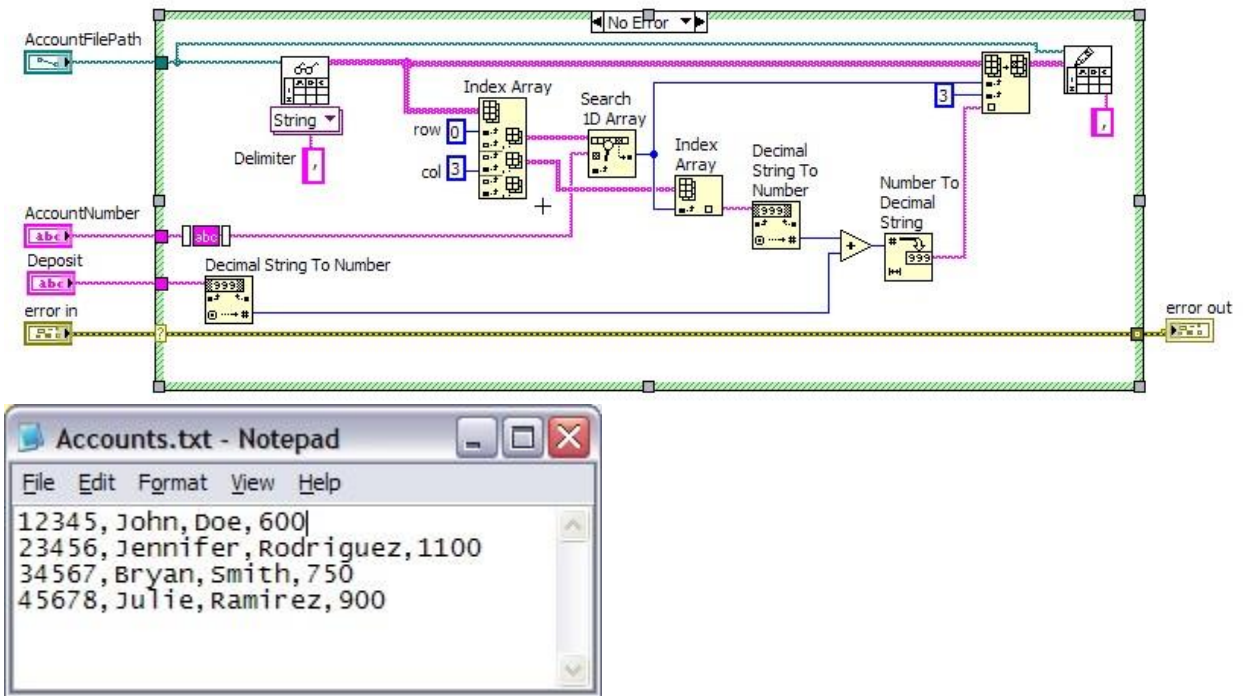


15. You have been given an application that simulates an ATM machine in which the Deposit functionality does not function as required. The block diagram of the Deposit SubVI and the Account.txt file it operates on are shown below.

The fields of the Account.txt file are: Account Number, First Name, Last Name, Account Balance.

The issue is that SubVI updates the first record in the Accounts.txt file

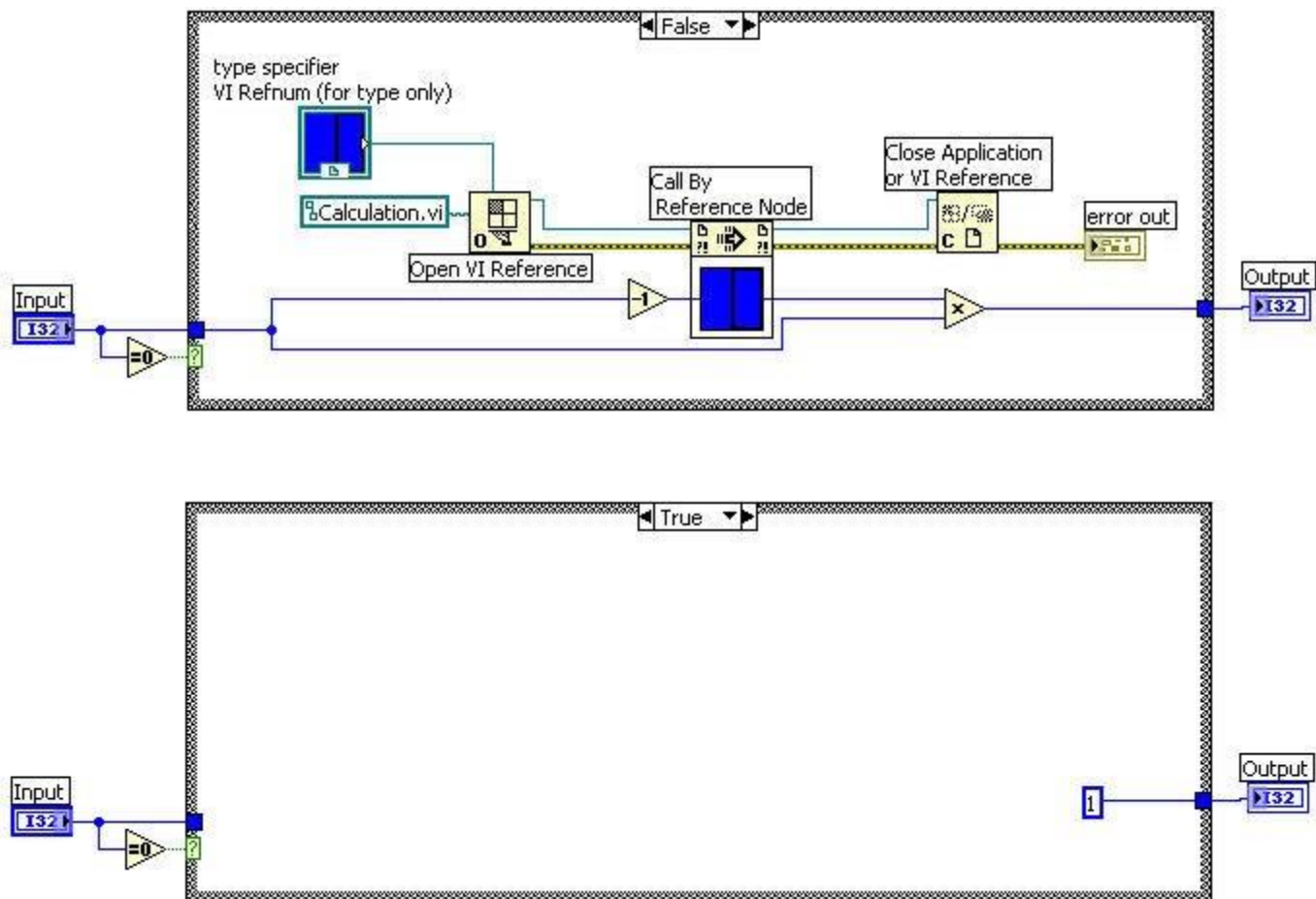
Assume that the inputs to the SubVI are valid and no errors occur before the subVI is called and this subVI does not report any error.



What changes can be made to the code to fix the functional issue?

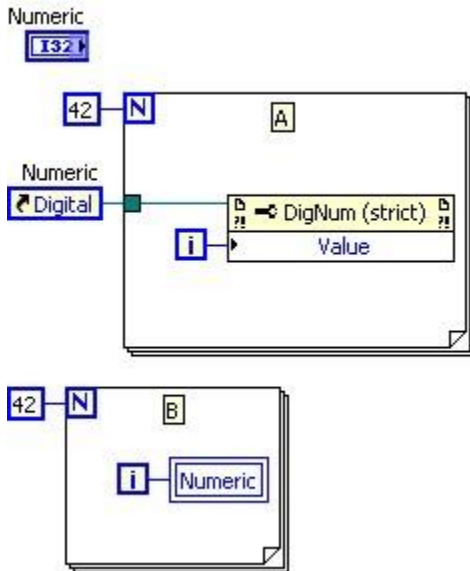
- a. Change the Spreadsheet file functions to Text file functions.
 - b. Change the "Decimal String to Number" function to "Number to Decimal String" function
 - c. Remove the extra set of inputs the first Index Array function
 - d. Move the constant from the row input of the first Index Array function to the col input
16. Your application contains one While Loop dedicated to acquiring data and a second parallel While Loop dedicated to processing the acquired data. You want your processing loop to process all acquired data in the order it was received. What data synchronization method will you use?

- a. Semaphores
 - b. Rendezvous
 - c. Queues
 - d. Notifiers
17. User-created custom probes will have which of the following?
- a. **Input:** Datatype of the wire **Output:** Same datatype
 - b. **Input:** Datatype of the wire **Output:** Custom output
 - c. **Input:** Datatype of the wire **Output:** Boolean
 - d. **Input:** Boolean **Output:** Numeric
18. Which of the following statements is true?
- a. Enabling auto-indexing for the output of a For Loop is more efficient than that of a While Loop.
 - b. Enabling auto-indexing for the output of a While Loop is more efficient than that of a For Loop.
 - c. Both While Loop and For Loop takes same amount of time if auto-indexing is enabled for the output
 - d. None of the above.
19. What will be the **Output** of the following reentrant Calculation.vi if the **Input** is 4?



- a. 40
- b. 1
- c. 24
- d. 0

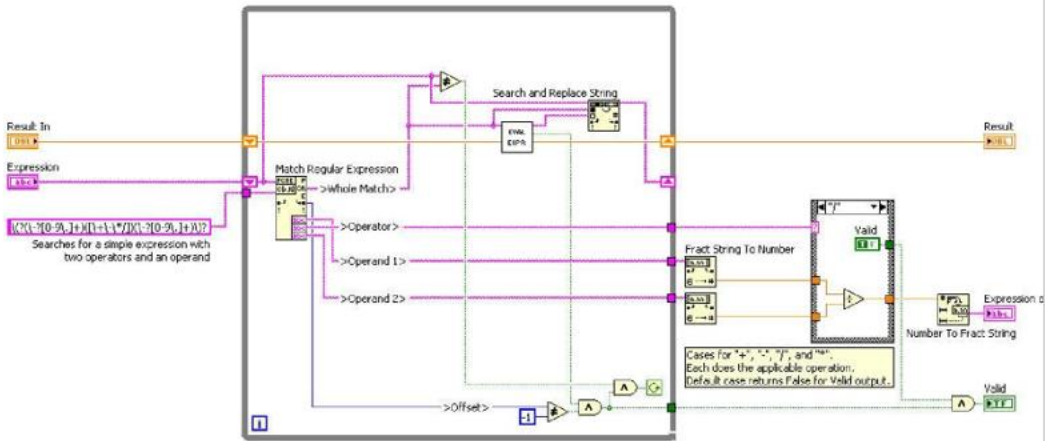
20. Considering the two code snippets mentioned below, assuming all other factors remain constant, which of the statements are true?



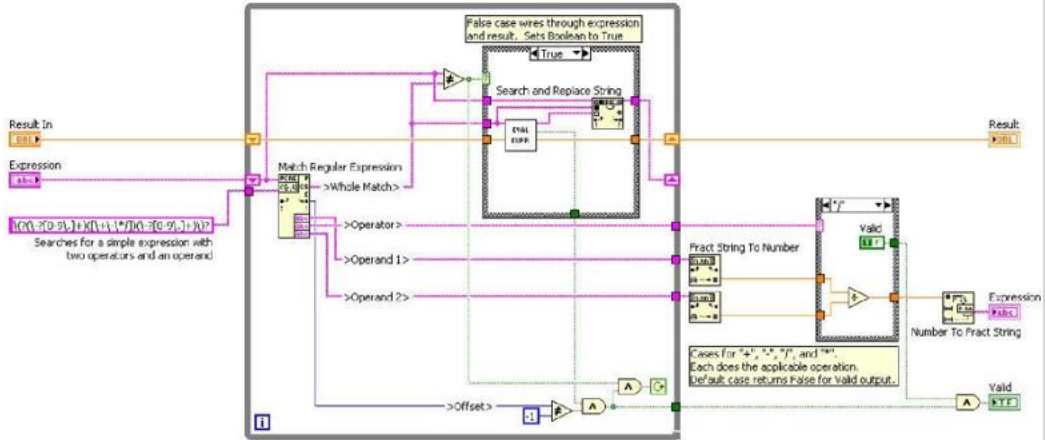
- a. A is faster than B
 - b. B is faster than A
 - c. Both take the same amount of time.
 - d. Cannot be determined.
21. Which of the following is the most appropriate function for synchronizing the frequency of two or more loops using timing functions alone?
- a. Wait Until Next ms Multiple
 - b. Wait (ms)
 - c. Time Delay
 - d. Elapsed Time Express VI
22. You are attempting to evaluate a mathematical expression entered as a string. The mathematical expression accepts the operators +, -, *, and /. All operations except for the final result must be enclosed in parenthesis, so order of operations is not relevant. Negative and fractional numbers are accepted.

For example, the string “(-34+21.6)*((38)/(1+1))” should return a result of 31

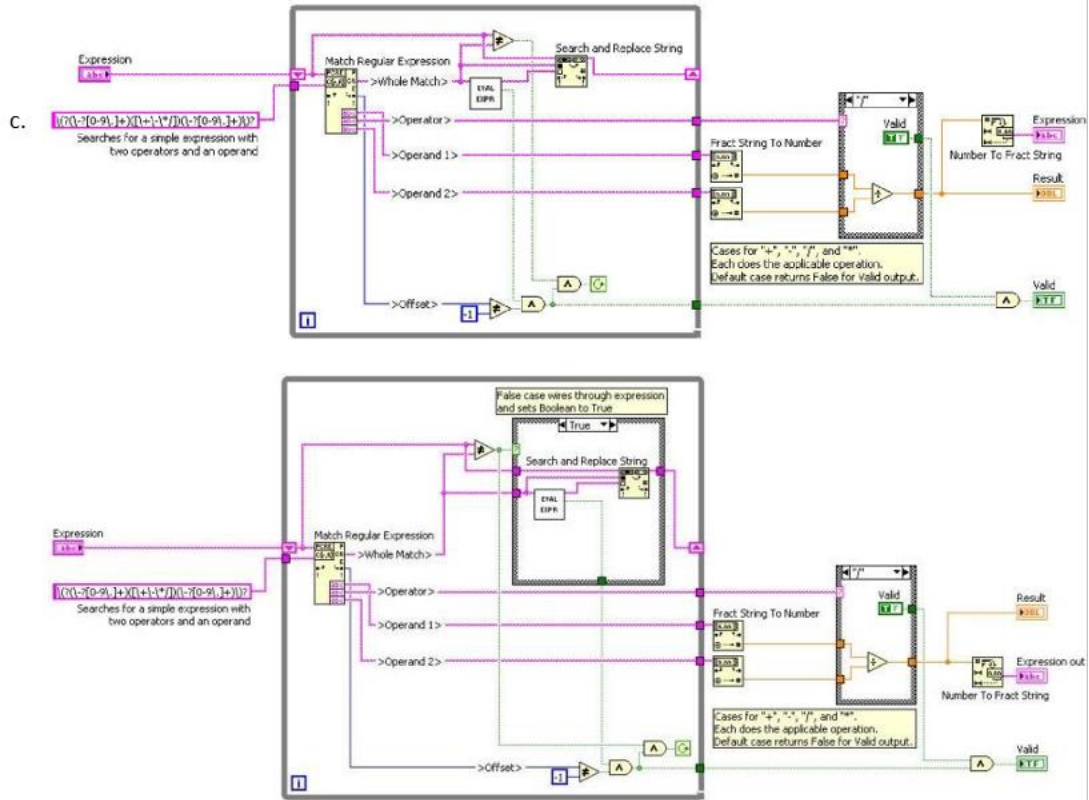
Note: The EVAL_EXPR VI shown in the images is a recursive call of the code shown. In LabVIEW 2009 recursion no longer requires the use of VI server



a.

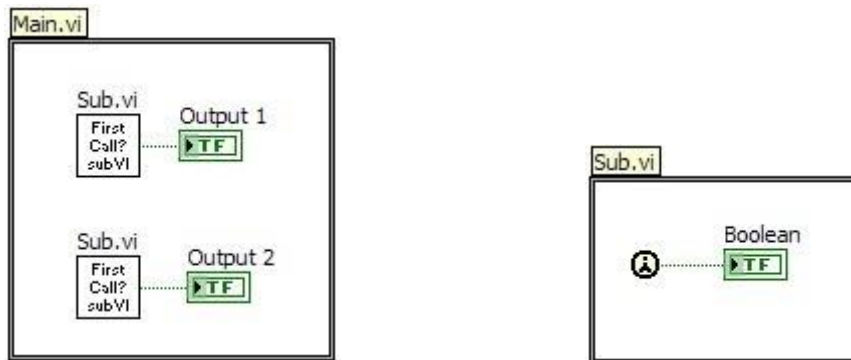


b.



23. Which of the following is an effect of setting reentrancy for a top level VI?
- Makes only the top level VI reentrant
 - Forces every subVI except for dlls/assemblies to be reentrant
 - Forces every subVI including dlls/assemblies to be reentrant
 - Forces every subVI except dynamically called VIs to be reentrant

24. The Sub.vi is configured for non-re-entrant execution. What is the behavior of Main.vi when it is executed?

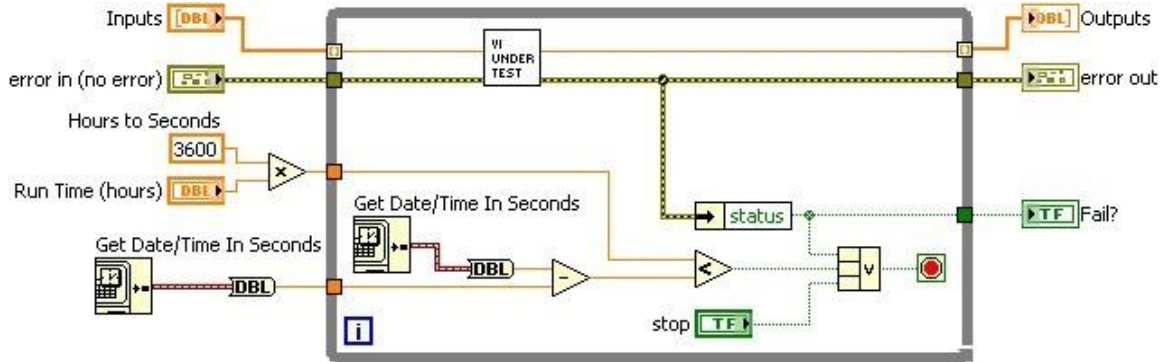


- The VI executes and both outputs are TRUE
- The VI executes and both outputs are FALSE
- The VI executes and one output is TRUE and other is FALSE, but cannot predict which output is TRUE or FALSE.
- The VI reports a runtime error since the sub VI is not re-entrant

25. Which type of testing can be performed using Windows Task Manager?

- Functional testing
- Configuration testing
- Usability testing
- Performance testing

26. What method of testing is shown in the figure below?



- a. Functional testing
- b. Usability testing
- c. Stress testing
- d. Performance testing

27. Which of the following functions is useful for ensuring users do not enter invalid values in a GUI application?

- a. In Range and Coerce
- b. Variant to Data
- c. Implies
- d. Type Cast

28. A dll called through the Call Library Function Node (CLFN) in a subVI remains in memory until

- a. The subVI completes execution
- b. The CLFN completes execution
- c. An empty path is wired into the same CLFN
- d. All VIs complete execution

29. Which of the following should be done to un-deploy a network published shared variable?

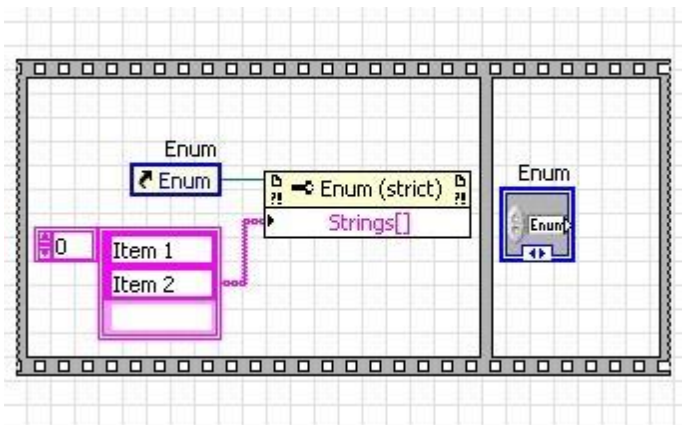
- a. Delete the shared variable in the project Explore window and reboot the machine which is hosting the Shared variable

- b. Un-deploy the library the variable is part of in the Project Explorer window
- c. Select Tools»Distributed System Manager select the Shared variable library and remove process
- d. Close all VIs accessing the variable

30. When you create a refnum to a VI, LabVIEW loads the VI into memory (if it is not already in memory). Which of the following is NOT a reason for the VI to stay in memory?

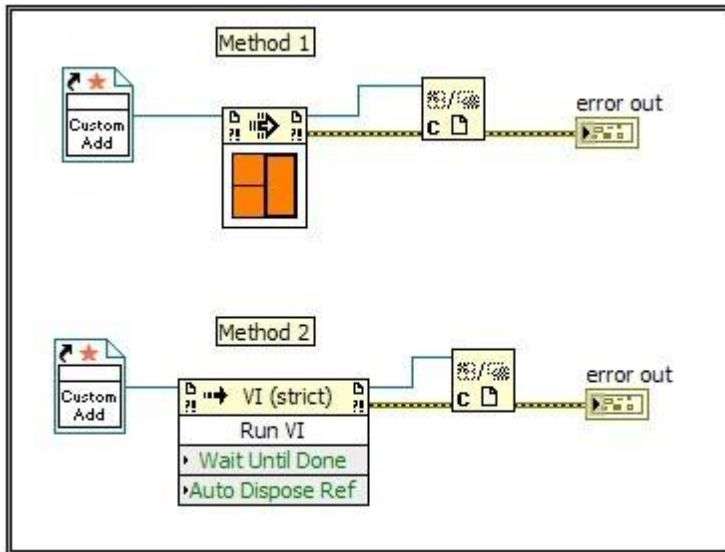
- a. The VI is included in a project which is in memory
- b. There are open references to the referenced VI
- c. The front panel of the VI is open
- d. The VI is a subVI of another VI in memory

31. What will be the behavior when a VI that has the following code snippet is executed?



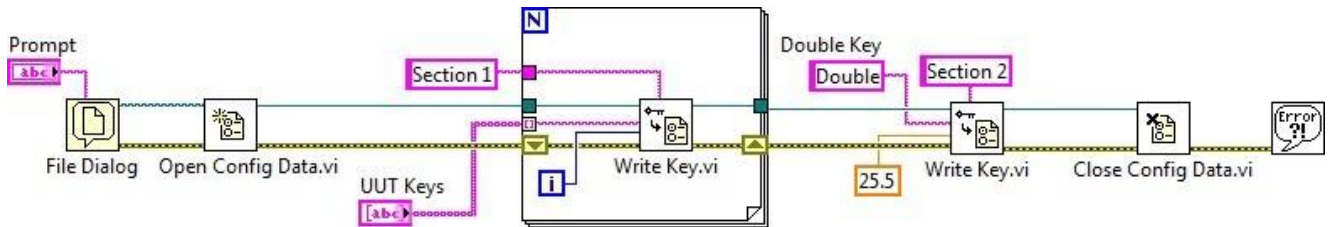
- a. The VI reports an Error, since the control's reference is accessed before the control
- b. The VI executes and Item 1 and Item 2 are added to the Enum's items.
- c. Runs only when the VI is Reentrant.
- d. The VI report an Error as the Enum's items cannot be changed when the VI is running.

32. Which of the following methods will allow the execution of the Custom Add VI?

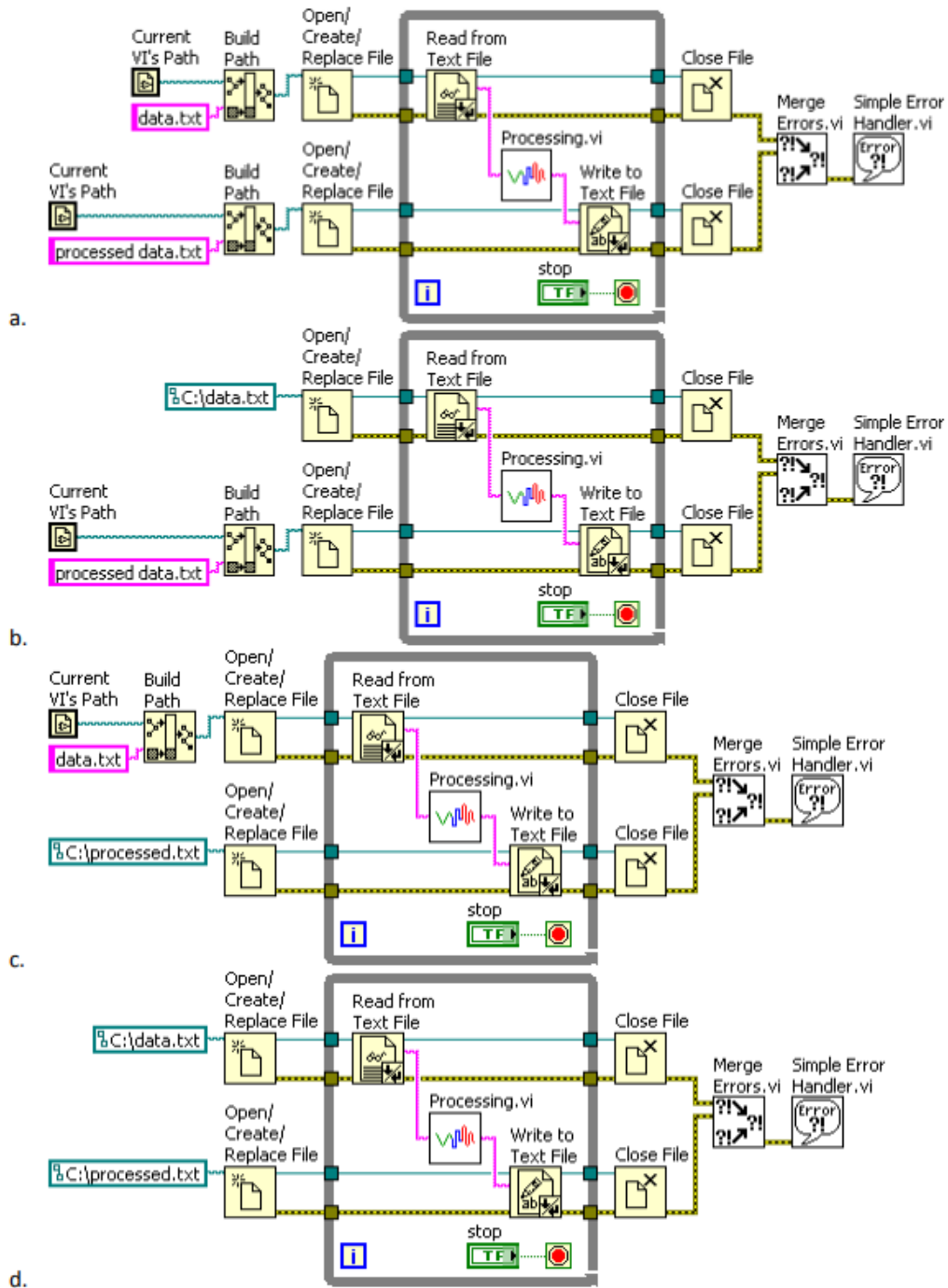


- a. Method 1
- b. Method 2
- c. Both methods
- d. None of the methods

33. You are using the following code to write a configuration file to disk. The UUT Keys array is empty. Which of the following is true after the code executes?



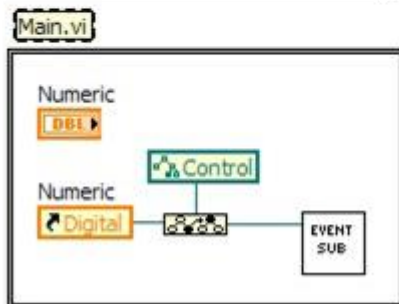
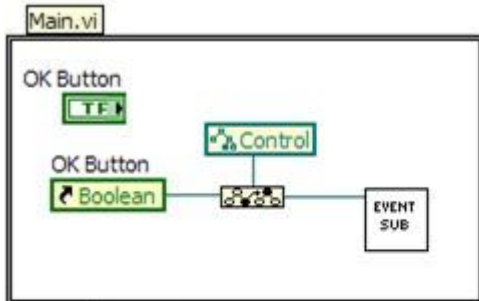
- a. An error is returned and nothing is written to the file.
 - b. Both Section 1 and Section 2 are created. Section 1 contains no Key-Value pairs. Section 2 contains one Key-Value pair.
 - c. Both Section 1 and Section 2 are created and both sections contain one Key-Value pair.
 - d. Only Section 2 is created. Section 2 contains one Key-Value pair.
34. Which of the following block diagrams is more scalable and maintainable?

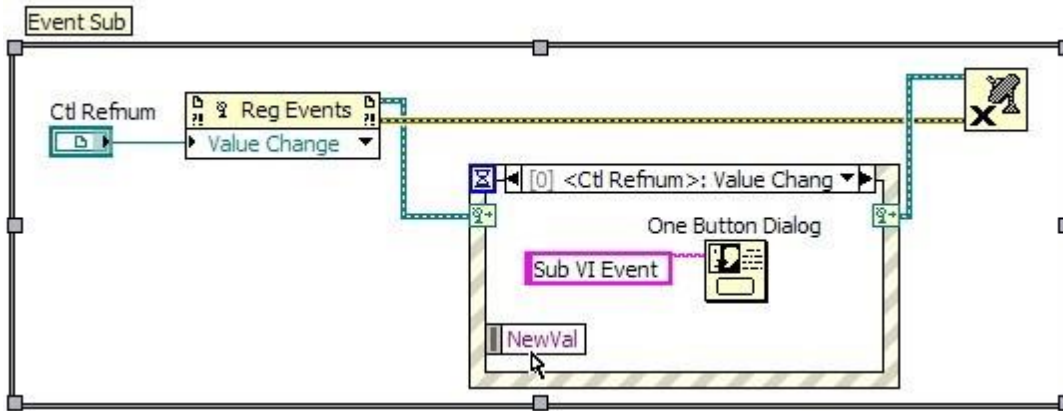


35. Your application needs to run on the following operating systems: Windows, Linux, and MacOS. When reviewing your code, which of the following is NOT a platform-specific consideration?

- Use of the Timestamp data type, such as returned from the Get Date/Time in Seconds function.
- The block diagram calls a .NET or ActiveX method.
- File names and paths include special characters, such as backslash (\), slash (/), colon (:), and tilde (~).
- User interface labels resize due to differences in system fonts.

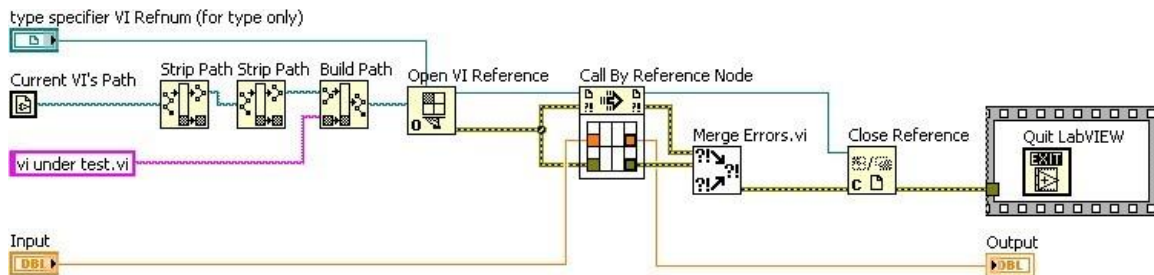
36. What will happen when the OK Button and its reference in the Main.vi is replaced with Numeric (DBL) control and its reference as shown in the following code snippets?





- The Main.vi will have a broken run arrow
- A runtime error will occur when the Main.vi is executed
- The Main.vi will execute and the One Button Dialog will display when the value of the Numeric control is changed
- The Main.vi will execute but the One Button Dialog will not display when the value of the Numeric control is changed

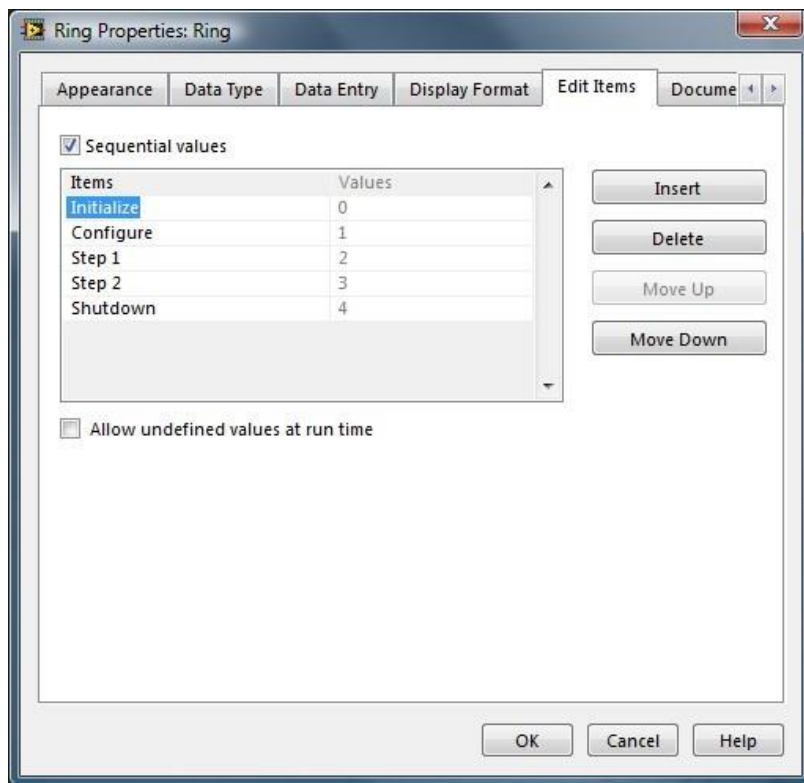
37. Which of the following steps need to be taken if you decide to build the block diagram shown into an executable?



- The file path needs to be stripped one more time because the build process will add another layer to the file structure, causing problems
- The VI that is being called dynamically needs to be manually added to the build specification

- c. The application window will not close when the executable has been stopped.
- d. One or more functions will not work outside of the development environment.

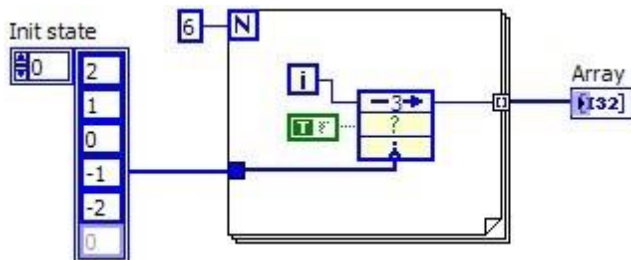
38. A type definition of an unsigned 16-bit ring control with the defined items is shown in the property dialog below. The default value is set to 0 (Initialize). Which of the following changes will force all instances of the type definitions to update?



- a. Change the default value to 1 (Configure).
- b. Change the data type to unsigned 32-bit.
- c. Append "Step 3" as another ring item.

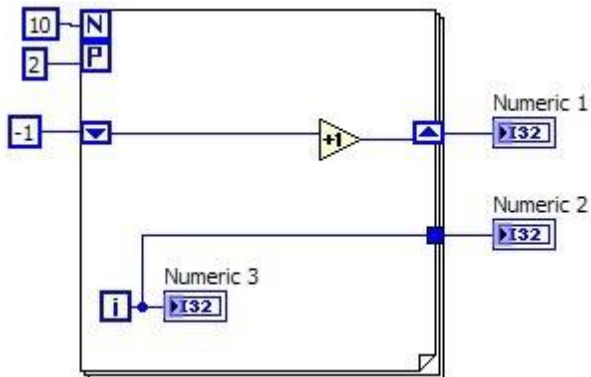
d. Rename the “Step 1” ring item to be “Trigger”.

39. Which of the following best represents the data in Array after the following code completes execution?



- a. {-2, -1, 0, 1, 2, 3}
- b. {-2, -1, 0, 0, 1, 2}
- c. {2, 1, 0, 0, 1, 2}
- d. {2, 1, 0, -1, -2, -3}

40. What are the values of the indicators Numeric 1 and Numeric 2 after running this code on a dual core processor?



- a. 10, 10
- b. 9, 9
- c. -1, 0
- d. Cannot be determined

Solutions Page:

Below are the answers and links to additional resources for the CLD-R Sample Exam. To quickly check your answers, record them on the Answer Sheet, detach the Answer Sheet, and compare it, side-by side, with the Solutions Page. This answer page is not included in the actual CLD-R exam; it is included here for practice purposes only.

Question	Answer
1	C
2	D
3	C
4	A
5	B
6	D
7	C
8	C
9	D
10	A
11	C
12	B
13	D
14	A

15	D
16	C
17	C
18	A
19	C
20	B
21	A
22	D
23	A
24	C
25	D
26	C
27	A
28	C
29	C
30	A
31	D
32	A
33	A
34	A

35	A
36	C
37	B
38	B
39	C
40	B



Certified LabVIEW Developer Recertification Exam
Test Booklet 2



Certified LabVIEW Developer Recertification Exam Test Booklet 2

Note: The use of the computer or any reference materials is NOT allowed during the exam.

Instructions:

If you did not receive this exam in a sealed envelope stamped "NI Certification," **DO NOT ACCEPT** this exam. Return it to the proctor immediately. You will be provided with a replacement exam.

- Please do not ask the proctor for help. If you believe the intent of a question is not clear, you may note that question, and your reasons for choosing the answer you believe best fits the question.
- This examination may not be taken from the examination area or reproduced in any way. You may not keep any portion of this exam after you have completed it.

Exam Details:

- Time allocated: 1 hour
- Type of exam items: Multiple choice
- Number of exam items: 40 questions
- Passing Grade: 70%

IMPORTANT: When you have completed this exam, place it in the provided envelope with you answer sheet and SEAL the envelope. Give the sealed envelope to your proctor.

Answer Sheet:

To quickly check your answers against the solutions on the Solutions Page, record your answers on this Answers Sheet. Detach this page and record your answers as you go along. This page is not included in the actual CLD-R exam; it is included here for practice purposes only. The Solutions Page is at the end of the Sample Exam.



Sample Exam Items:

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1. Consider the following scenario: You must log the rotation rate of a crank shaft by analyzing an analog signal. The shaft has 4 teeth, each of which creates a peak in the analog signal when they pass a sensor. You have an analysis routine which calculates the rotation rate based upon the elapsed time between the peaks. Which of the following is the most important consideration when transferring the signal from your acquisition loop to an analysis loop?

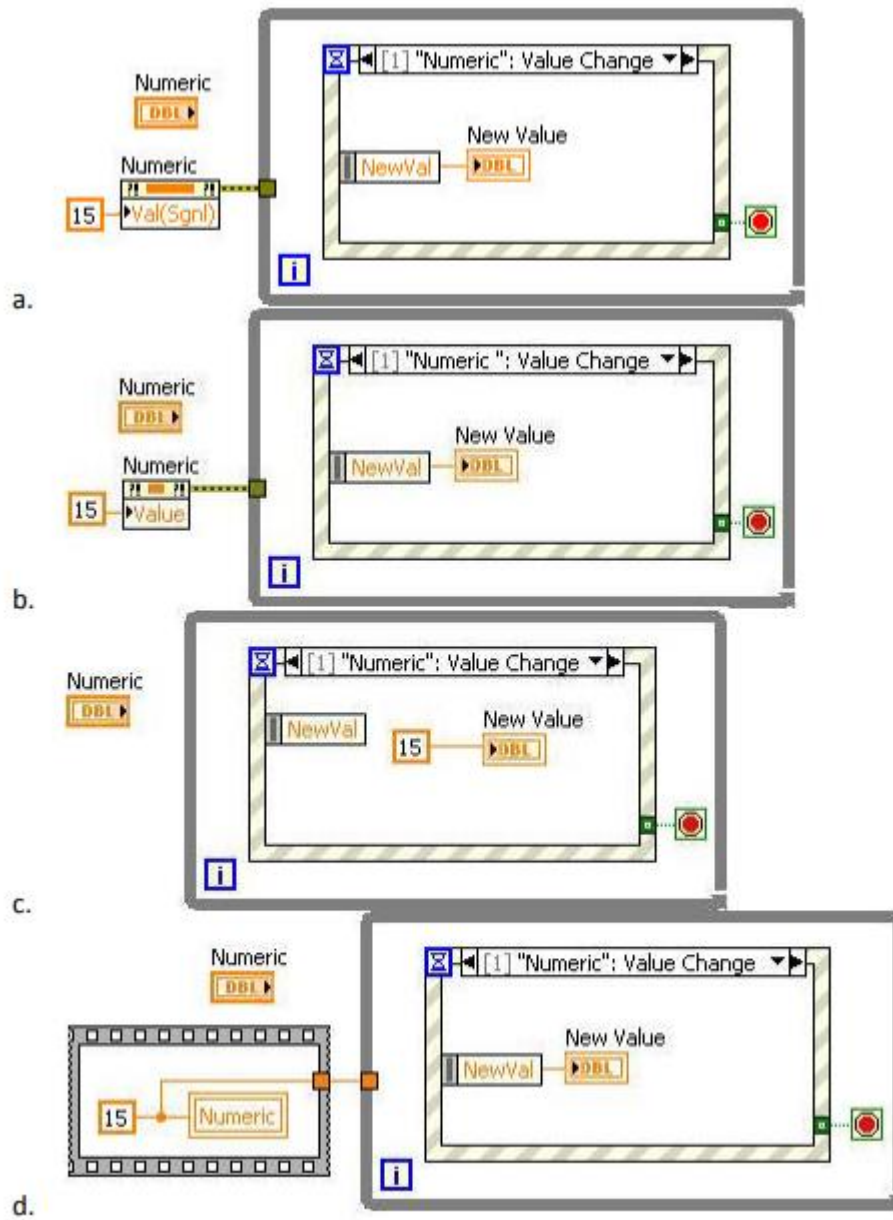
- a. The data transfer must be lossless and must include information on the time between data points
- b. The data transfer must have low latency between the loops and must always transmit the most recent value
- c. The data transfer must be lossless and must have a low latency between the loops
- d. The data transfer must have low latency between the loops and must latch the peak value so that it cannot be overwritten by lower values

2. Consider the following scenario: You must create a control system with multiple control algorithms that run at different speeds. In order to accomplish this, you create a loop to control each algorithm and an additional loop to allow user interaction. You have an emergency stop for the system that should immediately place all of the loops in a safe state. The stop can be triggered from any of the control loops or the user interface loop. Which of the following is the most important consideration when transferring the emergency stop between the loops?

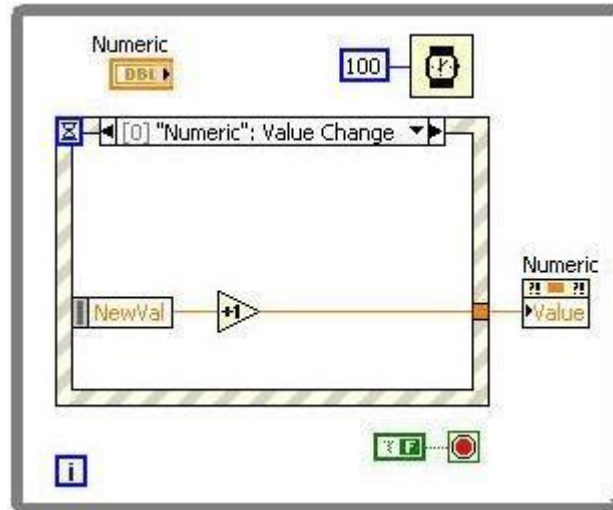
- a. The data transfer must be lossless and must include information on the time between updates.
 - b. The data transfer must have low latency between the loops and must always transmit the most recent value.
 - c. The data transfer must be lossless and must have a low latency between the loops.
 - d. The data transfer must have low latency between the loops and must latch a value of true so that it cannot be overwritten by other loops.
3. Your application has a loop dedicated to acquiring data and a second parallel loop dedicated to processing the acquired data. You want your processing loop to process only the most recent acquired data available. Which design pattern should you use?
- a. Producer/Consumer
 - b. Master/Slave
 - c. Both are acceptable
 - d. Neither are acceptable
4. Which of the following statements about events is true?
- a. The timeout event causes an event to fire every x ms where x is the value wired to the timeout terminal
 - b. When you press and release a button with a mechanical action of 'Latch Until Released', it creates two value change events
 - c. Setting the 'Lock front panel until the event case for this event completes' option on an event will ignore any events that occur during the processing of that event
 - d. If you do not wire a value to one of the terminals in the Event Filter Node for a notify event, LabVIEW uses the default value for that terminal's data type to process the event

5. While processing an event in your event-driven application, the user interface becomes unresponsive because the event code takes a significant time to execute. Which of the following will remedy the problem?
 - a. Add a wait statement to the event processing loop to prevent it from starving the UI thread
 - b. Open the Edit Events window for the event and disable the 'Lock front panel until the event case for this event completes' option
 - c. Move the processing of the event into a separate loop from the event structure and initiate the processing with a queue
 - d. Add a Timeout case to the event structure controlling the event to allow the UI to update after the timeout period

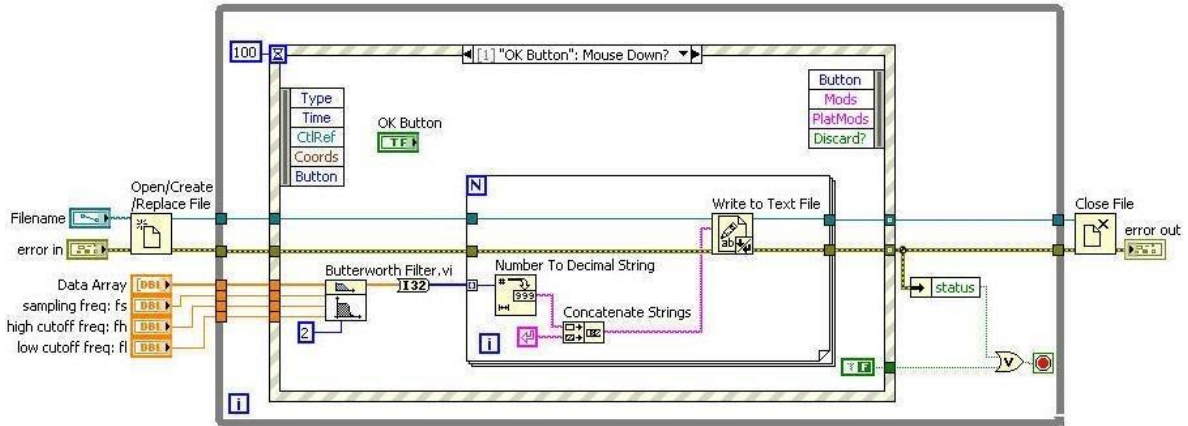
6. Which of the following diagrams will initialize the **New Value** indicator with the value of 15?



7. What is the behavior of this code when this VI is run and the user clicks on the increment of the **Numeric** control on the front panel once? **Numeric** has an initial value of 0.00.

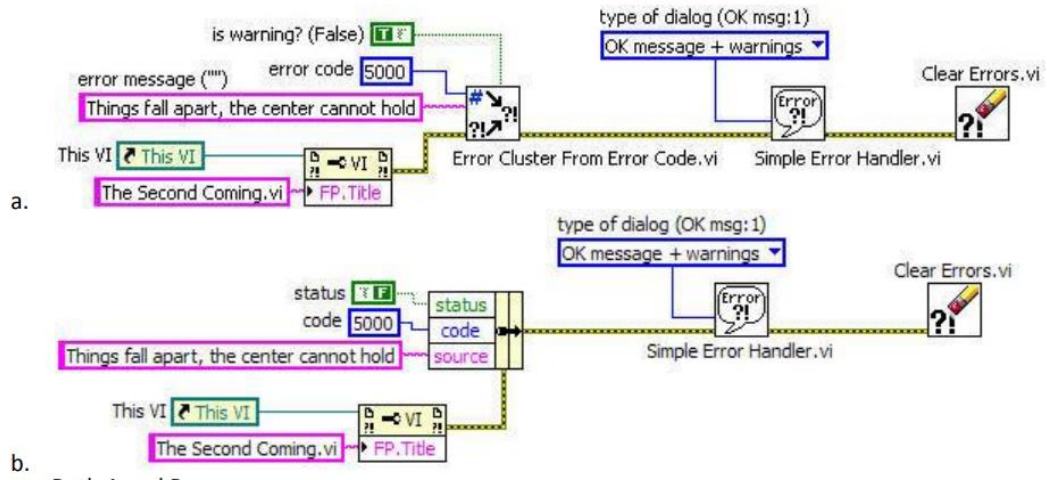


- Numeric** keeps incrementing until it reaches the maximum value and stays at the maximum value
 - Numeric** keeps incrementing and overflows the range of the Numeric indicator
 - Numeric** increments to a value of 2.00 and stays at that value
 - Numeric** increments to a value of 1.00 and stays at that value
8. Which of the following is a risk if you execute the following code on a system with the default LabVIEW settings?



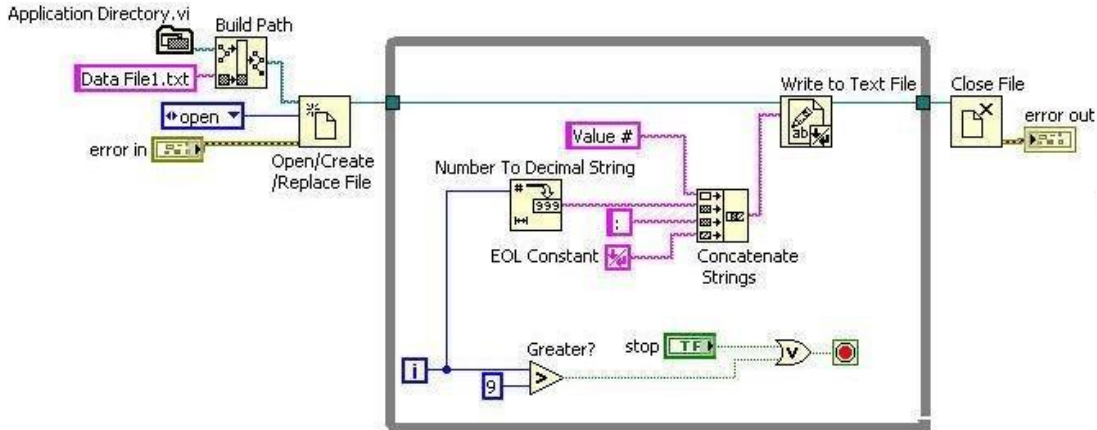
- a. A memory leak could result from writing the filtered data to the text file
 - b. The VI will not finish execution unless the Mouse Down? event occurs for the OK Button
 - c. The While Loop does not stop execution in the event of an error in the Mouse Down? Event case
 - d. LabVIEW will not update the front panel activity while the Mouse Down? event is executing
9. When executed, which of the following code segments could produce a dialog similar to the one shown below?





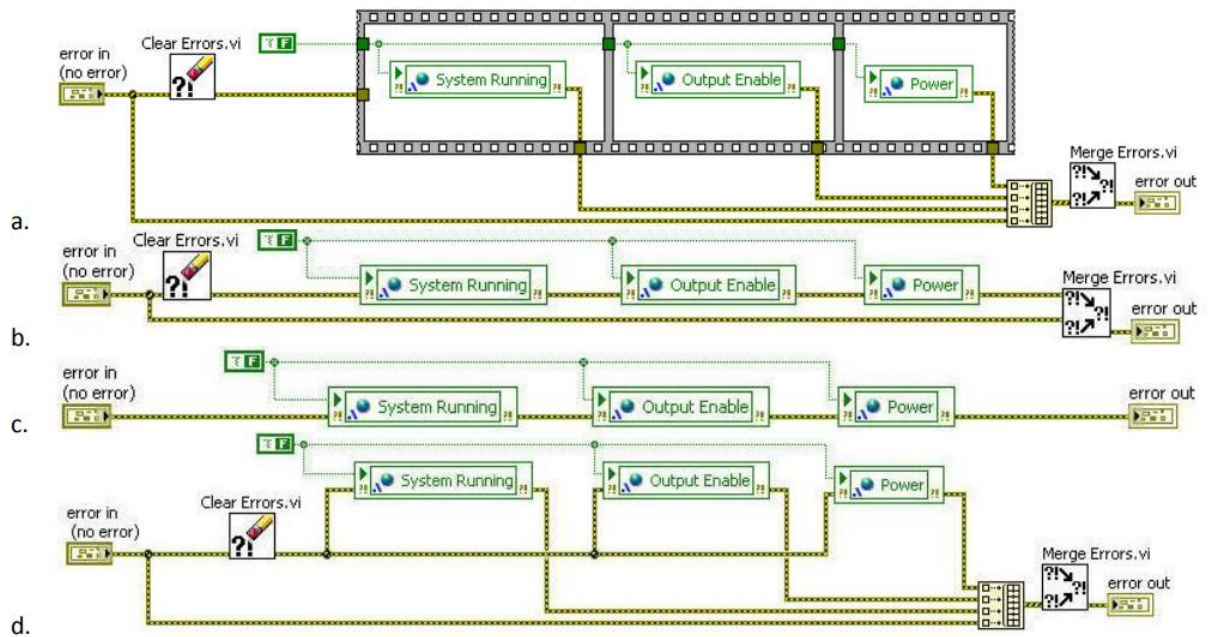
- c. Both A and B
- d. Neither A nor B

10. How will the VI shown below behave if Data File1.txt does not exist? Assume that automatic error handling is enabled (default setting).

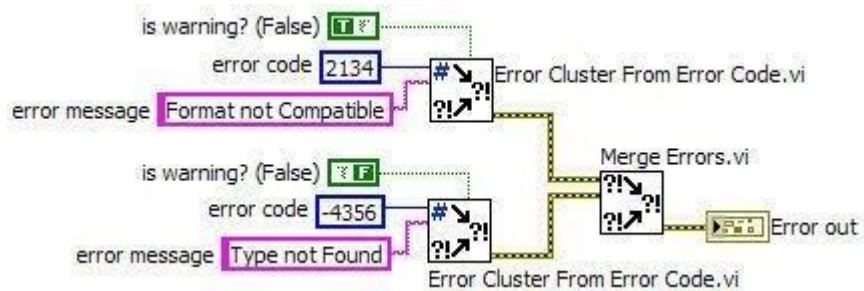


- a. The VI will continue executing until it reaches the Close File function, where it will halt and prompt the user with an error message indicating that the file could not be found
- b. The VI will halt at the Open/Create/Replace File function and prompt the user with an error message indicating that the file could not be found
- c. The VI will complete execution uninterrupted and display error information in the error out indicator to show that the file could not be found
- d. The While Loop will execute once and exit when Write to Text File is unable to modify Data File1.txt. The error out indicator will show that the file could not be found

11. As part of shutting down your application, you need to turn off three values by writing false to three variables. Which of the following code segments ensures that the shutdown code executes reliably and all errors are reported?



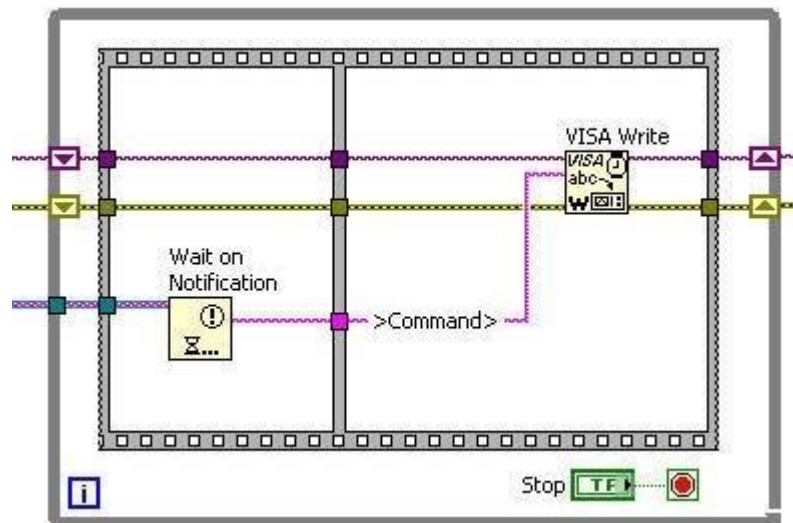
12. What will the Error out display when the following two clusters are input to the VI?



a. A cluster of (True, -4356, <ERR> Type not Found)

- b. An array of Error clusters containing {(False, 2134, Warning: Format not Compatible), (True, -4536, Error: Type not found)}
- c. An array of Error clusters containing {(True, -4536, Error: Type not found), (False, 2134, Warning: Format not Compatible)}
- d. A cluster of (False, 2134, Warning: Format not Compatible)

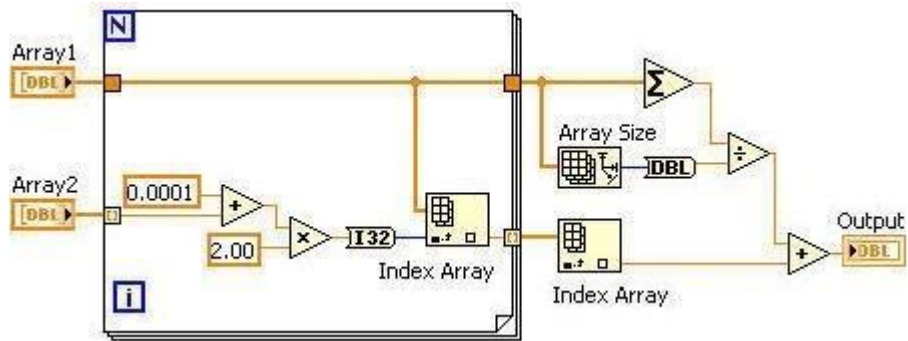
13. You use the following code to send out time critical commands to an instrument. The instrument is not behaving as expected, so you must debug to determine which commands are actually being sent. Which of the following debugging techniques allows you to analyze all commands sent without interfering with the execution?



- a. Place a Probe on the wire marked Command and observe the Probe as the VI runs
- b. Place both a Probe and a Breakpoint on the wire marked Command and observe the Probe while the VI runs
- c. Place a Probe on the wire marked Command, use Execution Highlighting to slow the execution speed, and observe the Probe as the VI runs

- d. Add custom code to log the value of the Command wire to a file during each iteration of the loop

14. What is the value of Output after the following code executes when Array1 contains the following 3 double-precision elements: [2.0, 4.0, 6.0] and Array 2 is an empty array?



- a. NaN
b. 6.0
c. 2.0
d. 4.0

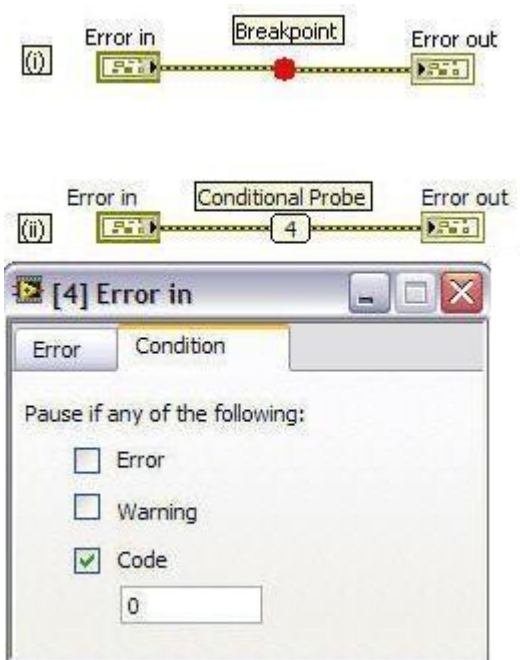
15. Which of the following could be the cause if Highlight Execution button is not displayed on the block diagram window of the VI?

- a. Debugging is turned off in the VI
b. VI is marked as subroutine priority
c. Both (a) and (b)
d. None of the above

16. Which of the following is not a feature of custom probes?

- a. Conditionally pausing a VI based on the value of a wire
- b. Visualizing wire data in multiple views
- c. Changing the value of a wire at runtime
- d. Can be used across multiple LabVIEW versions

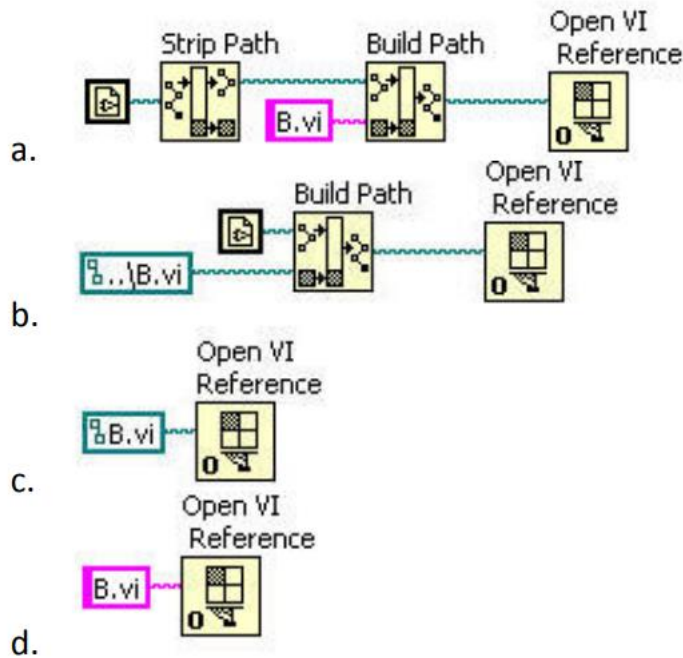
17. Which of the following statements is true regarding the following two code snippets?



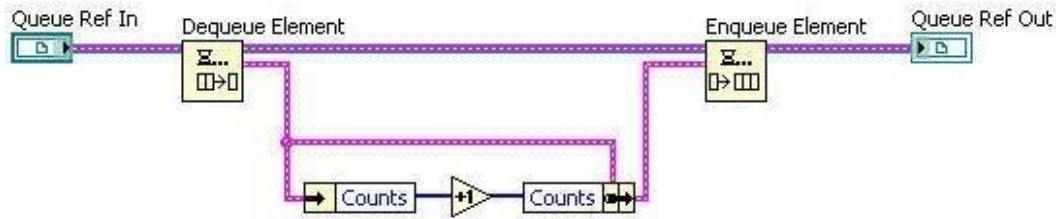
- a. (i) always pauses execution and (ii) pauses only when there is an error
- b. (i) always pauses execution and (ii) never pauses execution
- c. (i) and (ii) both always pause execution
- d. (i) always pauses execution and (ii) pauses only when the error code is zero



18. With regard to the VI priority levels set through VI properties, at what priority does code in a timed structure, such as a timed loop, execute?
- The code inherits the priority of the VI that contains the timed structure
 - The code executes at the "time critical priority" level
 - The code executes at a priority level between the "above normal priority" and "high priority" levels
 - LabVIEW executes the code at the "time critical priority" level if the "Priority" input of the timed structure is greater than 100, otherwise it executes it at the "high priority" level
 - The code executes at a priority level between the "high priority" and "time critical priority" levels
19. A copy of the Front Panel data, such as controls and indicators, is kept in memory during which one of the following cases?
- The front panel of the subVI is open
 - The subVI has been changed but not saved
 - The panel uses data printing
 - The subVI uses local variables
- All of the above
 - 1, 2 and 3
 - 1 and 2
 - 1
20. Two VIs (A.vi and B.vi) are located in the same directory. Which of the following is the best method for opening the reference of the B.vi through A.vi when B.vi is not in memory?

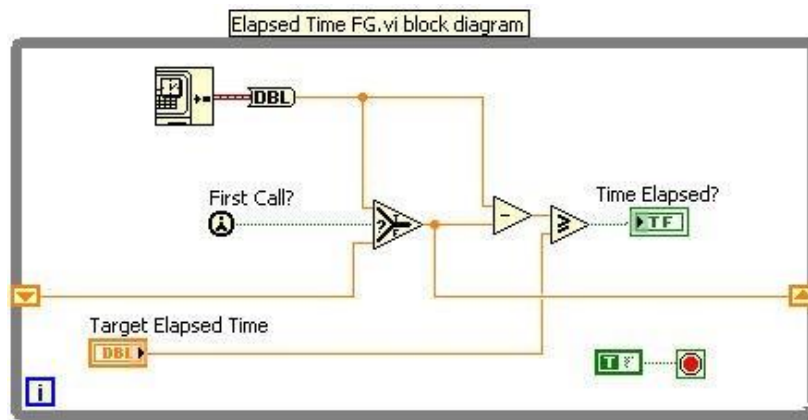


21. Your application has a performance requirement to complete certain operations within a specified time period. After testing your implementation, you determine that one of the operations consistently fails to meet its performance requirement. Using the Profile Performance and Memory tool, you identify a single subVI as the main performance bottleneck. The block diagram of the subVI is shown below. The VI is currently set at the "Normal" priority level. Which of the following techniques would be most effective in decreasing the subVI's execution time?

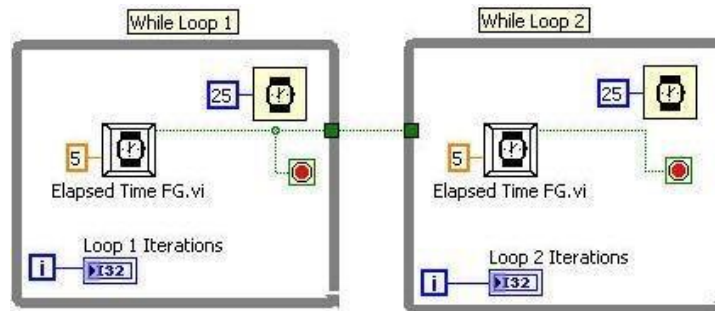


- Place the increment function inside a For Loop with indexed tunnels for the array input and output
- Use an In Place Element Structure to replace the Unbundle and Bundle functions
- Set the subVI's Priority property to "subroutine"
- Use a global variable to pass the cluster to the subVI instead of a queue reference

22. You are given the following functional global VI to keep track of elapsed time.



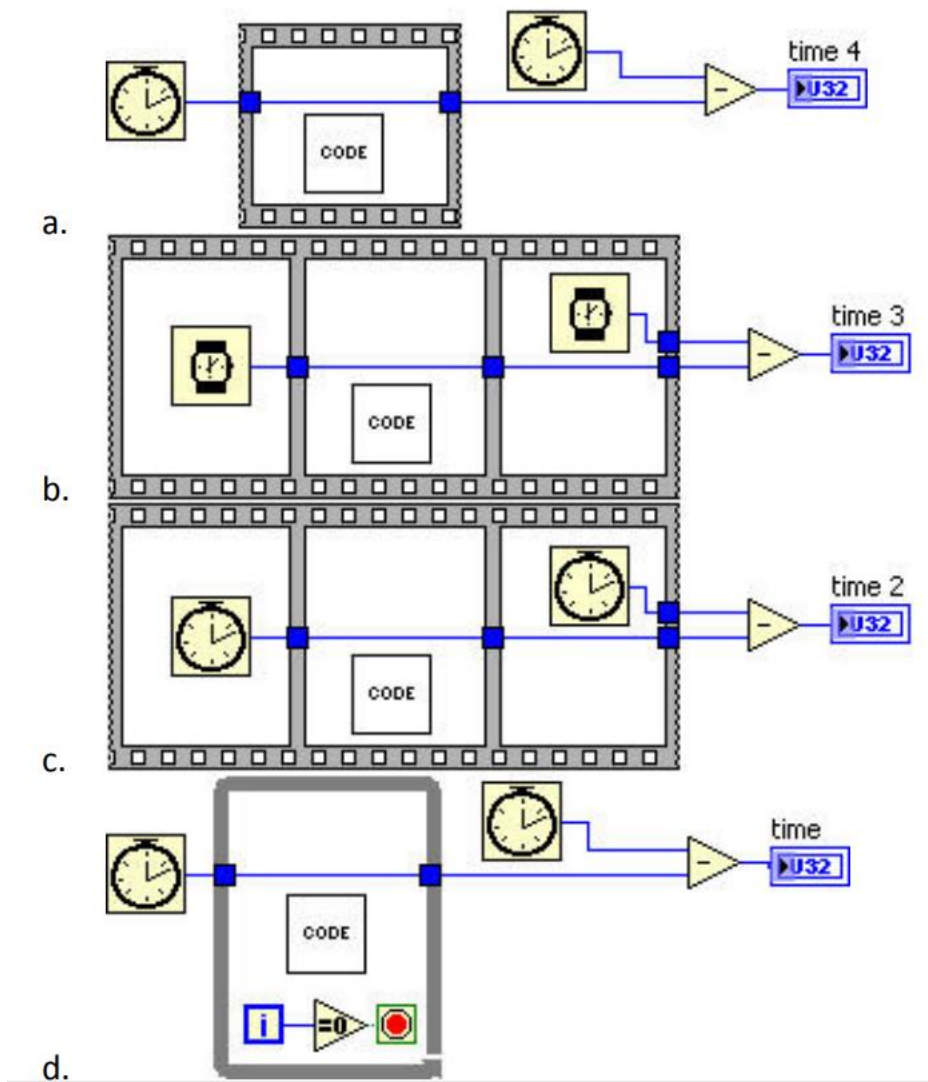
You test the functional global by using the following calling code:



Which of the following statements is true after the code executes?

- a. **While Loop 1** stops after 5 seconds and the value of **Loop 2 Iterations** is zero
- b. You must abort the VI because **While Loop 1** is an infinite loop
- c. You must abort the VI because **While Loop 2** is an infinite loop
- d. The value of **Loop 1 Iterations** is zero and **While Loop 2** stops after 5 seconds

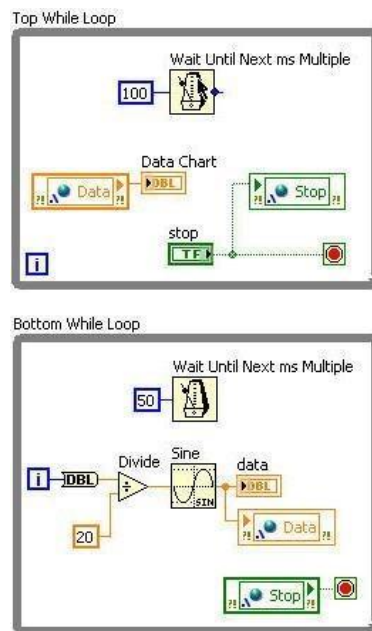
23. Which of the following diagrams correctly calculates the execution time of Code.vi?



24. What is the fastest Built-In timing source available when a Timed loop is used on Windows 7/Vista/XP/2000?

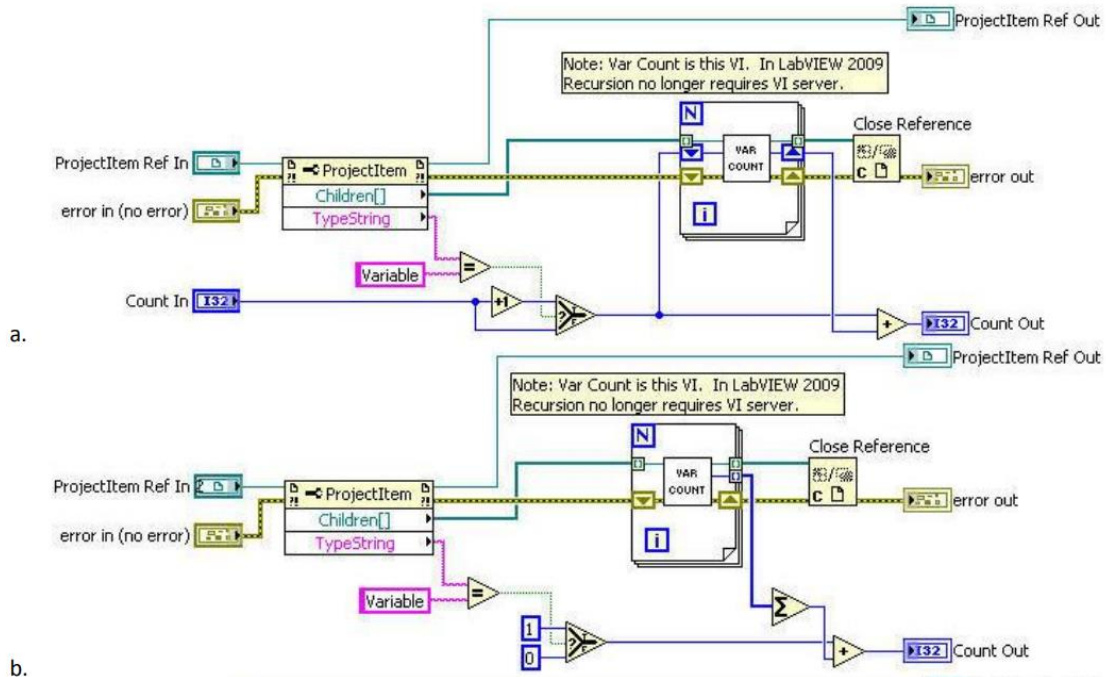
- a. 1 kHz
- b. 1 MHz
- c. 1 GHz
- d. Varies and depends on the processor

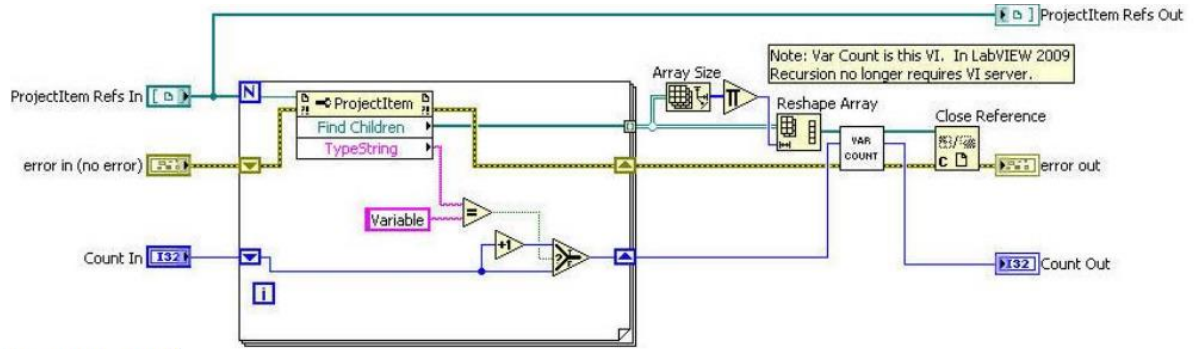
25. If the stop button has a value of false when the following VI starts running, how soon after clicking the stop button will the bottom While loop stop?



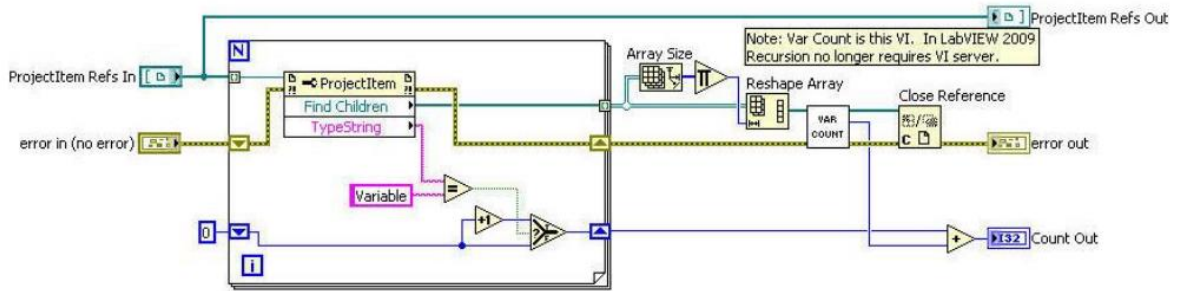
- a. Within 50 ms of when the value of the stop button turns True
- b. Within 100 ms of when the value of the stop button turns True
- c. Within 150 ms of when the value of the stop button turns True
- d. Unable to determine

26. You must count the number of Shared Variables in a target. Which of the following recursive subVIs returns the correct count? **Note:** The VAR COUNT VI shown in the images is a recursive call of the code shown. In LabVIEW 2009, recursion no longer requires the use of VI server.



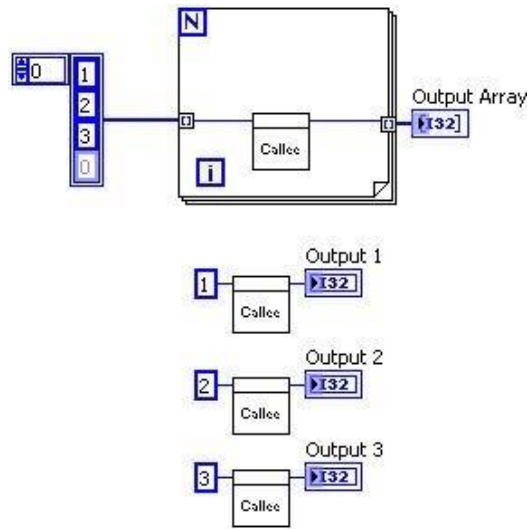


c. (see next page)



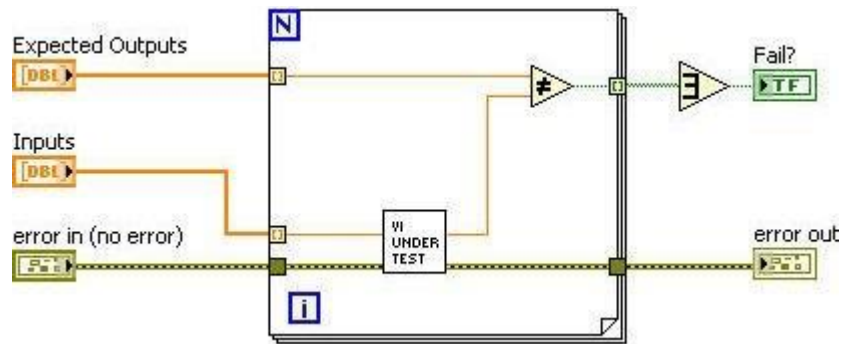
d.

27. In the following code, if the Callee VI has Reentrancy enabled with Preallocate clone for each instance option set, how many clones of the Callee VI will be created?



- a. 6
- b. 4
- c. 2
- d. Unknown

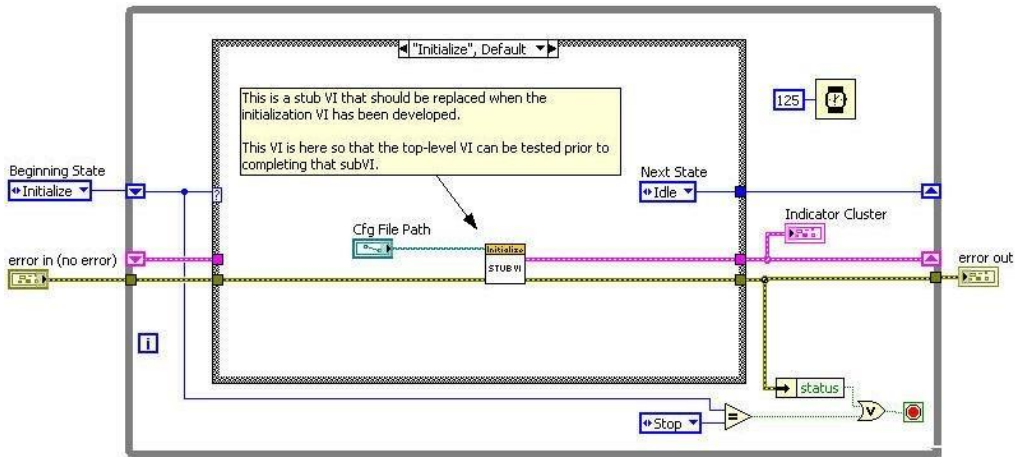
28. What method of testing is shown in the figure below?



- a. Functional testing

- b. Reliability testing
- c. Configuration testing
- d. Performance testing

29. What method of testing is shown in the figure below?



- a. Functional Testing
- b. Integration Testing
- c. Configuration Testing
- d. Performance Testing

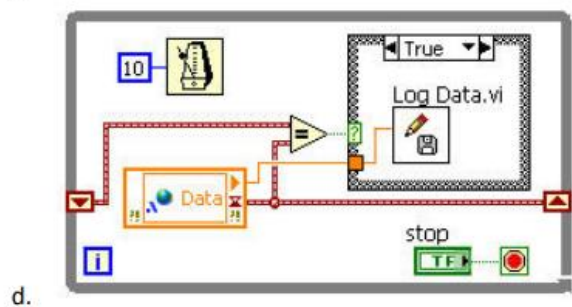
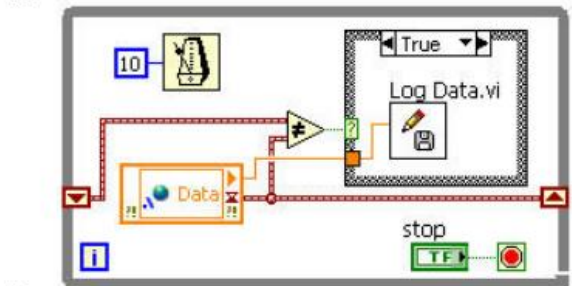
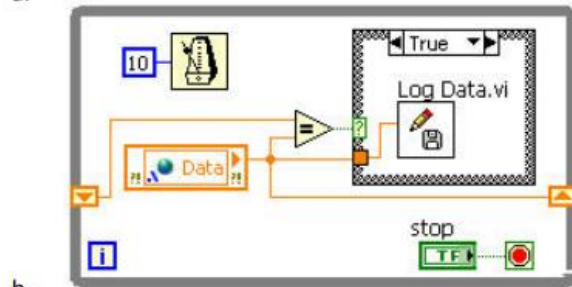
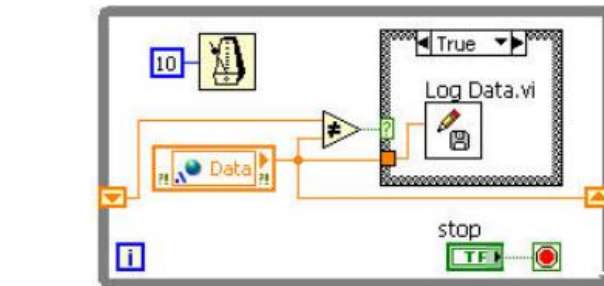
30. Which of the following methods does LabVIEW use to keep track of the size of strings in memory?

- a. LabVIEW prepends a 4 byte integer to the beginning of the string to represent the size
- b. LabVIEW prepends a 4 byte string that has an ASCII representation of the size to the string

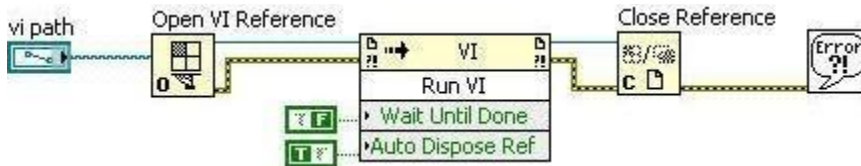


- c. LabVIEW appends a null terminating character to the end of the string to mark the last character
- d. LabVIEW maintains a table which contains the size and memory location of all active strings

31. Which of the following block diagrams will only log data if the Data shared variable was written to since the last time this VI logged data?



32. You are given the following code to dynamically launch a dialog:



The dialog VI has the following VI Property settings:

- Show front panel when called = True
- Close afterwards if originally closed = True
- Run when opened = False

Given that the dialog VI exists, the run arrow is not broken, and no other instances of the VI are in memory, which of the following statements is true after the launcher code executes?

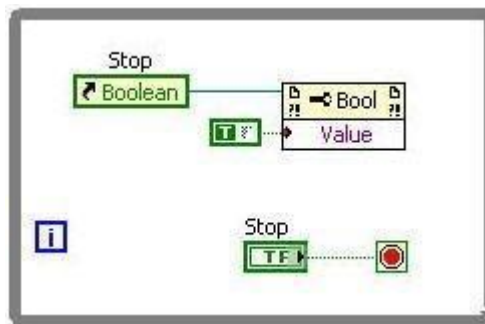
- a. The Run VI Method starts execution of the dialog VI. The front panel of the dialog VI is not loaded into memory
- b. The Run VI Method starts execution of the dialog VI. The front panel of the dialog VI opens and runs independently of the launcher code
- c. The Open VI Reference starts execution of the dialog VI. The front panel of the dialog VI opens and runs independently of the launcher code
- d. The Open VI Reference starts execution of the dialog VI. The front panel of the dialog VI is not loaded into memory

33. What happens when the following code executes?



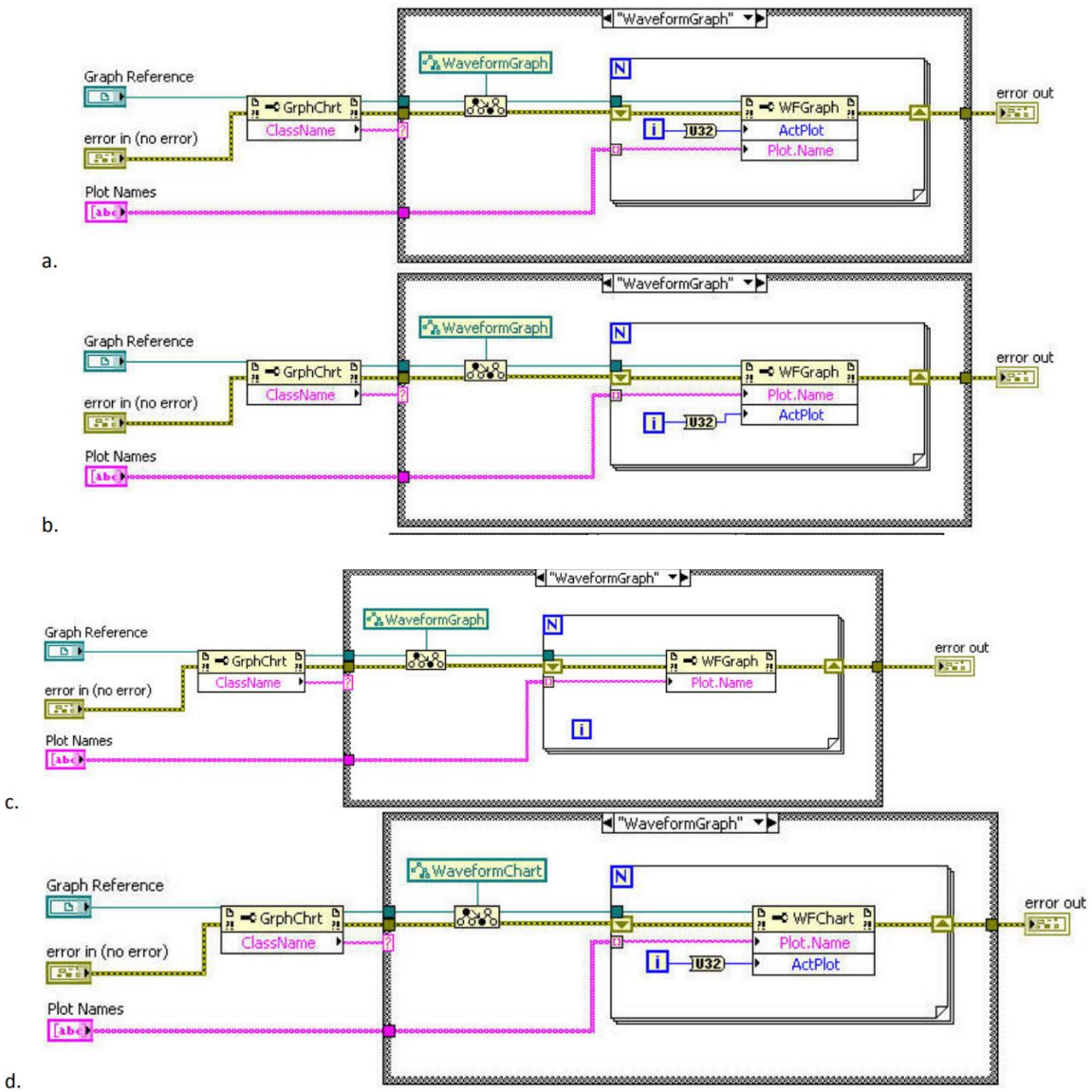
- a. The execution of the Invoke node generates an error
- b. Opening the VI reference generates an error
- c. Closing the VI reference generates an error
- d. The code executes with no error

34. In the code snippet shown below, Boolean is a Push Button with Mechanical Action property set to 'Latch When Released'. Which of the following is true?

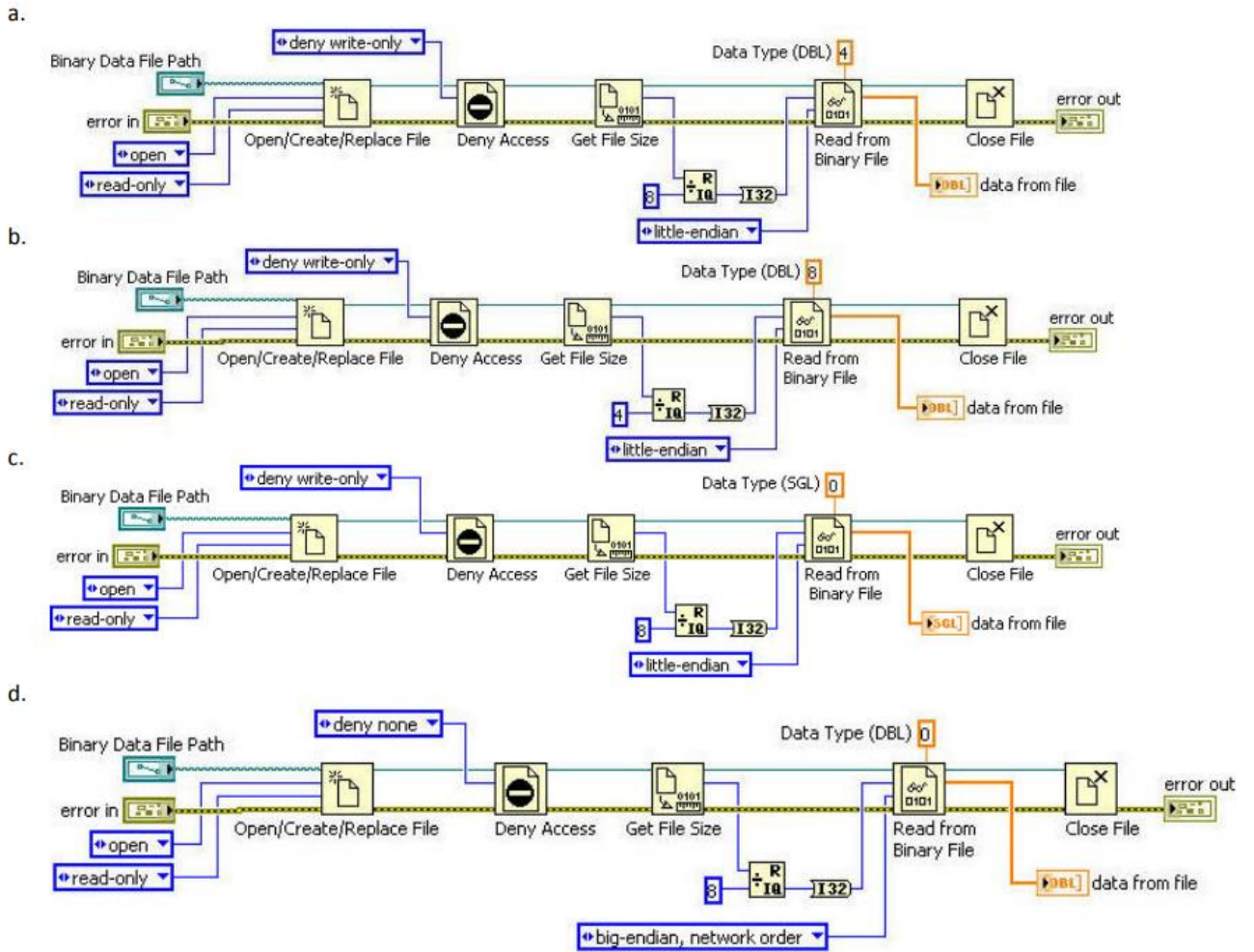


- a. The value of Boolean is momentarily set to True on every iteration of the loop
- b. The VI runs indefinitely
- c. A run time error occurs
- d. The value of Boolean toggles for every loop iteration

35. Which of the following subVI diagrams assigns a list of plot names to a waveform graph?



36. You are given a binary file that contains a 1-D array of double-precision numbers. The file contains no header information and the data is sorted in little-endian format. Which of the following VIs will correctly read all the data elements from the binary file and display them in a front panel array?

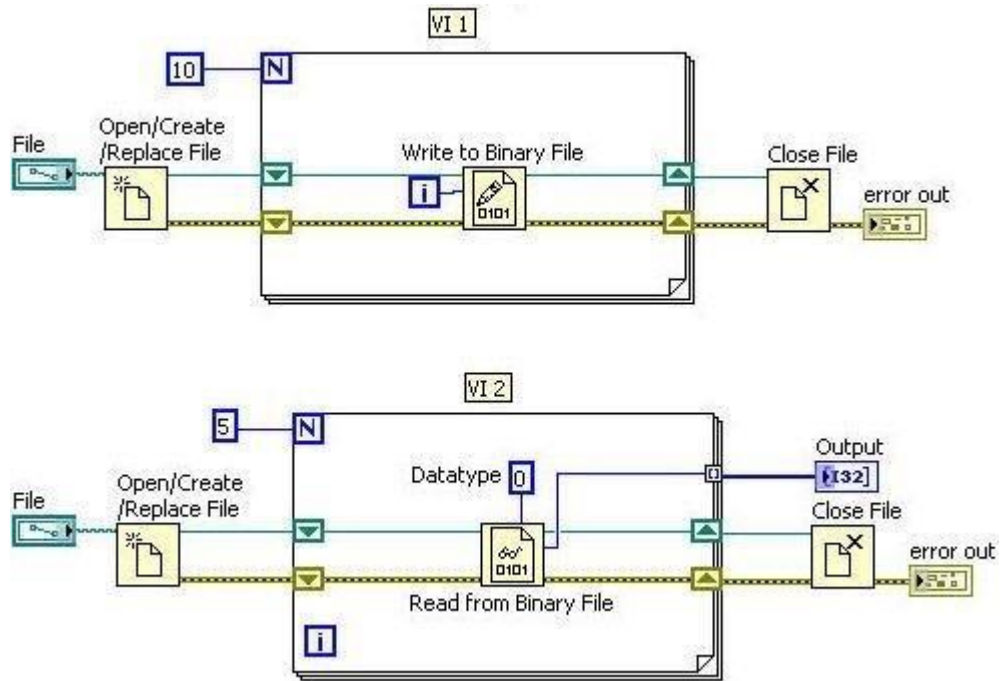




37. What are the output values of the List Folder function when you wire an empty path constant to the path input?

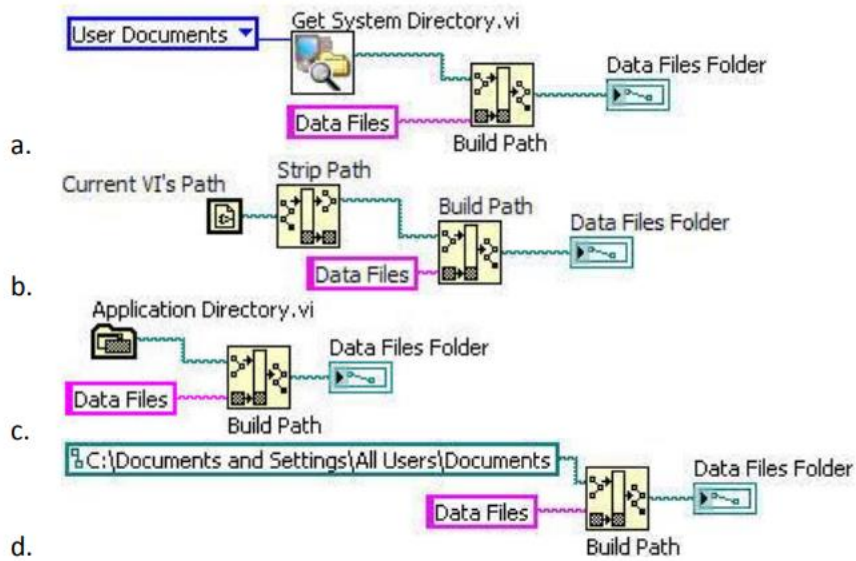
- a. filenames: *<empty>* folder names: *<empty>*
error out: *Error 6: Generic file I/O error*
- b. filenames: *All files on the primary drive* folder names: *All folders*
on the primary drive error out: *No Error*
- c. filenames: *<empty>* folder names: *<All configured drives on the*
machine> error out: *No Error*
- d. filenames: *<empty>* folder names: *<empty>* error out: *No Error*

38. A binary file is created using the VI 1. Then the same binary file is read using the code in VI 2. What is the **Output** after reading the binary file?



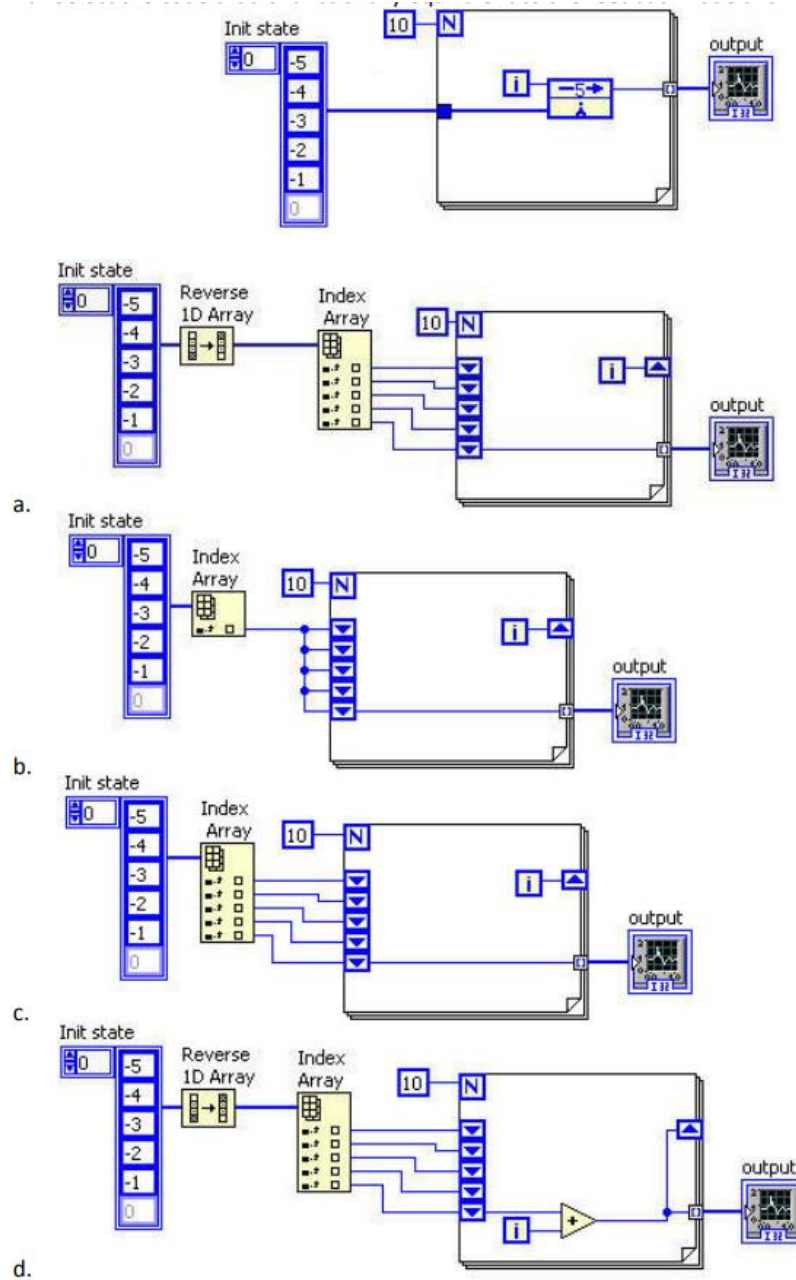
- a. **Output** is an array of data {0,1,2,3,4}
- b. **Output** is an array of data {9,9,9,9,9}
- c. Read from Binary File returns an error because the datatype has to be an array
- d. **Output** is an array of data {0,0,0,0,0}

39. You develop an application to be deployed on different operating systems. The application generates data files. Which of the following methods ensures that the default location is a writable location?





40. Select the code that is functionally equivalent to the feedback node shown



below.

Solutions Page:

Below are the answers and links to additional resources for the CLD-R Sample Exam. To quickly check your answers, record them on the Answer Sheet, detach the Answer Sheet, and compare it, side-by-side, with the Solutions Page. This answer page is not included in the actual CLD-R exam; it is included here for practice purposes only.

Question	Answer
1	A
2	D
3	B
4	B
5	C
6	A
7	C
8	D
9	A
10	B
11	A
12	A
13	D
14	A
15	C
16	C
17	D
18	E
19	A
20	C
21	B
22	A
23	C

24	A
25	D
26	B
27	B
28	A
29	B
30	A
31	C
32	A
33	A
34	C
35	A
36	A
37	C
38	A
39	A
40	A