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# Microsoft

**70-483 PRACTICE EXAM**

**Microsoft Programming in C# Exam**

# **Product Questions: 259**

## **Version: 13.0**

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### **Question: 1**

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You are developing an application that includes a class named Order. The application will store a collection of Order objects.

The collection must meet the following requirements:

Use strongly typed members.

Process Order objects in first-in-first-out order.

Store values for each Order object.

Use zero-based indices.

You need to use a collection type that meets the requirements.

Which collection type should you use?

- A. Queue<T>
- B. SortedList
- C. LinkedList<T>
- D. HashTable
- E. Array<T>

---

### **Answer: A**

---

Explanation:

Queues are useful for storing messages in the order they were received for sequential processing. Objects stored in a Queue<T> are inserted at one end and removed from the other.

Reference:

<http://msdn.microsoft.com/en-us/library/7977ey2c.aspx>

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### **Question: 2**

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You are developing an application. The application calls a method that returns an array of integers named employeeIds. You define an integer variable named employeeIdToRemove and assign a value to it. You declare an array named filteredEmployeeIds.

You have the following requirements:

Remove duplicate integers from the employeeIds array.

Sort the array in order from the highest value to the lowest value.

Remove the integer value stored in the employeeIdToRemove variable from the employeeIds array.

You need to create a LINQ query to meet the requirements.

Which code segment should you use?

- C A. `int[] filteredEmployeeIds = employeeIds.Where(value => value != employeeIdToRemove).OrderBy(x => x).ToArray();`
- C B. `int[] filteredEmployeeIds = employeeIds.Where(value => value != employeeIdToRemove).OrderByDescending(x => x).ToArray();`
- C C. `int[] filteredEmployeeIds = employeeIds.Distinct().Where(value => value != employeeIdToRemove).OrderByDescending(x => x).ToArray();`
- C D. `int[] filteredEmployeeIds = employeeIds.Distinct().OrderByDescending(x => x).ToArray();`

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: C**

---

The Distinct keyword avoids duplicates, and OrderByDescending provides the proper ordering from highest to lowest.

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### Question: 3

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You are developing an application that includes the following code segment. (Line numbers are included for reference only.)

```

01 class Animal
02 {
03     public string Color { get; set; }
04     public string Name { get; set; }
05 }
06 private static IEnumerable<Animal> GetAnimals(string sqlConnectionString)
07 {
08     var animals = new List<Animal>();
09     SqlConnection sqlConnection = new SqlConnection(sqlConnectionString);
10     using (sqlConnection)
11     {
12         SqlCommand sqlCommand = new SqlCommand("SELECT Name, ColorName FROM Animals", sqlConnection);
13
14         using (SqlDataReader sqlDataReader = sqlCommand.ExecuteReader())
15         {
16
17             while (sqlDataReader.Read())
18             {
19                 var animal = new Animal();
20                 animal.Name = (string)sqlDataReader["Name"];
21                 animal.Color = (string)sqlDataReader["ColorName"];
22                 animals.Add(animal);
23             }
24         }
25     }
26 }
```

The GetAnimals() method must meet the following requirements:

Connect to a Microsoft SQL Server database.

Create Animal objects and populate them with data from the database.

Return a sequence of populated Animal objects.

You need to meet the requirements.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Insert the following code segment at line 16:  
`while(sqlDataReader.NextResult())`
- B. Insert the following code segment at line 13:  
`sqlConnection.Open();`
- C. Insert the following code segment at line 13:  
`sqlConnection.BeginTransaction();`
- D. Insert the following code segment at line 16:  
`while(sqlDataReader.Read())`
- E. Insert the following code segment at line 16:  
`while(sqlDataReader.GetValues())`

---

**Answer: B, D**

---

Explanation:

B: `SqlConnection.Open` - Opens a database connection with the property settings specified by the `ConnectionString`.

Reference:

<http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqlconnection.open.aspx>

D: `SqlDataReader.Read` - Advances the `SqlDataReader` to the next record. Reference:

<http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqldatareader.read.aspx>

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#### **Question: 4**

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DRAG DROP

You are developing a custom collection named `LoanCollection` for a class named `Loan` class.

You need to ensure that you can process each `Loan` object in the `LoanCollection` collection by using a `foreach` loop.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area)

a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```
: IComparable  
: IEnumerable  
: IDisposable  
public IEnumerator GetEnumerator()  
public int CompareTo(object obj)  
public void Dispose()  
_loanCollection[0].Amount++;  
return obj == null ? 1 : _loanCollection.Length;  
return _loanCollection.GetEnumerator();
```

```
public class LoanCollection  
{  
    private readonly Loan[] _loanCollection;  
    public LoanCollection(Loan[] loanArray)  
    {  
        _loanCollection = new Loan[loanArray.Length];  
  
        for (int i = 0; i < loanArray.Length; i++)  
        {  
            _loanCollection[i] = loanArray[i];  
        }  
    }  
      
    {  
    }  
}
```

Answer:

```
: IComparable  
  
: IDisposable  
  
public int CompareTo(object obj)  
public void Dispose()  
_loanCollection[0].Amount++;  
return obj == null ? 1 : _loanCollection.Length;
```

```
public class LoanCollection : IEnumerable  
{  
    private readonly Loan[] _loanCollection;  
    public LoanCollection(Loan[] loanArray)  
    {  
        _loanCollection = new Loan[loanArray.Length];  
  
        for (int i = 0; i < loanArray.Length; i++)  
        {  
            _loanCollection[i] = loanArray[i];  
        }  
    }  
  
    public IEnumerator GetEnumerator()  
    {  
        return _loanCollection.GetEnumerator();  
    }  
}
```

### Question: 5

You are developing an application that uses the Microsoft ADO.NET Entity Framework to retrieve order information from a Microsoft SQL Server database. The application includes the following code. (Line numbers are included for reference only.)

```
01 public DateTime? OrderDate;
02 IQueryable<Order> LookupOrdersForYear(int year)
03 {
04     using (var context = new NorthwindEntities())
05     {
06         var orders =
07             from order in context.Orders
08
09             select order;
10         return orders.ToList().AsQueryable();
11     }
12 }
```

The application must meet the following requirements:

Return only orders that have an OrderDate value other than null.

Return only orders that were placed in the year specified in the OrderDate property or in a later year.

You need to ensure that the application meets the requirements.

Which code segment should you insert at line 08?

- A. Where order.OrderDate.Value != null && order.OrderDate.Value.Year >= year
- B. Where order.OrderDate.Value == null && order.OrderDate.Value.Year == year
- C. Where order.OrderDate.HasValue && order.OrderDate.Value.Year == year
- D. Where order.OrderDate.Value.Year == year

---

**Answer: A**

---

\*For the requirement to use an OrderDate value other than null use:

OrderDate.Value != null

\*For the requirement to use an OrderDate value for this year or a later year use:

OrderDate.Value >= year

---

## Question: 6

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DRAG DROP

You are developing an application by using C#. The application includes an array of decimal values named loanAmounts. You are developing a LINQ query to return the values from the array.

The query must return decimal values that are evenly divisible by two. The values must be sorted from the lowest value to the highest value.

You need to ensure that the query correctly returns the decimal values.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area.)

- a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```

join
from
group
ascending
descending
where
orderby
select

```

---

```

decimal[] loanAmounts = { 303m, 1000m, 85579m, 501.51m, 603m
1200m, 400m, 22m };
IQueryable<decimal> loanQuery =
    amount in loanAmounts
    amount % 2 == 0
    amount
    amount;

```

---

**Answer:**

---

Box 1: from

Box 2: where

Box 3: orderby

Box 4: ascending

Box 5: select

Note: In a query expression, the orderby clause causes the returned sequence or subsequence (group) to be sorted in either ascending or descending order.

Examples:

// Query for ascending sort.

```
IEnumerable<string> sortAscendingQuery =
    from fruit in fruits
    orderby fruit // "ascending" is default
    select fruit;
```

// Query for descending sort.

```
IEnumerable<string> sortDescendingQuery =
    from w in fruits
    orderby w descending
    select w;
```

---

**Question: 7**

---

You are developing an application. The application includes a method named ReadFile that reads data from a file.

The ReadFile() method must meet the following requirements:

It must not make changes to the data file.

It must allow other processes to access the data file.

It must not throw an exception if the application attempts to open a data file that does not exist.

You need to implement the ReadFile() method.

Which code segment should you use?

- A. var fs = File.Open(Filename, FileMode.OpenOrCreate, FileAccess.Read, FileShare.ReadWrite);
- B. var fs = File.Open(Filename, FileMode.Open, FileAccess.Read, FileShare.ReadWrite);
- C. var fs = File.Open(Filename, FileMode.OpenOrCreate, FileAccess.Read,

- FileShare.Write);  
D. var fs = File.ReadAllLines(Filename);  
E. var fs = File.ReadAllBytes(Filename);

---

**Answer: A**

Explanation:

FileMode.OpenOrCreate - Specifies that the operating system should open a file if it exists; otherwise, a new file should be created. If the file is opened with FileAccess.Read, FileIOPermissionAccess.Read permission is required. If the file access is FileAccess.Write, FileIOPermissionAccess.Write permission is required. If the file is opened with FileAccess.ReadWrite, both FileIOPermissionAccess.Read and FileIOPermissionAccess.Write permissions are required.

<http://msdn.microsoft.com/en-us/library/system.io.filemode.aspx>

FileMode.ReadWrite - Allows subsequent opening of the file for reading or writing. If this flag is not specified, any request to open the file for reading or writing (by this process or another process) will fail until the file is closed. However, even if this flag is specified, additional permissions might still be needed to access the file.

<http://msdn.microsoft.com/pl-pl/library/system.io.filesshare.aspx>

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### Question: 8

An application receives JSON data in the following format:

```
{ "FirstName" : "David",
  "LastName" : "Jones",
  "Values" : [0, 1, 2] }
```

The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public class Name
02 {
03     public int[] Values { get; set; }
04     public string FirstName { get; set; }
05     public string LastName { get; set; }
06 }
07 public static Name ConvertToName(string json)
08 {
09     var ser = new JavaScriptSerializer();
10
11 }
```

You need to ensure that the ConvertToName() method returns the JSON input string as a Name object. Which code segment should you insert at line 10?

- A. Return ser.ConvertToType<Name>(json);  
B. Return ser.DeserializeObject(json);  
C. Return ser.Deserialize<Name>(json);  
D. Return (Name)ser.Serialize(json);

---

**Answer: C**

Explanation:

JavaScriptSerializer.Deserialize<T> - Converts the specified JSON string to an object of type T.

<http://msdn.microsoft.com/en-us/library/bb355316.aspx>

---

### Question: 9

## DRAG DROP

An application serializes and deserializes XML from streams. The XML streams are in the following format:

```
<Name xmlns="http://www.contoso.com/2012/06">
  <LastName>Jones</LastName>
  <FirstName>David</FirstName>
</Name>
```

The application reads the XML streams by using a `DataContractSerializer` object that is declared by the following code segment:

```
var ser = new DataContractSerializer(typeof(Name));
```

You need to ensure that the application preserves the element ordering as provided in the XML stream.

How should you complete the relevant code? (To answer, drag the appropriate attributes to the correct locations in the answer area-Each attribute may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

[`[DataContract(Namespace="http://www.contoso.com/2012/06")]`]

[`[DataMember(Order=10)]`]

[`[DataMember]`]

[`[DataContract(Name="http://www.contoso.com/2012/06")]`]

[`[DataMember(Name="http://www.contoso.com/2012/06", Order=10)]`]

[`[DataContract]`]

[`[DataMember(Name="http://www.contoso.com/2012/06")]`]

```
class Name
{
  public string FirstName { get; set; }

  public string LastName { get; set; }
}
```

**Answer:**

```
[DataContract(Name="http://www.contoso.com/2012/06")]
[DataMember(Name="http://www.contoso.com/2012/06", Order=10)]
[DataContract]
[DataMember(Name="http://www.contoso.com/2012/06")]

[DataContract(Namespace="http://www.contoso.com/2012/06")]
class Name
{
    [DataMember(Order=10)]
    public string FirstName { get; set; }

    [DataMember]
    public string LastName { get; set; }
}
```

Explanation:

Target 1: The `DataContractAttribute.Namespace` Property gets or sets the namespace for the data contract for the type. Use this property to specify a particular namespace if your type must return data that complies with a specific data contract.

Target2, target3: We put `Order=10` on `FirstName` to ensure that `LastName` is ordered first.

Note:

The basic rules for data ordering include:

- \* If a data contract type is a part of an inheritance hierarchy, data members of its base types are always first in the order.
- \* Next in order are the current type's data members that do not have the `Order` property of the `DataMemberAttribute` attribute set, in alphabetical order.
- \* Next are any data members that have the `Order` property of the `DataMemberAttribute` attribute set. These are ordered by the value of the `Order` property first and then alphabetically if there is more than one member of a certain `Order` value. `Order` values may be skipped.

Reference:

Data Member Order

[https://msdn.microsoft.com/en-us/library/ms729813\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/ms729813(v=vs.110).aspx)

Reference:

DataContractAttribute.Namespace Property

[https://msdn.microsoft.com/en-us/library/system.runtime.serialization.datacontractattribute.namespace\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.runtime.serialization.datacontractattribute.namespace(v=vs.110).aspx)

## Question: 10

You are developing an application. The application converts a `Location` object to a string by using a method named

WriteObject. The WriteObject() method accepts two parameters, a Location object and an XmlObjectSerializer object. The application includes the following code. (Line numbers are included for reference only.)

```
01 public enum Compass
02 {
03     North,
04     South,
05     East,
06     West
07 }
08 [DataContract]
09 public class Location
10 {
11     [DataMember]
12     public string Label { get; set; }
13     [DataMember]
14     public Compass Direction { get; set; }
15 }
16 void DoWork()
17 {
18     var location = new Location { Label = "Test", Direction = Compass.West };
19     Console.WriteLine(WriteObject(location,
20
21     ));
22 }
```

You need to serialize the Location object as a JSON object.

Which code segment should you insert at line 20?

- A. New DataContractSerializer(typeof(Location))
- B. New XmlSerializer(typeof(Location))
- C. New NetDataContractSenalizer()
- D. New DataContractJsonSerializer(typeof(Location))

---

**Answer: D**

---

**Explanation:**

The code is using [DataContract] attribute here so need to use DataContractSerializer class.

The DataContractJsonSerializer class serializes objects to the JavaScript Object Notation (JSON) and deserializes JSON data to objects.

Use the DataContractJsonSerializer class to serialize instances of a type into a JSON document and to deserialize a JSON document into an instance of a type.

---

### **Question: 11**

---

An application includes a class named Person. The Person class includes a method named GetData.

You need to ensure that the GetData() from the Person class.

Which access modifier should you use for the GetData() method?

- A. Internal
- B. Protected
- C. Private
- D. Protected internal
- E. Public

---

**Answer: B**

---

**Explanation:**

Protected - The type or member can be accessed only by code in the same class or structure, or in a class that is derived from that class.

The protected keyword is a member access modifier. A protected member is accessible within its class and by derived class instances.

**Reference:**

<http://msdn.microsoft.com/en-us/library/ms173121.aspx>

---

### **Question: 12**

---

You are developing an application by using C#. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public interface IDataContainer
02 {
03     string Data { get; set; }
04 }
05 void DoWork(object obj)
06 {
07
08     if (dataContainer != null)
09     {
10         Console.WriteLine(dataContainer.Data);
11     }
12 }
```

The DoWork() method must not throw any exceptions when converting the obj object to the IDataContainer interface or when accessing the Data property.

You need to meet the requirements. Which code segment should you insert at line 07?

- A. var dataContainer = (IDataContainer)obj;
- B. dynamic dataContainer = obj;
- C. var dataContainer = obj is IDataContainer;
- D. var dataContainer = obj as IDataContainer;

---

### **Answer: D**

---

**Explanation:**

As - The as operator is like a cast operation. However, if the conversion isn't possible, as returns null instead of raising an exception.

[http://msdn.microsoft.com/en-us/library/cscsdfbt\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/cscsdfbt(v=vs.110).aspx)

---

### **Question: 13**

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You are creating an application that manages information about zoo animals. The application includes a class named Animal and a method named Save.

The Save() method must be strongly typed. It must allow only types inherited from the Animal class that uses a constructor that accepts no parameters.

You need to implement the Save() method.

Which code segment should you use?

- C A. `public static void Save<T>(T target) where T : new(), Animal`  
{  
  ...  
}
- C B. `public static void Save<T>(T target) where T : Animal`  
{  
  ...  
}
- C C. `public static void Save<T>(T target) where T : Animal, new()`  
{  
  ...  
}
- C D. `public static void Save(Animal target)`  
{  
  ...  
}

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: C**

---

**Explanation:**

The condition `new()` ensures the empty/default constructor and must be the last condition.

When you define a generic class, you can apply restrictions to the kinds of types that client code can use for type arguments when it instantiates your class. If client code tries to instantiate your class by using a type that is not allowed by a constraint, the result is a compile-time error. These restrictions are called constraints. Constraints are specified by using the `where` contextual keyword.

<http://msdn.microsoft.com/en-us/library/d5x73970.aspx>

---

**Question: 14**

---

**DRAG DROP**

You are developing a class named `ExtensionMethods`.

You need to ensure that the `ExtensionMethods` class implements the `IsEmail()` method on string objects.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area.)

- a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```
public static class ExtensionMethods
{
    public class ExtensionMethods
    {
        this String str
        String str
    }
    protected static class ExtensionMethods
    {
        .....
    }
}

{
    public static bool IsUrl(
        )
    {
        var regex = new Regex(
            "(https?://)?([A-Za-z0-9-]*\\.)?([A-Za-z0-9-]*)" +
            "\\.[A-Za-z0-9]*/?.*");
        return regex.IsMatch(str);
    }
}
```

Answer:

```

public class ExtensionMethods

String str

protected static class ExtensionMethods
    =====

public static class ExtensionMethods
{
    public static bool IsUrl(
        this String str
    )
    {
        var regex = new Regex(
            "(https?://)?([A-Za-z0-9-]*\\.)?([A-Za-z0-9-]*)" +
            "\\.[A-Za-z0-9-]*/?.*");
        return regex.IsMatch(str);
    }
}

```

**Explanation:**

Extensions must be in a static class as it kind of a shared source of extension methods. You do not instantiate the class. The key word “this” is simply a syntax how you tell the compiler, that your method IsUrl is extension for the String object

**Question: 15**

You are developing an application. The application includes classes named Employee and Person and an interface named IPerson.

The Employee class must meet the following requirements:

It must either inherit from the Person class or implement the IPerson interface.

It must be inheritable by other classes in the application.

You need to ensure that the Employee class meets the requirements.

Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. `sealed class Employee : Person`  
 {  
 ...  
 }
- B. `abstract class Employee : Person`  
 {  
 ...  
 }
- C. `sealed class Employee : IPerson`  
 {  
 ...  
 }
- D. `abstract class Employee : IPerson`  
 {  
 ...  
 }

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: B, D**

---

**Explanation:**

Sealed - When applied to a class, the sealed modifier prevents other classes from inheriting from it.

**Reference:**

[http://msdn.microsoft.com/en-us/library/88c54tsw\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/88c54tsw(v=vs.110).aspx)

---

**Question: 16**

---

You are developing an application that will convert data into multiple output formats.

The application includes the following code. (Line numbers are included for reference only.)

```
01 public class TabDelimitedFormatter : IOutputFormatter<string>
02 {
03     readonly Func<int, char> suffix = col => col % 2 == 0 ? '\n' : '\t';
04     public string GetOutput(IEnumerator<string> iterator, int recordSize)
05     {
06
07     }
08 }
```

You are developing a code segment that will produce tab-delimited output. All output routines implement the following interface:

```
public interface IOutputFormatter<T>
{
    string GetOutput(IEnumerator<T> iterator, int recordSize);
}
```

You need to minimize the completion time of the GetOutput() method.

Which code segment should you insert at line 06?

- C A. 

```
string output = null;
for (int i = 1; iterator.MoveNext(); i++)
{
    output = string.Concat(output, iterator.Current, suffix(i));
}
return output;
```
- C B. 

```
var output = new StringBuilder();
for (int i = 1; iterator.MoveNext(); i++)
{
    output.Append(iterator.Current);
    output.Append(suffix(i));
}
return output.ToString();
```
- C C. 

```
string output = null;
for (int i = 1; iterator.MoveNext(); i++)
{
    output = output + iterator.Current + suffix(i);
}
return output;
```
- C D. 

```
string output = null;
for (int i = 1; iterator.MoveNext(); i++)
{
    output += iterator.Current + suffix(i);
}
return output;
```

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: B**

---

**Explanation:**

A String object concatenation operation always creates a new object from the existing string and the new data. A StringBuilder object maintains a buffer to accommodate the concatenation of new data. New data is appended to the buffer if room is available; otherwise, a new, larger buffer is allocated, data from the original buffer is copied to the new buffer, and the new data is then appended to the new buffer. The performance of a concatenation operation for a String or StringBuilder object depends on the frequency of memory allocations. A String concatenation operation always allocates memory, whereas a StringBuilder concatenation operation allocates memory only if the StringBuilder object buffer is too small to accommodate the new data. Use the String class if you are concatenating a fixed number of String objects. In that case, the compiler may even combine individual concatenation operations into a single operation. Use a StringBuilder object if you are concatenating an arbitrary number of strings; for example, if you're using a loop to concatenate a random number of strings of user input.

[http://msdn.microsoft.com/en-us/library/system.text.stringbuilder\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/system.text.stringbuilder(v=vs.110).aspx)

---

### **Question: 17**

---

You are developing an application by using C#.

The application includes an object that performs a long running process.

You need to ensure that the garbage collector does not release the object's resources until the process completes.

Which garbage collector method should you use?

- A. ReRegisterForFinalize()
- B. SuppressFinalize()
- C. Collect()
- D. WaitForFullGCApproach()

---

**Answer: B**

---

You can use the SuppressFinalize method in a resource class to prevent a redundant garbage collection from being called.

Reference:

GC.SuppressFinalize Method (Object)

[https://msdn.microsoft.com/en-us/library/system.gc.suppressfinalize\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.gc.suppressfinalize(v=vs.110).aspx)

---

### **Question: 18**

---

You are creating a class named Employee. The class exposes a string property named EmployeeType. The following code segment defines the Employee class. (Line numbers are included for reference only.)

```
01 public class Employee
02 {
03     internal string EmployeeType
04     {
05         get;
06         set;
07     }
08 }
```

The EmployeeType property value must be accessed and modified only by code within the Employee class or within a class derived from the Employee class.

You need to ensure that the implementation of the EmployeeType property meets the requirements.

Which two actions should you perform? (Each correct answer represents part of the complete solution. Choose two.)

- A. Replace line 05 with the following code segment:  
protected get;
- B. Replace line 06 with the following code segment:  
private set;
- C. Replace line 03 with the following code segment:  
public string EmployeeType
- D. Replace line 05 with the following code segment:  
private get;
- E. Replace line 03 with the following code segment:  
protected string EmployeeType
- F. Replace line 06 with the following code segment:  
protected set;

---

**Answer: BE**

---

protected string EmpType { get; private set;}

This is a quite common way to work with properties within base classes.

Incorrect:

Not D: Cannot be used because of the internal keyword on line 03.

---

### **Question: 19**

You are implementing a method named Calculate that performs conversions between value types and reference types. The following code segment implements the method. (Line numbers are included for reference only.)

```
01 public static void Calculate(float amount)
02 {
03     object amountRef = amount;
04
05     Console.WriteLine(balance);
06 }
```

You need to ensure that the application does not throw exceptions on invalid conversions.

Which code segment should you insert at line 04?

- A. int balance = (int) (float)amountRef;
- B. int balance = (int)amountRef;
- C. int balance = amountRef;
- D. int balance = (int) (double) amountRef;

---

### **Answer: A**

Explicit cast of object into float, and then another Explicit cast of float into int.

Reference:

explicit (C# Reference)

<https://msdn.microsoft.com/en-us/library/xhbhezf4.aspx>

---

### **Question: 20**

You are creating a console application by using C#.

You need to access the application assembly.

Which code segment should you use?

- A. Assembly.GetAssembly(this);
- B. this.GetType();
- C. Assembly.Load();
- D. Assembly.GetExecutingAssembly();

---

### **Answer: D**

Explanation:

Assembly.GetExecutingAssembly - Gets the assembly that contains the code that is currently executing.

Reference:

[http://msdn.microsoft.com/en-us/library/system.reflection.assembly.getexecutingassembly\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/system.reflection.assembly.getexecutingassembly(v=vs.110).aspx)

Incorrect:

Not A: Assembly.GetAssembly - Gets the currently loaded assembly in which the specified class is defined.

<http://msdn.microsoft.com/en-us/library/system.reflection.assembly.getassembly.aspx>

**Question: 21****HOTSPOT**

You are implementing a library method that accepts a character parameter and returns a string. If the lookup succeeds, the method must return the corresponding string value. If the lookup fails, the method must return the value "invalid choice." You need to implement the lookup algorithm. How should you complete the relevant code? (To answer, select the correct keyword in each drop-down list in the answer area.)

**Work Area**

```
public string GetResponse(char letter)
{
    string response;
    [ ](letter)
    {
        [ ] 'a':
            response = "animal";
            break;
        [ ] 'm':
            response = "mineral";
            break;
        [ ] :
            response = "invalid choice";
            break;
    }
    return response;
}
```

## Work Area

```
public string GetResponse(char letter)
{
    string response;
    switch(letter)
    {
        case 'a':
            response = "animal";
            break;
        case 'm':
            response = "mineral";
            break;
        default:
            response = "invalid choice";
            break;
    }
    return response;
}
```

---

**Answer:**

---

## Work Area

```

public string GetResponse(char letter)
{
    string response;
    switch(letter)
    {
        case 'a':
            if (letter == 'a')
                response = "animal";
            break;
        case 'm':
            if (letter == 'm')
                response = "mineral";
            break;
        default:
            response = "invalid choice";
            break;
    }
    return response;
}

```

Explanation:

```
switch(letter){
```

```
case
```

```
case
```

```
default:
```

```
}
```

Reference:

switch (C# Reference)

[http://msdn.microsoft.com/en-us/library/06tc147t\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/06tc147t(v=vs.110).aspx)

'a':

'm':

## Question: 22

You use the Task.Run() method to launch a long-running data processing operation. The data processing operation often fails in times of heavy network congestion.

If the data processing operation fails, a second operation must clean up any results of the first operation.

You need to ensure that the second operation is invoked only if the data processing operation throws an unhandled exception.

What should you do?

- A. Create a TaskCompletionSource<T> object and call the TrySetException() method of the object.
- B. Create a task by calling the Task.ContinueWith() method.
- C. Examine the Task.Status property immediately after the call to the Task.Run() method.
- D. Create a task inside the existing Task.Run() method by using the AttachedToParent option.

---

**Answer: B**

---

Explanation:

Task.ContinueWith - Creates a continuation that executes asynchronously when the target Task completes. The returned Task will not be scheduled for execution until the current task has completed, whether it completes due to running to completion successfully, faulting due to an unhandled exception, or exiting out early due to being canceled.

<http://msdn.microsoft.com/en-us/library/dd270696.aspx>

### Question: 23

---

You are modifying an application that processes leases. The following code defines the Lease class. (Line numbers are included for reference only.)

```

01 public class Lease
02 {
03
04     private int _term;
05     private const int MaximumTerm = 5;
06     private const decimal Rate = 0.034m;
07     public int Term
08     {
09         get
10         {
11             return _term;
12         }
13         set
14         {
15             if (value <= MaximumTerm)
16             {
17                 _term = value;
18             }
19             else
20             {
21
22             }
23         }
24     }
25 }
26 public delegate void MaximumTermReachedHandler(object source, EventArgs e);

```

Leases are restricted to a maximum term of 5 years. The application must send a notification message if a lease request exceeds 5 years.

You need to implement the notification mechanism.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Insert the following code segment at line 03:

```
public event MaximumTermReachedHandler OnMaximumTermReached;
```

- B. Insert the following code segment at line 21:

```
if (OnMaximumTermReached != null)
{
    OnMaximumTermReached(this, new EventArgs());
}
```

- C. Insert the following code segment at line 21:

```
value = MaximumTerm;
```

- D. Insert the following code segment at line 03:

```
public string MaximumTermReachedEvent { get; set; }
```

- E. Insert the following code segment at line 03:

```
private string MaximumTermReachedEvent;
```

- F. Insert the following code segment at line 21:

```
value = 4;
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D
- E. Option E
- F. Option F

---

**Answer: A, B**

---

### **Question: 24**

You are developing an application that uses structured exception handling. The application includes a class named ExceptionLogger.

The ExceptionLogger class implements a method named LogException by using the following code segment:

```
public static void LogException(Exception ex)
```

You have the following requirements:

Log all exceptions by using the LogException() method of the ExceptionLogger class.

Rethrow the original exception, including the entire exception stack.

You need to meet the requirements.

Which code segment should you use?

C A. `catch (Exception ex)`  
   {  
     `ExceptionLogger.LogException(ex);`  
     `throw;`  
   }

C B. `catch (Exception ex)`  
   {  
     `ExceptionLogger.LogException(ex);`  
     `throw ex;`  
   }

C C. `catch`  
   {  
     `ExceptionLogger.LogException(new Exception());`  
     `throw;`  
   }

C D. `catch`  
   {  
     `var ex = new Exception();`  
     `throw ex;`  
   }

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

**Explanation:**

Once an exception is thrown, part of the information it carries is the stack trace. The stack trace is a list of the method call hierarchy that starts with the method that throws the exception and ends with the method that catches the exception. If an exception is re-thrown by specifying the exception in the throw statement, the stack trace is restarted at the current method and the list of method calls between the original method that threw the exception and the current method is lost. To keep the original stack trace information with the exception, use the throw statement without specifying the exception.

**Reference:**

[http://msdn.microsoft.com/en-us/library/ms182363\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/ms182363(v=vs.110).aspx)

---

**Question: 25**

---

You are developing an application that includes a class named UserTracker. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public delegate void AddUserCallback(int i);
02 public class UserTracker
03 {
04     List<User> users = new List<User>();
05     public void AddUser(string name, AddUserCallback callback)
06     {
07         users.Add(new User(name));
08         callback(users.Count);
09     }
10 }
11
12 public class Runner
13 {
14
15     UserTracker tracker = new UserTracker();
16     public void Add(string name)
17     {
18
19     }
20 }
```

You need to add a user to the UserTracker instance.

What should you do?

- C A. Insert the following code segment at line 14:

```
private static void PrintUserCount(int i)
{
    ...
}
```

Insert the following code segment at line 18:

```
AddUserCallback callback = PrintUserCount;
```

- C B. Insert the following code segment at line 11:

```
delegate void AddUserDelegate(UserTracker userTracker);
```

Insert the following code segment at line 18:

```
AddUserDelegate addDelegate = (userTracker) =>
{
    ...
};
addDelegate(tracker);
```

- C C. Insert the following code segment at line 11:

```
delegate void AddUserDelegate(string name, AddUserCallback callback);
```

Insert the following code segment at line 18:

```
AddUserDelegate adder = (i, callback) =>
{
    ...
};
```

- C D. Insert the following code segment at line 18:

```
tracker.AddUser(name, delegate(int i)
{
    ...
});
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

Answer: D

---

**Question: 26**

---

## DRAG DROP

You develop an application that displays information from log files when errors occur. The application will prompt the user to create an error report that sends details about the error and the session to the administrator.

When a user opens a log file by using the application, the application throws an exception and closes.

The application must preserve the original stack trace information when an exception occurs during this process.

You need to implement the method that reads the log files.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area.)

```
using (StringReader sr = new StringReader("log.txt"))
using (StreamReader sr = new StreamReader("log.txt"))
throw new FileNotFoundException();
throw;
```

```
{
    try
    {
        string line;
        while ((line = sr.ReadLine()) != null)
        {
            Console.WriteLine(line);
        }
    }
    catch (FileNotFoundException e)
    {
        Console.Write(e.ToString());
    }
}
```

---

**Answer:**

---

```
using (StringReader sr = new StringReader("log.txt"))
```

```
throw new FileNotFoundException();
```

::::::::::

```
using (StreamReader sr = new StreamReader("log.txt"))
```

```
{
```

```
    try
```

```
    {
```

```
        string line;
```

```
        while ((line = sr.ReadLine()) != null)
```

```
{
```

```
            Console.WriteLine(line);
```

```
}
```

```
}
```

```
    catch (FileNotFoundException e)
```

```
{
```

```
        Console.WriteLine(e.ToString());
```

```
        throw;
```

```
}
```

```
}
```

**Explanation:**

StreamReader - Implements a TextReader that reads characters from a byte stream in a particular encoding.

**Reference:**

[http://msdn.microsoft.com/en-us/library/system.io.streamreader\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/system.io.streamreader(v=vs.110).aspx)

Once an exception is thrown, part of the information it carries is the stack trace. The stack trace is a list of the method call hierarchy that starts with the method that throws the exception and ends with the method that catches the exception. If an exception is re-thrown by specifying the exception in the throw statement, the stack trace is restarted at the current method and the list of method calls between the original method that threw the exception and the current method is lost. To keep the original stack trace information with the exception, use the throw statement without specifying the exception.

**Reference:**

[http://msdn.microsoft.com/en-us/library/ms182363\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/ms182363(v=vs.110).aspx)

**Incorrect:**

StringReader - Implements a TextReader that reads from a string.

**Reference:**

[http://msdn.microsoft.com/en-us/library/system.io.stringreader\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/system.io.stringreader(v=vs.110).aspx)

## Question: 27

DRAG DROP

You are developing an application that includes a class named Kiosk. The Kiosk class includes a static property named Catalog. The Kiosk class is defined by the following code segment. (Line numbers are included for reference only.)

```

01 public class Kiosk
02 {
03     static Catalog _catalog = null;
04     static object _lock = new object();
05     public static Catalog Catalog
06     {
07         get
08         {
09
10             return _catalog;
11         }
12     }
13 }
```

You have the following requirements:

Initialize the \_catalog field to a Catalog instance.

Initialize the \_catalog field only once.

Ensure that the application code acquires a lock only when the \_catalog object must be instantiated.

You need to meet the requirements.

Which three code segments should you insert in sequence at line 09? (To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.)

```

lock (_lock)
if (_catalog != null) _catalog = new Catalog
()
if (_catalog != null)
if (_catalog == null) _catalog = new Catalog
()
if (_catalog == null)
```

**Answer:**

```

if (_catalog != null) _catalog = new Catalog
()
if (_catalog != null)
if (_catalog == null)
lock (_lock)
if (_catalog == null) _catalog = new Catalog
()
```

**Explanation:**

After taking a lock you must check once again the \_catalog field to be sure that other threads didn't instantiate it in the meantime.

### Question: 28

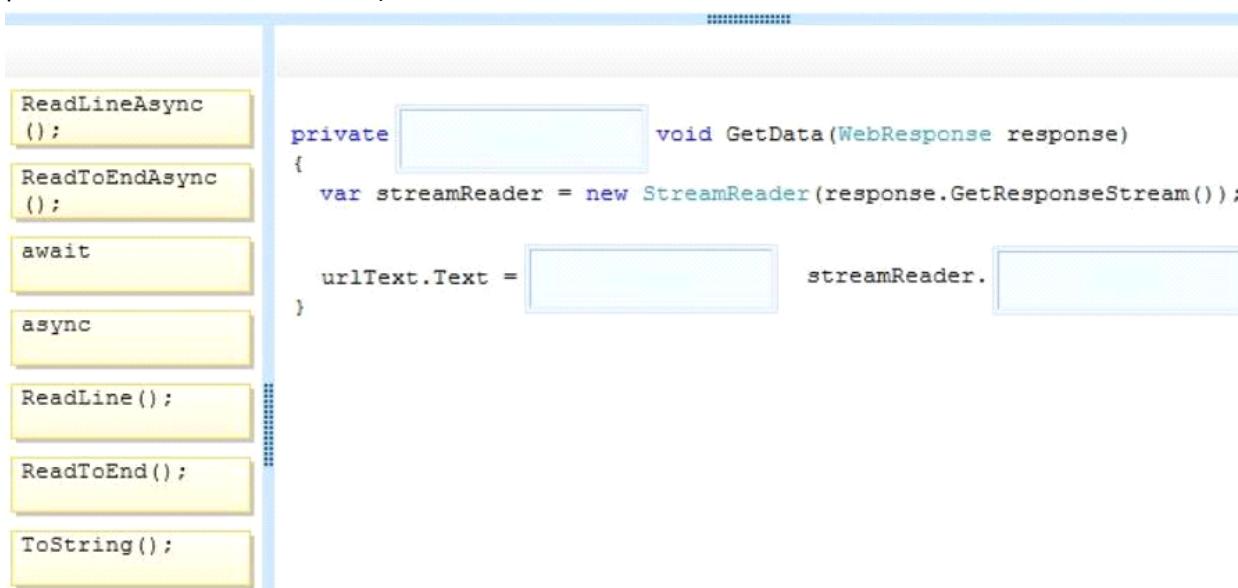
DRAG DROP

You are developing an application that will include a method named GetData

a. The GetData() method will retrieve several lines of data from a web service by using a System.IO.StreamReader object.

You have the following requirements:

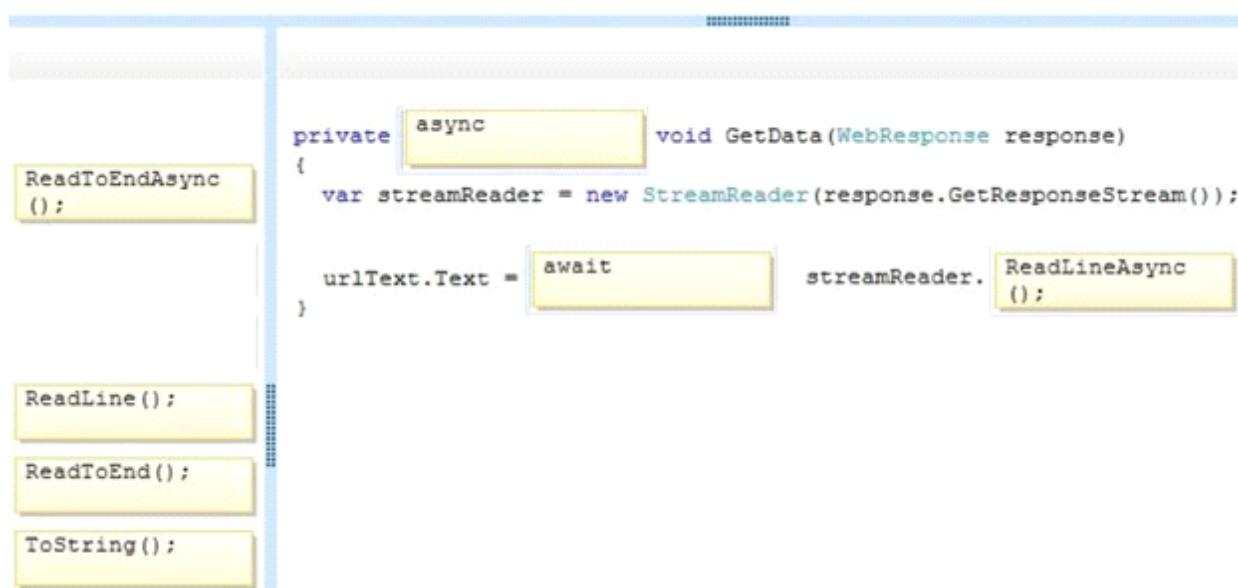
The GetData() method must return a string value that contains the first line of the response from the web service. The application must remain responsive while the GetData() method runs. You need to implement the GetData() method. How should you complete the relevant code? (To answer, drag the appropriate objects to the correct locations in the answer area. Each object may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)




---

**Answer:**

---



Box  
Box  
Box 3. ReadLineAsync();  
Incorrect:

Not Box 3: ReadToEndAsync() is not correct since only the first line of the response is required.

1.

2.

async  
await

## Question: 29

---

You are adding a public method named UpdateScore to a public class named ScoreCard.

The code region that updates the score field must meet the following requirements:

- It must be accessed by only one thread at a time.
- It must not be vulnerable to a deadlock situation.
- You need to implement the **UpdateScore()** method.

What should you do?

- A. Place the code region inside the following lock statement:

```
lock (this)
{
    ...
}
```

- B. Add a private object named **lockObject** to the **ScoreCard** class. Place the code region inside the following lock statement:

```
lock (lockObject)
{
    ...
}
```

- C. Apply the following attribute to the **UpdateScore()** method signature:

```
[MethodImpl(MethodImplOptions.Synchronized)]
```

- D. Add a public static object named **lockObject** to the **ScoreCard** class. Place the code region inside the following lock statement:

```
lock (typeof(ScoreCard))
{
    ...
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: B**

---

Explanation: Because the class is public, you need a private lock Object.

Reference:

lock vs. MethodImplOptions.Synchronized [Kit George]

<http://blogs.msdn.com/b/bclteam/archive/2004/01/20/60719.aspx>

## Question: 30

---

DRAG DROP

You are developing an application that implements a set of custom exception types. You declare the custom exception types by using the following code segments:

```
public class AdventureWorksException : System.Exception { ... }
public class AdventureWorksDbException : AdventureWorksException { ... }
public class AdventureWorksValidationException : AdventureWorksException { ... }
```

The application includes a function named **DoWork** that throws .NET Framework exceptions and custom exceptions.

The application contains only the following logging methods:

```
static void Log(Exception ex) { ... }
static void Log(AdventureWorksException ex) { ... }
static void Log(AdventureWorksValidationException ex) { ... }
```

The application must meet the following requirements:

When **AdventureWorksValidationException** exceptions are caught, log the information by using the static void **Log**

(AdventureWorksValidationException ex) method.

When AdventureWorksDbException or other AdventureWorksException exceptions are caught, log the information by using the static void Log( AdventureWorksException ex) method.

You need to meet the requirements.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area.)

```
(AdventureWorksValidationException ex)
(AdventureWorksException ex)
(Exception ex)
(ContosoDbException ex)

try
{
    DoWork();
}
catch [ ] 
{
    Log(ex);
}
catch [ ] 
{
    Log(ex);
}
catch [ ] 
{
    Log(ex);
}
```

---

**Answer:**

---

```
try
{
    DoWork();
}
catch [ (ContosoDbException ex) ] 
{
    Log(ex);
}
catch [ (AdventureWorksValidationException ex) ] 
{
    Log(ex);
}
catch [ (AdventureWorksException ex) ] 
{
    Log(ex);
}
catch [ (Exception ex) ] 
{
    Log(ex);
}
```

**Explanation:**

Go from the most specific exception to the least one.

So the order would be:

1. AdventureWorksValidationException – catch this exception
2. AdventureWorksException – catch AdventureWorksDbException and other AdventureWorksExceptions

3. Exception – catch all the rest

---

### Question: 31

---

You are developing a C# application that has a requirement to validate some string input data by using the Regex class.

The application includes a method named ContainsHyperlink. The ContainsHyperlink() method will verify the presence of a URI and surrounding markup.

The following code segment defines the ContainsHyperlink() method. (Line numbers are included for reference only.)

```
01 bool ContainsHyperlink(string inputData)
02 {
03     string regExPattern = "href\\s*=\\s*(?:\"(?<1>[^\""]*)\"|(?<1>\\S+))";
04
05     return evaluator.IsMatch(inputData);
06 }
```

The expression patterns used for each validation function are constant.

You need to ensure that the expression syntax is evaluated only once when the Regex object is initially instantiated.

Which code segment should you insert at line 04?

- A. var evaluator = new Regex(regExPattern, RegexOptions.CultureInvariant);
- B. var evaluator = new Regex(inputData);
- C. var assemblyName = "Validation";  
var compilationInfo = new RegexCompilationInfo(inputData, RegexOptions.IgnoreCase, "Href", assemblyName,  
true);  
Regex.CompileToAssembly(new[] { compilationInfo }, new AssemblyName(assemblyName));  
var evaluator = new Regex(regExPattern, RegexOptions.CultureInvariant);
- D. var evaluator = new Regex(regExPattern, RegexOptions.Compiled);

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

### Answer: D

---

Explanation:

RegexOptions.Compiled - Specifies that the regular expression is compiled to an assembly. This yields faster execution but increases startup time. This value should not be assigned to the Options property when calling the CompileToAssembly method.

<http://msdn.microsoft.com/en-us/library/system.text.regularexpressions.regexoptions.aspx>

Additional info

<http://stackoverflow.com/questions/513412/how-does-regexoptions-compiled-work>

---

### Question: 32

---

You are developing an application by using C#.

You have the following requirements:

Support 32-bit and 64-bit system configurations.

Include pre-processor directives that are specific to the system configuration.

Deploy an application version that includes both system configurations to testers.

Ensure that stack traces include accurate line numbers.

You need to configure the project to avoid changing individual configuration settings every time you deploy the application to testers.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Update the platform target and conditional compilation symbols for each application configuration.
- B. Create two application configurations based on the default Release configuration.
- C. Optimize the application through address rebasing in the 64-bit configuration.
- D. Create two application configurations based on the default Debug configuration.

---

### Answer: A, D

---

A: "include pre-processor directives that are specific to the system configuration"

system configuration here refers to bitness ie 32-bit or 64-bit

so the developer wants to use in code different pre-processor directives for 32/64 bit,

this is achieved by defining and using conditional compilation symbols for different platform targets (platform target is VS term for bitness ie for 32/64 bit).

D (not B): The question about testing, debugging, stack trace, line numbers etc. There is not a single word about release

---

## Question: 33

---

You are developing a method named CreateCounters that will create performance counters for an application.

The method includes the following code. (Line numbers are included for reference only.)

```

01 void CreateCounters()
02 {
03     if (!PerformanceCounterCategory.Exists("Contoso"))
04     {
05         var counters = new CounterCreationDataCollection();
06         var ccdCounter1 = new CounterCreationData
07         {
08             CounterName = "Counter1",
09             CounterType = PerformanceCounterType.SampleFraction
11         };
12         counters.Add(ccdCounter1);
13         var ccdCounter2 = new CounterCreationData
14         {
15             CounterName = "Counter2",
16
17         };
18         counters.Add(ccdCounter2);
19         PerformanceCounterCategory.Create("Contoso", "Help string",
20             PerformanceCounterCategoryType.MultiInstance, counters);
21     }
22 }
```

You need to ensure that Counter1 is available for use in Windows Performance Monitor (PerfMon).

Which code segment should you insert at line 16?

- A. CounterType = PerformanceCounterType.RawBase
- B. CounterType = PerformanceCounterType.AverageBase
- C. CounterType = PerformanceCounterType.SampleBase

D. CounterType = PerformanceCounterType.CounterMultiBase

---

**Answer: C**

---

Explanation: Note SampleFraction on line 9. The Base counter type SampleBase has the Parent (composite) counter type SampleFraction.

Reference:

PerformanceCounterType Enumeration

<http://msdn.microsoft.com/en-us/library/system.diagnostics.performancecountertype.aspx>

---

### **Question: 34**

---

You are developing an application that will transmit large amounts of data between a client computer and a server.

You need to ensure the validity of the data by using a cryptographic hashing algorithm.

Which algorithm should you use?

- A. HMACSHA256
- B. RNGCryptoServiceProvider
- C. DES
- D. Aes

---

**Answer: A**

---

Explanation:

The .NET Framework provides the following classes that implement hashing algorithms:

HMACSHA1.

MACTripleDES.

MD5CryptoServiceProvider.

RIPEMD160.

SHA1Managed.

SHA256Managed.

SHA384Managed.

SHA512Managed.

HMAC variants of all of the Secure Hash Algorithm (SHA), Message Digest 5 (MD5), and RIPEMD-160 algorithms.

CryptoServiceProvider implementations (managed code wrappers) of all the SHA algorithms.

Cryptography Next Generation (CNG) implementations of all the MD5 and SHA algorithms.

Reference:

[http://msdn.microsoft.com/en-us/library/92f9ye3s.aspx#hash\\_values](http://msdn.microsoft.com/en-us/library/92f9ye3s.aspx#hash_values)

---

### **Question: 35**

---

DRAG DROP

You are testing an application. The application includes methods named CalculateInterest and LogLine. The CalculateInterest() method calculates loan interest. The LogLine() method sends diagnostic messages to a console window.

You have the following requirements:

The CalculateInterest() method must run for all build configurations.

The LogLine() method must be called only for debug builds.

You need to ensure that the methods run correctly.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations

in the answer are

- a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```
[Conditional("DEBUG")]
[Conditional("RELEASE")]
#if DEBUG
#region DEBUG
#endif
#endregion
```

```
private static decimal CalculateInterest(decimal loanAmount, int loanTerm, decimal loanRate)
{
    decimal interestAmount = loanAmount * loanRate * loanTerm;
    LogLine("Interest Amount : ", interestAmount.ToString("c"));
    return interestAmount;
}
public static void LogLine(string message, string detail)
{
    Console.WriteLine("Log: {0} = {1}", message, detail);
}
```

### Answer:

```
[Conditional("DEBUG")]
[Conditional("RELEASE")]
#region DEBUG
#endregion
```

```
private static decimal CalculateInterest(decimal loanAmount, int loanTerm, decimal loanRate)
{
    decimal interestAmount = loanAmount * loanRate * loanTerm;
    #if DEBUG
        LogLine("Interest Amount : ", interestAmount.ToString("c"));
    #endif
    return interestAmount;
}
public static void LogLine(string message, string detail)
{
    Console.WriteLine("Log: {0} = {1}", message, detail);
}
```

When the C# compiler encounters an `#if` directive, followed eventually by an `#endif` directive, it will compile the code between the directives only if the specified symbol is defined. Unlike C and C++, you cannot assign a numeric value to a symbol; the `#if` statement in C# is Boolean and only tests whether the symbol has been defined or not. For example,

```
#define DEBUG
#if DEBUG
```

```
    Console.WriteLine("Debug version");
#endif
```

Reference:

<http://stackoverflow.com/questions/2104099/c-sharp-if-then-directives-for-debug-vs-release>

### Question: 36

You are developing an assembly that will be used by multiple applications.

You need to install the assembly in the Global Assembly Cache (GAC).

Which two actions can you perform to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- Use the Assembly Registration tool (regasm.exe) to register the assembly and to copy the assembly to the GAC.
- Use the Strong Name tool (sn.exe) to copy the assembly into the GAC.
- Use Microsoft Register Server (regsvr32.exe) to add the assembly to the GAC.
- Use the Global Assembly Cache tool (gacutil.exe) to add the assembly to the GAC.
- Use Windows Installer 2.0 to add the assembly to the GAC.

---

**Answer: D, E**

**Explanation:**

There are two ways to deploy an assembly into the global assembly cache:

- \* Use an installer designed to work with the global assembly cache. This is the preferred option for installing assemblies into the global assembly cache.
- \* Use a developer tool called the Global Assembly Cache tool (Gacutil.exe), provided by the Windows Software Development Kit (SDK).

**Note:**

In deployment scenarios, use Windows Installer 2.0 to install assemblies into the global assembly cache. Use the Global Assembly Cache tool only in development scenarios, because it does not provide assembly reference counting and other features provided when using the Windows Installer.

<http://msdn.microsoft.com/en-us/library/yf1d93sz%28v=vs.110%29.aspx>

---

**Question: 37**

You are debugging an application that calculates loan interest. The application includes the following code. (Line numbers are included for reference only.)

```
01 private static decimal CalculateInterest(decimal loanAmount, int loanTerm, decimal loanRate)
02 {
03
04     decimal interestAmount = loanAmount * loanRate * loanTerm;
05
06     return interestAmount;
07 }
```

You need to ensure that the debugger breaks execution within the CalculateInterest() method when the loanAmount variable is less than or equal to zero in all builds of the application.

What should you do?

A. Insert the following code segment at line 03:

Trace.Assert(loanAmount > 0);

B. Insert the following code segment at line 03:

Debug.Assert(loanAmount > 0);

C. Insert the following code segment at line 05:

Debug.Write(loanAmount > 0);

D. Insert the following code segment at line 05:

Trace.Write(loanAmount > 0);

---

**Answer: A**

**Explanation:**

By default, the Debug.Assert method works only in debug builds. Use the Trace.Assert method if you want to do assertions in release builds. For more information, see Assertions in Managed Code. <http://msdn.microsoft.com/en-us/library/kssw4w7z.aspx>

**Incorrect:**

Not B: Debug.Assert only works in debug mode. Here it must work in all builds of the application.

---

**Question: 38**

You are developing an application that accepts the input of dates from the user.

Users enter the date in their local format. The date entered by the user is stored in a string variable named inputDate.

The valid date value must be placed in a DateTime variable named validatedDate.

You need to validate the entered date and convert it to Coordinated Universal Time (UTC). The code must not cause an exception to be thrown.

Which code segment should you use?

- A. 

```
bool validDate = DateTime.TryParse(inputDate,
CultureInfo.CurrentCulture, DateTimeStyles.AdjustToUniversal | DateTimeStyles.AssumeLocal,
out validatedDate);
```
- B. 

```
bool validDate = DateTime.TryParse(inputDate,
CultureInfo.CurrentCulture, DateTimeStyles.AssumeUniversal, out validatedDate);
```
- C. 

```
bool validDate = true;
try
{
    validatedDate = DateTime.Parse(inputDate);
}
catch
{
    validDate = false;
}
```
- D. 

```
validatedDate = DateTime.ParseExact(inputDate, "g",
CultureInfo.CurrentCulture, DateTimeStyles.AdjustToUniversal | DateTimeStyles.AssumeUniversal);
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

Explanation:

AdjustToUniversal parses s and, if necessary, converts it to UTC.

Note: The DateTime.TryParse method converts the specified string representation of a date and time to its DateTime equivalent using the specified culture-specific format information and formatting style, and returns a value that indicates whether the conversion succeeded.

---

### Question: 39

---

DRAG DROP

You are developing an application by using C#. The application will process several objects per second.

You need to create a performance counter to analyze the object processing.

Which three actions should you perform in sequence? (To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.)

- Add the **CounterCreationData** objects to the collection by calling the **Add()** method of the collection.
- Create a **PerformanceCounterPermissionEntryCollection** collection.
- Call the **Create()** method of the **PerformanceCounterCategory** class and pass the collection to the method.
- Get the **CategoryName** property of the **PerformanceCounterPermissionEntry** class.
- Create a **CounterCreationDataCollection** collection. Then create the counters as **CounterCreationData** object and set necessary properties.

**Answer:**

Box 1: Create a CounterCreationDataCollection collection. Then create the counters as CounterCreationData object and set necessary properties.

Box 2: Add CounterCreationData to the collection by calling the Add() method of the collection

Box 3: Call the Create method of the PerformanceCounterCategory and pass the collection to the method

Explanation:

```
CounterCreationDataCollection counterDataCollection = new CounterCreationDataCollection(); // Box1
// Add the counter. Box 1
CounterCreationData averageCount64 = new CounterCreationData();
averageCount64.CounterType = PerformanceCounterType.AverageCount64;
averageCount64.CounterName = "AverageCounter64Sample";
counterDataCollection.Add(averageCount64);
// Add the base counter.
CounterCreationData averageCount64Base = new CounterCreationData();
averageCount64Base.CounterType = PerformanceCounterType.AverageBase;
averageCount64Base.CounterName = "AverageCounter64SampleBase";
counterDataCollection.Add(averageCount64Base); // Box 2
// Create the category. Box 3
PerformanceCounterCategory.Create("AverageCounter64SampleCategory",
"Demonstrates usage of the AverageCounter64 performance counter type.",
PerformanceCounterCategoryType.SingleInstance, counterDataCollection);
```

**Question: 40**

You are developing an application by using C#. You provide a public key to the development team during development.

You need to specify that the assembly is not fully signed when it is built.

Which two assembly attributes should you include in the source code? (Each correct answer presents part of the solution. Choose two.)

- A. AssemblyKeyNameAttribute
- B. ObfuscateAssemblyAttribute
- C. AssemblyDelaySignAttribute
- D. AssemblyKeyFileAttribute

---

**Answer: C, D**

---

Explanation:

\* AssemblyDelaySignAttribute

Specifies that the assembly is not fully signed when created.

\* The following code example shows the use of the AssemblyDelaySignAttribute attribute with the AssemblyKeyFileAttribute.

```
using System;
using System.Reflection;
[assembly:AssemblyKeyFileAttribute("TestPublicKey.snk")]
[assembly:AssemblyDelaySignAttribute(true)]
namespace DelaySign
{
    public class Test { }
```

Reference:

[http://msdn.microsoft.com/en-us/library/t07a3dye\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/t07a3dye(v=vs.110).aspx)

---

**Question: 41**

---

DRAG DROP

You are developing an application that includes a class named Warehouse. The Warehouse class includes a static property named Inventory- The Warehouse class is defined by the following code segment. (Line numbers are included for reference only.)

```
01 public class Warehouse
02 {
03     static Inventory _inventory = null;
04     static object _lock = new object();
05     public static Inventory Inventory
06     {
07         get
08         {
09             return _inventory;
10         }
11     }
12 }
13 }
```

You have the following requirements:

Initialize the \_inventory field to an Inventory instance.

Initialize the \_inventory field only once.

Ensure that the application code acquires a lock only when the \_inventory object must be instantiated.

You need to meet the requirements.

Which three code segments should you insert in sequence at line 09? (To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.)

```
if (_inventory != null) _inventory = new  
Inventory();  
  
if (_inventory != null)  
lock (_lock)  
  
if (_inventory == null)  
  
if (_inventory == null) _inventory = new  
Inventory();
```

**Answer:**

```
if (_inventory != null) _inventory = new  
Inventory();  
  
if (_inventory != null)  
  
if (_inventory == null)  
lock (_lock)  
  
if (_inventory == null) _inventory = new  
Inventory();
```

**Explanation:**

After taking a lock you must check once again the `_inventory` field to be sure that other threads didn't instantiated it in the meantime.

First, you check if the inventory is null, if so, you lock it to avoid other threads to change it.

Second, you check again for the null, as in the tiny millisecond between check for null and locking could another thread get it.

Finally you create the instance and release the lock.

**Question: 42**

You are adding a public method named `UpdateGrade` to a public class named `ReportCard`.

The code region that updates the grade field must meet the following requirements:

It must be accessed by only one thread at a time.

It must not be vulnerable to a deadlock situation.

You need to implement the `UpdateGrade()` method.

What should you do?

- C A. Add a private object named **lockObject** to the **ReportCard** class. Place the code region inside the following lock statement:

```
lock (lockObject)
{
    ...
}
```

- C B. Place the code region inside the following lock statement:

```
lock (this)
{
    ...
}
```

- C C. Add a public static object named **lockObject** to the **ReportCard** class. Place the code region inside the following lock statement:

```
lock (typeof(ReportCard))
{
    ...
}
```

- C D. Apply the following attribute to the **UpdateGrade()** method signature:

```
[MethodImpl(MethodImplOptions.Synchronized)]
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

Because the class is public, you need a private lock Object.

Incorrect:

Not B, not C: Once the ReportCard is public, other process can lock on type or instance.

So, these options are leaning to a DEADLOCK.

Not D: [MethodImpl] attribute works locking on type (for static members) or on the instance(for instance members). It could cause a DEADLOCK.

Reference:

<https://msdn.microsoft.com/en-us/library/c5kehkcz.aspx>

---

### Question: 43

---

You are developing an application that includes a class named BookTracker for tracking library books. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public delegate void AddBookCallback(int i);
02 public class BookTracker
03 {
04     List<Book> books = new List<Book>();
05     public void AddBook(string name, AddBookCallback callback)
06     {
07         books.Add(new Book(name));
08         callback(books.Count);
09     }
10 }
11
12 public class Runner
13 {
14
15     BookTracker tracker = new BookTracker();
16     public void Add(string name)
17     {
18
19     }
20 }
```

You need to add a user to the BookTracker instance. What should you do?

C A. Insert the following code segment at line 14:

```
private static void PrintBookCount(int i)
{
    ...
}
```

Insert the following code segment at line 18:

```
AddBookCallback callback = PrintBookCount;
```

C B. Insert the following code segment at line 18:

```
tracker.AddBook(name, delegate(int i)
{
    ...
});
```

C C. Insert the following code segment at line 11:

```
delegate void AddBookDelegate(BookTracker bookTracker);
```

Insert the following code segment at line 18:

```
AddBookDelegate addDelegate = (bookTracker) =>
{
    ...
};
addDelegate(tracker);
```

C D. Insert the following code segment at line 11:

```
delegate void AddBookDelegate(string name, AddBookCallback callback);
```

Insert the following code segment at line 18:

```
AddBookDelegate adder = (i, callback) =>
{
    ...
};
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

Answer: B

---

---

Question: 44

---

## DRAG DROP

You are implementing a method that creates an instance of a class named User. The User class contains a public event named Renamed. The following code segment defines the Renamed event:

```
Public event EventHandler<RenameEventArgs> Renamed;
```

You need to create an event handler for the Renamed event by using a lambda expression.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area.)

- a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```

user.Renamed -= delegate(object sender, RenamedEventArgs e)
user.Renamed -= (sender, e) =>
user.Renamed += delegate(object sender, RenamedEventArgs e)
user.Renamed += (sender, e) =>
users[0] = user;
users.Add(user);
users.Insert(user);

List<User> users = new List<User>();

public void AddUser(string name)
{
    User user = new User(name);
    {
        Log("User {0} was renamed to {1}", e.OldName, e.Name);
    };
}

```

---

**Answer:**

---

```
user.Renamed -= delegate(object sender, RenamedEventArgs e)
user.Renamed -= (sender, e) =>
user.Renamed += delegate(object sender, RenamedEventArgs e)

users[0] = user;

users.Insert(user);

List<User> users = new List<User>();

public void AddUser(string name)
{
    User user = new User(name);
    user.Renamed += (sender, e) =>
    {
        Log("User {0} was renamed to {1}", e.OldName, e.Name);
    };
    users.Add(user);
}
```

---

### **Question: 45**

You are creating a console application by using C#.  
You need to access the assembly found in the file named car.dll.  
Which code segment should you use?

- A. Assembly.Load();
- B. Assembly.GetExecutingAssembly();
- C. This.GetType();
- D. Assembly.LoadFile("car.dll");

---

**Answer: D**

Explanation:

Assembly.LoadFile - Loads the contents of an assembly file on the specified path.  
<http://msdn.microsoft.com/en-us/library/b61s44e8.aspx>

---

### **Question: 46**

You are developing an application by using C#.  
The application includes an object that performs a long running process.  
You need to ensure that the garbage collector does not release the object's resources until the process completes.  
Which garbage collector method should you use?

- A. WaitForFullGCComplete()
- B. WaitForFullGCApproach()
- C. KeepAlive()

D. `WaitForPendingFinalizers()`

---

**Answer: C**

---

The `GC.KeepAlive` method references the specified object, which makes it ineligible for garbage collection from the start of the current routine to the point where this method is called.

The purpose of the `KeepAlive` method is to ensure the existence of a reference to an object that is at risk of being prematurely reclaimed by the garbage collector.

The `KeepAlive` method performs no operation and produces no side effects other than extending the lifetime of the object passed in as a parameter.

Reference:

`GC.KeepAlive` Method (`Object`)

[https://msdn.microsoft.com/en-us/library/system.gc.keepalive\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.gc.keepalive(v=vs.110).aspx)

---

### **Question: 47**

---

An application includes a class named `Person`. The `Person` class includes a method named `GetData`.

You need to ensure that the `GetData()` method can be used only by the `Person` class and not by any class derived from the `Person` class.

Which access modifier should you use for the `GetData()` method?

- A. `Public`
- B. `Protected internal`
- C. `Internal`
- D. `Private`
- E. `Protected`

---

**Answer: B**

---

Explanation:

The `protected` keyword is a member access modifier. A protected member is accessible within its class and by derived class instances.

---

### **Question: 48**

---

You are creating an application that manages information about your company's products. The application includes a class named `Product` and a method named `Save`.

The `Save()` method must be strongly typed. It must allow only types inherited from the `Product` class that use a constructor that accepts no parameters.

You need to implement the `Save()` method. Which code segment should you use?

- C A. `public static void Save(Product target)`  
 {  
 ...  
 }
- C B. `public static void Save<T>(T target) where T : new(), Product`  
 {  
 ...  
 }
- C C. `public static void Save<T>(T target) where T : Product`  
 {  
 ...  
 }
- C D. `public static void Save<T>(T target) where T : Product, new()`  
 {  
 ...  
 }

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: D**

---

**Explanation:**

The condition `new()` ensures the empty/default constructor and must be the last condition.

When you define a generic class, you can apply restrictions to the kinds of types that client code can use for type arguments when it instantiates your class. If client code tries to instantiate your class by using a type that is not allowed by a constraint, the result is a compile-time error. These restrictions are called constraints.

Constraints are specified by using the `where` contextual keyword.

<http://msdn.microsoft.com/en-us/library/d5x73970.aspx>

---

**Question: 49**

---

**DRAG DROP**

You are developing an application by using C#. The application will output the text string "First Line" followed by the text string "Second Line".

You need to ensure that an empty line separates the text strings.

Which four code segments should you use in sequence? (To answer, move the appropriate code segments to the answer area and arrange them in the correct order.)

```
sb.Append("\1");
var sb = new StringBuilder();
sb.Append("First Line");
sb.Append("\t");
sb.AppendLine();
sb.Append(String.Empty);
sb.Append("Second Line");
```

---

**Answer:**

---

Box 1:

```
var sb = new StringBuilder();
```

First we create the variable.

Box 2:

```
sb.Append("First Line");
```

We create the first text line.

Box 3:

```
sb.AppendLine();
```

We add a blank line.

The `StringBuilder.AppendLine` method appends the default line terminator to the end of the current `StringBuilder` object.

Box 4:

```
sb.Append("Second Line");
```

Finally we add the second line.

---

**Question: 50**

You are developing an application. The application includes classes named `Mammal` and `Animal` and an interface named `IAnimal`.

The `Mammal` class must meet the following requirements:

It must either inherit from the `Animal` class or implement the `IAnimal` interface.

It must be inheritable by other classes in the application.

You need to ensure that the `Mammal` class meets the requirements.

Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. `abstract class Mammal : IAnimal`  
 {  
 ...  
 }
- B. `sealed class Mammal : IAnimal`  
 {  
 ...  
 }
- C. `abstract class Mammal : Animal`  
 {  
 ...  
 }
- D. `sealed class Mammal : Animal`  
 {  
 ...  
 }

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: A, C**

---

Explanation:

When applied to a class, the sealed modifier prevents other classes from inheriting from it.

Reference:

[http://msdn.microsoft.com/en-us/library/88c54tsw\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/88c54tsw(v=vs.110).aspx)

## Question: 51

---

DRAG DROP

You are developing a class named ExtensionMethods.

You need to ensure that the ExtensionMethods class implements the IsEmail() extension method on string objects.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area.)

```

public static class ExtensionMethods
{
    public class ExtensionMethods
    {
        this String str
        String str
    }
    protected static class ExtensionMethods
    {
        public static bool IsEmail(
        {
            var regex = new Regex(@"^([\w\.-]+@[.\w\.-]+\.(.\w{2,3})+$");
        }
    }
}
  
```

---

**Answer:**

---

```

public class ExtensionMethods
{
    public static bool IsEmail(
        this String str
    )
    {
        var regex = new Regex(@"^([\w\.\-]+@[\\w\-\]+)([\.\w\(\)\)]+)$");
        return regex.IsMatch(str);
    }
}

```

Explanation:

Extensions must be in a static class as it kind of a shared source of extension methods. You do not instantiate the class. The key word “this” is simply a syntax how you tell the compiler, that your method IsUrl is extension for the String object

## Question: 52

---

You are developing an application by using C#. The application includes the following code segment. (Line numbers are included for reference only.)

```

01 public interface IDataContainer
02 {
03     string Data { get; set; }
04 }
05 void DoWork(object obj)
06 {
07
08     if (dataContainer != null)
09     {
10         Console.WriteLine(dataContainer.Data);
11     }
12 }

```

The DoWork() method must throw an InvalidCastException exception if the obj object is not of type IDataContainer when accessing the Data property.

You need to meet the requirements. Which code segment should you insert at line 07?

- A. var dataContainer = (IDataContainer) obj;
- B. var dataContainer = obj as IDataContainer;
- C. var dataContainer = obj is IDataContainer;
- D. dynamic dataContainer = obj;

---

**Answer: A**

---

Explanation:

direct cast. If object is not of the given type, an InvalidCastException is thrown.

Incorrect:

Not B: If obj is not of the given type, result is null.

Not C: If obj is not of a given type, result is false.

Not D: This simply check the variable during runtime. It will not throw an exception.

Reference:

<http://msdn.microsoft.com/en-us/library/ms173105.aspx>

---

### **Question: 53**

---

An application receives JSON data in the following format:

```
{ "FirstName" : "David",
  "LastName" : "Jones",
  "Values" : [0, 1, 2] }
```

The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public class Name
02 {
03     public int[] Values { get; set; }
04     public string FirstName { get; set; }
05     public string LastName { get; set; }
06 }
07 public static Name ConvertToName(string json)
08 {
09     var ser = new JavaScriptSerializer();
10
11 }
```

You need to ensure that the ConvertToName() method returns the JSON input string as a Name object. Which code segment should you insert at line 10?

- A. Return ser.Deserialize (json, typeof(Name));
- B. Return ser.ConvertToType<Name>(json);
- C. Return ser.Deserialize<Name>(json);
- D. Return ser.ConvertToType (json, typeof (Name));

---

### **Answer: C**

---

JavaScriptSerializer.Deserialize<T> - Converts the specified JSON string to an object of type T.

<http://msdn.microsoft.com/en-us/library/bb355316.aspx>

---

### **Question: 54**

---

You are developing an application that includes the following code segment. (Line numbers are included for reference only.)

```

01 class Customer
02 {
03     public string CompanyName { get; set; }
04     public string Id { get; set; }
05 }
06 const string sqlSelectCustomers = "SELECT CustomerID, CompanyName FROM Customers";
07 private static IEnumerable<Customer> GetCustomers(string sqlConnectionString)
08 {
09     List<Customer> customers = new List<Customer>();
10    SqlConnection sqlConnection = new SqlConnection(sqlConnectionString);
11    using (sqlConnection)
12    {
13        SqlCommand sqlCommand = new SqlCommand(sqlSelectCustomers, sqlConnection);
14
15        using (SqlDataReader sqlDataReader = sqlCommand.ExecuteReader())
16        {
17
18            {
19                Customer customer = new Customer();
20                customer.Id = (string)sqlDataReader["CustomerID"];
21                customer.CompanyName = (string)sqlDataReader["CompanyName"];
22                customers.Add(customer);
23            }
24        }
25    }
26    return customers;
27 }

```

The GetCustomers() method must meet the following requirements:

Connect to a Microsoft SQL Server database.

Populate Customer objects with data from the database.

Return an IEnumerable<Customer> collection that contains the populated Customer objects.

You need to meet the requirements.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

A. Insert the following code segment at line 17:

while (sqlDataReader.GetValues())

B. Insert the following code segment at line 14:

sqlConnection.Open();

C. Insert the following code segment at line 14:

sqlConnection.BeginTransaction();

D. Insert the following code segment at line 17:

while (sqlDataReader.Read())

E. Insert the following code segment at line 17:

while (sqlDataReader.NextResult())

---

**Answer: B, D**

---

Explanation:

B: SqlConnection.Open - Opens a database connection with the property settings specified by the ConnectionString.

Reference:

<http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqlconnection.open.aspx>

D: SqlDataReader.Read - Advances the SqlDataReader to the next record.

Reference:

<http://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqldatareader.read.aspx>

Not E: reader.NextResult is wrong because that is used when reader has more than one result set (SP or inline SQL has more than one Select).

**Question: 55****DRAG DROP**

You are developing an application that includes a class named Customer.

The application will output the Customer class as a structured XML document by using the following code segment:

```
<?xml version="1.0" encoding="utf-8"?>
<Prospect xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  ProspectId="9c027bb8-65f1-40a9-8afa-ac839f3cdc5d" xmlns="http://prospect">
  <FullName>David Jones</FullName>
  <DateOfBirth>1977-06-11T00:00:00</DateOfBirth>
</Prospect>
```

You need to ensure that the Customer class will serialize to XML.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area)

a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

[XmlAttribute("CustomerId")]  
[XmlElement("CustomerId")]  
[XmlAttribute("ProspectId")]  
[XmlElement("ProspectId")]  
[XmlAttribute("Identifier")]  
[XmlAttribute("Ignore")]  
[XmlAttribute("ArrayItem")]  
[XmlElement("FullName")]

```
public class Customer
{
    public Guid Id { get; set; }

    public string Name { get; set; }
    public DateTime DateOfBirth { get; set; }

    public int Tin { get; set; }
}
```

---

**Answer:**

---

```
[XmlRoot("Customer", Namespace = "http://customer")]
```

```
[XmlElement("ProspectId")]
```

```
[XmlChoiceIdentifier]
```

```
[XmlArrayItem]
```

```
[XmlRoot("Prospect", Namespace = "http://prospect")]
```

```
public class Customer
```

```
{
```

```
    [XmlAttribute("ProspectId")]
```

```
    public Guid Id { get; set; }
```

```
    [XmlElement("FullName")]
```

```
    public string Name { get; set; }
```

```
    public DateTime DateOfBirth { get; set; }
```

```
    [XmlAttribute]
```

```
    public int Tin { get; set; }
```

```
}
```

Explanation:

<http://msdn.microsoft.com/en-us/library/3dkta8ya.aspx>

---

**Question: 56**

---

An application will upload data by using HTML form-based encoding. The application uses a method named SendMessage.

The SendMessage() method includes the following code. (Line numbers are included for reference only.)

```
01 public Task<byte[]> SendMessage(string url, int intA, int intB)
02 {
03     var client = new WebClient();
04
05 }
```

The receiving URL accepts parameters as form-encoded values.

You need to send the values intA and intB as form-encoded values named a and b, respectively.

Which code segment should you insert at line 04?

- A. `var data = string.Format("a={0}&b={1}", intA, intB);  
return client.UploadStringTaskAsync(new Uri(url), data);`
- B. `var data = string.Format("a={0}&b={1}", intA, intB);  
return client.UploadFileTaskAsync(new Uri(url), data);`
- C. `var data = string.Format("a={0}&b={1}", intA, intB);  
return client.UploadDataTaskAsync(new Uri(url), Encoding.UTF8.GetBytes(data));`
- D. `var nvc = new NameValueCollection() { { "a", intA.ToString() }, { "b", intB.ToString() } };  
return client.UploadValuesTaskAsync(new Uri(url), nvc);`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: D**

---

Explanation:

`WebClient.UploadValuesTaskAsync` - Uploads the specified name/value collection to the resource identified by the specified URI as an asynchronous operation using a task object. These methods do not block the calling thread.

<http://msdn.microsoft.com/en-us/library/system.net.webclient.uploadvaluetaskasync.aspx>

---

### **Question: 57**

---

You are developing an application. The application converts a Location object to a string by using a method named `WriteObject`.

The `WriteObject()` method accepts two parameters, a `Location` object and an `XmlObjectSerializer` object.

The application includes the following code. (Line numbers are included for reference only.)

```

01 public enum Compass
02 {
03     North,
04     South,
05     East,
06     West
07 }
08 [DataContract]
09 public class Location
10 {
11     [DataMember]
12     public string Label { get; set; }
13     [DataMember]
14     public Compass Direction { get; set; }
15 }
16 void DoWork()
17 {
18     var location = new Location { Label = "Test", Direction = Compass.West };
19     Console.WriteLine(WriteObject(location,
20
21     ));
22 }

```

You need to serialize the Location object as XML.

Which code segment should you insert at line 20?

- A. new XmlSerializer(typeof(Location))
- B. new NetDataContractSerializer()
- C. newDataContractJsonSerializer(typeof (Location))
- D. newDataContractSerializer(typeof(Location))

---

**Answer: D**

---

**Explanation:**

The code is using [DataContract] attribute here so need to use DataContractSerializer class.

TheDataContractJsonSerializer class serializes objects to the JavaScript Object Notation (JSON) and deserializes JSON data to objects.

Use theDataContractJsonSerializer class to serialize instances of a type into a JSON document and to deserialize a JSON document into an instance of a type.

---

### Question: 58

---

You are developing an application that includes a class named Order. The application will store a collection of Order objects.

The collection must meet the following requirements:

Internally store a key and a value for each collection item.

Provide objects to iterators in ascending order based on the key.

Ensure that item are accessible by zero-based index or by key.

You need to use a collection type that meets the requirements.

Which collection type should you use?

- A. LinkedList
- B. Queue
- C. Array
- D. HashTable

E. SortedList

---

**Answer: E**

---

Explanation:

`SortedList<TKey, TValue>` - Represents a collection of key/value pairs that are sorted by key based on the associated `IComparer<T>` implementation.

<http://msdn.microsoft.com/en-us/library/ms132319.aspx>

---

**Question: 59**

---

You are developing an application that includes the following code segment. (Line numbers are included for reference only.)

```
01 using System;
02 class MainClass
03 {
04     public static void Main(string[] args)
05     {
06         bool bValidInteger = false;
07         int value = 0;
08         do
09         {
10             Console.WriteLine("Enter an integer:");
11             bValidInteger = GetValidInteger(ref value);
12         } while (!bValidInteger);
13         Console.WriteLine("You entered a valid integer, " + value);
14     }
15     public static bool GetValidInteger(ref int val)
16     {
17         string sLine = Console.ReadLine();
18         int number;
19
20         if (int.TryParse(sLine, out number))
21             return true;
22         else
23             return false;
24     }
25 }
```

You need to ensure that the application accepts only integer input and prompts the user each time non-integer input is entered.

Which code segment should you add at line 19?

- A. If (!int.TryParse(sLine, out number))
- B. If ((number = Int32.Parse(sLine)) == Single.NaN)
- C. If ((number = int.Parse(sLine)) > Int32.MaxValue)
- D. If (!Int32.TryParse(sLine, out number))

---

**Answer: A**

---

Explanation:

Incorrect:

Not B, not C: These will throw exception when user enters non-integer value.

Not D: This is exactly the opposite what we want to achieve.

Int32.TryParse - Converts the string representation of a number to its 32-bit signed integer equivalent. A return value indicates whether the conversion succeeded. <http://msdn.microsoft.com/en-us/library/f02979c7.aspx>

---

## Question: 60

---

You are debugging an application that calculates loan interest. The application includes the following code. (Line numbers are included for reference only.)

```
01 private static decimal CalculateInterest(decimal loanAmount, int loanTerm, decimal loanRate)
02 {
03
04     decimal interestAmount = loanAmount * loanRate * loanTerm;
05
06     return interestAmount;
07 }
```

You have the following requirements:

The debugger must break execution within the CalculateInterest() method when the loanAmount variable is less than or equal to zero.

The release version of the code must not be impacted by any changes.

You need to meet the requirements.

What should you do?

A. Insert the following code segment at line 05:

Debug.WriteLine(loanAmount > 0);

B. Insert the following code segment at line 05:

Trace.WriteLine(loanAmount > 0);

C. Insert the following code segment at line 03:

Debug.Assert(loanAmount > 0);

D. Insert the following code segment at line 03:

Trace.Assert(loanAmount > 0);

---

**Answer: C**

---

Explanation:

By default, the Debug.Assert method works only in debug builds. Use the Trace.Assert method if you want to do assertions in release builds. For more information, see Assertions in Managed Code.

<http://msdn.microsoft.com/en-us/library/kssw4w7z.aspx>

---

## Question: 61

---

You are developing an application that will process orders. The debug and release versions of the application will display different logo images.

You need to ensure that the correct image path is set based on the build configuration.

Which code segment should you use?

- C A. `#if (DEBUG)  
 imgPath = "TempFolder/Images/";  
#elif (RELEASE)  
 imgPath = "DevFolder/Images/";  
#endif`
- C B. `if (DEBUG)  
 imgPath = "TempFolder/Images/";  
else  
 imgPath = "DevFolder/Images/";  
endif`
- C C. `#if (DEBUG)  
 imgPath = "TempFolder/Images/";  
#else  
 imgPath = "DevFolder/Images/";  
#endif`
- C D. `if(Debugger.IsAttached)  
{  
 imgPath = "TempFolder/Images/";  
}  
else  
{  
 imgPath = "DevFolder/Images/";  
}`

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: C**

---

Explanation:

There is no such constraint (unless you define one explicitly) RELEASE.  
<http://stackoverflow.com/questions/507704/will-if-release-work-like-if-debug-does-in-c>

---

### Question: 62

---

You are testing an application. The application includes methods named CalculateInterest and LogLine. The CalculateInterest() method calculates loan interest. The LogLine() method sends diagnostic messages to a console window.

The following code implements the methods. (Line numbers are included for reference only.)

```

01
02 private static decimal CalculateInterest(decimal loanAmount, int loanTerm, decimal loanRate)
03 {
04     decimal interestAmount = loanAmount * loanRate * loanTerm;
05
06     LogLine("Interest Amount : ", interestAmount.ToString("c"));
07
08     return interestAmount;
09 }
10
11 public static void LogLine(string message, string detail)
12 {
13     Console.WriteLine("Log: {0} = {1}", message, detail);
14 }

```

You have the following requirements:

The CalculateInterest() method must run for all build configurations.

The LogLine() method must run only for debug builds.

You need to ensure that the methods run correctly.

What are two possible ways to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

A. Insert the following code segment at line 01:

#region DEBUG

Insert the following code segment at line 10:

#endregion

B. Insert the following code segment at line 10:

[Conditional("DEBUG")]

C. Insert the following code segment at line 05:

#region DEBUG

Insert the following code segment at line 07:

#endregion

D. Insert the following code segment at line 01:

#if DE30G

Insert the following code segment at line 10:

#endif

E. Insert the following code segment at line 01:

[Conditional(MDEBUG)]

F. Insert the following code segment at line 05:

#if DEBUG

Insert the following code segment at line 07:

#endif

G. Insert the following code segment at line 10:

[Conditional("RELEASE")]

---

**Answer: B, F**

---

Explanation:

#if DEBUG: The code in here won't even reach the IL on release.

[Conditional("DEBUG")]: This code will reach the IL, however the calls to the method will not execute unless DEBUG is on.

<http://stackoverflow.com/questions/3788605/if-debug-vs-conditionaldebug>

---

### Question: 63

---

You are developing a method named CreateCounters that will create performance counters for an application. The

method includes the following code. (Line numbers are included for reference only.)

```
01 void CreateCounters()
02 {
03     if (!PerformanceCounterCategory.Exists("Contoso"))
04     {
05         var counters = new CounterCreationDataCollection();
06         var ccdCounter1 = new CounterCreationData
07         {
08             CounterName = "Counter1",
09             CounterType = PerformanceCounterType.AverageTimer32
11         };
12         counters.Add(ccdCounter1);
13         var ccdCounter2 = new CounterCreationData
14         {
15             CounterName = "Counter2",
16             CounterType = PerformanceCounterType.AverageBase
17         };
18         counters.Add(ccdCounter2);
19         PerformanceCounterCategory.Create("Contoso", "Help string",
20         PerformanceCounterCategoryType.MultiInstance, counters);
21     }
22 }
```

You need to ensure that Counter2 is available for use in Windows Performance Monitor (PerfMon). Which code segment should you insert at line 16?

- A. CounterType = PerformanceCounterType.RawBase
- B. CounterType = PerformanceCounterType.AverageBase
- C. CounterType = PerformanceCounterType.SampleBase
- D. CounterType = PerformanceCounterType.CounterMultiBase

---

**Answer: B**

---

Explanation: Note AverageTimer32 on line 09. The Base counter type AverageBase has the Parent (composite) counter types AverageTimer32, AverageCount64.

Reference:

<http://msdn.microsoft.com/en-us/library/system.diagnostics.performancecountertype.aspx>

---

### Question: 64

---

You are developing an application that will transmit large amounts of data between a client computer and a server. You need to ensure the validity of the data by using a cryptographic hashing algorithm. Which algorithm should you use?

- A. ECDsa
- B. RNGCryptoServiceProvider
- C. Rfc2898DeriveBytes
- D. HMACSHA512

---

**Answer: D**

---

The HMACSHA512 class computes a Hash-based Message Authentication Code (HMAC) using the SHA512 hash function.

Reference:

[https://msdn.microsoft.com/en-us/library/system.security.cryptography.hmacsha512\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.security.cryptography.hmacsha512(v=vs.110).aspx)

---

### **Question: 65**

---

You are developing an application by using C#.

The application includes an object that performs a long running process.

You need to ensure that the garbage collector does not release the object's resources until the process completes.

Which garbage collector method should you use?

- A. WaitForFullGCComplete()
- B. SuppressFinalize()
- C. collect()
- D. RemoveMemoryPressure()

---

**Answer: B**

---

You can use the SuppressFinalize method in a resource class to prevent a redundant garbage collection from being called.

Reference:

GC.SuppressFinalize Method (Object)

[https://msdn.microsoft.com/en-us/library/system.gc.suppressfinalize\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.gc.suppressfinalize(v=vs.110).aspx)

---

### **Question: 66**

---

You are implementing a method named FloorTemperature that performs conversions between value types and reference types. The following code segment implements the method. (Line numbers are included for reference only.)

```
01 public static void FloorTemperature(float degrees)
02 {
03     object degreesRef = degrees;
04
05     Console.WriteLine(result);
06 }
```

You need to ensure that the application does not throw exceptions on invalid conversions.

Which code segment should you insert at line 04?

- A. int result = (int)degreesRef;
- B. int result = (int)(double)degreesRef;
- C. int result = degreesRef;
- D. int result = (int)(float)degreesRef;

---

**Answer: D**

---

---

### **Question: 67**

---

You are developing an application by using C#.

The application includes an object that performs a long running process.

You need to ensure that the garbage collector does not release the object's resources until the process completes.

Which garbage collector method should you use?

- A. WaitForFullGCComplete()

- B. SuppressFinalize()
- C. WaitForFullGCApproach()
- D. WaitForPendingFinalizers()

---

**Answer: B**

---

You can use the SuppressFinalize method in a resource class to prevent a redundant garbage collection from being called.

Reference:

GC.SuppressFinalize Method (Object)

[https://msdn.microsoft.com/en-us/library/system.gc.suppressfinalize\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.gc.suppressfinalize(v=vs.110).aspx)

---

**Question: 68**

---

DRAG DROP

You are developing an application that implements a set of custom exception types. You declare the custom exception types by using the following code segments:

```
public class ContosoException : System.Exception { ... }  
public class ContosoDbException : ContosoException { ... }  
public class ContosoValidationException : ContosoException { ... }
```

The application includes a function named DoWork that throws .NET Framework exceptions and custom exceptions. The application contains only the following logging methods:

```
static void Log(Exception ex) { ... }  
static void Log(ContosoException ex) { ... }  
static void Log(ContosoValidationException ex) { ... }
```

The application must meet the following requirements:

When ContosoValidationException exceptions are caught, log the information by using the static void Log(ContosoValidationException ex) method.

When ContosoDbException or other ContosoException exceptions are caught, log the information by using the static void Log(ContosoException ex) method.

You need to meet the requirements.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area.)

- a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```
(ContosoValidationException ex)
(ContosoException ex)
(Exception ex)
(ContosoDbException ex)
```

```
try
{
    DoWork();
}
catch [REDACTED]
{
    Log(ex);
}
catch [REDACTED]
{
    Log(ex);
}
catch [REDACTED]
{
    Log(ex);
}
```

---

**Answer:**

---

```
try
{
    DoWork();
}
catch [REDACTED] (ContosoValidationException ex)
{
    Log(ex);
}
catch [REDACTED] (ContosoException ex)
{
    Log(ex);
}
catch [REDACTED] (Exception ex)
{
    Log(ex);
}
```

Explanation: Catch the most specific exception first.

---

**Question: 69**

You are developing an application that uses structured exception handling. The application includes a class named Logger. The Logger class implements a method named Log by using the following code segment:

```
public static void Log(Exception ex) {}
```

You have the following requirements:

Log all exceptions by using the Log() method of the Logger class.

Rethrow the original exception, including the entire exception stack.

You need to meet the requirements. Which code segment should you use?

```

A. catch
{
    var ex = new Exception();
    throw ex;
}

B. catch (Exception ex)
{
    Logger.Log(ex);
    throw ex;
}

C. catch
{
    Logger.Log(new Exception());
    throw;
}

D. catch (Exception ex)
{
    Logger.Log(ex);
    throw;
}

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: D**

---

### Question: 70

---

#### DRAG DROP

You are developing an application that will include a method named GetData

- The GetData() method will retrieve several lines of data from a web service by using a System.IO.StreamReader object.

You have the following requirements:

The GetData() method must return a string value that contains the entire response from the web service.

The application must remain responsive while the GetData() method runs.

You need to implement the GetData() method.

How should you complete the relevant code? (To answer, drag the appropriate objects to the correct locations in the answer area. Each object may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

Box 1. ReadLineAsync();  
 Box 2. ReadToEndAsync();  
 Box 3. await  
 Box 4. async  
 Box 5. ReadLine();  
 Box 6. ReadToEnd();  
 Box 7. ToString();

```
public [ ] void GetData(WebResponse response)
{
    string urlText;
    var sr = new StreamReader(response.GetResponseStream());
    urlText = [ ] await sr.[ ]
```

**Answer:**

```
public [ ] void GetData(WebResponse response)
{
    string urlText;
    var sr = new StreamReader(response.GetResponseStream());
    urlText = [ ] await [ ].[ ]
```

Box

1.

async

Box

2.

await

Box 3. ReadLineAsync();

Incorrect:

Not Box 3: ReadToEndAsync() is not correct since only the first line of the response is required.

**Question: 71**

You are developing an application that includes a class named BookTracker for tracking library books. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 public delegate void AddBookCallback(int i);
02 public class BookTracker
03 {
04     List<Book> books = new List<Book>();
05     public void AddBook(string name, AddBookCallback callback)
06     {
07         books.Add(new Book(name));
08         callback(books.Count);
09     }
10 }
11
12 public class Book
13 {
14
15     BookTracker tracker = new BookTracker();
16     public void Add(string name)
17     {
18
19     }
20 }
```

You need to add a book to the BookTracker instance.

What should you do?

- A. Insert the following code segment at line 18:

```
tracker.AddBook(name, delegate(int i)
{
    ...
});
```

- B. Insert the following code segment at line 11:

```
delegatevoid AddBookDelegate(string name, AddBookCallback callback);
```

Insert the following code segment at line 18:

```
AddBookDelegate adder = (i, callback) =>
{
    ...
};
```

- C. Insert the following code segment at line 11:

```
delegatevoid AddBookDelegate(BookTracker bookTracker);
```

Insert the following code segment at line 18:

```
AddBookDelegate addDelegate = (bookTracker) =>
{
    ...
};
addDelegate(tracker);
```

- D. Insert the following code segment at line 14:

```
private static void PrintBookCount(int i)
{
    ...
}
```

Insert the following code segment at line 18:

```
AddBookCallback callback = PrintBookCount;
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

**Question: 72**

---

You use the Task.Run() method to launch a long-running data processing operation. The data processing operation often fails in times of heavy network congestion.

If the data processing operation fails, a second operation must clean up any results of the first operation.

You need to ensure that the second operation is invoked only if the data processing operation throws an unhandled exception.

What should you do?

- A. Create a task within the operation, and set the Task.StartOnException property to true.
- B. Create a TaskFactory object and call the ContinueWhenAll() method of the object.
- C. Create a task by calling the Task.ContinueWith() method.
- D. Use the TaskScheduler class to create a task and call the TryExecuteTask() method on the class.

---

**Answer: C**

---

Explanation:

Task.ContinueWith - Creates a continuation that executes asynchronously when the target Task completes. The returned Task will not be scheduled for execution until the current task has completed, whether it completes due to running to completion successfully, faulting due to an unhandled exception, or exiting out early due to being canceled.

<http://msdn.microsoft.com/en-us/library/dd270696.aspx>

---

### **Question: 73**

---

You are developing an application by using C#. You provide a public key to the development team during development.

You need to specify that the assembly is not fully signed when it is built.

Which two assembly attributes should you include in the source code? (Each correct answer presents part of the solution. Choose two.)

- A. AssemblyFlagsAttribute
- B. AssemblyKeyFileAttribute
- C. AssemblyConfigurationAttribute
- D. AssemblyDelaySignAttribute

---

**Answer: B, D**

---

Explanation:

\* AssemblyDelaySignAttribute

Specifies that the assembly is not fully signed when created.

\* The following code example shows the use of the AssemblyDelaySignAttribute attribute with the AssemblyKeyFileAttribute.

```
using System;
using System.Reflection;
[assembly:AssemblyKeyFileAttribute("TestPublicKey.snk")]
[assembly:AssemblyDelaySignAttribute(true)]
namespace DelaySign
{
    public class Test { }
}
```

Reference:

[http://msdn.microsoft.com/en-us/library/t07a3dye\(v=vs.110\).aspx](http://msdn.microsoft.com/en-us/library/t07a3dye(v=vs.110).aspx)

---

### **Question: 74**

---

You are developing an application that will transmit large amounts of data between a client computer and a server. You need to ensure the validity of the data by using a cryptographic hashing algorithm. Which algorithm should you use?

- A. RSA
- B. HMACSHA256
- C. Aes
- D. RNGCryptoServiceProvider

---

**Answer: B**

---

The HMACSHA256 class computes a Hash-based Message Authentication Code (HMAC) by using the SHA256 hash function.

Reference:

[https://msdn.microsoft.com/en-us/library/system.security.cryptography.hmacsha256\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.security.cryptography.hmacsha256(v=vs.110).aspx)

---

### **Question: 75**

---

You are developing an application that uses the Microsoft ADO.NET Entity Framework to retrieve order information from a Microsoft SQL Server database. The application includes the following code. (Line numbers are included for reference only.)

```
01 public DateTime? OrderDate;
02 IQueryable<Order> LookupOrdersForYear(int year)
03 {
04     using (var context = new NorthwindEntities())
05     {
06         var orders =
07             from order in context.Orders
08
09             select order;
10     return orders.ToList().AsQueryable();
11 }
12 }
```

The application must meet the following requirements:

Return only orders that have an OrderDate value other than null.

Return only orders that were placed in the year specified in the year parameter.

You need to ensure that the application meets the requirements. Which code segment should you insert at line 08?

- A. `where order.OrderDate.Value.Year == year`
  - B. `where order.OrderDate.HasValue && order.OrderDate.Value.Year == year`
  - C. `where order.OrderDate.Value != null && order.OrderDate.Value.Year >= year`
  - D. `where order.OrderDate.Value == null && order.OrderDate.Value.Year == year`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

**Answer: B**

---

### Question: 76

---

You are creating an application that manages information about your company's products. The application includes a class named Product and a method named Save.

The Save() method must be strongly typed. It must allow only types inherited from the Product class that use a constructor that accepts no parameters.

You need to implement the Save() method.

Which code segment should you use?

- A. `public static void Save(Product target)  
{  
 ...  
}`
- B. `public static void Save<T>(T target) where T : Product  
{  
 ...  
}`
- C. `public static void Save<T>(T target) where T : new()  
{  
 ...  
}`
- D. `public static void Save<T>(T target) where T : Product, new()  
{  
 ...  
}`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: D**

---

**Explanation:**

The condition new() ensures the empty/default constructor and must be the last condition.

When you define a generic class, you can apply restrictions to the kinds of types that client code can use for type arguments when it instantiates your class. If client code tries to instantiate your class by using a type that is not allowed by a constraint, the result is a compile-time error. These restrictions are called constraints.

Constraints are specified by using the where contextual keyword.

<http://msdn.microsoft.com/en-us/library/d5x73970.aspx>

---

**Question: 77**

---

You are creating a class named Employee. The class exposes a string property named EmployeeType. The following code segment defines the Employee class. (Line numbers are included for reference only.)

```
01 public class Employee
02 {
03     internal string EmployeeType
04     {
05         get;
06         set;
07     }
08 }
```

The EmployeeType property value must meet the following requirements:

The value must be accessed only by code within the Employee class or within a class derived from the Employee class.

The value must be modified only by code within the Employee class.

You need to ensure that the implementation of the EmployeeType property meets the requirements.

Which two actions should you perform? (Each correct answer represents part of the complete solution. Choose two.)

- A. Replace line 03 with the following code segment:

public string EmployeeType

- B. Replace line 06 with the following code segment:

protected set;

- C. Replace line 05 with the following code segment:

private get;

- D. Replace line 05 with the following code segment:

protected get;

- E. Replace line 03 with the following code segment:

protected string EmployeeType

- F. Replace line 06 with the following code segment:

private set;

---

**Answer: E, F**

---

**Incorrect:**

Not D: Cannot be used because of the internal keyword on line 03.

---

### **Question: 78**

---

You are developing an application by using C#.

The application includes an object that performs a long running process.

You need to ensure that the garbage collector does not release the object's resources until the process completes.

Which garbage collector method should you use?

- A. RemoveMemoryPressure()
- B. ReRegisterForFinalize()
- C. WaitForFullGCComplete()
- D. KeepAlive()

---

**Answer: D**

---

The purpose of the KeepAlive method is to ensure the existence of a reference to an object that is at risk of being prematurely reclaimed by the garbage collector.

Reference:

GC.KeepAlive Method (Object)

[https://msdn.microsoft.com/en-us/library/system.gc.keepalive\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.gc.keepalive(v=vs.110).aspx)

---

### **Question: 79**

---

You are developing an application that will transmit large amounts of data between a client computer and a server.

You need to ensure the validity of the data by using a cryptographic hashing algorithm. Which algorithm should you use?

- A. RSA
- B. Aes
- C. HMACSHA256
- D. DES

---

**Answer: C**

---

---

### **Question: 80**

---

DRAG DROP

You are developing an application by using C#. The application will process several objects per second.

You need to create a performance counter to analyze the object processing.

Which three actions should you perform in sequence? (To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.)

Add the **PerformanceCounterPermissionEntry** objects to the collection by calling the **Add()** method of the collection.

Add the **CounterCreationData** objects to the collection by calling the **Add()** method of the collection.

Create a **CounterCreationDataCollection** collection. Then create the counters as **CounterCreationData** objects and set the necessary properties.

Create a **PerformanceCounterPermissionEntryCollection** collection.

Call the **Create()** method of the **PerformanceCounterCategory** class and pass the collection to the method.

Get the **CategoryName** property of the **PerformanceCounterPermissionEntry** class.

## Answer:

Box 1:

Create a **CounterCreationDataCollection** collection. Then create the counters as **CounterCreationData** objects and set the necessary properties.

Box 2:

Add the **CounterCreationData** objects to the collection by calling the **Add()** method of the collection.

Box 3:

Call the **Create()** method of the **PerformanceCounterCategory** class and pass the collection to the method.

Note:

: Example:

```
CounterCreationDataCollection counterDataCollection = new CounterCreationDataCollection(); // Box1
```

```
// Add the counter. Box 1
CounterCreationData averageCount64 = new CounterCreationData();
averageCount64.CounterType = PerformanceCounterType.AverageCount64;
averageCount64.CounterName = "AverageCounter64Sample";
counterDataCollection.Add(averageCount64);

// Add the base counter.
CounterCreationData averageCount64Base = new CounterCreationData();
averageCount64Base.CounterType = PerformanceCounterType.AverageBase;
averageCount64Base.CounterName = "AverageCounter64SampleBase";
counterDataCollection.Add(averageCount64Base); // Box 2
// Create the category. Box 3
PerformanceCounterCategory.Create("AverageCounter64SampleCategory",
    "Demonstrates usage of the AverageCounter64 performance counter type.",
    PerformanceCounterCategoryType.SingleInstance, counterDataCollection);
```

---

### **Question: 81**

You are developing an application. The application calls a method that returns an array of integers named `customerIds`. You define an integer variable named `customerIdToRemove` and assign a value to it. You declare an array named `filteredCustomerIds`.

You have the following requirements.

Remove duplicate integers from the `customerIds` array.

Sort the array in order from the highest value to the lowest value.

Remove the integer value stored in the `customerIdToRemove` variable from the `customerIds` array.

You need to create a LINQ query to meet the requirements.

Which code segment should you use?

- A. `int[] filteredCustomerIds = customerIds.Distinct().OrderByDescending(x => x).ToArray();`
  
  - B. `int[] filteredCustomerIds = customerIds.Where(value => value != customerIdToRemove).OrderByDescending(x => x).ToArray();`
  
  - C. `int[] filteredCustomerIds = customerIds.Distinct().Where(value => value != customerIdToRemove).OrderByDescending(x => x).ToArray();`
  
  - D. `int[] filteredCustomerIds = customerIds.Where(value => value != customerIdToRemove).OrderBy(x => x).ToArray();`
- 
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

### **Answer: C**

The `Distinct` keyword avoids duplicates, and `OrderByDescending` provides the proper ordering from highest to lowest.

---

### **Question: 82**

---

You are developing an application that will transmit large amounts of data between a client computer and a server. You need to ensure the validity of the data by using a cryptographic hashing algorithm. Which algorithm should you use?

- A. DES
- B. HMACSHA512
- C. RNGCryptoServiceProvider
- D. ECDsa

---

### **Answer: B**

---

The HMACSHA512 class computes a Hash-based Message Authentication Code (HMAC) using the SHA512 hash function.

Reference:

[https://msdn.microsoft.com/en-us/library/system.security.cryptography.hmacsha512\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.security.cryptography.hmacsha512(v=vs.110).aspx)

---

### **Question: 83**

---

You are developing a C# application that includes a class named Product. The following code segment defines the Product class:

```
public class Product
{
    public int Id { get; set; }
    public int CategoryId { get; set; }
    public string Name { get; set; }
    public bool IsValid { get; set; }
}
```

You implement System.ComponentModel.DataAnnotations.IValidateableObject interface to provide a way to validate the Product object.

The Product object has the following requirements:

The Id property must have a value greater than zero.

The Name property must have a value other than empty or null.

You need to validate the Product object. Which code segment should you use?

```

A. public bool Validate()
{
    IsValid = Id > 0 || !string.IsNullOrEmpty(Name);
    return IsValid;
}

B. public IEnumerable<ValidationResult> Validate(ValidationContext validationContext)
{
    if (Id <= 0)
        yield return new ValidationResult("Product Id is required.", new[] { "Id" });
    if (string.IsNullOrEmpty(Name))
        yield return new ValidationResult("Product Name is required.", new[] { "Name" });
}

C. public bool Equals(Product productToValidate)
{
    productToValidate.IsValid = productToValidate.Id > 0 || !string.IsNullOrEmpty(productToValidate.Name);
    return productToValidate.IsValid;
}

D. public ValidationResult Validate()
{
    ValidationResult validationResult = null;
    if (Id <= 0)
    {
        validationResult = new ValidationResult("Product Id is required.");
    }
    if (string.IsNullOrEmpty(Name))
    {
        validationResult = new ValidationResult("Product Name is required.");
    }
    return validationResult;
}

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: B**

---

### Question: 84

---

DRAG DROP

You have the following class:

```

public class Class1 : IEquatable<Class1>
{
    public Int32 ID { get; set; }
    public String Name { get; set; }
    public bool Equals(Class1 other)
    {
    }
}

```

You need to implement IEquatable. The Equals method must return true if both ID and Name are set to the identical values. Otherwise, the method must return false. Equals must not throw an exception.

What should you do? (Develop the solution by selecting and ordering the required code snippets. You may not need all of the code snippets.)

```
if (!Object.Equals  
    (this.Name, other.Name)) return false;
```

```
if (this.ID == other.ID) return false;
```

```
return false;
```

```
return true;
```

```
if (other == null) return false;
```

```
break
```

```
if (this.ID != other.ID) return false;
```

```
if (!this.Name.Equals  
    (other.Name)) return false;
```

---

### **Answer:**

---

Box 1:

```
if (other == null) return false;
```

Box 2:

```
if (this.ID != other.ID) return false;
```

Box 3:

```
if (!this.Name.Equals  
    (other.Name)) return false;
```

Explanation:

In Box 3 we must use Name.Equals, not Object.Equals, to properly compare two strings.

Incorrect:

Not Box 3: Object.Equals (obj, obj) compares the REFERENCE (true if they point to same object). Two strings, even having the same value will never have the same reference. So it is not applicable here.

---

### **Question: 85**

---

HOTSPOT

You are reviewing the following code:

```
[System.FlagsAttribute()]
public enum Group
{
    Users = 1,
    Supervisors = 2,
    Managers = 4,
    Administrators = 8
}
public class User
{
    public Group UserGroup { get; set; }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

Yes	No
-----	----

A user can be a member of more than one of the groups.



If the user belongs to only the Administrators group, the following code will return a value of true:

```
user.UserGroup == Group.Administrators
```



If the user belongs to only the Supervisors group, the following code will return a value of true:

```
user.UserGroup &lt; Group.Administrators
```




---

**Answer:**

---

Yes	No
-----	----

A user can be a member of more than one of the groups.



If the user belongs to only the Administrators group, the following code will return a value of true:

```
user.UserGroup == Group.Administrators
```



If the user belongs to only the Supervisors group, the following code will return a value of true:

```
user.UserGroup &lt; Group.Administrators
```



- 1) Yes, because Group is enum with FlagAttribute
- 2) Yes, because only Administrator = 8 and 8 == 8 is true
- 3) Yes, because only Supervisor = 2 and 2 < 8 is true

---

**Question: 86**

---

HOTSPOT

You have the following code:

```

private static Dictionary<string, int> CreateTestData()
{
    Dictionary<string, int> dict = new Dictionary<string, int>()
    {
        {"Accounting", 1},
        {"Marketing", 2},
        {"Operations", 3}
    };
    return dict;
}
private static bool? FindInList(string searchTerm)
{
    Dictionary<string, int> data = CreateTestData();

    if (data.ContainsKey(searchTerm))
    {
        return true;
    }
    else
    {
        return false;
    }
}

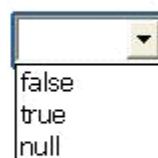
```

To answer, complete each statement according to the information presented in the code.

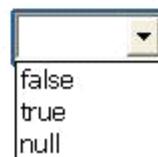
If the search term is set to "Finance", the result will be ...



If the search term is set to "1", the result will be ...



If the search term is set to "Operations", the result will be ...




---

**Answer:**

---

If the search term is set to "Finance", the result will be ...

false  
true  
null

If the search term is set to "1", the result will be ...

false  
true  
null

If the search term is set to "Operations", the result will be ...

false  
true  
null

## Question: 87

HOTSPOT

You have the following code:

```
[DataContract(Name="Individual")]
public class Individual
{
    private string m_FirstName;
    private string m_LastName;

    [DataMember]
    public string FirstName
    {
        get { return m_FirstName; }
        set { m_FirstName = value; }
    }

    [DataMember(EmitDefaultValue=false)]
    public string LastName
    {
        get { return m_LastName; }
        set { m_LastName = value; }
    }

    public Individual()
    {
    }

    public Individual(string firstName, string lastName)
    {
        m_FirstName = firstName;
        m_LastName = lastName;
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

- | Yes                   | No                               |
|-----------------------|----------------------------------|
| <input type="radio"/> | <input type="radio"/>            |
| <input type="radio"/> | <input type="radio"/>            |
| <input type="radio"/> | <input checked="" type="radio"/> |
- LastName will be serialized after firstName.
- The namespace used in the serialized XML will be Individual.
- The lastName node will always appear in the serialized XML.

---

**Answer:**

---

- | Yes                              | No                               |
|----------------------------------|----------------------------------|
| <input checked="" type="radio"/> | <input type="radio"/>            |
| <input type="radio"/>            | <input checked="" type="radio"/> |
| <input type="radio"/>            | <input checked="" type="radio"/> |
- LastName will be serialized after firstName.
- The namespace used in the serialized XML will be Individual.
- The lastName node will always appear in the serialized XML.

**Note:**

- \* The System.Runtime.Serialization namespace contains classes that can be used for serializing and deserializing objects. Serialization is the process of converting an object or a graph of objects into a linear sequence of bytes for either storage or transmission to another location. Deserialization is the process of taking in stored information and recreating objects from it.

- \* **EmitDefaultValue**

**DataMemberAttribute.EmitDefaultValue Property**

Gets or sets a value that specifies whether to serialize the default value for a field or property being serialized. true if the default value for a member should be generated in the serialization stream; otherwise, false.

---

**Question: 88**

---

**DRAG DROP**

You have a method named GetCustomerIDs that returns a list of integers. Each entry in the list represents a customer ID that is retrieved from a list named Customers. The Customers list contains 1,000 rows.

Another developer creates a method named ValidateCustomer that accepts an integer parameter and returns a Boolean value. ValidateCustomer returns true if the integer provided references a valid customer. ValidateCustomer can take up to one second to run.

You need to create a method that returns a list of valid customer IDs. The code must execute in the shortest amount of time.

What should you do? (Develop the solution by selecting and ordering the required code snippets. You may not need all of the code snippets.)

```

public List<Int32> GetValidCustomers()
{
    Task<List<Int32>> validCustomers =
        (from c in customers
         where ValidateCustomer(c)
         select c).ToList();

    return validCustomers;
}

(from c in customers
where ValidateCustomer(c)
select c).AsParallel().ToList();

public async Task<List<Int32>> GetValidCustomers()

(from c in customers.AsParallel()
where ValidateCustomer(c)
select c).ToList();

List<Int32> validCustomers =

```

---

Answer:

Box 1:

```
public List<Int32> GetValidCustomers()
{
```

Box 2:

```
List<Int32> validCustomers =
```

Box 3:

```
(from c in customers.AsParallel()
where ValidateCustomer(c)
select c).ToList();
```

Box 4:

```
return validCustomers;
}
```

Note:

\* ParallelEnumerable.AsParallel Method

Enables parallelization of a query.

/ We parallelize the execution of the ValidateCustomer instances.

---

### **Question: 89**

You are creating a class named Game.

The Game class must meet the following requirements:

Include a member that represents the score for a Game instance.

Allow external code to assign a value to the score member.

Restrict the range of values that can be assigned to the score member.

You need to implement the score member to meet the requirements.

In which form should you implement the score member?

- A. protected field
- B. public static field
- C. public static property
- D. public property

---

### **Answer: D**

For a public the type or member can be accessed by any other code in the same assembly or another assembly that references it.

Reference:

Access Modifiers (C# Programming Guide)

<https://msdn.microsoft.com/en-us/library/ms173121.aspx>

---

### **Question: 90**

You have a List object that is generated by executing the following code:

```
List<string> departments = new List<string>()
{
    "Accounting", "Marketing", "Sales", "Manufacturing", "Information Systems", "Training"
};
```

You have a method that contains the following code (line numbers are included for reference only):

```
01  private bool GetMatches(List<string> departments, string searchTerm)
02  {
03      var findDepartment = departments.Exists((delegate(string deptName)
04      {
05          return deptName.Equals(searchTerm);
06      }
07  )));
08      return findDepartment;
09  }
```

You need to alter the method to use a lambda statement.

How should you rewrite lines 03 through 06 of the method?

- A. `var findDepartment = departments.First(x => x == searchTerm);`
  - B. `var findDepartment = departments.Where(x => x == searchTerm);`
  - C. `var findDepartment = departments.Exists(x => x.Equals(searchTerm));`
  - D. `var findDepartment = departments.Where(x => x.Equals(searchTerm));`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

**Answer: C**

---

This returns a bool and will work fine.

Incorrect:

Not A: This returns a string.

Not B, not D: These return IEnumerable.

---

### Question: 91

---

You are developing code for a class named Account. The Account class includes the following method:

```
public void Deposit(int dollars, int cents)
{
    int totalCents = cents + this.cents;
    int extraDollars = totalCents / 100;
    this.cents = totalCents - 100 * extraCents;
    this.dollars += dollars + extraDollars;
}
```

You need to ensure that overflow exceptions are thrown when there is an error.

Which type of block should you use?

- A. checked
- B. try
- C. using
- D. unchecked

---

**Answer: A**

---

C# statements can execute in either checked or unchecked context. In a checked context, arithmetic overflow raises an exception. In an unchecked context, arithmetic overflow is ignored and the result is truncated.

checked Specify checked context.

unchecked Specify unchecked context.

Reference:

Checked and Unchecked (C# Reference)

<https://msdn.microsoft.com/en-us/library/khy08726.aspx>

---

### **Question: 92**

---

You are developing an application that uses a .config file.  
The relevant portion of the .config file is shown as follows:

```
<system.diagnostics>
  <trace autoflush="false" indentsize="0">
    <listeners>
      <add name="appListener"
        type="System.Diagnostics.EventLogTraceListener"
        initializeData="TraceListenerLog" />
    </listeners>
  </trace>
</system.diagnostics>
```

You need to ensure that diagnostic data for the application writes to the event log by using the configuration specified in the .config file.

What should you include in the application code?

- A. `EventLog log = new EventLog();  
log.WriteEntry("Trace data...");`
  - B. `Debug.WriteLine("Trace data...");`
  - C. `Console.SetOut(new StreamWriter("System.Diagnostics.EventLogTraceListener"));  
Console.WriteLine("Trace data...");`
  - D. `Trace.WriteLine("Trace data...");`
- 
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

**Answer: D**

---

Incorrect:

Not B: There is only a “TraceListener” defined in the config file. In fact, there is no “eventlogDebugListener” class.

---

### **Question: 93**

---

You have the following code (line numbers are included for reference only):

```

01class Bar
02{
03    public string barColor { get; set; }
04    public string barName { get; set; }
05    private static IEnumerable<Bar> GetBars(string sqlConnectionString)
06    {
07        var bars = new List<Bar>();
08        SqlConnection fooSqlConn = new SqlConnection();
09        using (fooSqlConn)
10        {
11            SqlCommand fooSqlCmd = new SqlCommand
12                ("Select sqlName,sqlColor from Animals", fooSqlConn);
13            fooSqlConn.Open();
14            using (SqlDataReader fooSqlReader = fooSqlCmd.ExecuteReader())
15            {
16                while (fooSqlReader.Read())
17                {
18                    var bar = new Bar();
19                    bar.barName = (String)fooSqlReader["sqlName"];
20                    bar.barColor = (String)fooSqlReader["sqlColor"];
21                    bars.Add(bar);
22                }
23            }
24        }
25    }
26}

```

You need to identify the missing line of code at line 15. Which line of code should you identify?

- A. using (fooSqlConn.BeginTransaction())
- B. while (fooSqlReader.Read())
- C. while (fooSqlReader.NextResult())
- D. while (fooSqlReader.GetBoolean(0))

---

**Answer: B**

---

The SqlDataReader.Read method advances the SqlDataReader to the next record.

Example:

```

SqlCommand command =
    new SqlCommand(queryString, connection);
connection.Open();
SqlDataReader reader = command.ExecuteReader();
// Call Read before accessing data.
while (reader.Read())
{
    ReadSingleRow((IDataRecord)reader);
}
// Call Close when done reading.
reader.Close();
}

```

Reference:

SqlDataReader.Read Method ()

[https://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqldatareader.read\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.data.sqlclient.sqldatareader.read(v=vs.110).aspx)

## Question: 94

HOTSPOT

You are developing an application in C#.

The application will display the temperature and the time at which the temperature was recorded. You have the following method (line numbers are included for reference only):

```
01 public void DisplayTemperature(DateTime date, double temp)
02 {
03     string output;
04
05     string lblMessage = output;
06 }
```

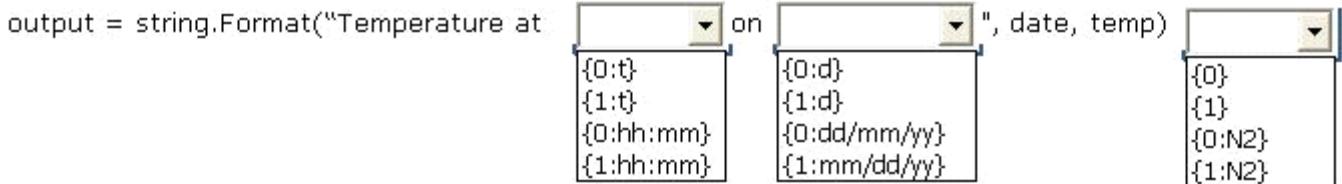
You need to ensure that the message displayed in the `lblMessage` object shows the time formatted according to the following requirements:

The time must be formatted as hour:minute AM/PM, for example 2:00 PM.

The date must be formatted as month/day/year, for example 04/21/2013.

The temperature must be formatted to have two decimal places, for example 23.45.

Which code should you insert at line 04? (To answer, select the appropriate options in the answer area.)



## Answer:

```
output = string.Format("Temperature at {0:t} on {1:d} ", date, temp)
```

The dropdown menus are circled in red. The first dropdown has {0:t} circled. The second dropdown has {1:d} circled. The third dropdown has {1:N2} circled.

{0:t}  
{1:d}  
{1:N2}

## Question: 95

HOTSPOT

You are developing an application that includes a Windows Communication Foundation (WCF) service. The service includes a custom `TraceSource` object named `ts` and a method named `DoWork`. The application must meet the following requirements:

Collect trace information when the `DoWork()` method executes.

Group all traces for a single execution of the `DoWork()` method as an activity that can be viewed in the WCF Service Trace Viewer Tool.

You need to ensure that the application meets the requirements.

How should you complete the relevant code? (To answer, select the correct code segment from each drop-down list in the answer area.)

```
static TraceSource ts = new TraceSource("Contoso",
[REDACTED]
);
public void DoWork()
{
    var originalId = Trace.CorrelationManager.ActivityId;
    try
    {
        var guid = Guid.NewGuid();
[REDACTED]
        Trace.CorrelationManager.ActivityId = guid;
[REDACTED]
    }
    finally
    {
        [REDACTED]
        [REDACTED]
        Trace.CorrelationManager.ActivityId = originalId;
    }
}
```

```

static TraceSource ts = new TraceSource("Contoso",
    SourceLevels.ActivityTracing
    | SourceLevels.Information
    | SourceLevels.Verbose
    | SourceLevels.Critical
);

public void DoWork()
{
    var originalId = Trace.CorrelationManager.ActivityId;
    try
    {
        var guid = Guid.NewGuid();

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceEvent(TraceEventType.Start, 0, "Start");
        ts.TraceTransfer(1, "Changing Activity", originalId);
        ts.TraceInformation("Start");

        Trace.CorrelationManager.ActivityId = guid;

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceEvent(TraceEventType.Start, 0, "Start");
        ts.TraceTransfer(1, "Changing Activity", originalId);
        ts.TraceInformation("Start");

    }
    finally
    {
        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceTransfer(1, "Changing Activity", originalId);
        ts.TraceInformation("Stop");

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceEvent(TraceEventType.Stop, 0, "Stop");
        ts.TraceInformation("Stop");

        Trace.CorrelationManager.ActivityId = originalId;
    }
}

```

---

Answer:

```

static TraceSource ts = new TraceSource("Contoso",
    SourceLevels.ActivityTracing
    | SourceLevels.Information
    | SourceLevels.Verbose
    | SourceLevels.Critical
);

public void DoWork()
{
    var originalId = Trace.CorrelationManager.ActivityId;
    try
    {
        var guid = Guid.NewGuid();

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceEvent(TraceEventType.Start, 0, "Start");
        ts.TraceTransfer(1, "Changing Activity", originalId);
        ts.TraceInformation("Start");

        Trace.CorrelationManager.ActivityId = guid;

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceEvent(TraceEventType.Start, 0, "Start");
        ts.TraceTransfer(1, "Changing Activity", originalId);
        ts.TraceInformation("Start");

    }
    finally
    {

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceTransfer(1, "Changing Activity", originalId);
        ts.TraceInformation("Stop");

        ts.TraceTransfer(1, "Changing Activity", guid);
        ts.TraceEvent(TraceEventType.Stop, 0, "Stop");
        ts.TraceInformation("Stop");

        Trace.CorrelationManager.ActivityId = originalId;
    }
}

```

Activities are logical unit of processing. You can create one activity for each major processing unit in which you want traces to be grouped together. For example, you can create one activity for each request to the service. To do so, perform the following steps.

Save the activity ID in scope.

Create a new activity ID.

Transfer from the activity in scope to the new one, set the new activity in scope and emit a start trace for that activity.

The following code demonstrates how to do this.

```

Guid oldID = Trace.CorrelationManager.ActivityId;
Guid traceID = Guid.NewGuid();
ts.TraceTransfer(0, "transfer", traceID);
Trace.CorrelationManager.ActivityId = traceID; // Trace is static
ts.TraceEvent(TraceEventType.Start, 0, "Add request");

```

Reference:

Emitting User-Code Traces

[https://msdn.microsoft.com/en-us/library/aa738759\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/aa738759(v=vs.110).aspx)

### Question: 96

DRAG DROP

You are developing a class named Temperature.

You need to ensure that collections of Temperature objects are sortable.

How should you complete the relevant code segment? (To answer, drag the appropriate code segments to the correct locations in the answer area.)

a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```
public class Temperature : IComparable  
public class Temperature : IComparer  
CompareTo  
Equals  
this.Fahrenheit.CompareTo(otherTemperature.Fahrenheit);  
otherTemperature.Fahrenheit.CompareTo(this.Fahrenheit);
```

```
{  
    public double Fahrenheit { get; set; }  
    public int CompareTo  
        (object obj)  
    {  
        if (obj == null) return 1;  
        var otherTemperature = obj as Temperature;  
        if (otherTemperature != null)  
            return  
        throw new ArgumentException("Object is not a Temperature");  
    }  
}
```

---

Answer:

---

```

public class Temperature : IComparable
{
    public double Fahrenheit { get; set; }

    public int CompareTo
        (object obj)
    {
        if (obj == null) return 1;
        var otherTemperature = obj as Temperature;
        if(otherTemperature != null)

            return this.Fahrenheit.CompareTo(otherTemperature.Fahrenheit);
        throw new ArgumentException("Object is not a Temperature");
    }
}

```

**Question: 97****DRAG DROP**

You are developing an application that will populate an extensive XML tree from a Microsoft SQL Server 2008 R2 database table named Contacts.

You are creating the XML tree. The solution must meet the following requirements:

Minimize memory requirements.

Maximize data processing speed.

You open the database connection. You need to create the XML tree.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area)

```

 XElement root = new XElement
 ("{ContactList}contacts", "content");

 XNamespace ew = "ContactList";
 XElement root = new XElement(ew + "Root");

 XAttribute contacts =
 new XAttribute("contacts",

```

```

 XElement contacts =
 new XElement("contacts",

```

```
Console.WriteLine(root);
```

```

from c in db.Contacts
orderby c.ContactId
select new XElement("contact",
    new XAttribute("contactId", c.ContactId)
    new XElement("firstName", c.FirstName),
    new XElement("lastName", c.LastName))
);
```

---

**Answer:**

---

```

XNamespace ew = "ContactList";
 XElement root = new XElement(ew + "Root");

Console.WriteLine(root);

 XElement contacts =
new XElement("contacts",

from c in db.Contacts
orderby c.ContactId
select new XElement("contact",
    new XAttribute("contactId", c.ContactId)
    new XElement("firstName", c.FirstName),
    new XElement("lastName", c.LastName))
);

```

The second box should be XElement and not the XAttribute as contacts, as you cannot have XElement as a child of an XAttribute.

## Question: 98

### DRAG DROP

You are creating a class named Data that includes a dictionary object named \_data.

You need to allow the garbage collection process to collect the references of the \_data object.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area)

```

staticDictionary<int, WeakReference> _data;
staticDictionary<int, Int32> _data;
_data.Add(i, new WeakReference(new Class(i * 2), false));
_data.Add(i, (Int32)(i * 2));

```

```

public class Data
{
    public Data(int count)
    {
        for (int i = 0; i < count; i++)
        {
        }
    }
}

```

**Answer:**

```

public class Data
{
    staticDictionary<int, WeakReference> _data;

    public Data(int count)
    {
        for (int i = 0; i < count; i++)
        {
            _data.Add(i, new WeakReference(new Class(i * 2), false));
        }
    }
}

```

**Question: 99**

You are creating a console application named App1.

App1 retrieves data from the Internet by using JavaScript Object Notation (JSON).

You are developing the following code segment (line numbers are included for reference only):

```

01 public bool ValidateJson(string json, Dictionary<string, object> result)
02 {
03
04     try
05     {
06         result = serializer.Deserialize<Dictionary<string, object>>(json);
07         return true;
08     }
09     catch
10     {
11         return false;
12     }
13 }

```

You need to ensure that the code validates the JSON string.

Which code should you insert at line 03?

- A. DataContractSerializer serializer = new DataContractSerializer();
- B. var serializer = new DataContractSerializer();
- C. XmlSerlalizer serializer = new XmlSerlalizer();
- D. var serializer = new JavaScriptSerializer();

**Answer: D**

The JavaScriptSerializer Class Provides serialization and deserialization functionality for AJAX-enabled applications. The JavaScriptSerializer class is used internally by the asynchronous communication layer to serialize and deserialize the data that is passed between the browser and the Web server. You cannot access that instance of the serializer. However, this class exposes a public API. Therefore, you can use the class when you want to work with JavaScript Object Notation (JSON) in managed code.

**Question: 100**

You are developing an application that uses several objects. The application includes the following code segment. (Line numbers are included for reference only.)

```

01 private bool IsNull(object obj)
02 {
03
04     return false;
05 }

```

You need to evaluate whether an object is null.  
Which code segment should you insert at line 03?

- A. 

```
if (obj = null)
{
    return true;
}
```
- B. 

```
if (null)
{
    return true;
}
```
- C. 

```
if (obj == 0)
{
    return true;
}
```
- D. 

```
if (obj == null)
{
    return true;
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: D**

---

Use the == operator to compare values and in this case also use the null literal.

### Question: 101

---

You are developing an application.

The application contains the following code segment (line numbers are included for reference only):

```

01 ArrayList array1 = new ArrayList();
02 int var1 = 10;
03 int var2;
04 array1.Add(var1);
05 var2 = array1[0];

```

When you run the code, you receive the following error message: "Cannot implicitly convert type 'object' to 'int'. An explicit conversion exists (are you missing a cast?)."

You need to ensure that the code can be compiled.

Which code should you use to replace line 05?

- A. var2 = array1[0] is int;
- B. var2 = ((List<int>)array1) [0];
- C. var2 = array1[0].Equals(typeof(int));
- D. var2 = (int) array1 [0];

---

**Answer: D**

---

### **Question: 102**

---

You need to write a method that retrieves data from a Microsoft Access 2013 database.

The method must meet the following requirements:

Be read-only.

Be able to use the data before the entire data set is retrieved.

Minimize the amount of system overhead and the amount of memory usage.

Which type of object should you use in the method?

- A. SqlDataAdapter
- B. DataContext
- C. DbDataAdapter
- D. OleDbDataReader

---

**Answer: D**

OleDbDataReader Class

Provides a way of reading a forward-only stream of data rows from a data source.

Example:

```
OleDbConnection cn = new OleDbConnection();
OleDbCommand cmd = new OleDbCommand();
DataTable schemaTable;
OleDbDataReader myReader;

//Open a connection to the SQL Server Northwind database.
cn.ConnectionString = "Provider=SQLOLEDB;Data Source=server;User ID=login;
    Password=password;Initial Catalog=Northwind";
```

---

### **Question: 103**

---

You have the following code:

```
List<Int32> items = new List<int>() {
    100,
    95,
    80,
    75,
    95
};
```

You need to retrieve all of the numbers from the items variable that are greater than 80.

Which code should you use?

- A. `var result = from i in items  
where i > 80  
select i;`
- B. `var result = items.Take(80);`
- C. `var result = items.First(i => i > 80);`
- D. `var result = items.Any(i => i > 80);`
- A. Option A  
B. Option B  
C. Option C  
D. Option D

---

**Answer: A**

---

### **Question: 104**

---

#### **DRAG DROP**

You are creating a method that will split a single input file into two smaller output files.

The method must perform the following actions:

Create a file named header.dat that contains the first 20 bytes of the input file.

Create a file named body.dat that contains the remainder of the input file.

You need to create the method.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area.)

- a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```

fsSource.Seek(20, SeekOrigin.Current);

byte[] body = new byte[fsSource.Length];

byte[] body = new byte[fsSource.Length - 20];

fsHeader.Write(header, 0, header.Length);

fsHeader.Write(header, 20, header.Length);

fsBody.Write(body, 0, body.Length);

fsBody.Write(body, 20, body.Length);

```

```

using (FileStream fsSource = File.OpenRead(SourceFilePath))
using (FileStream fsHeader = File.OpenWrite(HeaderFilePath))
using (FileStream fsBody = File.OpenWrite(BodyFilePath))
{
    byte[] header = new byte[20];
    fsSource.Read(header, 0, header.Length);
    byte[] body = new byte[fsSource.Length - 20];
    fsSource.Read(body, 0, body.Length);
}

```

---

**Answer:**

---

```

using (FileStream fsSource = File.OpenRead(SourceFilePath))
using (FileStream fsHeader = File.OpenWrite(HeaderFilePath))
using (FileStream fsBody = File.OpenWrite(BodyFilePath))
{
    byte[] header = new byte[20];
    byte[] body = new byte[fsSource.Length - 20];
    fsSource.Read(header, 0, header.Length);
    fsHeader.Write(header, 0, header.Length);
    fsSource.Read(body, 0, body.Length);
    fsBody.Write(body, 20, body.Length);
}

```

“offset” and “count” parameters of “Stream.Read” / “Stream.Write” methods ALWAYS refer to the array you are sending in the first parameter.

The position of fsSource advances as you read it, unless you seed on it.

---

**Question: 105**

---

**DRAG DROP**

You are adding a function to a membership tracking application. The function uses an integer named memberCode as an input parameter and returns the membership type as a string.

The function must meet the following requirements:

Return "Non-Member" if the memberCode is 0.

Return "Member" if the memberCode is 1.

Return "Invalid" if the memberCode is any value other than 0 or 1.

You need to implement the function to meet the requirements.

How should you complete the relevant code? (To answer, drag the appropriate statements to the correct locations in the answer area)

- a. Each statement may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

default  
switch  
break  
case

```
private string GetMemberType(int memberCode)
{
    string memberType;
    [ ] (memberCode)
    {
        [ ] 0:
        memberType = "Non-Member";
        [ ];
        [ ] 1:
        memberType = "Member";
        [ ];
        [ ]:
        memberType = "Invalid";
        [ ];
    }
    return memberType;
}
```

---

Answer:

---

```

private string GetMemberType(int memberCode)
{
    string memberType;
    switch (memberCode)
    {
        case 0:
            memberType = "Non-Member";
            break;
        case 1:
            memberType = "Member";
            break;
        default:
            memberType = "Invalid";
            break;
    }
    return memberType;
}

```

Example:

```

int caseSwitch = 1;
switch (caseSwitch)
{
    case 1:
        Console.WriteLine("Case 1");
        break;
    case 2:
        Console.WriteLine("Case 2");
        break;
    default:
        Console.WriteLine("Default case");
        break;
}

```

Reference:

```

switch (C# Reference)
https://msdn.microsoft.com/en-us/library/06tc147t.aspx

```

## Question: 106

---

HOTSPOT

You are developing the following classes named:

Class1

Class2

Class3

All of the classes will be part of a single assembly named Assembly.dll. Assembly.dll will be used by multiple applications.

All of the classes will implement the following interface, which is also part of Assembly.dll:

```

public interface Interface1
{
    void Method1(decimal amount);
    void Method2(decimal amount);
}

```

You need to ensure that the Method2 method for the Class3 class can be executed only when instances of the class are accessed through the Interface1 interface. The solution must ensure that calls to the Method1 method can be made either through the interface or through an instance of the class.

Which signature should you use for each method? (To answer, select the appropriate signature for each method in the answer area.)

Method1:

```
internal void Method1(decimal amount)
private void Method1(decimal amount)
public void Method1(decimal amount)
void Interface1.Method1(decimal amount)
```

Method2:

```
internal void Method2(decimal amount)
private void Method2(decimal amount)
public void Method2(decimal amount)
void Interface1.Method2(decimal amount)
```

**Answer:**

Method1:

```
internal void Method1(decimal amount)
private void Method1(decimal amount)
public void Method1(decimal amount)
void Interface1.Method1(decimal amount)
```

Method2:

```
internal void Method2(decimal amount)
private void Method2(decimal amount)
public void Method2(decimal amount)
void Interface1.Method2(decimal amount)
```

## Question: 107

You are implementing a method named ProcessReports that performs a long-running task. The ProcessReports() method has the following method signature:

```
public void ProcessReports(List<decimal> values, CancellationTokenSource cts, CancellationToken ct)
```

If the calling code requests cancellation, the method must perform the following actions:

Cancel the long-running task.

Set the task status to TaskStatus.Canceled.

You need to ensure that the ProcessReports() method performs the required actions.

Which code segment should you use in the method body?

- A. if (ct.IsCancellationRequested)  
return;
- B. ct.ThrowIfCancellationRequested();
- C. cts.Cancel();
- D. throw new AggregateException();

**Answer: B**

The CancellationToken.ThrowIfCancellationRequested method throws a OperationCanceledException if this token has had cancellation requested.

This method provides functionality equivalent to:

C#  
if (token.IsCancellationRequested)  
    throw new OperationCanceledException(token);

Reference:

CancellationToken.ThrowIfCancellationRequested Method ()

[https://msdn.microsoft.com/en-us/library/system.threading.cancellationtoken.throwifcancellationrequested\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.threading.cancellationtoken.throwifcancellationrequested(v=vs.110).aspx)

---

## Question: 108

---

You are developing an application that will be deployed to multiple computers. You set the assembly name.

You need to create a unique identity for the application assembly.

Which two assembly identity attributes should you include in the source code? (Each correct answer presents part of the solution. Choose two.)

- A. AssemblyTitleAttribute
- B. AssemblyCultureAttribute
- C. AssemblyVersionAttribute
- D. AssemblyKeyNameAttribute
- E. AssemblyFileVersion

---

## Answer: B, C

---

The AssemblyName object contains information about an assembly, which you can use to bind to that assembly. An assembly's identity consists of the following:

Simple name

Version number

Cryptographic key pair

Supported culture

B: AssemblyCultureAttribute

Specifies which culture the assembly supports.

The attribute is used by compilers to distinguish between a main assembly and a satellite assembly. A main assembly contains code and the neutral culture's resources. A satellite assembly contains only resources for a particular culture, as in [assembly:AssemblyCultureAttribute("de")]

C: AssemblyVersionAttribute

Specifies the version of the assembly being attributed.

The assembly version number is part of an assembly's identity and plays a key part in binding to the assembly and in version policy.

---

## Question: 109

---

You are developing an application.

You need to declare a delegate for a method that accepts an integer as a parameter, and then returns an integer.

Which type of delegate should you use?

- A. Action<int>
- B. Action<int, int>
- C. Func<int, int>
- D. Func<int>

---

**Answer: C**

---

The Func<T, TResult> delegate encapsulates a method that has one parameter and returns a value of the type specified by the TResult parameter.

Reference:

[https://msdn.microsoft.com/en-us/library/bb549151\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/bb549151(v=vs.110).aspx)

---

**Question: 110**

---

You are writing the following method (line numbers are included for reference only):

```
01 public T CreateObject<T>()
02
03 {
04     T obj = new T();
05     return obj;
06 }
```

You need to ensure that CreateObject compiles successfully.

What should you do?

A. Insert the following code at line 02:

where T : new()

B. Replace line 01 with the following code:

public void CreateObject<T>()

C. Replace line 01 with the following code:

public Object CreateObject<T>()

D. Insert the following code at line 02:

where T : Object

---

**Answer: A**

---

You must require default/empty constructor to successfully call T obj = new T();

---

**Question: 111**

---

You are developing an application that includes the following code segment. (Line numbers are included for reference only.)

```

01 public class ItemBase
02 {
03 }
04 public class Widget : ItemBase
05 {
06 }
07 class Worker
08 {
09     void DoWork(object obj)
10    {
11        Console.WriteLine("In DoWork(object)");
12    }
13    void DoWork(Widget widget)
14    {
15        Console.WriteLine("In DoWork(Widget)");
16    }
17    void DoWork(ItemBase itembase)
18    {
19        Console.WriteLine("In DoWork(ItemBase)");
20    }
21    private void Run()
22    {
23        object o = new Widget();
24        DoWork(o);
25    }
26 }

```

You need to ensure that the DoWork(Widget widget) method runs.  
With which code segment should you replace line 24?

- A. DoWork((Widget)o);
- B. DoWork(new Widget(o));
- C. DoWork(o is Widget);
- D. DoWork((ItemBase)o);

---

**Answer: A**

---

## Question: 112

---

An application uses X509 certificates for data encryption and decryption. The application stores certificates in the Personal certificates collection of the Current User store. On each computer, each certificate subject is unique. The application includes a method named LoadCertificate. The LoadCertificate() method includes the following code. (Line numbers are included for reference only.)

```

01 X509Certificate2 LoadCertificate(string searchValue)
02 {
03     var store = new X509Store(StoreName.My, StoreLocation.CurrentUser);
04     store.Open(OpenFlags.ReadOnly | OpenFlags.OpenExistingOnly);
05     var certs = store.Certificates.Find(
06
07         searchValue, false);
08     ...
09 }

```

The LoadCertificate() method must load only certificates for which the subject exactly matches the searchValue parameter value.

You need to ensure that the LoadCertificate() method loads the correct certificates.  
Which code segment should you insert at line 06?

- A. `X509FindType.FindBySubjectName`,
  - B. `X509FindType.FindBySubjectKeyIdentifier`,
  - C. `X509FindType.FindByIssuerName`,
  - D. `X509FindType.FindBySubjectDistinguishedName`,
- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: D**

---

`X509FindType.FindBySubjectDistinguishedName` is a more specific search than that provided by the `FindBySubjectName` enumeration value. Using the `FindBySubjectDistinguishedName` value, the `Find` method performs a case-insensitive string comparison for the entire distinguished name. Searching by subject name is a less precise search.

Reference:

`X509FindType` Enumeration

[https://msdn.microsoft.com/en-us/library/system.security.cryptography.x509certificates.x509findtype\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.security.cryptography.x509certificates.x509findtype(v=vs.110).aspx)

---

**Question: 113**

---

You are developing a class named `Scorecard`. The following code implements the `Scorecard` class. (Line numbers are included for reference only.)

```

01 public class Scorecard
02 {
03     private Dictionary<string, int> players = new Dictionary<string, int>();
04     public void Add(string name, int score)
05     {
06         players.Add(name, score);
07     }
08
09 }
```

You create the following unit test method to test the `Scorecard` class implementation:

```

[TestMethod]
public void UnitTest1()
{
    Scorecard scorecard = new Scorecard();
    scorecard.Add("Player1", 10);
    scorecard.Add("Player2", 15);
    int expectedScore = 15;
    int actualScore = scorecard["Player2"];
    Assert.AreEqual(expectedScore, actualScore);
}
```

You need to ensure that the unit test will pass.

What should you do?

- A. Insert the following code segment at line 08:

```
public int this[string name]
{
    get
    {
        return players[name];
    }
}
```

- B. Insert the following code segment at line 08:

```
public Dictionary<string, int> Players
{
    get
    {
        return players;
    }
}
```

- C. Replace line 03 with the following code segment:

```
public Dictionary<string, int> Players = new Dictionary<string, int>();
```

- D. Insert the following code segment at line 08:

```
public int score(string name)
{
    return players[name];
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

You need to add indexer to the class.

---

### Question: 114

---

You are developing an application that will parse a large amount of text.

You need to parse the text into separate lines and minimize memory use while processing data.

Which object type should you use?

- A. DataContractSerializer
- B. StringBuilder
- C. StringReader
- D. JsonSerializer

---

**Answer: C**

---

There are many ways to separate a string into lines. With StringReader, we read lines from a string individually in the order they appear. This type enables us to access string data through a stream-oriented interface.

Reference:

<http://www.dotnetperls.com/stringreader>

---

### Question: 115

---

You are developing code for an application that retrieves information about Microsoft .NET Framework assemblies. The following code segment is part of the application (line numbers are included for reference only):

```
01 public void ViewMetadata(string filePath)
02 {
03     var bytes = File.ReadAllBytes(filePath);
04
05     ...
06 }
```

You need to insert code at line 04. The code must load the assembly. Once the assembly is loaded, the code must be able to read the assembly metadata, but the code must be denied access from executing code from the assembly. Which code segment should you insert at line 04?

- A. Assembly.ReflectionOnlyLoadFrom(bytes);
- B. Assembly.ReflectionOnlyLoad(bytes);
- C. Assembly.Load(bytes);
- D. Assembly.LoadFrom(bytes);

---

**Answer: B**

---

The Assembly.ReflectionOnlyLoad method (Byte[]) loads the assembly from a common object file format (COFF)-based image containing an emitted assembly. The assembly is loaded into the reflection-only context of the caller's application domain.

You cannot execute code from an assembly loaded into the reflection-only context.

Incorrect:

Not A: The Assembly.ReflectionOnlyLoadFrom method (String) loads an assembly into the reflection-only context, given its path.

Reference:

Assembly.ReflectionOnlyLoad Method (Byte[])

[https://msdn.microsoft.com/en-us/library/h55she1h\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/h55she1h(v=vs.110).aspx)

---

### Question: 116

---

You are developing a method named GenerateHash that will create the hash value for a file. The method includes the following code. (Line numbers are included for reference only.)

```
01 public byte[] GenerateHash(string filename, string hashAlgorithm)
02 {
03     var signatureAlgo = HashAlgorithm.Create(hashAlgorithm);
04     var fileBuffer = System.IO.File.ReadAllBytes(filename);
05
06 }
```

You need to return the cryptographic hash of the bytes contained in the fileBuffer variable.  
Which code segment should you insert at line 05?

- A. `var outputBuffer = new byte[fileBuffer.Length];  
signatureAlgo.TransformBlock(fileBuffer, 0, fileBuffer.Length, outputBuffer, 0);  
signatureAlgo.TransformFinalBlock(fileBuffer, fileBuffer.Length - 1, fileBuffer.Length);  
return outputBuffer;`
  - B. `signatureAlgo.ComputeHash(fileBuffer);  
return signatureAlgo.GetHashCode();`
  - C. `var outputBuffer = new byte[fileBuffer.Length];  
signatureAlgo.TransformBlock(fileBuffer, 0, fileBuffer.Length, outputBuffer, 0);  
return outputBuffer;`
  - D. `return signatureAlgo.ComputeHash(fileBuffer);`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

**Answer: D**

---

The ComputeHash(Byte[]) method computes the hash value for the specified byte array.

---

**Question: 117**

---

You are modifying an existing application that manages employee payroll. The application includes a class named PayrollProcessor. The PayrollProcessor class connects to a payroll database and processes batches of paychecks once a week.

You need to ensure that the PayrollProcessor class supports iteration and releases database connections after the batch processing completes.

Which two interfaces should you implement? (Each correct answer presents part of the complete solution. Choose two.)

- A. IEquatable
- B. IEnumerable
- C. IDisposable
- D. IComparable

---

**Answer: B, C**

---

B: `IEnumerable` to implement iteration.

Exposes an enumerator, which supports a simple iteration over a non-generic collection.

C: `IDisposable` Interface to implement disposing connections.

Defines a method to release allocated resources.

The primary use of this interface is to release unmanaged resources.

### Question: 118

---

You are developing an application that will read data from a text file and display the file contents.

You need to read data from the file, display it, and correctly release the file resources.

Which code segment should you use?

- A. 

```
string inputLine;
using (StreamReader reader = new StreamReader("data.txt"))
{
    while ((inputLine = reader.ReadLine()) != null)
    {
        Console.WriteLine(inputLine);
    }
}
```
  
- B. 

```
string inputLine;
StreamReader reader = null;
using (reader = new StreamReader("data.txt")) ;
while ((inputLine = reader.ReadLine()) != null)
{
    Console.WriteLine(inputLine);
}
```
  
- C. 

```
string inputLine;
StreamReader reader = new StreamReader("data.txt");
while ((inputLine = reader.ReadLine()) != null)
{
    Console.WriteLine(inputLine);
}
```
  
- D. 

```
string inputLine;
StreamReader reader = null;
try
{
    reader = new StreamReader("data.txt");
    while ((inputLine = reader.ReadLine()) != null)
    {
        Console.WriteLine(inputLine);
    }
    reader.Close();
    reader.Dispose();
}
finally
{
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

The StreamReader object must be part of the using statement.

### Question: 119

---

DRAG DROP

You are creating a method that saves information to a database.

You have a static class named LogHelper. LogHelper has a method named Log to log the exception.

You need to use the LogHelper Log method to log the exception raised by the database server. The solution must ensure that the exception can be caught by the calling method, while preserving the original stack trace.

How should you write the catch block? (Develop the solution by selecting and ordering the required code snippets.

You may not need all of the code snippets.)

```

catch {
}

catch (SqlException ex) {

}

catch (FileNotFoundException ex) {

}

throw;

}

throw new FileNotFoundException();

throw ex;

LogHelper.Log(ex);

throw new SqlException();

```

Box 1:

```
catch (SqlException ex) {
```

Box 2:

---

**Answer:**

---

```
LogHelper.Log(ex);
```

Box 3: throw;

Box 4:

```
}
```

Note:

Catch the database exception, log it, and then rethrow it.

\* SQLException

An exception that provides information on a database access error or other errors.

Example:

```
catch (SQLException ex)
{
    LogHelper.Log(ex);
    throw;
}
```

## Question: 120

HOTSPOT

You have the following code:

```
public class Alert
{
    public event EventHandler<EventArgs> SendMessage;

    public void Execute()
    {
        SendMessage(this, new EventArgs());
    }
}

public class Subscriber
{
    Alert alert = new Alert();

    public void Subscribe()
    {
        alert.SendMessage += (sender, e) => { Console.WriteLine("First"); };
        alert.SendMessage += (sender, e) => { Console.WriteLine("Second"); };
        alert.SendMessage += (sender, e) => { Console.WriteLine("Third"); };
        alert.SendMessage += (sender, e) => { Console.WriteLine("Third"); };
    }

    public void Execute()
    {
        alert.Execute();
    }
}

public static void Main()
{
    Subscriber subscriber = new Subscriber();
    subscriber.Subscribe();
    subscriber.Execute();
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

**Yes      No**

If there are no subscribers to the SendMessage event, the Execute method on the Alert class will throw an exception.

When the application runs, "First" will always appear before "Second".

When the application runs, "Third" will be displayed once.

**Answer:**

	<b>Yes</b>	<b>No</b>
If there are no subscribers to the SendMessage event, the Execute method on the Alert class will throw an exception.	<input checked="" type="checkbox"/>	<input type="checkbox"/>
When the application runs, "First" will always appear before "Second".	<input checked="" type="checkbox"/>	<input type="checkbox"/>
When the application runs, "Third" will be displayed once.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Explanation for second answer: Events are multicast delegates and that one has a linked list to store the delegates in. The order of execution is always the same as they are inserted.

### Question: 121

#### HOTSPOT

You are building a data access layer in an application that contains the following code:

```
public static Object GetTypeDefault(DbType dbDataType)
{
    switch (dbDataType)
    {
        case DbType.Boolean:
            return false;
        case DbType.DateTime:
            return DateTime.MinValue;
        case DbType.Decimal:
            return 0m;
        case DbType.Int32:
            return 0;
        case DbType.String:
            return String.Empty;
        default:
            return null;
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

- |  |  |
|--|--|
| Yes  | No   |
| If dbDataType is DateTime, today's date is returned. | <input type="radio"/> <input checked="" type="radio"/> |
| If dbDatatype is Int64, Null is returned.            | <input type="radio"/> <input checked="" type="radio"/> |
| If dbDatatype is Double, 0 is returned.              | <input type="radio"/> <input checked="" type="radio"/> |

---

**Answer:**

---

- |  |  |
|--|--|
| Yes  | No   |
| If dbDataType is DateTime, today's date is returned. | <input type="radio"/> <input checked="" type="radio"/> |
| If dbDatatype is Int64, Null is returned.            | <input checked="" type="radio"/> <input type="radio"/> |
| If dbDatatype is Double, 0 is returned.              | <input type="radio"/> <input checked="" type="radio"/> |

---

### Question: 122

---

HOTSPOT

You have the following code:

```

public class Customer
{
    private int CustomerId { get; set; }
    public string CompanyName { get; set; }
    protected string State { get; set; }
    public string City { get; set; }

    public Customer(int customerId, string companyName, string state, string city)
    {
        CustomerId = customerId;
        CompanyName = companyName;
        State = state;
        City = city;
    }
    public Customer() {}
}

public interface ICustomer
{
    string GetCustomerById(int customerId);
    string GetCustomerByDate(DateTime dateFrom, DateTime dateTo);
}

public class MyCustomerClass : Customer, ICustomer
{
    public string Zip { get; set; }
    public string Phone { get; set; }
    public string GetCustomerById(int customerId)
    {
        ...
    }
    public string GetCustomerByDate(DateTime dateFrom, DateTime dateTo)
    {
        ...
    }
}

```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

- |   | Yes                   | No                    |
|---|-----------------------|-----------------------|
| All of the objects derived from MyCustomerClass have CustomerID as a property.  | <input type="radio"/> | <input type="radio"/> |
| All of the objects derived from MyCustomerClass have CompanyName as a property. | <input type="radio"/> | <input type="radio"/> |
| All of the objects derived from MyCustomerClass have State as a property.       | <input type="radio"/> | <input type="radio"/> |

---

**Answer:**

---

- |   | Yes                              | No                               |
|---|----------------------------------|----------------------------------|
| All of the objects derived from MyCustomerClass have CustomerID as a property.  | <input type="radio"/>            | <input checked="" type="radio"/> |
| All of the objects derived from MyCustomerClass have CompanyName as a property. | <input checked="" type="radio"/> | <input type="radio"/>            |
| All of the objects derived from MyCustomerClass have State as a property.       | <input checked="" type="radio"/> | <input type="radio"/>            |

Note:

\* CustomerID is declared private.

\* CompanyName is declared protected.

\* State is declared protected.

The protected keyword is a member access modifier. A protected member is accessible from within the class in which it is declared, and from within any class derived from the class that declared this member.

### Question: 123

#### HOTSPOT

You have the following code (line numbers are included for reference only):

```

01 DataTable dataTable;
02 string connString = "Data Source=192.168.1.100;Initial Catalog=Database1;User Id=sa;Password=p@ssw0rd";
03 using (SqlConnection sqlConn = new SqlConnection(connString))
04 {
05     sqlConn.Open();
06     using (SqlCommand sqlCmd = new SqlCommand())
07     {
08         sqlCmd.Connection = sqlConn;
09         sqlCmd.CommandType = CommandType.StoredProcedure;
10         sqlCmd.CommandText = "p_Procedure1";
11         using (SqlDataAdapter adapter = new SqlDataAdapter(sqlCmd))
12         {
13             using (dataTable = new DataTable())
14             {
15                 adapter.Fill(dataTable);
16             }
17         }
18     }
19 }
```

To answer, complete each statement according to the information presented in the code.

The database connection gets closed at line...

15
16
17
18
19

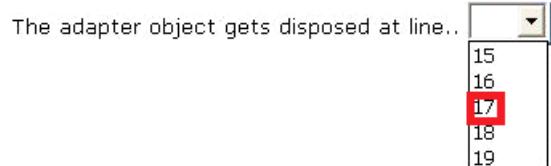
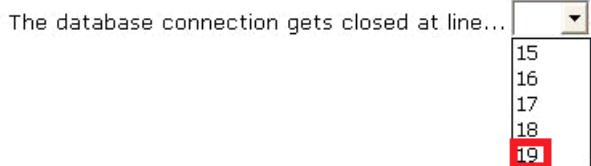
The adapter object gets disposed at line..

15
16
17
18
19

---

**Answer:**

---



### Question: 124

You need to create a method that can be called by using a varying number of parameters.  
What should you use?

- A. Method overloading
- B. Interface
- C. Named parameters
- D. Lambda expressions

---

**Answer: A**

---

**Explanation:**

Member overloading means creating two or more members on the same type that differ only in the number or type of parameters but have the same name.

Overloading is one of the most important techniques for improving usability, productivity, and readability of reusable libraries. Overloading on the number of parameters makes it possible to provide simpler versions of constructors and methods. Overloading on the parameter type makes it possible to use the same member name for members performing identical operations on a selected set of different types.

### Question: 125

You are developing an application.

The application contains the following code segment (line numbers are included for reference only):

```
01 ArrayList array1 = new ArrayList();
02 int var1 = 10;
03 int var2;
04 array1.Add(var1);
05 var2 = array1[0];
```

When you run the code, you receive the following error message: "Cannot implicitly convert type 'object' to 'int'. An explicit conversion exists (are you missing a cast?)."

You need to ensure that the code can be compiled.

Which code should you use to replace line 05?

- A. var2 = ((List<int>) array1) [0];
- B. var2 = array1[0].Equals(typeof(int));
- C. var2 = Convert.ToInt32(array1[0]);
- D. var2 = ((int[])array1)[0];

---

**Answer: C**

The Convert.ToInt32 method converts a specified value to a 32-bit signed integer.

Reference:

[https://msdn.microsoft.com/en-us/library/system.convert.toint32\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.convert.toint32(v=vs.110).aspx)

---

**Question: 126**

You have the following code (line numbers are included for reference only):

```
01 public class Program
02 {
03     private static System.Diagnostics.Stopwatch _execTimer =
04         new System.Diagnostics.Stopwatch();
05     public static void Delay(int delay)
06     {
07         Thread.Sleep(delay);
08     }
09     public static void LogLongExec(string msg)
10     {
11         if (_execTimer.Elapsed.Seconds >= 5)
12             throw new Exception(
13                 string.Format("Execution is too long > {0} > {1}",
14                 msg, _execTimer.Elapsed.TotalMilliseconds));
15     }
16     public static void Main()
17     {
18         _execTimer.Start();
19         try
20         {
21             Delay(10);
22             LogLongExec("Delay(10)");
23             Delay(5000);
24             LogLongExec("Delay(5000)");
25         }
26         catch (Exception ex)
27         {
28
29     }
30 }
31 }
```

You need to ensure that if an exception occurs, the exception will be logged.

Which code should you insert at line 28?

- A. `System.Diagnostics.TraceSource trace = new TraceSource("./Trace.log");  
trace.TraceEvent(TraceEventType.Error, ex.HResult, ex.Message);`
- B. `using (System.Diagnostics.XmlWriterTraceListener log1 =  
new XmlWriterTraceListener("./Error.log"))  
{  
 log1.TraceEvent(  
 new TraceEventCache(), ex.Message, TraceEventType.Error, ex.HResult);  
 log1.Flush();  
}`
- C. `System.Diagnostics.EventInstance errorEvent =  
new System.Diagnostics.EventInstance(ex.HResult, 1, EventLogEntryType.Error);  
System.Diagnostics.EventLog.WriteEvent("MyAppErrors", errorEvent, ex.Message);`
- D. `EventLog logEntry = new EventLog();  
logEntry.Source = "Application";  
logEntry.WriteEntry(ex.Message, EventLogEntryType.Error);`

- A. Option A  
B. Option B  
C. Option C  
D. Option D

---

**Answer: B**

---

\* `XmlWriterTraceListener`

Directs tracing or debugging output as XML-encoded data to a `TextWriter` or to a `Stream`, such as a `FileStream`.

\* `TraceListener.TraceEvent` Method (`TraceEventCache`, `String`, `TraceEventType`, `Int32`)

Writes trace and event information to the listener specific output.

Syntax:

```
[ComVisibleAttribute(false)]  
public virtual void TraceEvent(  
    TraceEventCache eventCache,  
    string source,  
    TraceEventType eventType,  
    int id  
)
```

Reference:

`XmlWriterTraceListener` Class

[https://msdn.microsoft.com/en-us/library/system.diagnostics.xmlwritertracelistener\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.diagnostics.xmlwritertracelistener(v=vs.110).aspx)

---

### Question: 127

---

You write the following method (line numbers are included for reference only):

```

01 public static List<string> TestIfWebSite(string url)
02 {
03     const string pattern = @"http://(www\.)?([^\.]+)\.com";
04     List<string> result = new List<string>();
05
06     MatchCollection myMatches = Regex.Matches(url, pattern);
07     ...
08     return result;
09 }

```

You need to ensure that the method extracts a list of URLs that match the following pattern:

@http://(www\.)?([^\.]+)\.com;

Which code should you insert at line 07?

- A. `result = (List<string>) myMatches.SyncRoot;`
- B. `result = (from System.Text.RegularExpressions.Match m in myMatches
 where m.Value.Contains(pattern)
 select m.Value).ToList<string>();`
- C. `foreach (Match currentMatch in myMatches)
 result.Add(currentMatch.Groups.ToString());`
- D. `foreach (Match currentMatch in myMatches)
 result.Add(currentMatch.Value);`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

### Answer: D

---

\* MatchCollection

Represents the set of successful matches found by iteratively applying a regular expression pattern to the input string. The collection is immutable (read-only) and has no public constructor. The Regex.Matches method returns a MatchCollection object.

\* List<T>.Add Method

Adds an object to the end of the List<T>.

Incorrect:

Not A: ICollection.SyncRoot Property

For collections whose underlying store is not publicly available, the expected implementation is to return the current instance. Note that the pointer to the current instance might not be sufficient for collections that wrap other collections; those should return the underlying collection's SyncRoot property.

---

### Question: 128

---

You are creating a class library that will be used in a web application.

You need to ensure that the class library assembly is strongly named.

What should you do?

- A. Use the gacutil.exe command-line tool.
- B. Use the xsd.exe command-line tool.
- C. Use the aspnet\_regiis.exe command-line tool.
- D. Use assembly attributes.

---

**Answer: D**

The Windows Software Development Kit (SDK) provides several ways to sign an assembly with a strong name:

- \* Using the Assembly Linker (Al.exe) provided by the Windows SDK.
- \* Using assembly attributes to insert the strong name information in your code. You can use either the AssemblyKeyFileAttribute or the AssemblyKeyNameAttribute, depending on where the key file to be used is located.
- \* Using compiler options such /keyfile or /delaysign in C# and Visual Basic, or the /KEYFILE or /DELAYSIGN linker option in C++. (For information on delay signing, see Delay Signing an Assembly.)

---

### Question: 129

You need to store the values in a collection.

The solution must meet the following requirements:

The values must be stored in the order that they were added to the collection.

The values must be accessed in a first-in, first-out order.

Which type of collection should you use?

- A. SortedList
- B. Queue
- C. ArrayList
- D. Hashtable

---

**Answer: B**

The Queue class implements a queue as a circular array. Objects stored in a Queue are inserted at one end and removed from the other.

Queues and stacks are useful when you need temporary storage for information; that is, when you might want to discard an element after retrieving its value. Use Queue if you need to access the information in the same order that it is stored in the collection.

Reference:

[https://msdn.microsoft.com/en-us/library/system.collections.queue\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.collections.queue(v=vs.110).aspx)

---

### Question: 130

An application is throwing unhandled NullReferenceException and FormatException errors. The stack trace shows that the exceptions occur in the GetWebResponse() method.

The application includes the following code to parse XML data retrieved from a web service. (Line numbers are included for reference only.)

```
01 int GetWebResponse(XElement result)
02 {
03     return int.Parse(result.Element("response").Value);
04 }
```

You need to handle the exceptions without interfering with the existing error-handling infrastructure.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Replace line 03 with the following code segment:

```
int returnValue;
int.TryParse(result.Element("response").Value, out returnValue);
return returnValue;
```

- B. Replace line 03 with the following code segment:

```
return int.ParseOptions.Safe(result.Element("response").Value);
```

- C. Register an event handler with AppDomain.CurrentDomain.UnhandledException.

- D. Use a **try...catch** statement to handle the exceptions in the **GetWebResult()** method.

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

#### Answer: A, C

---

A: The TryParse method is like the Parse method, except the TryParse method does not throw an exception if the conversion fails. It eliminates the need to use exception handling to test for a FormatException in the event that s is invalid and cannot be successfully parsed.

C: UnhandledException event handler

If the UnhandledException event is handled in the default application domain, it is raised there for any unhandled exception in any thread, no matter what application domain the thread started in. If the thread started in an application domain that has an event handler for UnhandledException, the event is raised in that application domain.

---

### Question: 131

---

You are developing an application that retrieves patient data from a web service. The application stores the JSON messages returned from the web service in a string variable named PatientAsJson. The variable is encoded as UTF-8. The application includes a class named Patient that is defined by the following code:

```
public class Patient
{
    public bool IsActive { get; set; }
    public string Name { get; set; }
    public int Id { get; set; }
}
```

You need to populate the Patient class with the data returned from the web service.

Which code segment should you use?

```

A. DataContractJsonSerializer jsSerializer = new DataContractJsonSerializer(typeof(Patient));
using (MemoryStream stream = new MemoryStream(Encoding.UTF8.GetBytes(PatientAsJson)))
{
    Patient patientFromJson = (Patient)jsSerializer.ReadObject(stream);
}

B. XmlSerializer xmlSerializer = new XmlSerializer(typeof(Patient));
using (MemoryStream stream = new MemoryStream(Encoding.UTF8.GetBytes(PatientAsJson)))
{
    Patient patientFromJson = (Patient)xmlSerializer.Deserialize(stream);
}

C. DataContractJsonSerializer jsSerializer = new DataContractJsonSerializer(typeof(Patient));
using (MemoryStream stream = new MemoryStream(Encoding.UTF8.GetBytes(PatientAsJson)))
{
    Patient patientFromJson = new Patient();
    jsSerializer.WriteObject(stream, patientFromJson);
}

D. IFormatter formatter = new BinaryFormatter();
Stream stream = new FileStream(PatientAsJson, FileMode.Open, FileAccess.Read, FileShare.Read);
Patient patientFromJson = (Patient)formatter.Deserialize(stream);
stream.Close();

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

### Question: 132

---

You are developing a game that allows players to collect from 0 through 1000 coins. You are creating a method that will be used in the game. The method includes the following code. (Line numbers are included for reference only.)

01 public string FormatCoins(string name, int coins)

02 {  
03  
04 }

The method must meet the following requirements:

Return a string that includes the player name and the number of coins.

Display the number of coins without leading zeros if the number is 1 or greater.

Display the number of coins as a single 0 if the number is 0.

You need to ensure that the method meets the requirements.

Which code segment should you insert at line 03?

- A. `return String.Format("Player {0}, collected {1} coins", name, coins.ToString("###0"));`
  - B. `return String.Format("Player {0} collected {1:000#} coins.", name, coins);`
  - C. `return String.Format("Player {name} collected {coins.ToString('000')} coins");`
  - D. `return String.Format("Player {1} collected {2:D3} coins.", name, coins);`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

**Answer: A**

---

### **Question: 133**

---

You have an application that will send confidential information to a Web server.  
You need to ensure that the data is encrypted when it is sent across the network.  
Which class should you use?

- A. CryptoStream
- B. AuthenticatedStream
- C. PipeStream
- D. NegotiateStream

---

**Answer: A**

---

The CryptoStream Class defines a stream that links data streams to cryptographic transformations.  
The common language runtime uses a stream-oriented design for cryptography. The core of this design is CryptoStream.  
Reference:  
CryptoStream Class  
[https://msdn.microsoft.com/en-us/library/system.security.cryptostream\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.security.cryptostream(v=vs.110).aspx)

### **Question: 134**

---

You are developing a class named EmployeeRoster. The following code implements the EmployeeRoster class. (Line numbers are included for reference only.)

```

01 public class EmployeeRoster
02 {
03     private Dictionary<string, int> employees = new Dictionary<string, int>();
04     public void Add(string name, int salary)
05     {
06         employees.Add(name, salary);
07     }
08
09 }
```

You create the following unit test method to test the EmployeeRoster class implementation:

```

public void UnitTest1()
{
    EmployeeRoster employeeRoster = new EmployeeRoster();
    employeeRoster.Add("David Jones", 50000);
    employeeRoster.Add("Phyllis Harris", 75000);
    int expectedSalary = 75000;
    int actualSalary = employeeRoster["Phyllis Harris"];
    Assert.AreEqual(expectedSalary, actualSalary);
}
```

You need to ensure that the unit test will pass.

What should you do?

- A. Insert the following code segment at line 08:

```

public Dictionary<string, int> Employees
{
    get
    {
        return employees;
    }
}
```

- B. Insert the following code segment at line 08:

```

public int this[string name]
{
    get
    {
        return employees[name];
    }
}
```

- C. Replace line 03 with the following code segment:

```
public Dictionary<string, int> Employees = new Dictionary<string, int>();
```

- D. Insert the following code segment at line 08:

```

public int salary(string name)
{
    return employees[name];
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: B**

---

### **Question: 135**

---

You are developing an application that produces an executable named MyApp.exe and an assembly named MyApp.dll.

The application will be sold to several customers.

You need to ensure that enough debugging information is available for MyApp.exe, so that if the application throws an error in a customer's environment, you can debug the error in your own development environment.

What should you do?

- A. Digitally sign MyApp.dll.
- B. Produce program database (PDB) information when you compile the code.
- C. Compile MyApp.exe by using the /unsafe compiler option.
- D. Initializes a new instance of the AssemblyDelaySignAttribute class in the MyApp.dll constructor.

---

**Answer: B**

---

A program database (PDB) file holds debugging and project state information that allows incremental linking of a debug configuration of your program. A PDB file is created when you build with /debug.

Reference:

Program Database Files (C#, F#, and Visual Basic)

[https://msdn.microsoft.com/library/ms241903\(v=vs.100\).aspx](https://msdn.microsoft.com/library/ms241903(v=vs.100).aspx)

### **Question: 136**

---

You are modifying an existing banking application.

The application includes an Account class and a Customer class. The following code segment defines the classes.

```

class Account
{
    public Account(decimal balance, int term, decimal rate)
    {
        Term = term;
        Balance = balance;
        Rate = rate;
    }
    public decimal Balance { get; set; }
    public decimal Rate { get; set; }
    public int Term { get; set; }
}

class Customer
{
    public Customer(string firstName, string lastName, Collection<Account> accounts)
    {
        FirstName = firstName;
        LastName = lastName;
        AccountCollection = accounts;
    }
    public string FirstName { get; set; }
    public string LastName { get; set; }
    public Collection<Account> AccountCollection { get; set; }
}

```

You populate a collection named customerCollection with Customer and Account objects by using the following code segment:

```

Collection<Customer> customerCollection = new Collection<Customer>();
Collection<Account> customerAccounts = new Collection<Account>();
customerAccounts.Add(new Account(1000m, 2, 0.025m));
customerAccounts.Add(new Account(3000m, 4, 0.045m));
customerAccounts.Add(new Account(5000m, 6, 0.045m));
customerCollection.Add(new Customer("David", "Jones", customerAccounts));

```

You create a largeCustomerAccounts collection to store the Account objects by using the following code segment:

```
Collection<Account> largeCustomerAccounts = new Collection<Account>();
```

All accounts with a Balance value greater than or equal to 1,000,000 must be tracked.

You need to populate the largeCustomerAccounts collection with Account objects.

Which code segment should you use?

```

A. foreach (Customer customer in customerCollection)
{
    foreach (Account account in customer.AccountCollection)
    {
        if (account.Balance >= 1000000m)
        {
            customer.AccountCollection.Add(account);
        }
    }
}

B. foreach (Account customer in customerCollection)
{
    foreach (Account account in largeCustomerAccounts)
    {
        if (account.Balance >= 1000000m)
        {
            largeCustomerAccounts.Add(account);
        }
    }
}

C. foreach (Customer customer in customerCollection)
{
    foreach (Account account in customer.AccountCollection)
    {
        if (account.Balance >= 1000000m)
        {
            largeCustomerAccounts.Add(account);
        }
    }
}

D. foreach (Account account in largeCustomerAccounts)
{
    foreach (Customer customer in customerCollection)
    {
        if (account.Balance >= 1000000m)
        {
            customer.AccountCollection.Add(account);
        }
    }
}

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: C**

---

### Question: 137

---

You are implementing a method named GetValidEmailAddresses. The GetValidEmailAddresses() method processes a

list of string values that represent email addresses.

The GetValidEmailAddresses() method must return only email addresses that are in a valid format.

You need to implement the GetValidEmailAddresses() method.

Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. 

```
private static List<String> GetValidEmailAddresses(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    var validEmailAddresses = new List<String>();
    foreach(Match match in matches)
    {
        if(!match.Success)
        {
            validEmailAddresses.Add(match.Value);
        }
    }
    return validEmailAddresses;
}
```
- B. 

```
private static List<String> GetValidEmailAddresses(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    return (from Match match in matches where match.Success select match.Value).ToList();
}
```
- C. 

```
private static List<String> GetValidEmailAddresses(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    return (from Match match in matches where match.Success select match.Success.ToString()).ToList();
}
```
- D. 

```
private static List<String> GetValidEmailAddresses(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    var validEmailAddresses = new List<String>();
    foreach(Match match in matches)
    {
        if(match.Success)
        {
            validEmailAddresses.Add(match.Value);
        }
    }
    return validEmailAddresses;
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: B, D**

---

Note:

\* List<T>.Add Method

Adds an object to the end of the List<T>.

**Question: 138****HOTSPOT**

You define a class by using the following code:

```
public class Department
{
    public int Id { get; set; }
    public string Name { get; set; }
    public string Manager { get; set; }
    public int BuildingId { get; set; }
}
```

You create a collection by using the following code:

```
Department[] departments =
{
    new Department
    { Id = 1, Name = "Accounting", Manager = "User1", BuildingId = 15 },
    new Department
    { Id = 2, Name = "Sales", Manager = "User2", BuildingId = 3 },
    new Department
    { Id = 3, Name = "IT", Manager = "User3" , BuildingId = 15},
    new Department
    { Id = 4, Name = "Marketing", Manager = "User4", BuildingId = 3}
};
var output =
    from d in departments
    group d by d.BuildingId into dp
    select new { sorted = dp.Key, Department = dp };
```

To answer, complete each statement according to the information presented in the code.

The output collection will contain ...  
object(s).

0  
1  
2  
3  
4

The sorted property of the output  
collection will be the ... type.

byte  
int  
string  
var

**Answer:**

The output collection will contain ...  
object(s).

The sorted property of the output  
collection will be the ... type.

### Question: 139

DRAG DROP

You are developing a C# console application that outputs information to the screen. The following code segments implement the two classes responsible for making calls to the Console object:

```
abstract class BaseLogger
{
    public virtual void Log(string message)
    {
        Console.WriteLine("Base: " + message);
    }
    public void LogCompleted()
    {
        Console.WriteLine("Completed");
    }
}

class Logger : BaseLogger
{
    public override void Log(string message)
    {
        Console.WriteLine(message);
    }
    public new void LogCompleted()
    {
        Console.WriteLine("Finished");
    }
}
```

When the application is run, the console output must be the following text:

Log started

Base: Log continuing

Finished

You need to ensure that the application outputs the correct text.

Which four lines of code should you use in sequence? (To answer, move the appropriate classes from the list of classes to the answer area and arrange them in the correct order.)

```

logger.Log("Base: Log continuing");

((BaseLogger)logger).Log("Log continuing");

var logger = new BaseLogger();

((Logger)logger).LogCompleted();

logger.Log("Log started");

BaseLogger logger = new Logger();

logger.LogCompleted();

```

---

**Answer:**

---

Box 1:

```
BaseLogger logger = new Logger();
```

Box 2:

```
logger.Log("Log started");
```

Box 3:

```
logger.Log("Base: Log continuing");
```

Box 4:

```
((Logger)logger).LogCompleted();
```

Incorrect:

Not Box 4: logger.LogCompleted();

The output would incorrectly be "Completed"

---

**Question: 140**

You are creating an application that reads from a database.

You need to use different databases during the development phase and the testing phase by using conditional compilation techniques.

What should you do?

- Configure the assembly metadata to use the pre-existing public key for the assembly identity by using the AssemblySignatureKeyAttribute attribute.
- Disable the strong-name bypass feature of Microsoft .NET Framework in the registry.
- Configure the Define DEBUG constant setting in Microsoft Visual Studio.
- Decorate the code by using the [assembly:AssemblyDelaySignAttribute(true)] attribute.

---

**Answer: C**

Use one debug version to connect to the development database, and a standard version to connect to the live database.

---

**Question: 141**

You are troubleshooting an application that uses a class named `FullName`. The class is decorated with the `DataContractAttribute` attribute. The application includes the following code. (Line numbers are included for reference only.)

```
01 class Program
02 {
03     MemoryStream WriteName(Name name)
04     {
05         var ms = new MemoryStream();
06         var binary = XmlDictionaryWriter.CreateBinaryWriter(ms);
07         var ser = new DataContractSerializer(typeof(FullName));
08         ser.WriteObject(binary, name);
09
10         return ms;
11     }
12 }
```

You need to ensure that the entire `FullName` object is serialized to the memory stream object. Which code segment should you insert at line 09?

- A. `binary.WriteEndDocument();`
- B. `binary.WriteEndDocumentAsync();`
- C. `binary.WriteEndElementAsync();`
- D. `binary.Flush();`

---

**Answer: D**

Example:

```
MemoryStream stream2 = new MemoryStream();
XmlDictionaryWriter binaryDictionaryWriter = XmlDictionaryWriter.CreateBinaryWriter(stream2);
serializer.WriteObject(binaryDictionaryWriter, record1);
binaryDictionaryWriter.Flush();
```

Incorrect:

Not A: throws `InvalidOperationException`.

Reference:

[https://msdn.microsoft.com/en-us/library/ms752244\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/ms752244(v=vs.110).aspx)

---

**Question: 142**

You need to write a method that retrieves data from a Microsoft Access 2013 database. The method must meet the following requirements:

Be read-only.

Be able to use the data before the entire data set is retrieved.

Minimize the amount of system overhead and the amount of memory usage.

Which type of object should you use in the method?

- A. DbDataReader
- B. DataContext
- C. unTyped DataSet
- D. DbDataAdapter

---

**Answer: A**

---

**DbDataReader Class**

Reads a forward-only stream of rows from a data source.

Reference:

**DbDataReader Class**

[https://msdn.microsoft.com/en-us/library/system.data.common.dbdatareader\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.data.common.dbdatareader(v=vs.110).aspx)

---

**Question: 143**

---

**HOTSPOT**

You define a class by using the following code:

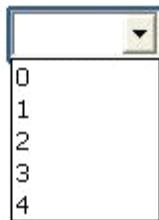
```
public class Class1 : IComparable<Class1>
{
    public Int32 ID { get; set; }
    public String Name { get; set; }
    public int CompareTo(Class1 other)
    {
        if(ID == other.ID) return 0;
        else return ID.CompareTo(other.ID);
    }
}
```

You write the following code for a method (line numbers are included for reference only):

```
01 List<Class1> list = new List<Class1>() {
02     new Class1() { ID = 5, Name = "User1" },
03     new Class1() { ID = 6, Name = "User2" },
04     new Class1() { ID = 3, Name = "User3" },
05     new Class1() { ID = 4, Name = "User4" }
06 };
07 Console.WriteLine(list.Count);
08 list.Sort();
09 Console.WriteLine(list[0].Name);
```

To answer, complete each statement according to the information presented in the code.

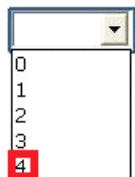
Line 07 of the method will display ...



Line 09 of the method will display ...



Line 07 of the method will display ...



Line 09 of the method will display ...



### Question: 144

You are creating a console application named App1.

App1 will validate user input for order entries.

You are developing the following code segment (line numbers are included for reference only):

```
01 Console.WriteLine("Enter unit price: ");
02 string price = Console.ReadLine();
03
04 Console.WriteLine("Valid price");
05 else
06 Console.WriteLine("Invalid price")
```

You need to complete the code segment.

The solution must ensure that prices are positive and have two decimal places.

Which code should you insert at line 03?

---

**Answer:**

---

- A. `if (!Regex.IsMatch(price, @"^(-)?\d+(\.\d\d)?$"))`
  - B. `if (Regex.IsMatch(price, @"^(-)?\d+(\.\d\d)?$"))`
  - C. `Regex reg = new Regex(@"^(\d+(\.\d\d))?$");  
if (reg.IsMatch(price))`
  - D. `Regex reg = new Regex(@"^(-)?\d+(\.\d\d)?$");  
if (reg.IsMatch(price))`
- A. Option A  
B. Option B  
C. Option C  
D. Option D

---

**Answer: C**

---

`^(\d+(\.\d\d))?$` only allows positive numbers.

Incorrect:

`^(-)?\d+(\.\d\d)?$` allows for negative numbers because of the `(-)` group

---

### Question: 145

---

You have the following code (line numbers are included for reference only):

```
01 public class Program
02 {
03     private static System.Diagnostics.Stopwatch _execTimer =
04         new System.Diagnostics.Stopwatch();
05     public static void Delay(int delay)
06     {
07         Thread.Sleep(delay);
08     }
09     public static void LogLongExec(string msg)
10     {
11         if (_execTimer.Elapsed.Seconds >= 5)
12             throw new Exception(
13                 string.Format("Execution is too long > {0} > {1}",
14                 msg, _execTimer.Elapsed.TotalMilliseconds));
15     }
16     public static void Main()
17     {
18         _execTimer.Start();
19         try
20         {
21             Delay(10);
22             LogLongExec("Delay(10)");
23             Delay(5000);
24             LogLongExec("Delay(5000)");
25         }
26         catch (Exception ex)
27         {
28
29         }
30     }
31 }
```

You need to ensure that if an exception occurs, the exception will be logged.

Which code should you insert at line 28?

```

A. #if ERROR
    System.Diagnostics.Trace.TraceError(ex.Message, "ApplicationLog");
#endif

B. System.Diagnostics.XmlWriterTraceListener listener =
    new XmlWriterTraceListener("./Error.log");
    listener.WriteLine(ex.Message);
    listener.Flush();
    listener.Close();

C. using (System.Diagnostics.XmlWriterTraceListener log1 =
    new XmlWriterTraceListener("./Error.log"))
{
    log1.TraceEvent(
        new TraceEventCache(), ex.Message, TraceEventType.Error, ex.HResult);
    log1.Flush();
}

D. System.Diagnostics.TraceSource trace = new TraceSource("./Trace.log");
    trace.TraceEvent(TraceEventType.Error, ex.HResult, ex.Message);

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

### Answer: C

---

\* XmlWriterTraceListener

Directs tracing or debugging output as XML-encoded data to a `TextWriter` or to a `Stream`, such as a `FileStream`.

\* `TraceListener.TraceEvent` Method (`TraceEventCache`, `String`, `TraceEventType`, `Int32`)

Writes trace and event information to the listener specific output.

Syntax:

```
[ComVisibleAttribute(false)]
public virtual void TraceEvent(
    TraceEventCache eventCache,
    string source,
    TraceEventType eventType,
    int id
)
```

---

### Question: 146

---

You have the following code:

```
List<Int32> items = new List<int>() {
    100,
    95,
    80,
    75,
    95
};
```

You need to retrieve all of the numbers from the items variable that are greater than 80.

Which code should you use?

- A. `var result = from i in items  
where i > 80  
select i;`
- B. `var result = from i in items  
groupby i into grouped  
where grouped.Key > 80  
select i;`
- C. `var result = items.Take(80);`
- D. `var result = items.Skip(80);`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

### Question: 147

---

You are creating a console application named App1.

App1 retrieves data from the Internet by using JavaScript Object Notation (JSON).

You are developing the following code segment (line numbers are included for reference only):

```
01 public bool ValidateJson(string json, Dictionary<string, object> result)
02 {
03
04     try
05     {
06         result = serializer.Deserialize<Dictionary<string, object>>(json);
07         return true;
08     }
09     catch
10     {
11         return false;
12     }
13 }
```

You need to ensure that the code validates the JSON string.

Which code should you insert at line 03?

- A. `DataContractSerializer serializer = new DataContractSerializer();`
  - B. `var serializer = new NetDataContractSerializer();`
  - C. `NetDataContractSerializer serializer = new NetDataContractSerializer();`
  - D. `JavaScriptSerializer serializer = new JavaScriptSerializer();`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

**Answer: D**

---

The JavaScriptSerializer Class Provides serialization and deserialization functionality for AJAX-enabled applications. The JavaScriptSerializer class is used internally by the asynchronous communication layer to serialize and deserialize the data that is passed between the browser and the Web server. You cannot access that instance of the serializer. However, this class exposes a public API. Therefore, you can use the class when you want to work with JavaScript Object Notation (JSON) in managed code.

Incorrect:

Not B, not C: The NetDataContractSerializer works with XML, but not with JSON.

Reference:

JavaScriptSerializer Class

[https://msdn.microsoft.com/en-us/library/system.web.script.serialization.javascriptserializer\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.web.script.serialization.javascriptserializer(v=vs.110).aspx)

---

**Question: 148**

---

You are evaluating a method that calculates loan interest- The application includes the following code segment. (Line numbers are included for reference only.)

```
01 private static decimal CalculateInterest(decimal loanAmount, int loanTerm)
02 {
03     decimal interestAmount;
04     decimal loanRate;
05     if (loanTerm > 0 && loanTerm < 5 && loanAmount < 5000m)
06     {
07         loanRate = 0.045m;
08     }
09     else if (loanTerm > 5 && loanAmount > 5000m)
10    {
11        loanRate = 0.085m;
12    }
13    else
14    {
15        loanRate = 0.055m;
16    }
17    interestAmount = loanAmount * loanRate * loanTerm;
18    return interestAmount;
19 }
```

When the loanTerm value is 3 and the loanAmount value is 9750, the loanRate must be set to 8.25 percent.

You need to adjust the loanRate value to meet the requirements.

What should you do?

- A. Replace line 04 with the following code segment:

decimal loanRate = 0.0325m;

- B. Replace line 17 with the following code segment:

interestAmount = loanAmount \* 0.0825m \* loanTerm;

- C. Replace line 15 with the following code segment:

loanRate = 0.0825m;

- D. Replace line 07 with the following code segment:

loanRate = 0.0825m;

---

**Answer: C**

---

## Question: 149

---

You are implementing a new method named ProcessDat

- a. The ProcessData() method calls a third-party component that performs a long-running operation.

The third-party component uses the IAsyncResult pattern to signal completion of the long-running operation.

You need to ensure that the calling code handles the long-running operation as a System.Threading.Tasks.Task object.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Call the component by using the TaskFactory.FromAsync() method.

- B. Create a TaskCompletionSource<T> object.

- C. Apply the async modifier to the method signature.

- D. Apply the following attribute to the method signature:

[MethodImpl(MethodImplOptions.Synchronized)]

---

**Answer: A, B**

---

A: TaskFactory.FromAsync Method

Creates a Task that represents a pair of begin and end methods that conform to the Asynchronous Programming Model pattern. Overloaded.

Example:

TaskFactory.FromAsync Method (IAsyncResult, Action<IAsyncResult>)

Creates a Task that executes an end method action when a specified IAsyncResult completes.

B: In many scenarios, it is useful to enable a Task<TResult> to represent an external asynchronous operation. TaskCompletionSource<TResult> is provided for this purpose. It enables the creation of a task that can be handed out to consumers, and those consumers can use the members of the task as they would any other. However, unlike most tasks, the state of a task created by a TaskCompletionSource is controlled explicitly by the methods on TaskCompletionSource. This enables the completion of the external asynchronous operation to be propagated to the underlying Task. The separation also ensures that consumers are not able to transition the state without access to the corresponding TaskCompletionSource.

Note:

\* System.Threading.Tasks.Task

Represents an asynchronous operation.

---

### Question: 150

---

You are developing an application for a bank. The application includes a method named ProcessLoan that processes loan applications. The ProcessLoan() method uses a method named CalculateInterest. The application includes the following code:

```
static decimal CalculateInterest(decimal amount, decimal rate, int term)
{
    return amount * rate * term;
}
static decimal ProcessLoan()
{
    CalculateLoanInterest loanInterestProcessor = CalculateInterest;
    return loanInterestProcessor(4500m, 0.065m, 4);
}
```

You need to declare a delegate to support the ProcessLoan() method.

Which code segment should you use?

- A. `public delegate decimal LoanProcessor(decimal loanAmount, decimal loanRate, int term);`
  - B. `public delegate int LoanProcessor(decimal loanAmount, decimal loanRate, int term);`
  - C. `public delegate decimal CalculateLoanInterest(decimal loanAmount, decimal loanRate, int term);`
  - D. `public delegate decimal ProcessLoan();`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

**Answer: C**

---

---

### Question: 151

---

You are modifying an application that processes loans. The following code defines the Loan class. (Line numbers are included for reference only.)

```
01 public class Loan
02 {
03
04     private int _term;
05     private const int MaximumTerm = 10;
06     private const decimal Rate = 0.034m;
07     public int Term
08     {
09         get
10         {
11             return _term;
12         }
13         set
14         {
15             if (value <= MaximumTerm)
16             {
17                 _term = value;
18             }
19             else
20             {
21
22             }
23         }
24     }
25 }
26 public delegate void MaximumTermReachedHandler(object source, EventArgs e);
```

Loans are restricted to a maximum term of 10 years. The application must send a notification message if a loan request exceeds 10 years.

You need to implement the notification mechanism.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Insert the following code segment at line 03:

```
public string MaximumTermReachedEvent { get; set; }
```

- B. Insert the following code segment at line 21:

```
if (OnMaximumTermReached != null)
{
    OnMaximumTermReached(this, new EventArgs());
}
```

- C. Insert the following code segment at line 03:

```
private string MaximumTermReachedEvent;
```

- D. Insert the following code segment at line 03:

```
public event MaximumTermReachedHandler OnMaximumTermReached;
```

- E. Insert the following code segment at line 21:

```
value = MaximumTerm;
```

- F. Insert the following code segment at line 21:

```
value = 9;
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: B, D**

---

### Question: 152

---

An application contains code that measures reaction times. The code runs the timer on a thread separate from the user interface. The application includes the following code. (Line numbers are included for reference only.)

```

01 static int RunTimer(CancellationToken cancellationToken)
02 {
03     var time = 0;
04     while (!cancellationToken.IsCancellationRequested)
05         time++;
06     return time;
07 }
08 static void Main(string[] args)
09 {
10     var tokenSource = new CancellationTokenSource();
11     var task = Task.Factory.StartNew<int>(() => RunTimer(tokenSource.Token));
12     Console.WriteLine("Press [Enter] to stop the timer.");
13     Console.ReadLine();
14
15     Console.WriteLine("Timer stopped at {0}", task.GetAwaiter().GetResult());
16     Console.ReadLine();
17 }

```

You need to ensure that the application cancels the timer when the user presses the Enter key.  
Which code segment should you insert at line 14?

- A. tokenSource.Token.Register( () => tokenSource.Cancel() );
- B. tokenSource.Cancel();
- C. tokenSource.IsCancellationRequested = true;
- D. tokenSource.Dispose();

---

### Answer: B

---

The CancellationTokenSource.Cancel method communicates a request for cancellation, and specifies whether remaining callbacks and cancelable operations should be processed.

Incorrect:

Not C: The IsCancellationRequested property is ReadOnly.

Reference:

CancellationTokenSource.Cancel Method (Boolean)

[https://msdn.microsoft.com/en-us/library/dd321703\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/dd321703(v=vs.110).aspx)

---

### Question: 153

---

You are developing an application that generates code. The application includes the following code segment. (Line numbers are included for reference only.)

```

01 public string GenerateCode(string className, string methodName)
02 {
03     ...
04     var ct = new CodeTypeDeclaration(className);
05
06     ...
07 }

```

You need to ensure that code generated by the GenerateCode() method represents a class that can be accessed by all objects in its application domain.

Which two code segments can you insert at line 05 to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. `ct.Attributes = MemberAttributes.Public;`
- B. `ct.IsStruct = true;`  
`ct.Attributes = MemberAttributes.Public;`
- C. `ct.IsClass = true;`  
`ct.Attributes = MemberAttributes.Public;`
- D. `ct.IsClass = true;`  
`ct.Attributes = MemberAttributes.Private;`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A, C**

---

### **Question: 154**

---

You are developing an application that will process personnel records.  
The application must encrypt highly sensitive data.  
You need to ensure that the application uses the strongest available encryption.  
Which class should you use?

- A. `System.Security.Cryptography.DES`
- B. `System.Security.Cryptography.Aes`
- C. `System.Security.Cryptography.TripleDES`
- D. `System.Security.Cryptography.RC2`

---

**Answer: B**

---

Advanced Encryption Standard (AES) has been adopted by the U.S. government and is now used worldwide. It supersedes the Data Encryption Standard (DES). AES key sizes are 128, 192 or 256 bits.

Incorrect:

DES, 3DES, and RC2 are all less secure.

Reference:

[https://en.wikipedia.org/wiki/Advanced\\_Encryption\\_Standard](https://en.wikipedia.org/wiki/Advanced_Encryption_Standard)

### **Question: 155**

---

You are developing an application that uses a .config file.  
The relevant portion of the .config file is shown as follows:

```
<system.diagnostics>
  <trace autoflush="false" indentsize="0">
    <listeners>
      <add name="appListener"
        type="System.Diagnostics.EventLogTraceListener"
        initializeData="TraceListenerLog" />
    </listeners>
  </trace>
</system.diagnostics>
```

You need to ensure that diagnostic data for the application writes to the event log by using the configuration specified in the .config file.

What should you include in the application code?

- A. `Debug.WriteLine("Trace data...");`
- B. `Console.SetOut(new StreamWriter("System.Diagnostics.EventLogTraceListener"));
Console.WriteLine("Trace data...");`
- C. `Trace.WriteLine("Trace data...");`
- D. `EventLog log = new EventLog();
log.WriteEntry("Trace data...");`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

### Answer: C

---

The Trace.WriteLine statements will be included in the Release compilation by default.

Incorrect:

Not A: Debug.WriteLine() statements will not be included in the Release compilation by default.

---

### Question: 156

---

You are developing an application that includes a class named Employee and a generic list of employees. The following code segment declares the list of employees:

`List<Employee> employeesList = new List<Employee>();`

You populate the employeesList object with several hundred Employee objects.

The application must display the data for five Employee objects at a time.

You need to create a method that will return the correct number of Employee objects.

Which code segment should you use?

- A. `public static IEnumerable<int> Page(IEnumerable<int> source, int page, int pageSize)  
{  
 return source.Take((pageSize - 1) * page).Skip(pageSize);  
}`
- B. `public static IEnumerable<TSource> Page<TSource>(this IEnumerable<TSource> source, int page, int pageSize)  
{  
 return source.Skip((page - 1) * pageSize).Take(pageSize);  
}`
- C. `public static IEnumerable<int> Page(IEnumerable<int> source, int page, int pageSize)  
{  
 return source.Skip((pageSize - 1) * page).Take(pageSize);  
}`
- D. `public static IEnumerable<TSource> Page<TSource>(this IEnumerable<TSource> source, int page, int pageSize)  
{  
 return source.Take((page - 1) * pageSize).Skip(pageSize);  
}`

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: B**

---

```
public static IEnumerable Page(IEnumerable source, int page, int pageSize)
{
    return source.Skip((page - 1) * pageSize).Take(pageSize);
}
if page 1 means it skips 0 and take the pageSize
if page 2 means it skips first page and take the 2nd page.
```

### Question: 157

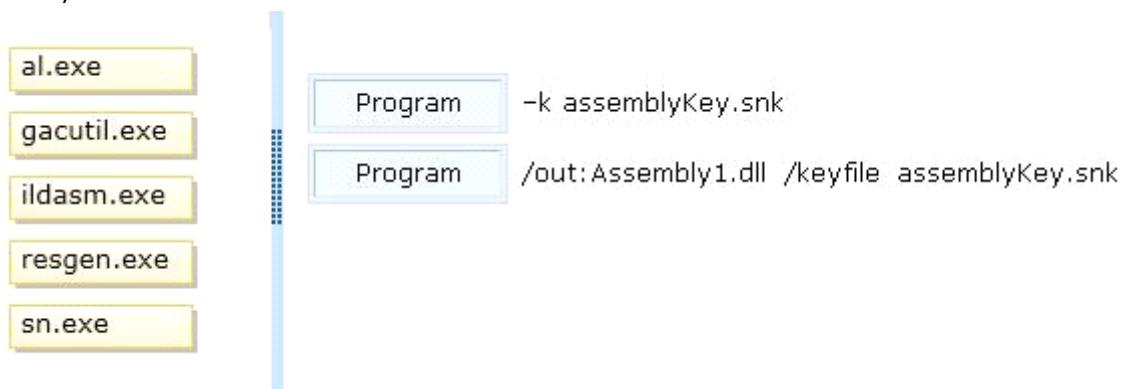
---

DRAG DROP

You create an assembly named Assembly1.dll.

You need to ensure that Assembly1.dll can be deployed to the global assembly cache (GAC).

Which commands should you run? (To answer, drag the appropriate programs to the correct locations. Each program may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)



---

**Answer:**

```
sn.exe -k assemblyKey.snk  
al.exe /out:Assembly1.dll /keyfile assemblyKey.snk
```

The al.exe command has the /out and /keyfile options.

Incorrect:

gacutil.exe command does not have the /out and /keyfile options.

Reference:

[https://msdn.microsoft.com/en-us/library/ex0ss12c\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/ex0ss12c(v=vs.110).aspx)

---

### Question: 158

DRAG DROP

You have an application that accesses a Microsoft SQL Server database.

The database contains a stored procedure named Proc1. Proc1 accesses several rows of data across multiple tables.

You need to ensure that after Proc1 executes, the database is left in a consistent state. While Proc1 executes, no other operation can modify data already read or changed by Proc1. (Develop the solution by selecting and ordering the required code snippets.)

You may not need all of the code snippets.)

```

SqlTransaction transaction = connection.BeginTransaction
(System.Data.IsolationLevel.RepeatableRead);

SqlTransaction transaction = connection.BeginTransaction
(System.Data.IsolationLevel.ReadUncommitted)
;

} finally {

command.Dispose();
connection.Dispose();
}

try {
connection.Open();
command.ExecuteNonQuery();

TransactionScope transaction = new TransactionScope();

SqlConnection connection = new SqlConnection
(connectionString);
SqlCommand command = new SqlCommand
("proc1", connection);

} catch {

transaction.Rollback();

transaction.Commit();
}

```

---

Answer:

Box 1:

```

SqlConnection connection = new SqlConnection
(connectionString);
SqlCommand command = new SqlCommand
("proc1", connection);

```

Box 2:

```

SqlTransaction transaction = connection.BeginTransaction
(System.Data.IsolationLevel.RepeatableRead);

```

Box 3:

```
try {  
    connection.Open();  
    command.ExecuteNonQuery();  
}
```

Box 4: transaction.Commit();

Box 5:

```
} catch {
```

Box 6: transaction.Rollback();

Box 7: } finally {

Box 8:

```
    command.Dispose();  
    connection.Dispose();  
}
```

Note:

\* Box 1: Start with the SqlConnection

\* Box 2: Open the SQL transaction (RepeatableRead)

/ IsolationLevel

Specifies the isolation level of a transaction.

/ RepeatableRead

Volatile data can be read but not modified during the transaction. New data can be added during the transaction.

/ ReadCommitted

Volatile data cannot be read during the transaction, but can be modified.

/ ReadUncommitted

Volatile data can be read and modified during the transaction.

Box 3: Try the query

Box 4: commit the transaction

Box 5: Catch the exception (a failed transaction)

Box 6: Rollback the transaction

Box 7: Final cleanup

Box 8: Clean up (close command and connection).

Reference:

SqlConnection.BeginTransaction Method

Incorrect:

The transaction is not set up by transactionscope here. Begintransaction is used.

## Question: 159

DRAG DROP

You have an application that uses paging. Each page displays 10 items from a list.

You need to display the third page. (Develop the solution by selecting and ordering the required code snippets. You may not need all of the code snippets.)

```
.Skip(2)  
  
.First(10)  
  
.Take(10)  
  
var page = items  
  
).  
  
.Take(1)  
  
.Skip(30)  
  
int page = items  
  
.Skip(20)
```

---

**Answer:**

Box 1: var page = items

Box 2: .Skip (20)

Box 3: .Take (10)

Note:

Skip the first two page (first 20 items) then select the next page (next 10 items),

\* Use the Take operator to return a given number of elements in a sequence and then skip over the remainder.

Use the Skip operator to skip over a given number of elements in a sequence and then return the remainder.

---

**Question: 160**

DRAG DROP

You have a method that will evaluate a parameter of type Int32 named Status.

You need to ensure that the method meets the following requirements:

If Status is set to Active, the method must return 1.

If Status is set to Inactive, the method must return 0.

If Status is any other value, the method must return -1.

What should you do? (To answer, drag the appropriate statement to the correct location in the answer area.)

a. Each statement may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```

break;
case "Active";
case "Inactive";
default:
goto default;
return

```

```

Int32 returnStatus = Int32.MinValue;
switch (status) {
    Statement
    returnStatus = 1;
    Statement
    Statement
    returnStatus = 0;
    Statement
    Statement
    returnStatus = -1;
    Statement
}
return returnStatus;

```

---

**Answer:**

---

```

Int32 returnStatus = Int32.MinValue;
switch (status) {
    case "Active":
        returnStatus = 1;
        break;
    case "Inactive":
        returnStatus = 0;
        break;
    default:
        returnStatus = -1;
        break;
}
return returnStatus;

```

**Example:**

```

int caseSwitch = 1;
switch (caseSwitch)
{
    case 1:
        Console.WriteLine("Case 1");
        break;
    case 2:
        Console.WriteLine("Case 2");
        break;
    default:
        Console.WriteLine("Default case");
        break;
}

```

Reference:

switch (C# Reference)

<https://msdn.microsoft.com/en-us/library/06tc147t.aspx>

### Question: 161

You are developing an application that uses multiple asynchronous tasks to optimize performance.

You need to retrieve the result of an asynchronous task.

Which code segment should you use?

- A. 

```
protected async void StartTask()
{
    string result = await GetData();
    ...
}
public Task<string> GetData()
{
    ...
}
```
- B. 

```
protected async void StartTask()
{
    string result = GetData();
    ...
}
public Task<string> GetData()
{
    ...
}
```
- C. 

```
protected async void StartTask()
{
    string result = await GetData();
    ...
}
public async Task<string> GetData()
{
    ...
}
```
- D. 

```
protected async void StartTask()
{
    string result = async GetData();
    ...
}
public await Task<string> GetData()
{
    ...
}
```

A. Option A

B. Option B

C. Option C

D. Option D

---

**Answer: C**

---

Use the `async` modifier to specify that a method, lambda expression, or anonymous method is asynchronous. If you use this modifier on a method or expression, it's referred to as an `async` method.

Example:

```
public async Task<int> ExampleMethodAsync()
{
    //...
}
```

Reference:

async (C# Reference)

<https://msdn.microsoft.com/en-us/library/hh156513.aspx>

## Question: 162

---

You are developing an application.

The application contains the following code:

```
class Program
{
    static void ProcessOrders (string orderRefNumber)
    {
        if (orderRefNumber == null)
        {
            throw new ArgumentNullException();
        }
        ...
    }

    static void Main()
    {
        try
        {
            string orderRefNumber = null;
            ProcessOrders(orderRefNumber);
        }
        catch (ArgumentNullException e)
        {
            Console.WriteLine("{0} An exception caught.", e);
        }

        catch (Exception e)
        {
            Console.WriteLine("{0} An exception caught.", e);
        }
    }
}
```

When you compile the code, you receive the following syntax error message: "A previous catch clause already catches all exceptions of this or a super type ('System.Exception')."

You need to ensure that the code can be compiled. What should you do?

- A. Catch the `ArgumentException` exception instead of the `ArgumentNullException` exception.
- B. Throw a new exception in the second catch block.

- C. Catch the ArgumentNullException exception first.
- D. Re-throw the exception caught by the second catch block.

---

**Answer: A**

---

**Question: 163**

---

You are developing an application that includes a method named SendMessage.  
You need to ensure that the SendMessage() method is called with the required parameters.  
Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution.  
Choose two.)

```

A. static void Main(string[] args)
{
    dynamic message = new { From = "Jon Morris", To = "Mary North", Content = "Hello World" };
    SendMessage(message);
}
private static void SendMessage(Object msg)
{
    Console.WriteLine(msg.From);
    Console.WriteLine(msg.To);
    Console.WriteLine(msg.Content);
}

B. static void Main(string[] args)
{
    var message = new Object();
    message.From = "Jon Morris";
    message.To = "Mary North";
    message.Content = "Hello World";
    SendMessage(message);
}
private static void SendMessage(dynamic msg)
{
    Console.WriteLine(msg.From);
    Console.WriteLine(msg.To);
    Console.WriteLine(msg.Content);
}

C. static void Main(string[] args)
{
    var message = new { From = "Jon Morris", To = "Mary North", Content = "Hello World" };
    SendMessage(message);
}
private static void SendMessage(dynamic msg)
{
    Console.WriteLine(msg.From);
    Console.WriteLine(msg.To);
    Console.WriteLine(msg.Content);
}

D. static void Main(string[] args)
{
    dynamic message = new ExpandoObject();
    message.From = "Jon Morris";
    message.To = "Mary North";
    message.Content = "Hello World";
    SendMessage(message);
}
private static void SendMessage(dynamic msg)
{
    Console.WriteLine(msg.From);
    Console.WriteLine(msg.To);
    Console.WriteLine(msg.Content);
}

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: C, D**

D: ExpandoObject

Represents an object whose members can be dynamically added and removed at run time.

/ The ExpandoObject class enables you to add and delete members of its instances at run time and also to set and get values of these members. This class supports dynamic binding, which enables you to use standard syntax like sampleObject.sampleMember instead of more complex syntax like sampleObject.GetAttribute("sampleMember").

/ You can pass instances of the ExpandoObject class as parameters. Note that these instances are treated as dynamic objects in C# and late-bound objects in Visual Basic. This means that you do not have IntelliSense for object members and you do not receive compiler errors when you call non-existent members. If you call a member that does not exist, an exception occurs.

Incorrect:

Not A, not B: It tries to get/set From, to properties of type Object. It does not compile.

---

### **Question: 164**

You have an application that accesses a Web server named Server1.

You need to download an image named Image1.jpg from Server1 and store the image locally as File1.jpg.

Which code should you use?

- A. 

```
WebRequest request = HttpWebRequest.Create("http://server1/image1.jpg");
StreamWriter writer = new StreamWriter(request.GetResponse().GetResponseStream());
writer.WriteLine("C:\\\\file1.jpg");
writer.Dispose();
```
  
- B. 

```
WebClient client = new WebClient();
StreamWriter writer = new StreamWriter("C:\\\\file1.jpg");
writer.Write(client.DownloadData("http://server1/image1.jpg"));
writer.Dispose();
client.Dispose();
```
  
- C. 

```
WebClient client = new WebClient();
client.DownloadFile("http://server1/image1.jpg", "C:\\\\file1.jpg");
client.Dispose();
```
  
- D. 

```
WebRequest request = HttpWebRequest.Create("http://server1/image1.jpg");
StreamWriter writer = new StreamWriter(request.GetResponse().GetResponseStream());
writer.Write("C:\\\\file1.jpg");
writer.Dispose();
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: C**

---

### **Question: 165**

You are developing a C# application. The application references and calls a RESTful web service named EmployeeService. The EmployeeService web service includes a method named GetEmployee, which accepts an employee ID as a parameter. The web service returns the following JSON data from the method.

{"Id":1,"Name":"David Jones">

The following code segment invokes the service and stores the result:

```
WebClient client = new WebClient();
byte[] employeeData = client.DownloadData("http://localhost:2588/EmployeeService.svc/GetEmployee/1");
```

You need to convert the returned JSON data to an Employee object for use in the application.

Which code segment should you use?

- A. 

```
using (Stream stream = new MemoryStream(employeeData))
{
    XmlSerializer xmlSerializer = new XmlSerializer(typeof(Employee));
    Employee retrievedEmployee = xmlSerializer.Deserialize(stream) as Employee;
    ...
}
```
- B. 

```
using (Stream stream = new MemoryStream(employeeData))
{
    DataContractSerializer dataContractSerializer = new DataContractSerializer(typeof(Employee));
    Employee retrievedEmployee = dataContractSerializer.ReadObject(stream) as Employee;
    ...
}
```
- C. 

```
using (Stream stream = new MemoryStream(employeeData))
{
   DataContractJsonSerializer dataContractJsonSerializer = new DataContractJsonSerializer(typeof(Employee));
    Employee retrievedEmployee = dataContractJsonSerializer.ReadObject(stream) as Employee;
    ...
}
```
- D. 

```
using (Stream stream = new MemoryStream(employeeData))
{
    NetDataContractSerializer netDataContractSerializer = new NetDataContractSerializer();
    Employee retrievedEmployee = netDataContractSerializer.ReadObject(stream) as Employee;
    ...
}
```

A. Option A

B. Option B

C. Option C

D. Option D

---

**Answer: C**

---

### **Question: 166**

---

You are developing an assembly.

You plan to sign the assembly when the assembly is developed.

You need to reserve space in the assembly for the signature.

What should you do?

- A. Run the Assembly Linker tool from the Windows Software Development Kit (Windows SDK).
- B. Run the Strong Name tool from the Windows Software Development Kit (Windows SDK).

- C. Add the AssemblySignatureKeyAttribute attribute to the assembly.  
 D. Add the AssemblyDelaySignAttribute attribute to the assembly.

---

**Answer: D**

---

The AssemblyDelaySignAttribute class specifies that the assembly is not fully signed when created.

Reference:

[https://msdn.microsoft.com/en-us/library/system.reflection.assemblydelayesignattribute\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.reflection.assemblydelayesignattribute(v=vs.110).aspx)

### Question: 167

---

You have the following code (line numbers are included for reference only):

```

01 public class Program
02 {
03     private static System.Diagnostics.Stopwatch _execTimer =
04         new System.Diagnostics.Stopwatch();
05     public static void Delay(int delay)
06     {
07         Thread.Sleep(delay);
08     }
09     public static void LogLongExec(string msg)
10     {
11         if (_execTimer.Elapsed.Seconds >= 5)
12             throw new Exception(
13                 string.Format("Execution is too long > {0} > {1}",
14                 msg, _execTimer.Elapsed.TotalMilliseconds));
15     }
16     public static void Main()
17     {
18         _execTimer.Start();
19         try
20         {
21             Delay(10);
22             LogLongExec("Delay(10)");
23             Delay(5000);
24             LogLongExec("Delay(5000)");
25         }
26         catch (Exception ex)
27         {
28
29     }
30 }
31 }
```

You need to ensure that if an exception occurs, the exception will be logged.  
 Which code should you insert at line 28?

- A. System.Diagnostics.XmlWriterTraceListener listener =  
   new XmlWriterTraceListener("./Error.log");  
   listener.WriteLine(ex.Message);  
   listener.Flush();  
   listener.Close();
- B. System.Diagnostics.XmlWriterTraceListener loggingListener =  
   new XmlWriterTraceListener("./Trace.log");  
   loggingListener.Flush();  
   loggingListener.Close();
- C. System.Diagnostics.Trace.WriteLine(ex.Message, "Error.log");
- D. System.Diagnostics.TraceSource trace = new TraceSource("./Trace.log");  
   trace.TraceEvent(TraceEventType.Error, ex.HResult, ex.Message);

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: A**

---

\* XmlWriterTraceListener

Directs tracing or debugging output as XML-encoded data to a TextWriter or to a Stream, such as a FileStream.

### Question: 168

---

You are troubleshooting an application that uses a class named FullName. The class is decorated with the DataContractAttribute attribute. The application includes the following code. (Line numbers are included for reference only.)

```

01 class Program
02 {
03     MemoryStream WriteName(Name name)
04     {
05         var ms = new MemoryStream();
06         var binary = XmlDictionaryWriter.CreateBinaryWriter(ms);
07         var ser = new DataContractSerializer(typeof(FullName));
08         ser.WriteObject(binary, name);
09
10         return ms;
11     }
12 }
```

You need to ensure that the entire FullName object is serialized to the memory stream object. Which code segment should you insert at line 09?

- A. binary.WriteEndElement();  
 B. binary.NriteEndDocument();  
 C. ms.Close() ;

D. binary.Flush();

---

**Answer: D**

---

Example:

```
MemoryStream stream2 = new MemoryStream();
XmlDictionaryWriter binaryDictionaryWriter = XmlDictionaryWriter.CreateBinaryWriter(stream2);
serializer.WriteObject(binaryDictionaryWriter, record1);
binaryDictionaryWriter.Flush();
```

Incorrect:

Not A: throws InvalidOperationException.

Reference:

[https://msdn.microsoft.com/en-us/library/ms752244\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/ms752244(v=vs.110).aspx)

---

### Question: 169

---

You write the following method (line numbers are included for reference only):

```
01 public static List<string> TestIfWebSite(string url)
02 {
03     const string pattern = @"http://(www\.)?([^\.]+)\.com";
04     List<string> result = new List<string>();
05
06     MatchCollection myMatches = Regex.Matches(url, pattern);
07 ...
08     return result;
09 }
```

You need to ensure that the method extracts a list of URLs that match the following pattern:

@[http://\(www\.\)?\(\[^\.\]+\)\.com](http://(www\.)?([^\.]+)\.com);

Which code should you insert at line 07?

A. `foreach (Match currentMatch in myMatches)  
 result.Add(currentMatch.Groups.ToString());`

B. `result = (List<string>) myMatches.GetEnumerator();`

C. `foreach (Match currentMatch in myMatches)  
 result.Add(currentMatch.Value);`

D. `result = (List<string>) myMatches.SyncRoot;`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: C**

---

\* MatchCollection

Represents the set of successful matches found by iteratively applying a regular expression pattern to the input string. The collection is immutable (read-only) and has no public constructor. The Regex.Matches method returns a MatchCollection object.

\* List<T>.Add Method

Adds an object to the end of the List<T>.

Incorrect:

Not A: Gives groups array. Hence ToString(0) method mentioned above won't give desired result

Not D: ICollection.SyncRoot Property

For collections whose underlying store is not publicly available, the expected implementation is to return the current instance. Note that the pointer to the current instance might not be sufficient for collections that wrap other collections; those should return the underlying collection's SyncRoot property.

Reference:

Regex.Matches Method (String, String)

[https://msdn.microsoft.com/en-us/library/b9712a7w\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/b9712a7w(v=vs.110).aspx)

---

## Question: 170

---

You have the following code:

```
List<Int32> items = new List<int>() {  
    100,  
    95,  
    80,  
    75,  
    95  
};
```

You need to retrieve all of the numbers from the items variable that are greater than 80.

Which code should you use?

- A. `var result = items.First(i => i > 80);`
- B. `var result = items.Where(i => i > 80);`
- C. `var result = from i in items  
groupby i into grouped  
where grouped.Key > 80  
select i;`
- D. `var result = items.Any(i => i > 80);`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

Answer: B

---

`Enumerable.Where<TSource>` Method (`IEnumerable<TSource>, Func<TSource, Boolean>`)  
Filters a sequence of values based on a predicate.

Example:

```
List<string> fruits =
    new List<string> { "apple", "passionfruit", "banana", "mango",
        "orange", "blueberry", "grape", "strawberry" };
IEnumerable<string> query = fruits.Where(fruit => fruit.Length < 6);
foreach (string fruit in query)
{
    Console.WriteLine(fruit);
}
/*
This code produces the following output:
apple
mango
grape
*/
```

## Question: 171

---

You are developing an application that uses several objects. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 private bool IsNull(object obj)
02 {
03
04     return false;
05 }
```

You need to evaluate whether an object is null.

Which code segment should you insert at line 03?

- A. 

```
if (null = obj)
{
    return true;
}
```
- B. 

```
if (null == obj)
{
    return true;
}
```
- C. 

```
if (null)
{
    return true;
}
```
- D. 

```
if (!obj)
{
    return true;
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: B**

---

Use the == operator to compare values and in this case also use the null literal.

---

### **Question: 172**

---

You are implementing a new method named ProcessDat

- a. The ProcessData() method calls a third-party component that performs a long-running operation to retrieve stock information from a web service.

The third-party component uses the IAsyncResult pattern to signal completion of the long-running operation so that the UI can be updated with the new values.

You need to ensure that the calling code handles the long-running operation as a System.Threading.Tasks.Task object to avoid blocking the UI thread.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Create a TaskCompletionSource<T> object.
- B. Call the component by using the TaskFactory.FromAsync() method.
- C. Apply the following attribute to the ProcessData() method signature:  
[MethodImpl(MethodImplOptions.Synchronized)]
- D. Apply the async modifier to the ProcessData() method signature.

---

**Answer: A, B**

---

A: In many scenarios, it is useful to enable a Task<TResult> to represent an external asynchronous operation. TaskCompletionSource<TResult> is provided for this purpose. It enables the creation of a task that can be handed out to consumers, and those consumers can use the members of the task as they would any other. However, unlike most tasks, the state of a task created by a TaskCompletionSource is controlled explicitly by the methods on TaskCompletionSource. This enables the completion of the external asynchronous operation to be propagated to the underlying Task. The separation also ensures that consumers are not able to transition the state without access to the corresponding TaskCompletionSource.

B: TaskFactory.FromAsync Method

Creates a Task that represents a pair of begin and end methods that conform to the Asynchronous Programming Model pattern. Overloaded.

Example:

TaskFactory.FromAsync Method (IAsyncResult, Action<IAsyncResult>)

Creates a Task that executes an end method action when a specified IAsyncResult completes.

Note:

\* System.Threading.Tasks.Task

Represents an asynchronous operation.

---

### **Question: 173**

---

You are developing a class named Account that will be used by several applications.

The applications that will consume the Account class will make asynchronous calls to the Account class to execute several different methods.

You need to ensure that only one call to the methods is executed at a time.

Which keyword should you use?

- A. sealed
- B. protected
- C. checked
- D. lock

---

**Answer: D**

---

The lock keyword ensures that one thread does not enter a critical section of code while another thread is in the critical section. If another thread tries to enter a locked code, it will wait, block, until the object is released.

Reference:

lock Statement (C# Reference)

<https://msdn.microsoft.com/en-us/library/c5kehkcz.aspx>

---

### Question: 174

---

You are developing an application by using C#. The application will write events to an event log. You plan to deploy the application to a server.

You create an event source named MySource and a custom log named MyLog on the server.

You need to write events to the custom log.

Which code segment should you use?

- A. 

```
public void WriteToEventLog(string message)
{
    EventLog eventLog = new EventLog() { Source = "Application" };
    eventLog.WriteEntry(message);
}
```
  - B. 

```
public void WriteToEventLog(string message)
{
    EventLog eventLog = new EventLog() { Source = "MyLog", EnableRaisingEvents = true };
    EventInstance eventInstance = new EventInstance(0, 1);
    eventLog.WriteEvent(eventInstance, message);
}
```
  - C. 

```
public void WriteToEventLog(string message, EventLogEntryType eventLogEntryType)
{
    EventLog eventLog = new EventLog() { Source = "MyLog" };
    eventLog.WriteEntry(message, eventLogEntryType);
}
```
  - D. 

```
public void WriteToEventLog(string message, EventLogEntryType eventLogEntryType)
{
    EventLog eventLog = new EventLog() { Source = "MySource", EnableRaisingEvents = true };
    eventLog.WriteEntry(message, eventLogEntryType);
}
```
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

**Answer: D**

---

## Question: 175

---

You plan to store passwords in a Windows Azure SQL Database database.  
You need to ensure that the passwords are stored in the database by using a hash algorithm,  
Which cryptographic algorithm should you use?

- A. ECDSA
- B. RSA-768
- C. AES-256
- D. SHA-256

---

**Answer: D**

---

Secure Hash Algorithm is a cryptographic hash function.

Incorrect:

Not B: EDCA is an encryption algorithm.

Not B: RSA is an encryption algorithm.

Not C: AES is an encryption algorithm.

Reference:

<https://en.wikipedia.org/wiki/SHA-1>

## Question: 176

---

HOTSPOT

You have an existing order processing system that accepts .xml files,  
The following code shows an example of a properly formatted order in XML:

```
<Order OrderID="42">
  <Customer>Ben Smith</Customer>
  <CustomerID>206</CustomerID>
  <OrderDate>2013-04-19T09:13:14.7265994-05:00</OrderDate>
</Order>
```

You create the following class that will be serialized:

```
[DataContract()]
public class Order
{
  [DataMember()]
  public Int32 OrderID { get; set; }

  [DataMember(Name = "Customer")]
  public String CustomerName { get; set; }

  [DataMember()]
  private Int32 CustomerID { get; set; }

  public DateTime OrderDate { get; set; }
}
```

For each of the following properties, select Yes if the property is serialized according to the defined schema.  
a. Otherwise, select No.

	<b>Yes</b>	<b>No</b>
OrderID	<input type="radio"/>	<input checked="" type="radio"/>
OrderDate	<input type="radio"/>	<input checked="" type="radio"/>
CustomerName	<input checked="" type="radio"/>	<input type="radio"/>

**Answer:**

	<b>Yes</b>	<b>No</b>
OrderID	<input type="radio"/>	<input checked="" type="radio"/>
OrderDate	<input type="radio"/>	<input checked="" type="radio"/>
CustomerName	<input checked="" type="radio"/>	<input type="radio"/>

**Explanation:**

OrderId – NO (this will serialize as an element, not as aa attribute)

OrderDate – NO (doesn't have DataMember attribute, thus is completely ignored)

CustomerName – YES (DataMember is set correctly)

**Question: 177**

You are developing an application that includes methods named ConvertAmount and TransferFunds.

You need to ensure that the precision and range of the value in the amount variable is not lost when the TransferFunds() method is called.

Which code segment should you use?

- A. `private static void ConvertAmount(float amount)  
{  
 TransferFunds(amount);  
}  
private static void TransferFunds(int funds)  
{  
 ...  
 Console.WriteLine(funds);  
}`
- B. `private static void ConvertAmount(float amount)  
{  
 TransferFunds((int) funds);  
}  
private static void TransferFunds(float funds)  
{  
 ...  
}`
- C. `private static void ConvertAmount(float amount)  
{  
 TransferFunds(amount);  
}  
private static void TransferFunds(float funds)  
{  
 ...  
}`
- D. `private static void ConvertAmount(float amount)  
{  
 TransferFunds(Double.Parse(amount));  
}  
private static void TransferFunds(double funds)  
{  
 ...  
 Console.WriteLine(funds);  
}`

- A. Option A  
B. Option B  
C. Option C  
D. Option D

---

**Answer: C**

---

Simply use float for the TransferFunds parameter.

Note:

- \* The float keyword signifies a simple type that stores 32-bit floating-point values.
- \* The double keyword signifies a simple type that stores 64-bit floating-point values

---

**Question: 178**

---

You need to write a console application that meets the following requirements:

If the application is compiled in Debug mode, the console output must display Entering debug mode.  
 If the application is compiled in Release mode, the console output must display Entering release mode.  
 Which code should you use?

- A. 

```
#if (TRACE)
    Console.WriteLine("Entering debug mode");
#else
    Console.WriteLine("Entering release mode");
#endif
```
- B. 

```
#if (DEBUG)
    Console.WriteLine("Entering debug mode");
#else
    Console.WriteLine("Entering release mode");
#endif
```
- C. 

```
if(System.Diagnostics.Debugger.IsAttached)
    Console.WriteLine("Entering debug mode");
else
    Console.WriteLine("Entering release mode");
```
- D. 

```
#region DEBUG
    Console.WriteLine("Entering debug mode");
#endregion
#region RELEASE
    Console.WriteLine("Entering release mode");
#endregion
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

### Answer: B

---

When the C# compiler encounters an #if directive, followed eventually by an #endif directive, it will compile the code between the directives only if the specified symbol is defined. Unlike C and C++, you cannot assign a numeric value to a symbol; the #if statement in C# is Boolean and only tests whether the symbol has been defined or not. For example,

```
#define DEBUG
// ...
#if DEBUG
    Console.WriteLine("Debug version");
#endif
```

---

### Question: 179

---

DRAG DROP

You are adding a method to an existing application. The method uses an integer named statusCode as an input

parameter and returns the status code as a string.

The method must meet the following requirements:

Return "Error" if the statusCode is 0.

Return "Success" if the statusCode is 1.

Return "Unauthorized" if the statusCode is any value other than 0 or 1.

You need to implement the method to meet the requirements.

How should you complete the relevant code? (To answer, drag the appropriate statements to the correct locations in the answer area.)

a. Each statement may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```
string statusText;
switch (statusCode)
{
    case 0:
        statusText = "Error";
    case 1:
        statusText = "Success";
    :
    statusText = "Unauthorized";
}
return statusText;
```

---

Answer:

---

```

string statusText;
switch (statusCode)
{
    case 0:
        statusText = "Error";
        break;
    case 1:
        statusText = "Success";
        break;
    default:
        statusText = "Unauthorized";
        break;
}
return statusText;

```

Example:

```

int caseSwitch = 1;
switch (caseSwitch)
{
    case 1:
        Console.WriteLine("Case 1");
        break;
    case 2:
        Console.WriteLine("Case 2");
        break;
    default:
        Console.WriteLine("Default case");
        break;
}

```

Reference:

switch (C# Reference)  
<https://msdn.microsoft.com/en-us/library/06tc147t.aspx>

### **Question: 180**

---

You have the following class (line numbers are included for reference only):

```

01 public class Class1
02 {
03     private String value = String.Empty;
04     private ServiceProxy proxy = new ServiceProxy();
05
06     public String Value
07     {
08         get {return value;}
09     }
10     public void Modify(Object newValue)
11     {
12
13         value += proxy.Update(newValue.ToString());
14     }
15 }
16 public class Test
17 {
18     public void Execute()
19     {
20         Class1 class1 = new Class1();
21         (new ParameterizedThreadStart(class1.Modify)).Invoke(1);
22         (new ParameterizedThreadStart(class1.Modify)).Invoke(2);
23         (new ParameterizedThreadStart(class1.Modify)).Invoke(3);
24         Console.WriteLine(class1.Value);
25     }
26 }
```

ServiceProxy is a proxy for a web service. Calls to the Update method can take up to five seconds. The Test class is the only class the uses Class1.

You run the Execute method three times, and you receive the following results:

213  
312  
231

You need to ensure that each value is appended to the Value property in the order that the Modify methods are invoked.

What should you do?

- A. Insert the following at line 5:

```
Object obj1 = new Object();
```

Insert the following at line 12:

```
Monitor.Enter(obj1);
```

- B. Insert the following at line 5:

```
Object obj1 = new Object();
```

Insert the following at line 12:

```
lock (obj1)
```

- C. Insert the following at line 12:

```
Monitor.Enter(this);
```

- D. Insert the following at line 12:

```
lock (value)
```

A. Option A

B. Option B

C. Option C

D. Option D

---

**Answer: B**

---

Need to lock statement. The lock keyword marks a statement block as a critical section by obtaining the mutual-exclusion lock for a given object, executing a statement, and then releasing the lock.

Reference:

lock Statement (C# Reference)

<https://msdn.microsoft.com/en-us/library/c5kehkcz.aspx>

---

### Question: 181

---

You are developing a method named GetHash that will return a hash value for a file. The method includes the following code. (Line numbers are included for reference only.)

```
01 public byte[] GetHash(string filename, string algorithmType)
02 {
03     var hasher = HashAlgorithm.Create(algorithmType);
04     var fileBytes = System.IO.File.ReadAllBytes(filename);
05
06 }
```

You need to return the cryptographic hash of the bytes contained in the fileBytes variable.

Which code segment should you insert at line 05?

- A. `var outputBuffer = new byte[fileBytes.Length];  
hasher.TransformBlock(fileBytes, 0, fileBytes.Length, outputBuffer, 0);  
hasher.TransformFinalBlock(fileBytes, fileBytes.Length - 1, fileBytes.Length);  
return outputBuffer;`
- B. `hasher.ComputeHash(fileBytes);  
return hasher.GetHashCode();`
- C. `var outputBuffer = new byte[fileBytes.Length];  
hasher.TransformBlock(fileBytes, 0, fileBytes.Length, outputBuffer, 0);  
return outputBuffer;`
- D. `hasher.ComputeHash(fileBytes);  
return hasher.Hash;`
- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: D**

---

The hashAlgorithm.ComputeHash computes the hash value for the input data.

Reference:

HashAlgorithm.ComputeHash Method

[https://msdn.microsoft.com/en-us/library/system.security.cryptography.hashalgorithm.computehash\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.security.cryptography.hashalgorithm.computehash(v=vs.110).aspx)

## Question: 182

---

You are developing an application that includes the following code segment:

```
interface IFile
{
    void Open();
}
interface IDbConnection
{
    void Open();
}
```

You need to implement the Open() method of each interface in a derived class named UseResources and call the Open() method of each interface.

Which two code segments should you use? (Each correct answer presents part of the solution. Choose two.)

- A. `class UseResources : IFile, IDbConnection
{
 void IFile.Open()
 {
 ...
 }
 void IDbConnection.Open()
 {
 ...
 }
}`
- B. `var manager = new UseResources ();
manager.Open();`
- C. `var manager = new UseResources ();
((IFile)manager).Open();
((IDbConnection)manager).Open();`
- D. `class UseResources : IFile, IDbConnection
{
 public void IFile.Open()
 {
 ...
 }
 public void IDbConnection.Open()
 {
 ...
 }
}`
- E. `var manager = new UseResources ();
manager.Open(IFile);
manager.Open(IDbConnection);`
- F. `var manager = new UseResources ();
((IFile, IDbConnection)manager).Open();`

- A. Option A  
B. Option B  
C. Option C  
D. Option D

---

**Answer: A, C**

---

\* An interface contains only the signatures of methods, properties, events or indexers. A class or struct that implements the interface must implement the members of the interface that are specified in the interface definition.

\* Example:

interface ISampleInterface

```
{  
    void SampleMethod();  
}  
class ImplementationClass : ISampleInterface  
{  
    // Explicit interface member implementation:  
    void ISampleInterface.SampleMethod()  
    {  
        // Method implementation.  
    }  
    static void Main()  
    {  
        // Declare an interface instance.  
        ISampleInterface obj = new ImplementationClass();  
        // Call the member.  
        obj.SampleMethod();  
    }  
}
```

---

### **Question: 183**

---

You are implementing a method named ProcessData that performs a long-running task. The ProcessData() method has the following method signature:

```
public void ProcessData(List<decimal> values, CancellationTokenSource source, CancellationToken token)
```

If the calling code requests cancellation, the method must perform the following actions:

Cancel the long-running task.

Set the task status to TaskStatus.Canceled.

You need to ensure that the ProcessData() method performs the required actions.

Which code segment should you use in the method body?

- A. if (token.IsCancellationRequested)  
return;
- B. throw new AggregateException();
- C. token.ThrowIfCancellationRequested();
- D. source.Cancel();

---

### **Answer: C**

---

The CancellationToken.ThrowIfCancellationRequested method throws a OperationCanceledException if this token has had cancellation requested.

This method provides functionality equivalent to:

C#

```
if (token.IsCancellationRequested)  
    throw new OperationCanceledException(token);
```

Reference:

[CancellationToken.ThrowIfCancellationRequested Method \(\)](#)

[https://msdn.microsoft.com/en-us/library/system.threading.cancellationtoken.throwifcancellationrequested\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.threading.cancellationtoken.throwifcancellationrequested(v=vs.110).aspx)

---

### **Question: 184**

---

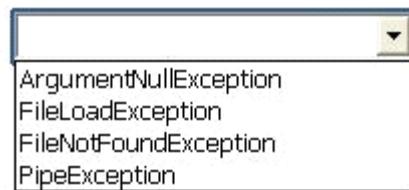
**HOTSPOT**

You have the following code (line numbers are included for reference only):

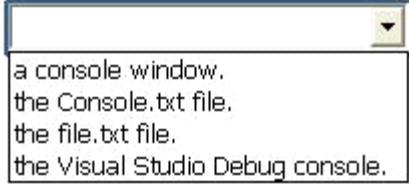
```
01 using (StreamWriter writer = new StreamWriter(@"C:\console.txt"))
02 {
03     Console.SetOut(writer);
04     using (FileStream stream = new FileStream(@"C:\file.txt", FileMode.Open))
05     {
06         using (StreamReader reader = new StreamReader(stream))
07         {
08             while (!reader.EndOfStream) Console.WriteLine(reader.ReadLine());
09         }
10     }
11 }
```

To answer, complete each statement according to the information presented in the code.

If File.txt does NOT exist in the root of  
C:, ... will be thrown.



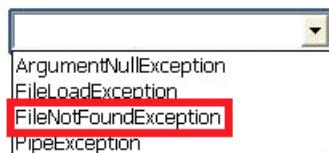
The final output of the streaming  
operation will be ...



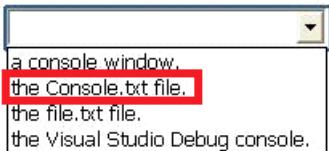
---

**Answer:**

If File.txt does NOT exist in the root of  
C:, ... will be thrown.



The final output of the streaming  
operation will be ...



---

**Question: 185**

You are developing an application in C#.

The application uses exception handling on a method that is used to execute mathematical calculations by using integer numbers.

You write the following catch blocks for the method (line numbers are included for reference only):

```
01
02 catch(ArithmeticException e) {Console.WriteLine("Arithmetic error");}
03
04 catch(ArgumentException e) {Console.WriteLine("Bad Argument");}
05
06 catch(Exception e) {Console.WriteLine("General error");}
07
```

You need to add the following code to the method:

```
catch(DivideByZeroException e) {Console.WriteLine("Divide by zero");}
```

At which line should you insert the code?

- A. 01
- B. 03
- C. 05
- D. 07

---

**Answer: A**

---

Use the most specific exception first.

---

### **Question: 186**

---

You are developing an application that uses multiple asynchronous tasks to optimize performance. The application will be deployed in a distributed environment.

You need to retrieve the result of an asynchronous task that retrieves data from a web service.

The data will later be parsed by a separate task.

Which code segment should you use?

- A. `protected async void StartTask()  
{  
 string result = await GetData();  
 ...  
}  
public Task<string> GetData()  
{  
 ...  
}`
- B. `protected async void StartTask()  
{  
 string result = await GetData();  
 ...  
}  
public async Task<string> GetData()  
{  
 ...  
}`
- C. `protected async void StartTask()  
{  
 string result = GetData();  
 ...  
}  
public Task<string> GetData()  
{  
 ...  
}`
- D. `protected async void StartTask()  
{  
 string result = async GetData();  
 ...  
}  
public await Task<string> GetData()  
{  
 ...  
}`

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: B**

---

Example:

```
// Signature specifies Task<TResult>
async Task<int> TaskOfTResult_MethodAsync()
{
    int hours;
    //...
    // Return statement specifies an integer result.
```

```
    return hours;
}
// Calls to TaskOfTResult_MethodAsync
Task<int> returnedTaskTResult = TaskOfTResult_MethodAsync();
int intResult = await returnedTaskTResult;
// or, in a single statement
int intResult = await TaskOfTResult_MethodAsync();
// Signature specifies Task
async Task Task_MethodAsync()
{
    // ...
    // The method has no return statement.
}
// Calls to Task_MethodAsync
Task returnedTask = Task_MethodAsync();
await returnedTask;
// or, in a single statement
await Task_MethodAsync();
Reference:
Asynchronous Programming with Async and Await (C# and Visual Basic)
https://msdn.microsoft.com/en-us/library/hh191443.aspx
```

### Question: 187

You are implementing a method named `GetValidPhoneNumbers`. The `GetValidPhoneNumbers()` method processes a list of string values that represent phone numbers.

The `GetValidPhoneNumbers()` method must return only phone numbers that are in a valid format.

You need to implement the `GetValidPhoneNumbers()` method.

Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

```

A. private static List<String> GetValidPhoneNumbers(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    var validPhoneNumbers = new List<String>();
    foreach(Match match in matches)
    {
        if(match.Success)
        {
            validPhoneNumbers.Add(match.Value);
        }
    }
    return validPhoneNumbers;
}

B. private static List<String> GetValidPhoneNumbers(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    return (from Match match in matches where match.Success select match.Value).ToList();
}

C. private static List<String> GetValidPhoneNumbers(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    return (from Match match in matches where match.Success select match.Success.ToString()).ToList();
}

D. private static List<String> GetValidPhoneNumbers(string input, string pattern)
{
    var regex = new Regex(pattern);
    var matches = regex.Matches(input);
    var validPhoneNumbers = new List<String>();
    foreach(Match match in matches)
    {
        if(!match.Success)
        {
            validPhoneNumbers.Add(match.Value);
        }
    }
    return validPhoneNumbers;
}

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A, B**

---

\* Regex.Matches

Searches an input string for all occurrences of a regular expression and returns all the matches.

\* MatchCollection

Represents the set of successful matches found by iteratively applying a regular expression pattern to the input string.

The collection is immutable (read-only) and has no public constructor. The Regex.Matches method returns a MatchCollection object.

\* List<T>.Add Method

Adds an object to the end of the List<T>.

### Question: 188

DRAG DROP

You are developing an application that will write data to a file. The application includes the following code segment. (Line numbers are included for reference only.)

\* Missing code \*

You need to ensure that the WriteData() method will write data to a file.

Which four code segments should you insert in sequence at line 03? (To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.)

writer.Write(data);

writer = new StreamWriter(fileName);

StreamWriter writer = null;

writer.Close();

writer.Open();

### Answer:

Box 1:

StreamWriter writer = null;

Box 2:

writer = new StreamWriter(fileName);

Box 3:

writer.Write(data);

Box 4:

writer.Close();

Note:

\* StreamWriter Constructor (String)

Initializes a new instance of the StreamWriter class for the specified file by using the default encoding and buffer size.

Incorrect:

The StreamWriter class has no method Open.

### Question: 189

You need to create a method that can be called by using a varying number of parameters.

What should you use?

A. derived classes

- B. interface
- C. enumeration
- D. method overloading

---

**Answer: D**

---

Member overloading means creating two or more members on the same type that differ only in the number or type of parameters but have the same name.

Overloading is one of the most important techniques for improving usability, productivity, and readability of reusable libraries. Overloading on the number of parameters makes it possible to provide simpler versions of constructors and methods. Overloading on the parameter type makes it possible to use the same member name for members performing identical operations on a selected set of different types.

---

### **Question: 190**

---

You are creating an application that reads from a database.

You need to use different databases during the development phase and the testing phase by using conditional compilation techniques.

What should you do?

- A. Configure the Define TRACE constant setting in Microsoft Visual Studio.
- B. Decorate the code by using the [DebuggerDisplay("Mydebug")] attribute.
- C. Configure the Define DEBUG constant setting in Microsoft Visual Studio.
- D. Disable the strong-name bypass feature of Microsoft .NET Framework in the registry.

---

**Answer: C**

---

Use one debug version to connect to the development database, and a standard version to connect to the live database.

---

### **Question: 191**

---

You are creating a class named Loan.

The Loan class must meet the following requirements:

Include a member that represents the rate for a Loan instance.

Allow external code to assign a value to the rate member.

Restrict the range of values that can be assigned to the rate member.

You need to implement the rate member to meet the requirements.

In which form should you implement the rate member?

- A. public static property
- B. public property
- C. public static field
- D. protected field

---

**Answer: B**

---

For a public the type or member can be accessed by any other code in the same assembly or another assembly that references it.

Reference:

Access Modifiers (C# Programming Guide)  
<https://msdn.microsoft.com/en-us/library/ms173121.aspx>

---

### Question: 192

---

You are creating a class library that will be used in a web application.

You need to ensure that the class library assembly is strongly named.

What should you do?

- A. Use the csc.exe /target:Library option when building the application.
- B. Use the AL.exe command-line tool.
- C. Use the aspnet\_regiis.exe command-line tool.
- D. Use the EdmGen.exe command-line tool.

---

### Answer: B

---

The Windows Software Development Kit (SDK) provides several ways to sign an assembly with a strong name:

- \* Using the Assembly Linker (Al.exe) provided by the Windows SDK.
- \* Using assembly attributes to insert the strong name information in your code. You can use either the AssemblyKeyFileAttribute or the AssemblyKeyNameAttribute, depending on where the key file to be used is located.
- \* Using compiler options such /keyfile or /delsign in C# and Visual Basic, or the /KEYFILE or /DELAYSIGN linker option in C++. (For information on delay signing, see Delay Signing an Assembly.)

Note:

\* A strong name consists of the assembly's identity—it's simple text name, version number, and culture information (if provided)—plus a public key and a digital signature. It is generated from an assembly file (the file that contains the assembly manifest, which in turn contains the names and hashes of all the files that make up the assembly), using the corresponding private key. Microsoft® Visual Studio® .NET and other development tools provided in the .NET Framework SDK can assign strong names to an assembly. Assemblies with the same strong name are expected to be identical.

---

### Question: 193

---

You are creating a console application named App1.

App1 retrieves data from the Internet by using JavaScript Object Notation (JSON).

You are developing the following code segment (line numbers are included for reference only):

```
01 public bool ValidateJson(string json, Dictionary<string, object> result)
02 {
03
04     try
05     {
06         result = serializer.Deserialize<Dictionary<string, object>>(json);
07         return true;
08     }
09     catch
10     {
11         return false;
12     }
13 }
```

You need to ensure that the code validates the JSON string.

Which code should you insert at line 03?

- A. `var serializer = new DataContractSerializer();`
  - B. `DataContractSerializer serializer = new DataContractSerializer();`
  - C. `var serializer = new XmlSerializer();`
  - D. `var serializer = new JavaScriptSerializer();`
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

**Answer: D**

---

The JavaScriptSerializer Class Provides serialization and deserialization functionality for AJAX-enabled applications. The JavaScriptSerializer class is used internally by the asynchronous communication layer to serialize and deserialize the data that is passed between the browser and the Web server. You cannot access that instance of the serializer. However, this class exposes a public API. Therefore, you can use the class when you want to work with JavaScript Object Notation (JSON) in managed code.

---

**Question: 194**

---

You are developing an application that includes methods named EvaluateLoan, ProcessLoan, and FundLoan. The application defines build configurations named TRIAL, BASIC, and ADVANCED.

You have the following requirements:

The TRIAL build configuration must run only the EvaluateLoan() method.

The BASIC build configuration must run all three methods.

The ADVANCED build configuration must run only the EvaluateLoan() and ProcessLoan() methods.

You need to meet the requirements.

Which code segment should you use?

```

A. #if TRIAL
    #warning EvaluateLoan();
    #error ProcessLoan();
    #error FundLoan();
#elsif ADVANCED
    #warning EvaluateLoan();
    #warning ProcessLoan();
    #warning FundLoan();
#else
    #warning EvaluateLoan();
    #warning ProcessLoan();
    #error FundLoan();
#endif

B. #if TRIAL
    EvaluateLoan();
#elif ADVANCED
    EvaluateLoan();
    ProcessLoan();
    FundLoan();
#else
    EvaluateLoan();
    ProcessLoan();
#endif

C. #if TRIAL
    EvaluateLoan();
#elif BASIC
    EvaluateLoan();
    ProcessLoan();
    FundLoan();
#else
    EvaluateLoan();
    ProcessLoan();
#endif

D. #if TRIAL
    EvaluateLoan();
#elif BASIC
    EvaluateLoan();
    ProcessLoan();
#error FundLoan();
#else
    EvaluateLoan();
    ProcessLoan();
    FundLoan();
#endif

```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: C**

---

Incorrect:

- Not B: The BASIC configuration must run all three methods.  
 Not D: The BASIC configuration must run all three methods.

### Question: 195

---

You are creating an application that processes a list of numbers.

The application must define a method that queries the list and displays a subset of the numbers to the user. The method must not update the list.

You need to create an extendable query by using LINQ.

What should you do?

- A. Create an in-memory array of numbers. Process the numbers in the array by using the following code segment:

```
int[] numbersList = new int[8] { 1, 3, 5, 7, 11, 13, 17, 19 };
var numbers = from p in numbersList where p > 10;
foreach (int p in numbers)
{
  ...
}
```

- B. Create an in-memory array of numbers. Process the numbers in the array by using the following code segment:

```
int[] numbersList = new int[8] { 1, 3, 5, 7, 11, 13, 17, 19 };
var numbers = new Query<int>(from p in numbersList where p > 10 select p);
foreach (int p in numbers)
{
  ...
}
```

- C. Create an in-memory array of numbers. Process the numbers in the array by using the following code segment:

```
int[] numbersList = new int[8] { 1, 3, 5, 7, 11, 13, 17, 19 };
var numbers = from p in numbersList where p > 10 select p;
foreach (int p in numbers)
{
  ...
}
```

- D. Create a query to return data from a SQL database table named **Numbers**. Process the returned data by using the following code segment:

```
var numbers = "select p from Numbers where p > 10";
foreach (int p in numbers)
{
  ...
}
```

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: C**

---

### Question: 196

---

You are developing an application that will be deployed to multiple computers. You set the assembly name. You need to create a unique identity for the application assembly. Which two assembly identity attributes should you include in the source code? (Each correct answer presents part of the solution. Choose two.)

- A. AssemblyDelaySignAttribute
- B. AssemblyCompanyAttribute
- C. AssemblyProductAttribute
- D. AssemblyCultureAttribute
- E. AssemblyVersionAttribute

---

**Answer: D, E**

---

The AssemblyName object contains information about an assembly, which you can use to bind to that assembly. An assembly's identity consists of the following:

- Simple name.
- Version number.
- Cryptographic key pair.
- Supported culture.

D: AssemblyCultureAttribute

Specifies which culture the assembly supports.

The attribute is used by compilers to distinguish between a main assembly and a satellite assembly. A main assembly contains code and the neutral culture's resources. A satellite assembly contains only resources for a particular culture, as in [assembly:AssemblyCultureAttribute("de")]

E: AssemblyVersionAttribute

Specifies the version of the assembly being attributed.

The assembly version number is part of an assembly's identity and plays a key part in binding to the assembly and in version policy.

---

**Question: 197**

---

You are developing an application that contains a class named TheaterCustomer and a method named ProcessTheaterCustomer. The ProcessTheaterCustomer() method accepts a TheaterCustomer object as the input parameter.

You have the following requirements:

Store the TheaterCustomer objects in a collection.

Ensure that the ProcessTheaterCustomer() method processes the TheaterCustomer objects in the order in which they are placed into the collection.

You need to meet the requirements.

What should you do?

- A. Create a System.Collections.Stack collection. Use the Push() method to add TheaterCustomer objects to the collection. Use the Peek() method to pass the objects to the ProcessTheaterCustomer() method.
- B. Create a System.Collections.Queue collection. Use the Enqueue() method to add TheaterCustomer objects to the collection. Use the Dequeue() method to pass the objects to the ProcessTheaterCustomer() method.
- C. Create a System.Collections.SortedList collection. Use the Add() method to add TheaterCustomer objects to the collection. Use the Remove() method to pass the objects to the ProcessTheaterCustomer() method.
- D. Create a System.Collections.ArrayList collection. Use the Insert() method to add TheaterCustomer objects to the collection. Use the Remove() method to pass the objects to the ProcessTheaterCustomer() method.

---

**Answer: B**

The System.Collections.Queue collection represents a first-in, first-out collection of objects.

Reference:

[https://msdn.microsoft.com/en-us/library/system.collections.queue\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.collections.queue(v=vs.110).aspx)

---

### **Question: 198**

You are debugging a 64-bit C# application.

Users report System.OutOfMemoryException exceptions. The system is attempting to use arrays larger than 2 GB in size.

You need to ensure that the application can use arrays larger than 2 GB.

What should you do?

- A. Add the /3GB switch to the boot.ini file for the operating system.
- B. Set the IMAGE\_FILE\_LARGE\_ADDRESS\_AWARE flag in the image header for the application executable file.
- C. Set the value of the gcAllowVeryLargeObjects property to true in the application configuration file.
- D. Set the value of the user-mode virtual address space setting for the operating system to MAX.

---

**Answer: C**

On 64-bit platforms the gcAllowVeryLargeObjects enables arrays that are greater than 2 gigabytes (GB) in total size.

Reference:

<gcAllowVeryLargeObjects> Element

[https://msdn.microsoft.com/en-us/library/hh285054\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/hh285054(v=vs.110).aspx)

---

### **Question: 199**

You develop an application by using C#. The application counts the number of times a specific word appears within a set of text files. The application includes the following code. (Line numbers are included for reference only.)

```

01 class Counter
02 {
03     System.Collections.Concurrent.ConcurrentDictionary<string, int> _wordCounts =
04         new System.Collections.Concurrent.ConcurrentDictionary<string, int>();
05     public Action< DirectoryInfo > ProcessDirectory()
06     {
07         return (dirInfo =>
08         {
09             var files = dirInfo.GetFiles("*.cs").AsParallel<FileInfo>();
10             files.ForAll<FileInfo>(
11                 fileInfo =>
12                 {
13                     var fileContent = File.ReadAllText(fileInfo.FullName);
14                     var sb = new StringBuilder();
15                     foreach (var val in fileContent)
16                     {
17                         sb.Append(char.IsLetter(val) ? val.ToString().ToLowerInvariant() : " ");
18                     }
19                     string[] wordsInFile = sb.ToString().Split(new []{' '},
20                         StringSplitOptions.RemoveEmptyEntries);
21                     foreach (var word in wordsInFile)
22                     {
23                         }
24                     });
25                 });
26             var directories = dirInfo.GetDirectories().AsParallel< DirectoryInfo >();
27             directories.ForAll< DirectoryInfo >(ProcessDirectory());
28         });
29     }
30 }

```

You have the following requirements:

Populate the \_wordCounts object with a list of words and the number of occurrences of each word.

Ensure that updates to the ConcurrentDictionary object can happen in parallel.

You need to complete the relevant code.

Which code segment should you insert at line 23?

- A. \_wordCounts.AddOrUpdate(word, 1, (s, n) => n + 1);
- B. int value;
 

```

if (_wordCounts.TryGetValue(word, out value))
{
    _wordCounts[word] = value++;
}
else
{
    _wordCounts[word] = 1;
}
```
- C. var value = \_wordCounts.GetOrAdd(word, 0);
 

```

_wordCounts[word] = value++;
```
- D. var value = \_wordCounts.GetOrAdd(word, 0);
 

```

_wordCounts.TryUpdate(word, value + 1, value);
```

A. Option A

B. Option B

- C. Option C  
D. Option D

---

**Answer: A**

---

The `ConcurrentDictionary<TKey,TValue>.AddOrUpdate` method adds a key/value pair to the `ConcurrentDictionary<TKey,TValue>` if the key does not already exist, or updates a key/value pair in the `ConcurrentDictionary<TKey,TValue>` if the key already exists.

Example:

```
// Construct a ConcurrentDictionary
ConcurrentDictionary<int, int> cd = new ConcurrentDictionary<int, int>();
// Bombard the ConcurrentDictionary with 10000 competing AddOrUpdates
Parallel.For(0, 10000, i =>
{
    // Initial call will set cd[1] = 1.
    // Ensuing calls will set cd[1] = cd[1] + 1
    cd.AddOrUpdate(1, 1, (key, oldValue) => oldValue + 1);
});
Console.WriteLine("After 10000 AddOrUpdates, cd[1] = {0}, should be 10000", cd[1]);
```

Reference:

`ConcurrentDictionary<TKey,TValue>.AddOrUpdate` Method  
[https://msdn.microsoft.com/en-us/library/ee378665\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/ee378665(v=vs.110).aspx)

---

## Question: 200

---

You are evaluating a method that calculates loan interest. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 private static decimal CalculateInterest(decimal loanAmount, int loanTerm)
02 {
03     decimal interestAmount;
04     decimal loanRate;
05     if (loanTerm > 0 && loanTerm < 5 && loanAmount < 5000m)
06     {
07         loanRate = 0.045m;
08     }
09     else if (loanTerm > 5 && loanAmount > 5000m)
10     {
11         loanRate = 0.085m;
12     }
13     else
14     {
15         loanRate = 0.055m;
16     }
17     interestAmount = loanAmount * loanRate * loanTerm;
18     return interestAmount;
19 }
```

When the `loanTerm` value is 5 and the `loanAmount` value is 4500, the `loanRate` must be set to 6.5 percent.

You need to adjust the `loanRate` value to meet the requirements.

What should you do?

- A. Replace line 15 with the following code segment:

`loanRate = 0.065m;`

- B. Replace line 07 with the following code segment:

loanRate = 0.065m;  
 C. Replace line 17 with the following code segment:  
 interestAmount = loanAmount \* 0.065m \* loanTerm;  
 D. Replace line 04 with the following code segment:  
 decimal loanRate = 0.065m;

---

**Answer: A**

---

Line 15 will be executed when the loanTerm value is 5.

### Question: 201

---

You are developing an application that includes a class named Customer and a generic list of customers. The following code segment declares the list of customers:

List<Customer> customersList = new List<Customer> () ;

You populate the customersList object with several hundred Customer objects.

The application must display the data for five Customer objects at a time.

You need to create a method that will return the correct number of Customer objects.

Which code segment should you use?

- A. 

```
var manager = new UseResources();
((IFile)manager).Open();
((IDbConnection)manager).Open();
```
  
- B. 

```
class UseResources : IFile, IDbConnection
{
    public void IFile.Open()
    {
        ...
    }
    public void IDbConnection.Open()
    {
        ...
    }
}
```
  
- C. 

```
var manager = new UseResources();
manager.Open(IFile);
manager.Open(IDbConnection);
```
  
- D. 

```
class UseResources : IFile, IDbConnection
{
    void IFile.Open()
    {
        ...
    }
    void IDbConnection.Open()
    {
        ...
    }
}
```

A. Option A

- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

Note: Something wrong with question as the question is about LINQ, while the answers are about class definitions (and not LINQ method definitions).

---

### **Question: 202**

---

You are developing an application that will use multiple asynchronous tasks to optimize performance. You create three tasks by using the following code segment. (Line numbers are included for reference only.)

```
01 protected void ProcessTasks()
02 {
03     Task[] tasks = new Task[3]
04     {
05         Task.Factory.StartNew(() => MethodA()),
06         Task.Factory.StartNew(() => MethodB()),
07         Task.Factory.StartNew(() => MethodC())
08     };
09
10     ...
11 }
```

You need to ensure that the ProcessTasks() method waits until all three tasks complete before continuing. Which code segment should you insert at line 09?

- A. Task.WaitFor(3);
- B. tasks.Yield();
- C. tasks.WaitForCompletion();
- D. Task.WaitAll(tasks);

---

**Answer: D**

---

The Task.WaitAll method (Task[]) waits for all of the provided Task objects to complete execution.

Example:

```
// Construct started tasks
Task<int>[] tasks = new Task<int>[n];
for (int i = 0; i < n; i++)
{
    tasks[i] = Task<int>.Factory.StartNew(action, i);
}
// Exceptions thrown by tasks will be propagated to the main thread
// while it waits for the tasks. The actual exceptions will be wrapped in AggregateException.
try
{
    // Wait for all the tasks to finish.
    Task.WaitAll(tasks);
    // We should never get to this point
    Console.WriteLine("WaitAll() has not thrown exceptions. THIS WAS NOT EXPECTED.");
}
```

Reference:

Task.WaitAll Method (Task[])

[https://msdn.microsoft.com/en-us/library/dd270695\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/dd270695(v=vs.110).aspx)

---

### Question: 203

---

You are developing a C# application. The application includes the following code segment, (Line numbers are included for reference only.)

```
01 class Beam
02 {
03     public string Description { get; set; }
04     public int Weight { get; set; }
05     public int Id { get; set; }
06     public decimal Length { get; set; }
07 }
08 Dictionary<int, Beam> beams = new Dictionary<int, Beam>
09 {
10     { 111, new Beam { Description = "Iron", Weight = 4297, Id = 211, Length = 22.23m } },
11     { 112, new Beam { Description = "Copper", Weight = 6822, Id = 317, Length = 11.13m } },
12     { 113, new Beam { Description = "Steel", Weight = 88021, Id = 198, Length = 7.91m } },
13     { 114, new Beam { Description = "Titanium", Weight = 14014, Id = 192, Length = 17.13m } },
14     { 115, new Beam { Description = "Aluminum", Weight = 3263, Id = 196, Length = 8.45m } }
15 };
16
17 beams.Add(115, new Beam { Description = "Brass", Weight = 24331, Id = 214, Length = 28.15m });
18
```

The application fails at line 17 with the following error message: "An item with the same key has already been added."

You need to resolve the error.

Which code segment should you insert at line 16?

- A. `if (!beams.ContainsKey(115))`
  
  - B. `foreach (Beam beam in beams.Values.Where(t => t.Id != 115))`
  
  - C. `foreach (KeyValuePair<int, Beam> key in beams.Where(t => t.Key != 115))`
  
  - D. `foreach (int key in beams.Keys.Where(k => k != 115))`
- 
- A. Option A
  - B. Option B
  - C. Option C
  - D. Option D

---

Answer: A

---

The `Dictionary<TKey,TValue>.ContainsKey` method (`TKey`) determines whether the `Dictionary<TKey,TValue>` contains the specified key.

Reference:

`Dictionary<TKey, TValue>.ContainsKey` Method (`TKey`)

[https://msdn.microsoft.com/en-us/library/kw5aaea4\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/kw5aaea4(v=vs.110).aspx)

---

### Question: 204

---

You are developing an application by using C#. The application includes a method named SendMessage. The SendMessage() method requires a string input.

You need to replace "Hello" with "Goodbye" in the parameter that is passed to the SendMessage() method.

Which two code segments can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

A. `var message = "Hello World";  
SendMessage(message.Replace("Goodbye", "Hello"));`

B. `var message = "Hello World";  
SendMessage(message.Replace("Hello", "Goodbye"));`

C. `var message = "Hello World";  
message = message.Replace("Hello", "Goodbye");  
SendMessage(message);`

D. `var message = "Hello World";  
message.Replace("Goodbye", "Hello");  
SendMessage(message);`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: B, C**

---

\* The first parameter should be Hello.

\* String.Replace Method (String, String)

Returns a new string in which all occurrences of a specified string in the current instance are replaced with another specified string.

This method does not modify the value of the current instance. Instead, it returns a new string in which all occurrences of oldValue are replaced by newValue.

---

### Question: 205

---

You are developing an application that includes the following code segment:

```
interface IHome
{
    void Start();
}
interface IOffice
{
    void Start();
}
```

You need to implement both Start() methods in a derived class named UseStart that uses the Start() method of each interface.

Which two code segments should you use? (Each correct answer presents part of the solution. Choose two.)

A. `var starter = new UseStart();
((IHome, IOffice)starter).Start();`

B. `class UseStart : IHome, IOffice
{
 public void IHome.Start()
 {
 ...
 }
 public void IOffice.Start()
 {
 ...
 }
}`

C. `class UseStart : IHome, IOffice
{
 void IHome.Start()
 {
 ...
 }
 void IOffice.Start()
 {
 ...
 }
}`

D. `var starter = new UseStart();
((IHome)starter).Start();
((IOffice)starter).Start();`

E. `var starter = new UseStart();
starter.Start(IHome);
starter.Start(IOffice);`

F. `var starter = new UseStart();
starter.Start();`

- A. Option A
- B. Option B
- C. Option C
- D. Option D
- E. Option E
- F. Option F

---

**Answer: CD**

---

C: Because it explicitly implements the two Start functions of both interfaces.

D: Because we need to type cast the starter object to the interface that we want to use the implementation for.  
Reference:

Inheritance from multiple interfaces with the same method name

<http://stackoverflow.com/questions/2371178/inheritance-from-multiple-interfaces-with-the-same-method-name/2371203#2371203>

### Question: 206

---

You need to write a console application that meets the following requirements:

If the application is compiled in Debug mode, the console output must display Entering debug mode.

If the application is compiled in Release mode, the console output must display Entering release mode.

Which code should you use?

- A. 

```
#define DEBUG
    Console.WriteLine("Entering debug mode");
#define RELEASE
    Console.WriteLine("Entering release mode");
```
- B. 

```
if(System.Reflection.Assembly.GetExecutingAssembly().IsDefined
    (typeof(System.Diagnostics.Debugger), false))
    Console.WriteLine("Entering debug mode");
else
    Console.WriteLine("Entering release mode");
```
- C. 

```
#region DEBUG
    Console.WriteLine("Entering debug mode");
#endregion
#region RELEASE
    Console.WriteLine("Entering release mode");
#endregion
```
- D. 

```
#if (DEBUG)
    Console.WriteLine("Entering debug mode");
#elif (RELEASE)
    Console.WriteLine("Entering release mode ");
#endif
```

- A. Option A
- B. Option B

- C. Option C
- D. Option D

---

**Answer: D**

---

#elif lets you create a compound conditional directive. The #elif expression will be evaluated if neither the preceding #if (C# Reference) nor any preceding, optional, #elif directive expressions evaluate to true. If a #elif expression evaluates to true, the compiler evaluates all the code between the #elif and the next conditional directive. For example:

```
#define VC7
//...
#if debug
    Console.WriteLine("Debug build");
#endif
```

Incorrect:

Not B:

- \* System.Reflection.Assembly.GetExecutingAssembly Method

Gets the assembly that contains the code that is currently executing.

- \* Assembly.IsDefined Method

Indicates whether or not a specified attribute has been applied to the assembly.

- \* System.Diagnostics.Debugger Class

Enables communication with a debugger.

Property: IsAttached

Gets a value that indicates whether a debugger is attached to the process.

---

### **Question: 207**

---

You are developing an application by using C#. The application will write events to an event log. You plan to deploy the application to a server.

You create an event source named AppSource and a custom log named AppLog on the server.

You need to write events to the custom log.

Which code segment should you use?

- C A. 

```
public void WriteToEventLog(string message, EventLogEntryType eventLogEntryType)
{
    EventLog eventLog = new EventLog() { Source = "AppSource", EnableRaisingEvents = true };
    eventLog.WriteEntry(message, eventLogEntryType);
}
```
- C B. 

```
public void WriteToEventLog(string message)
{
    EventLog eventLog = new EventLog() { Source = "AppLog", EnableRaisingEvents = true };
    EventInstance eventInstance = new EventInstance(0, 1);
    eventLog.WriteEvent(eventInstance, message);
}
```
- C C. 

```
public void WriteToEventLog(string message)
{
    EventLog eventLog = new EventLog() { Source = "Application" };
    eventLog.WriteEntry(message);
}
```
- C D. 

```
public void WriteToEventLog(string message, EventLogEntryType eventLogEntryType)
{
    EventLog eventLog = new EventLog() { Source = "AppLog" };
    eventLog.WriteEntry(message, eventLogEntryType);
}
```

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: A**

---

Source should be AppSource:

\* New-EventLog

Creates a new event log and a new event source on a local or remote computer.

Parameters include:

-Source<String[]>

Specifies the names of the event log sources, such as application programs that write to the event log. This parameter is required.

### Question: 208

---

DRAG DROP

You are developing a C# application. The application includes a class named Rate. The following code segment implements the Rate class:

```
public class Rate
{
    public string Category { get; set; }
    public DateTime Date { get; set; }
    public decimal Value { get; set; }
}
```

You define a collection of rates named rateCollection by using the following code segment:

Collection<Rate> rateCollection = new Collection<Rate>();

The application receives an XML file that contains rate information in the following format:

```
<?xml version="1.0" encoding="utf-8" ?>
<RateSheet>
  <rate category="buyout" date="2012-03-22">
    <value>0.0375</value>
  </rate>
  <rate category="fixed" date="2012-03-23">
    <value>0.0475</value>
  </rate>
</RateSheet>
```

You need to parse the XML file and populate the rateCollection collection with Rate objects.

How should you complete the relevant code? (To answer, drag the appropriate code segments to the correct locations in the answer area)

a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

```
while(reader.ReadToFollowing("rate"))
{
  reader.MoveToElement();
  reader.MoveToFirstAttribute();
  reader.MoveToContent();
  reader.MoveToNextAttribute();
  reader.ReadToFollowing("value");
}

using (XmlReader reader = XmlReader.Create(new StringReader(rateXML)))
{
  while(reader.ReadToFollowing("rate"))
  {
    Rate rate = new Rate();
    rate.Category = reader.Value;
    DateTime rateDate;
    if (DateTime.TryParse(reader.Value, out rateDate))
    {
      rate.Date = rateDate;
    }
    decimal value;
    if (decimal.TryParse(reader.ReadElementContentAsString(), out value))
    {
      rate.Value = value;
    }
    rateCollection.Add(rate);
  }
}
```

### Answer:

```
using (XmlReader reader = XmlReader.Create(new StringReader(rateXML)))
{
  while(reader.ReadToFollowing("rate"))
  {
    Rate rate = new Rate();
    reader.MoveToFirstAttribute();
    rate.Category = reader.Value;
    reader.MoveToNextAttribute();
    DateTime rateDate;
    if (DateTime.TryParse(reader.Value, out rateDate))
    {
      rate.Date = rateDate;
    }
    reader.ReadToFollowing("value");
    decimal value;
    if (decimal.TryParse(reader.ReadElementContentAsString(), out value))
    {
      rate.Value = value;
    }
    rateCollection.Add(rate);
  }
}
```

#### Explanation

\* Target 1: The element name is rate not Ratesheet.

The Xmlreader readToFollowing reads until the named element is found.

\* Target 2:

The following example gets the value of the first attribute.

```
reader.ReadToFollowing("book");
reader.MoveToFirstAttribute();
string genre = reader.Value;
Console.WriteLine("The genre value: " + genre);
```

\* Target 3, Target 4:

The following example displays all attributes on the current node.

C#VB

```
if (reader.HasAttributes) {
    Console.WriteLine("Attributes of <" + reader.Name + ">");
    while (reader.MoveToNextAttribute()) {
        Console.WriteLine(" {0}={1}", reader.Name, reader.Value);
    }
    // Move the reader back to the element node.
    reader.MoveToElement();
}
```

The XmlReader.MoveToElement method moves to the element that contains the current attribute node.

Reference:

XmlReader Methods

[https://msdn.microsoft.com/en-us/library/System.Xml.XmlReader\\_methods\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/System.Xml.XmlReader_methods(v=vs.110).aspx)

## **Question: 209**

DRAG DROP

You are developing an application that will write string values to a file. The application includes the following code segment. (Line numbers are included for reference only.)

```
01 protected void ProcessFile(string fileName, string value)
02 {
03
04 }
```

You need to ensure that the ProcessFile() method will write string values to a file.

Which four code segments should you insert in sequence at line 03? (To answer, move the appropriate code segments from the list of code segments to the answer area and arrange them in the correct order.)

streamWriter.WriteLine(value);
streamWriter = new StreamWriter(fileName);
streamWriter.Open();
streamWriter.Close();
StreamWriter streamWriter = null;

**Answer:**

Box 1:

```
StreamWriter streamWriter = null;
```

Box 2:

```
streamWriter = new StreamWriter(fileName);
```

Box 3:

```
streamWriter.Write(value);
```

Box 4:

```
streamWriter.Close();
```

Note:

\* Example:

1. StreamWriter.Null Field

Provides a StreamWriter with no backing store that can be written to, but not read from.

2. The StreamWriter Constructor (String) initializes a new instance of the StreamWriter class for the specified file by using the default encoding and buffer size.

3. The StreamWriter.Write method writes data to the stream.

4. The StreamWriter.Close method closes the current StreamWriter object and the underlying stream.

Incorrect:

Not StreamWrite.Open();

The StreamWriter Class does not have any method named Open.

## Question: 210

You are implementing a method named ProcessFile that retrieves data files from web servers and FTP servers. The ProcessFile () method has the following method signature:

```
Public void ProcessFile(Guid dataFileId, string dataFileUri)
```

Each time the ProcessFile() method is called, it must retrieve a unique data file and then save the data file to disk.

You need to complete the implementation of the ProcessFile() method. Which code segment should you use?

- C A. 

```
WebResponse response;
StreamReader reader;
WebRequest request = WebRequest.Create(dataFileUri);
using (response = request.GetResponse())
{
    reader = new StreamReader(response.GetResponseStream());
    response.Close();
}
using (StreamWriter writer = new StreamWriter(dataFileDialog + ".dat"))
{
    writer.Write(reader.ReadToEnd());
}
```
- C B. 

```
FileWebRequest request = FileWebRequest.Create(dataFileUri) as FileWebRequest;
using (FileWebResponse response = request.GetResponse() as FileWebResponse)
using (StreamReader reader = new StreamReader(response.GetResponseStream()))
using (StreamWriter writer = new StreamWriter(dataFileDialog + ".dat"))
{
    writer.Write(reader.ReadToEnd());
}
```
- C C. 

```
WebRequest request = WebRequest.Create(dataFileUri);
using (WebResponse response = request.GetResponse())
using (Stream responseStream = response.GetResponseStream())
{
    StreamWriter writer = new StreamWriter(responseStream);
    writer.Write(dataFileDialog + ".dat");
}
```
- C D. 

```
WebRequest request = WebRequest.Create(dataFileUri);
using (WebResponse response = request.GetResponse())
using (StreamReader reader = new StreamReader(response.GetResponseStream()))
using (StreamWriter writer = new StreamWriter(dataFileDialog + ".dat"))
{
    writer.Write(reader.ReadToEnd());
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: D**

---

\* `WebRequest.Create` Method (Uri)

Initializes a new `WebRequest` instance for the specified URI scheme.

\* Example:

1. To request data from a host server

Create a `WebRequest` instance by calling `Create` with the URI of the resource.

C#

```
WebRequest request = WebRequest.Create("http://www.contoso.com/");
```

2. Set any property values that you need in the `WebRequest`. For example, to enable authentication, set the `Credentials` property to an instance of the `NetworkCredential` class.

C#

```
request.Credentials = CredentialCache.DefaultCredentials;
```

3. To send the request to the server, call GetResponse. The actual type of the returned WebResponse object is determined by the scheme of the requested URI.

C#

```
WebResponse response = request.GetResponse();
```

4. To get the stream containing response data sent by the server, use the GetResponseStream method of the WebResponse.

C#

```
Stream dataStream = response.GetResponseStream();
```

5. The StreamReader.ReadToEnd method reads all characters from the current position to the end of the stream.

---

### **Question: 211**

---

You are creating a class library that will be used in a web application.

You need to ensure that the class library assembly is strongly named.

What should you do?

- A. Use assembly attributes.
- B. Use the csc.exe /target:Library option when building the application.
- C. Use the xsd.exe command-line tool.
- D. Use the EdmGen.exe command-line tool.

---

### **Answer: A**

---

The Windows Software Development Kit (SDK) provides several ways to sign an assembly with a strong name:

- \* (A) Using assembly attributes to insert the strong name information in your code. You can use either the AssemblyKeyFileAttribute or the AssemblyKeyNameAttribute, depending on where the key file to be used is located.
- \* Using the Assembly Linker (Al.exe) provided by the Windows SDK.
- \* Using compiler options such /keyfile or /delaysign in C# and Visual Basic, or the /KEYFILE or /DELAYSIGN linker option in C++. (For information on delay signing, see Delay Signing an Assembly.)

---

### **Question: 212**

---

You are developing an application that will manage customer records. The application includes a method named FindCustomer.

Users must be able to locate customer records by using the customer identifier or customer name.

You need to implement the FindCustomer() method to meet the requirement.

Which two sets of method signatures can you use to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. `public static Customer FindCustomer(int id)  
public static Customer FindCustomer(string id)  
public static void FindCustomer(int id)`
- B. `public static Customer FindCustomer(int id)  
public static Customer FindCustomer(string id)  
public static Customer FindCustomer(int id, string name)`
- C. `public static Customer FindCustomer(int id)  
public static Customer FindCustomer(string id)  
public static Customer FindCustomer(Int32 id)`
- D. `public static Customer FindCustomer(int id)  
public static Customer FindCustomer(string id)  
public static Customer FindCustomer(int? id)`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: B, D**

---

### Question: 213

---

You need to write a method that combines an unknown number of strings. The solution must minimize the amount of memory used by the method when the method executes.

What should you include in the code?

- A. The String.Concat method
- B. The StringBuilder.Append method
- C. The + operator
- D. The += operator

---

**Answer: B**

---

StringBuilder is the best method when there are an unknown number of strings.

Incorrect:

Not A: Compared to the StringBuilder.Append method, the String.Concat method uses more resources.

String concatenation creates a new string, needing more memory, and is generally considered slow.

Not D: += is not used to append strings.

### Question: 214

---

You are modifying an existing application.

The application includes a Loan class and a Customer class. The following code segment defines the classes.

```

class Loan
{
    public Loan(decimal amount, int term, decimal rate)
    {
        Term = term;
        Amount = amount;
        Rate = rate;
    }
    public decimal Amount { get; set; }
    public decimal Rate { get; set; }
    public int Term { get; set; }
}

class Customer
{
    public Customer(string firstName, string lastName, Collection<Loan> loans)
    {
        FirstName = firstName;
        LastName = lastName;
        LoanCollection = loans;
    }
    public string FirstName { get; set; }
    public string LastName { get; set; }
    public Collection<Loan> LoanCollection { get; set; }
}

```

You populate a collection named customer-Collection with Customer and Loan objects by using the following code segment:

```

Collection<Customer> customerCollection = new Collection<Customer>();
Collection<Loan> customerLoans = new Collection<Loan>();
customerLoans.Add(new Loan(1000m, 2, 0.025m));
customerLoans.Add(new Loan(3000m, 4, 0.045m));
customerLoans.Add(new Loan(5000m, 6, 0.045m));
customerCollection.Add(new Customer("Steve", "Jones", customerLoans));

```

You create a largeCustomerLoans collection to store the Loan objects by using the following code segment:

```
Collection<Loan> largeCustomerLoans = new Collection<Loan>();
```

All loans with an Amount value greater than or equal to 4000 must be tracked.

You need to populate the largeCustomerLoans collection with Loan objects.

Which code segment should you use?

C A. `foreach (Customer customer in customerCollection)
{
 foreach (Loan loan in customer.LoanCollection)
 {
 if (loan.Amount >= 4000m)
 {
 customer.LoanCollection.Add(loan);
 }
 }
}`

C B. `foreach (Loan customer in customerCollection)
{
 foreach (Loan loan in largeCustomerLoans)
 {
 if (loan.Amount >= 4000m)
 {
 largeCustomerLoans.Add(loan);
 }
 }
}`

C C. `foreach (Loan loan in largeCustomerLoans)
{
 foreach (Customer customer in customerCollection)
 {
 if (loan.Amount >= 4000m)
 {
 customer.LoanCollection.Add(loan);
 }
 }
}`

C D. `foreach (Customer customer in customerCollection)
{
 foreach (Loan loan in customer.LoanCollection)
 {
 if (loan.Amount >= 4000m)
 {
 largeCustomerLoans.Add(loan);
 }
 }
}`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: D**

---

We must add to the largeCustomerLoans collection, not the customerLoanCollection.

We iterate through each customer in customerCollection and check each loan belonging to this customer.

**Question: 215**

DRAG DROP

You have the following code.

```

public class Product
{
    public string Name { get; set; }
    public int CategoryID { get; set; }
}
public class Category
{
    public int ID { get; set; }
    public string Name { get; set; }
}
List<Category> categories = new List<Category>()
{
    new Category() { ID = 1, Name = "Food" },
    new Category() { ID = 2, Name = "Clothing" },
};
List<Product> products = new List<Product>()
{
    new Product() { Name = "Strawberry", CategoryID = 1 },
    new Product() { Name = "Banana", CategoryID = 1 },
    new Product() { Name = "Pants", CategoryID = 2 },
};
var productsWithCategories =
    Target 1 product in products
    Target 2 category in categories
        Target 3 product.CategoryID Target 4 category.ID
select new
{
    Name = product.Name,
    Category = category.Name
};

```

You need to return all of the products and their associated categories.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets in the answer area.

- a. Each code element may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

**Code Segments**

&&
equals
from
join
on
select
where

**Answer Area**

Target 1:

--

Target 2:

--

Target 3:

--

Target 4:

--

**Answer:**

Target 1: from

Target 2: join

Target 3: on

Target 4: equals

Example: Join operations create associations between sequences that are not explicitly modeled in the data sources. For example you can perform a join to find all the customers and distributors who have the same location. In LINQ the join clause always works against object collections instead of database tables directly.

C#

```
var innerJoinQuery =
    from cust in customers
    join dist in distributors on cust.City equals dist.City
    select new { CustomerName = cust.Name, DistributorName = dist.Name };
```

Reference:

<https://msdn.microsoft.com/en-us/library/bb397927.aspx>
<https://msdn.microsoft.com/en-us/library/bb397927.aspx>
**Question: 216****DRAG DROP**

You are developing a C# application. The application includes a class named Rate. The following code segment implements the Rate class:

```
public class Rate
{
    public string Category { get; set; }
    public DateTime Date { get; set; }
    public decimal Value { get; set; }
}
```

You define a collection of rates named rateCollection by using the following code segment:

```
Collection<Rate> rateCollection = new Collection<Rate>();
```

The application receives an XML file that contains rate information in the following format:

```
<?xml version="1.0" encoding="utf-8" ?>
<RateSheet>
  <rate category="buyout" date="2012-03-22">
    <value>0.0375</value>
  </rate>
  <rate category="fixed" date="2012-03-23">
    <value>0.0475</value>
  </rate>
</RateSheet>
```

You need to parse the XML file and populate the rateCollection collection with Rate objects.

You have the following code:

```
using (XmlReader reader = XmlReader.Create(new StringReader(rateXML)))
{
  Target 1
  {
    Rate rate = new Rate();
    Target 2
    rate.Category = reader.Value;
    Target 3
    DateTime rateDate;
    if (DateTime.TryParse(reader.Value, out rateDate))
    {
      rate.Date = rateDate;
    }
    Target 4
    decimal value;
    if (decimal.TryParse(reader.ReadElementContentAsString(), out value))
    {
      rate.Value = value;
    }
    rateCollection.Add(rate);
  }
}
```

Which code segments should you include in Target 1, Target 2, Target 3 and Target 4 to complete the code? (To answer, drag the appropriate code segments to the correct targets in the answer area.)

a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

Code Segments	Answer Area
while(reader.ReadToFollowing("RateSheet"))	Target 1: <div style="border: 1px dashed gray; padding: 5px; width: fit-content;">Code Segment</div>
while(reader.ReadToFollowing("rate"))	Target 2: <div style="border: 1px dashed gray; padding: 5px; width: fit-content;">Code Segment</div>
reader.MoveToElement();	Target 3: <div style="border: 1px dashed gray; padding: 5px; width: fit-content;">Code Segment</div>
reader.MoveToFirstAttribute();	Target 4: <div style="border: 1px dashed gray; padding: 5px; width: fit-content;">Code Segment</div>
reader.MoveToContent();	
reader.MoveToNextAttribute();	
reader.ReadToFollowing("value");	

**Answer:**

Target 1:	<div style="border: 1px solid black; padding: 2px;">while(reader.ReadToFollowing("rate"))</div>
Target 2:	<div style="border: 1px dashed gray; padding: 2px;">reader.MoveToFirstAttribute();</div>
Target 3:	<div style="border: 1px dashed gray; padding: 2px;">reader.MoveToNextAttribute();</div>
Target 4:	<div style="border: 1px dashed gray; padding: 2px;">reader.MoveToElement();</div>

**Explanation**

\* Target 1: The element name is rate not Ratesheet.

The Xmlreader readToFollowing reads until the named element is found.

\* Target 2:

The following example gets the value of the first attribute.

```
reader.ReadToFollowing("book");
reader.MoveToFirstAttribute();
string genre = reader.Value;
Console.WriteLine("The genre value: " + genre);
```

\* Target 3, Target 4:

The following example displays all attributes on the current node.

C#VB

```
if (reader.HasAttributes) {
    Console.WriteLine("Attributes of <" + reader.Name + ">");
    while (reader.MoveToNextAttribute()) {
        Console.WriteLine(" {0}={1}", reader.Name, reader.Value);
    }
    // Move the reader back to the element node.
    reader.MoveToElement();
}
```

The XmlReader.MoveToElement method moves to the element that contains the current attribute node.

Reference:

XmlReader Methods

[https://msdn.microsoft.com/en-us/library/System.Xml.XmlReader\\_methods\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/System.Xml.XmlReader_methods(v=vs.110).aspx)

### **Question: 217**

You have the following code. (Line numbers are included for reference only.)

```
01 List<Product> products = new List<Product>()
02 {
03     new Product() { Name = "Strawberry", CategoryID = 1 },
04     new Product() { Name = "Banana", CategoryID = 1 },
05 };
06 List<Product> B_Products = (List<Product>)
07 (
08     from product in products
09     where (product.Name.StartsWith("B"))
10    select new { Name = product.Name }
11 );
```

When you execute the code, you get an exception.

You need to ensure that B\_Products contain all of the products that start with the letter “B”.

What should you do?

- C A. Replace line 06 with the following code.

```
Product[] B_Products = (Product[])
```

- C B. Replace line 10 with the following code.

```
select product.Name
```

- C C. Replace line 06 with the following code.

```
Array<Product> B_Products = (Array <Product>)
```

- C D. Replace line 10 with the following code.

```
select product
```

A. Option A

B. Option B

C. Option C

D. Option D

---

**Answer: D**

Simply select the product items.

---

### **Question: 218**

You have the following code:

```
List<Int32> items = new List<int>() {
    100,
    95,
    80,
    75,
    95
};
```

You need to retrieve all of the numbers from the items variable that are greater than 80.  
Which code should you use?

- A. `var result = items.Skip(80);`
- B. `var result = items.Where(i => i > 80);`
- C. `var result = from i in items
groupby i into grouped
where grouped.Key > 80
select i;`
- D. `var result = items.Take(80);`

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

### Answer: B

---

Example: All number larger than 15 from a list using the var query = from num in numbers... construct:

```
var largeNumbersQuery = numbers2.Where(c => c > 15);
```

Reference:

How to: Write LINQ Queries in C#

<https://msdn.microsoft.com/en-us/library/bb397678.aspx>

---

### Question: 219

---

DRAG DROP

An application serializes and deserializes XML from streams. The XML streams are in the following format:

```
<Name xmlns="http://www.contoso.com/2012/06">
  <LastName>Jones</LastName>
  <FirstName>David</FirstName>
</Name>
```

The application reads the XML streams by using a DataContractSerializer object that is declared by the following code segment:

```
var ser = new DataContractSerializer(typeof(Name));
```

You need to ensure that the application preserves the element ordering as provided in the XML stream.

You have the following code:

```
Target 1
class Name
{
    Target 2
    public string FirstName { get; set; }
    Target 3
    public string LastName { get; set; }
}
```

Which attributes should you include in Target 1, Target 2 and Target 3 to complete the code? (To answer, drag the appropriate attributes to the correct targets in the answer area)

a. Each attribute may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

#### Attributes

[DataContract(Namespace="http://www.contoso.com/2012/06")]

[DataMember(Order=10)]

[DataMember]

[DataContract(Name="http://www.contoso.com/2012/06")]

[DataMember(Name="http://www.contoso.com/2012/06", Order=10)]

[DataContract]

[DataMember(Name="http://www.contoso.com/2012/06")]

#### Answer Area

Target 1:

Attribute

Target 2:

Attribute

Target 3:

Attribute

#### Answer:

DataContractSerializer DataContract DataMember

Target 1: [DataContract(NameSpace=http://contoso.com/2012/06)]

Target 2: [DataMember(Order=10)]

Target 3: [DataMember]

Explanation:

Target 1: The DataContractAttribute.Namespace Property gets or sets the namespace for the data contract for the type. Use this property to specify a particular namespace if your type must return data that complies with a specific data contract.

Target2, target3: We put Order=10 on FirstName to ensure that LastName is ordered first.

Note:

The basic rules for data ordering include:

- \* If a data contract type is a part of an inheritance hierarchy, data members of its base types are always first in the order.

- \* Next in order are the current type's data members that do not have the Order property of the DataMemberAttribute attribute set, in alphabetical order.

- \* Next are any data members that have the Order property of the DataMemberAttribute attribute set. These are ordered by the value of the Order property first and then alphabetically if there is more than one member of a certain Order value. Order values may be skipped.

Reference:

Data Member Order

[https://msdn.microsoft.com/en-us/library/ms729813\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/ms729813(v=vs.110).aspx)

Reference:

DataContractAttribute.Namespace Property

[https://msdn.microsoft.com/en-us/library/system.runtime.serialization.datacontractattribute.namespace\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.runtime.serialization.datacontractattribute.namespace(v=vs.110).aspx)

## Question: 220

---

You have the following code. (Line numbers are included for reference only).

```

01 public async void ProcessWrite()
02 {
03     string filePath = @"temp2.txt";
04     string text = "Hello World\r\n";
05     await WriteTextAsync(filePath, text);
06 }
07 private async Task WriteTextAsync(string filePath, string text)
08 {
09     byte[] encodedText = Encoding.Unicode.GetBytes(text);
10     using (FileStream sourceStream = new FileStream(
·     filePath, FileMode.Append, FileAccess.Write,
·     FileShare.None, bufferSize: 4096, useAsync: true))
11     {
12
13     }
14 }
```

You need to complete the WriteTextAsync method. The solution must ensure that the code is not blocked while the file is being written.

Which code should you insert at line 12?

- A. `async sourceStream.Write(encodedText, 0, encodedText.Length);`
- B. `async sourceStream.WriteAsync(encodedText, 0, encodedText.Length);`
- C. `await sourceStream.Write(encodedText, 0, encodedText.Length);`
- D. `await sourceStream.WriteAsync(encodedText, 0, encodedText.Length);`

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

Answer: D

---

```
await sourceStream.WriteAsync(encodedText, 0, encodedText.Length);
```

The following example has the statement await sourceStream.WriteAsync(encodedText, 0, encodedText.Length);, which is a contraction of the following two statements:

```
Task theTask = sourceStream.WriteAsync(encodedText, 0, encodedText.Length);
await theTask;
```

Example: The following example writes text to a file. At each await statement, the method immediately exits. When the file I/O is complete, the method resumes at the statement that follows the await statement. Note that the `async` modifier is in the definition of methods that use the `await` statement.

```
public async void ProcessWrite()
{
```

```
    string filePath = @"temp2.txt";
    string text = "Hello World\r\n";
    await WriteTextAsync(filePath, text);
}
```

```
private async Task WriteTextAsync(string filePath, string text)
{
```

```
    byte[] encodedText = Encoding.Unicode.GetBytes(text);
    using (FileStream sourceStream = new FileStream(filePath,
        FileMode.Append, FileAccess.Write, FileShare.None,
        bufferSize: 4096, useAsync: true))
    {
        await sourceStream.WriteAsync(encodedText, 0, encodedText.Length);
    };
}
```

Reference:

Using Async for File Access (C# and Visual Basic)

<https://msdn.microsoft.com/en-us/library/jj155757.aspx>

---

## **Question: 221**

---

You need to write a method that retrieves data from a Microsoft Access 2013 database. The method must meet the following requirements:

Be read-only.

Be able to use the data before the entire data set is retrieved.

Minimize the amount of system overhead and the amount of memory usage.

Which type of object should you use in the method?

- A. DbDataAdapter
- B. unTyped DataSet
- C. OleDbDataAdapter
- D. DbDataReader

---

## **Answer: D**

---

The `DbDataReader` class reads a forward-only stream of rows from a data source.

Reference:

`DbDataReader` Class

[https://msdn.microsoft.com/en-us/library/system.data.common.databindreader\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.data.common.databindreader(v=vs.110).aspx)

## Question: 222

---

You are developing an application that contains a class named `TheaterCustomer` and a method named `ProcessTheaterCustomer`. The `ProcessTheaterCustomer()` method accepts a `TheaterCustomer` object as the input parameter.

You have the following requirements:

Store the `TheaterCustomer` objects in a collection.

Ensure that the `ProcessTheaterCustomer()` method processes the `TheaterCustomer` objects in the reverse order in which they are placed into the collection.

You need to meet the requirements.

What should you do?

- A. Create a `System.Collections.Queue` collection. Use the `Enqueue()` method to add `TheaterCustomer` objects to the collection. Use the `Dequeue()` method to pass the objects to the `ProcessTheaterCustomer()` method.
- B. Create a `System.Collections.ArrayList` collection. Use the `Insert()` method to add `TheaterCustomer` objects to the collection. Use the `Remove()` method to pass the objects to the `ProcessTheaterCustomer()` method.
- C. Create a `System.Collections.Stack` collection. Use the `Push()` method to add `TheaterCustomer` objects to the collection. Use the `Pop()` method to pass the objects to the `ProcessTheaterCustomer()` method.
- D. Create a `System.Collections.Queue` collection. Use the `Enqueue()` method to add `TheaterCustomer` objects to the collection. Use the `Peek()` method to pass the objects to the `ProcessTheaterCustomer()` method.

---

## Answer: C

---

A stack is the appropriate collection here. In computer science, a stack or LIFO (last in, first out) is an abstract data type that serves as a collection of elements, with two principal operations: push, which adds an element to the collection, and pop, which removes the last element that was added.

Reference:

[https://en.wikipedia.org/wiki/Stack\\_\(abstract\\_data\\_type\)](https://en.wikipedia.org/wiki/Stack_(abstract_data_type))

## Question: 223

---

DRAG DROP

You are creating a class named `Data` that includes a dictionary object named `_data`.

You need to allow the garbage collection process to collect the references of the `_data` object.

You have the following code:

```
public class Data
{
    Target 1
    public Data(int count)
    {
        for (int i = 0; i < count; i++)
        {
            Target 2
        }
    }
}
```

Which code segments should you include in Target 1 and Target 2 to complete the code? (To answer, drag the appropriate code segments to the correct locations in the answer area)

- a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between

panes or scroll to view content.)

### Code Segments

```
static Dictionary<int, WeakReference> _data;

static Dictionary<int, Int32> _data;

_data.Add(i, new WeakReference(new Class(i * 2), false));

_data.Add(i, (Int32)(i * 2));
```

### Answer Area

Target 1:

Code Segment

Target 2:

Code Segment

### Answer:

Target 1:

```
static Dictionary<int, WeakReference> _data;
```

Target 2:

```
_data.Add(i, new WeakReference(new Class(i * 2), false));
```

Explanation:

\* WeakReference influences the garbage collector. Most objects that are referenced must be kept in memory until they are unreachable. But with WeakReference, objects that are referenced can be collected.

\* Example: C# program that uses WeakReference

```
using System;
using System.Text;
class Program
{
    /// <summary>
    /// Points to data that can be garbage collected any time.
    /// </summary>
    static WeakReference _weak;
    static void Main()
    {
        // Assign the WeakReference.
        _weak = new WeakReference(new StringBuilder("perls"));
    }
}
```

Reference:

<http://www.dotnetperls.com/weakreference>

### Question: 224

DRAG DROP

You are developing a class named Temperature.

You need to ensure that collections of Temperature objects are sortable.

You have the following code:

**Target 1**

```

{
    public double Fahrenheit { get; set; }
    public int Target 2
        (object obj)
    {
        if (obj == null) return 1;
        var otherTemperature = obj as Temperature;
        if(otherTemperature != null)
            return Target 3
        throw new ArgumentException("Object is not a Temperature");
    }
}

```

Which code segments should you include in Target 1, Target 2 and Target 3 to complete the code? (To answer, drag the appropriate code segments to the correct targets in the answer area)

a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Code Segments**

```

public class Temperature : IComparable
public class Temperature : IComparer
CompareTo
Equals
this.Fahrenheit.CompareTo(otherTemperature.Fahrenheit);
otherTemperature.Fahrenheit.CompareTo(this.Fahrenheit);

```

**Answer Area**

Target 1:

Code Segment

Target 2:

Code Segment

Target 3:

Code Segment

**Answer:**

Target 1:

`public class Temperature : IComparable`

Target 2: `CompareTo`

Target 3:

`otherTemperature.Fahrenheit.CompareTo(this.Fahrenheit);`

Note:

Target 1:

The role of `IComparable` is to provide a method of comparing two objects of a particular type. This is necessary if you want to provide any ordering capability for your object.

Incorrect: The role of `IComparer` is to provide additional comparison mechanisms. For example, you may want to provide ordering of your class on several fields or properties, ascending and descending order on the same field, or both.

Target 2, Target 3:

Example:

```
// Implement IComparable CompareTo method - provide default sort order.
int IComparable.CompareTo(object obj)
{
    car c=(car)obj;
    return String.Compare(this.make,c.make);
}
```

Reference:

How to use the IComparable and IComparer interfaces in Visual C#

<https://support.microsoft.com/en-us/kb/320727>

## Question: 225

---

DRAG DROP

You have the following class. (Line numbers are included for reference only.)

```
01 public class MyClass
02 {
03     public int AddNumb(int numb1, int numb2)
04     {
05         int result = numb1 + numb2;
06         return result;
07     }
08     public int SubNumb(int numb1, int numb2)
09     {
10         int result = numb1 - numb2;
11         return result;
12     }
13     public string doOperation(
14         string operationName, int numb1, int numb2)
15     {
16         object[] mParam = new object[] { numb1, numb2 };
17     }
18 }
```

You need to complete the doOperation method to meet the following requirements:

If AddNumb is passed as the operationName parameter, the AddNumb function is called.

If SubNumb is passed as the operationName parameter, the SubNumb function is called.

Which code should you insert at line 16? Develop the solution by selecting and arranging the required code blocks in the correct order. You may not need all of the code blocks.

**Code Blocks****Answer Area**

```
MethodInfo myMethodInfo = myTypeObj.GetMethod  
(operationName);
```



```
return myClassObj(mParam).ToString();
```



```
return myMethodInfo.Invoke  
(myClassObj, mParam).ToString();
```

```
Type myTypeObj = myClassObj.GetType();
```

```
Type myTypeObj = typeof(myClassObj);
```

```
MyClass myClassObj = new MyClass();
```

**Answer:**

Target 1:

```
MyClass myClassObj = new MyClass();
```

Target 2:

```
Type myTypeObj = myClassObj.GetType();
```

Target 3:

```
MethodInfo myMethodInfo = myTypeObj.GetMethod  
(operationName);
```

Target 4:

```
return myMethodInfo.Invoke  
(myClassObj, mParam).ToString();
```

Note:

\* target 2:

GetType() is a method you call on individual objects, to get the execution-time type of the object.

Incorrect: typeof is an operator to obtain a type known at compile-time (or at least a generic type parameter). The operand of typeof is always the name of a type or type parameter - never an expression with a value (e.g. a variable). See the C# language specification for more details.

Reference:

What is the difference of getting Type by using GetType() and typeof()?

<http://stackoverflow.com/questions/11312111/when-and-where-to-use-gettype-or-typeof>

**Question: 226**

HOTSPOT

A developer designs an interface that contains the following code:

```

public class Class1 : Class2
{
}
public interface INewInterface
{
    void Method1();
}
public class Class2 : INewInterface
{
    void INewInterface.Method1()
    {
        throw new NotImplementedException();
    }
}

```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

### Answer Area

Statement	Yes	No
If you call Method1 from an instance of Class2, an exception will be thrown.	<input type="radio"/>	<input checked="" type="radio"/>
If you cast an instance of Class1 into INewInterface, an exception will be thrown.	<input checked="" type="radio"/>	<input type="radio"/>
Class2 uses an implicit implementation of INewInterface.	<input checked="" type="radio"/>	<input type="radio"/>

Answer:

Statement	Yes	No
If you call Method1 from an instance of Class2, an exception will be thrown.	<input checked="" type="radio"/>	<input type="radio"/>
If you cast an instance of Class1 into INewInterface, an exception will be thrown.	<input type="radio"/>	<input checked="" type="radio"/>
Class2 uses an implicit implementation of INewInterface.	<input type="radio"/>	<input checked="" type="radio"/>

**Question: 227**

You have the following code (line numbers are included for reference only):

```

01 public class Connection
02 {
03     public static Connection Create()
04     {
05         return new Connection();
06     }
07
08 }
```

You need to ensure that new instances of Connection can be created only by other classes by calling the Create method. The solution must allow classes to inherit from Connection.

What should you do?

- C A. Replace line 01 with the following code:

```
public abstract class Connection
```

- C B. Replace line 01 with the following code:

```
public static class Connection
```

- C C. Insert the following code at line 07:

```
private Connection () {}
```

- C D. Insert the following code at line 07:

```
protected Connection () {}
```

- A. Option A  
B. Option B  
C. Option C  
D. Option D

---

**Answer: B**

The following list provides the main features of a static class:

- \* Contains only static members.
- \* Cannot be instantiated.
- \* Is sealed.
- \* Cannot contain Instance Constructors.

Creating a static class is therefore basically the same as creating a class that contains only static members and a private constructor. A private constructor prevents the class from being instantiated.

Incorrect:

Not A: An abstract method is a method that is declared without an implementation.

Not C: Private methods can be called from derived classes.

Reference:

Static Classes and Static Class Members (C# Programming Guide)

<https://msdn.microsoft.com/en-us/library/79b3xss3.aspx>

---

### Question: 228

You are developing an application that includes methods named ConvertAmount and TransferFunds.

You need to ensure that the precision and range of the value in the amount variable is not lost when the TransferFunds() method is called.

Which code segment should you use?

- C A. 

```
private static void ConvertAmount(float amount)
{
    TransferFunds((double)amount);
}
private static void TransferFunds(double funds)
{
    ...
    Console.WriteLine(funds);
}
```
- C B. 

```
private static void ConvertAmount(float amount)
{
    TransferFunds((decimal)amount);
}
private static void TransferFunds(decimal funds)
{
    ...
    Console.WriteLine(funds);
}
```
- C C. 

```
private static void ConvertAmount(float amount)
{
    TransferFunds(amount);
}
private static void TransferFunds(int funds)
{
    ...
    Console.WriteLine(funds);
}
```
- C D. 

```
private static void ConvertAmount(float amount)
{
    TransferFunds((int)funds);
}
private static void TransferFunds(float funds)
{
    ...
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

---

**Answer: A**

---

The double keyword signifies a simple type that stores 64-bit floating-point values.

The float keyword signifies a simple type that stores 32-bit floating-point values.

Reference:

double (C# Reference)

---

### Question: 229

---

DRAG DROP

You write the following code.

```
List<Type> types = (Target 1.CurrentDomain.GetAssemblies()
    .Target 2(t => t.GetTypes())
    .Where(t => t.IsClass && t.Assembly == this.GetType().Target 3)).ToList<Type>();
```

You need to get the list of all the types defined in the assembly that is being executed currently.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets in the answer area.

a. Each code element may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

### Code Segments

AppDomain  
Assembly  
IsClass  
Select  
SelectMany

### Answer Area

Target 1:

Target 2:

Target 3:



---

### Answer:

Target 1: AppDomain

Target 2: SelectMany

Target 3: select

Explanation:

The AppDomain.CurrentDomain.GetAssemblies() gives you all assemblies loaded in the current application domain.

The Assembly class provides a GetTypes() method to retrieve all types within that particular assembly.

Example: Using Linq:

```
IEnumerable<Type> types =
    from a in AppDomain.CurrentDomain.GetAssemblies()
    from t in a.GetTypes()
    select t;
```

Reference:

<http://stackoverflow.com/questions/4692340/find-types-in-all-assemblies>

---

### Question: 230

You need to write a console application that meets the following requirements:

If the application is compiled in Debug mode, the console output must display Entering debug mode.

If the application is compiled in Release mode, the console output must display Entering release mode.

Which code should you use?

- C A. 

```
#region DEBUG
    Console.WriteLine("Entering debug mode");
#endregion
#region RELEASE
    Console.WriteLine("Entering release mode");
#endregion
```
- C B. 

```
#if (TRACE)
    Console.WriteLine("Entering debug mode");
#else
    Console.WriteLine("Entering release mode");
#endif
```
- C C. 

```
if(System.Reflection.Assembly.GetExecutingAssembly().IsDefined
    (typeof(System.Diagnostics.Debugger), false))
    Console.WriteLine("Entering debug mode");
else
    Console.WriteLine("Entering release mode");
```
- C D. 

```
#if (DEBUG)
    Console.WriteLine("Entering debug mode");
#elif (RELEASE)
    Console.WriteLine("Entering release mode ");
#endif
```

- A. Option A  
B. Option B  
C. Option C  
D. Option D

---

**Answer: D**

---

\* Programmatically detecting Release/Debug mode (.NET)

```
Boolean isDebugEnabled = false;
#if DEBUG
isDebugEnabled = true;
/* #elif */
```

#elif lets you create a compound conditional directive.

Example:

```
#define VC7
//...
#if debug
Console.WriteLine("Debug build");
#elif VC7
Console.WriteLine("Visual Studio 7");
#endif
```

Reference:

<http://stackoverflow.com/questions/654450/programmatically-detecting-release-debug-mode-net>

---

### Question: 231

---

You write the following method (line numbers are included for reference only):

```

01 public static List<string> TestIfWebSite(string url)
02 {
03     const string pattern = @"http://(www\.)?([^\.]+)\.com";
04     List<string> result = new List<string>();
05
06     MatchCollection myMatches = Regex.Matches(url, pattern);
07 ...
08     return result;
09 }

```

You need to ensure that the method extracts a list of URLs that match the following pattern:

@http://(www\.)?([^\.]+)\.com;

Which code should you insert at line 07?

- A. `result = ( List < string >) myMatches.GetEnumerator();`
- B. `result = ( List < string >) myMatches.SyncRoot;`
- C. `result = ( from System.Text.RegularExpressions.Match m in myMatches
 select m.Value).ToList< string >();`
- D. `result = ( from System.Text.RegularExpressions.Match m in myMatches
 where !m.Success
 select m.Value).ToList< string >();`

- A. Option A  
B. Option B  
C. Option C  
D. Option D

---

**Answer: A**

---

The MatchCollection.GetEnumerator method returns an enumerator that iterates through a collection.

Note:

The MatchCollection Class represents the set of successful matches found by iteratively applying a regular expression pattern to the input string.

Incorrect:

Not B: The ICollection.SyncRoot property gets an object that can be used to synchronize access to the ICollection.

Reference:

MatchCollection.GetEnumerator Method

[https://msdn.microsoft.com/en-us/library/system.text.regularexpressions.matchcollection.getenumerator\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/system.text.regularexpressions.matchcollection.getenumerator(v=vs.110).aspx)

---

### Question: 232

---

You are creating an application that reads from a database.

You need to use different databases during the development phase and the testing phase by using conditional compilation techniques.

What should you do?

- A. Configure the Define TRACE constant setting in Microsoft Visual Studio.

- B. Specify the /define compiler option.
- C. Run the Assembly Linker tool from the Windows Software Development Kit (Windows SDK).
- D. Decorate the code by using the [assembly:AssemblyDelaySignAttribute(true)] attribute.

---

**Answer: B**

---

You can specify the compiler settings for your application in several ways:

- \* The property pages
- \* The command line
- \* #CONST (for Visual Basic) and #define (for C#)

Note: You can have either the Trace or Debug conditional attribute turned on for a build, or both, or neither. Thus, there are four types of build: Debug, Trace, both, or neither. Some release builds for production deployment might contain neither; most debugging builds contain both.

Incorrect answers:

Not A: TRACE is used to enable tracing. It is not used for conditional compilation.

Reference:

How to: Compile Conditionally with Trace and Debug

[https://msdn.microsoft.com/en-us/library/64yxa344\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/64yxa344(v=vs.110).aspx)

---

**Question: 233**

---

You are creating a console application named Appl.

App1 retrieves data from the Internet by using JavaScript Object Notation (JSON).

You are developing the following code segment (line numbers are included for reference only):

```

01 public bool ValidateJson(string json, Dictionary<string, object> result)
02 {
03
04     try
05     {
06         result = serializer.Deserialize<Dictionary<string, object>>(json);
07         return true;
08     }
09     catch
10     {
11         return false;
12     }
13 }
```

You need to ensure that the code validates the JSON string.

Which code should you insert at line 03?

- A. `XmlSerializer serializer = new XmlSerializer();`
  - B. `var serializer = new JavaScriptSerializer();`
  - C. `DataContractSerializer serializer = new DataContractSerializer();`
  - D. `NetDataContractSerializer serializer = new NetDataContractSerializer();`
- 
- A. Option A
  - B. Option B
  - C. Option C

D. Option D

---

**Answer: B**

---

JavaScriptSerializer().Deserialize

Converts the specified JSON string to an object of type T.

Example:

```
string json = File.ReadAllText(Environment.CurrentDirectory + @"\JSON.txt");
```

Company company = new System.Web.Script.Serialization.JavaScriptSerializer().Deserialize<Company>(

Reference:

C# - serialize object to JSON format using JavaScriptSerializer

<http://matijabozicevic.com/blog/csharp-net-development/csharp-serialize-object-to-json-format-using-javascriptserialization>

---

### Question: 234

---

You are testing an application. The application includes methods named CalculateInterest and LogLine. The CalculateInterest() method calculates loan interest. The LogLine() method sends diagnostic messages to a console window.

The following code implements the methods. (Line numbers are included for reference only.)

```
01  private static decimal CalculateInterest(decimal loanAmount, int loanTerm, decimal loanRate)
02  {
03      decimal interestAmount = loanAmount * loanRate * loanTerm;
04
05      LogLine("Interest Amount : ", interestAmount.ToString("c"));
06
07      return interestAmount;
08  }
09
10
11  public static void LogLine(string message, string detail)
12  {
13      Console.WriteLine("Log: {0} = {1}", message, detail);
14  }
```

You have the following requirements:

The CalculateInterest() method must run for all build configurations.

The LogLine() method must run only for debug builds.

You need to ensure that the methods run correctly.

What are two possible ways to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

A. Insert the following code segment at line 01:

```
#region DEBUG
```

Insert the following code segment at line 10:

```
#endregion
```

B. Insert the following code segment at line 01:

```
[Conditional("DEBUG")]
```

C. Insert the following code segment at line 05:

```
#region DEBUG
```

Insert the following code segment at line 07:

```
#endregion
```

D. Insert the following code segment at line 10:

```
[Conditional("DEBUG")]
```

E. Insert the following code segment at line 01:

```
#if DEBUG
```

Insert the following code segment at line 10:

```
#endif
```

F. Insert the following code segment at line 10:

```
[Conditional("RELEASE")]
```

G. Insert the following code segment at line 05:

```
#if DEBUG
```

Insert the following code segment at line 07:

```
#endif
```

---

## **Answer: DG**

---

D: Also, it's worth pointing out that you can use [Conditional("DEBUG")] attribute on methods that return void to have them only executed if a certain symbol is defined. The compiler would remove all calls to those methods if the symbol is not defined:

```
[Conditional("DEBUG")]
```

```
void PrintLog() {
```

```
    Console.WriteLine("Debug info");
```

```
}
```

```
void Test() {
```

```
    PrintLog();
```

```
}
```

G: When the C# compiler encounters an #if directive, followed eventually by an #endif directive, it will compile the code between the directives only if the specified symbol is defined. Unlike C and C++, you cannot assign a numeric value to a symbol; the #if statement in C# is Boolean and only tests whether the symbol has been defined or not. For example,

```
#define DEBUG
```

```
#if DEBUG
```

```
    Console.WriteLine("Debug version");
```

```
#endif
```

Reference:

<http://stackoverflow.com/questions/2104099/c-sharp-if-then-directives-for-debug-vs-release>

---

## **Question: 235**

---

You have a class named Customer and a variable named customers.

You need to test whether the customers' variable is a generic list of Customer objects.

Which line of code should you use?

- C A. `if (customers is List<Customer>)`
- C B. `if (customers is List<Customer>[])`
- C C. `if(customers.GetType() is List<Customer>[])`
- C D. `if(customers.GetType() is List<Customer>)`

- A. Option A  
 B. Option B  
 C. Option C  
 D. Option D

---

**Answer: A**

---

### Question: 236

---

#### DRAG DROP

You have the following code.

`string MessageString = "This is the original message!"`;

You need to store the SHA1 hash value of MessageString in a variable named HashValue.

Which code should you use? Develop the solution by selecting and arranging the required code blocks in the correct order. You may not need all of the code blocks.

Code Blocks

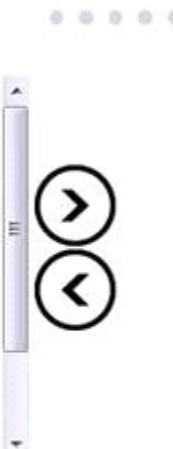
```
byte[] HashValue = SHhash.ComputeHash(MessageBytes);

SHA1Managed SHhash = new SHA1Managed();

UnicodeEncoding UE = new UnicodeEncoding();

MessageBytes.GetHashCode();

byte[] MessageBytes = UE.GetBytes(MessageString);
```



#### Answer Area

---

**Answer:**

```
UnicodeEncode UE = new UnicodeEncoding();
byte[] MessageBytes = UE.GetBytes(MessageString);
SHA1Managed SHhash = new SHA1Managed();
byte[] HashValue = SHhash.ComputeHash(MessageBytes);
```

---

Example:

```
byte[] HashValue;
string MessageString = "This is the original message!";
//Create a new instance of the UnicodeEncoding class to
//convert the string into an array of Unicode bytes.
UnicodeEncoding UE = new UnicodeEncoding();
//Convert the string into an array of bytes.
byte[] MessageBytes = UE.GetBytes(MessageString);
//Create a new instance of the SHA1Managed class to create
//the hash value.
SHA1Managed SHhash = new SHA1Managed();
//Create the hash value from the array of bytes.
HashValue = SHhash.ComputeHash(MessageBytes);
```

Reference:

Ensuring Data Integrity with Hash Codes

[https://msdn.microsoft.com/en-us/library/f9ax34y5\(v=vs.110\).aspx](https://msdn.microsoft.com/en-us/library/f9ax34y5(v=vs.110).aspx)

---

### **Question: 237**

---

You have a C# application.

The application requires 500 MB of available memory.

You need to identify whether there is enough available memory when the application starts.

Which class should you use?

- A. OutOfMemoryException
- B. MemoryStream
- C. PerformanceCounter
- D. DiagnosticsConfigurationHandler

---

### **Answer: C**

---

The counter is the mechanism by which performance data is collected. The registry stores the names of all the counters, each of which is related to a specific area of system functionality. Examples include a processor's busy time, memory usage, or the number of bytes received over a network connection.

Reference:

PerformanceCounter Class

<https://msdn.microsoft.com/en-us/library/system.diagnostics.performancecounter.aspx>

---

### **Question: 238**

---

DRAG DROP

You are developing a function that takes a parameter named aParam as a string input.

You need to convert aParam to a Double. If the conversion cannot be completed, the function should return 0.

```

public double convertTheDouble(string aParam)
{
    Target 1 result;
    if (!Target 2.TryParse(aParam, Target 3 result))
        return 0;
    return result;
}

```

How should you complete the code? To answer, drag the appropriate code elements to the correct targets in the answer area.

a. Each code element may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

Code Segments
double
out
Parse
ref
TryParse

.....

Answer Area
Target 1:
Target 2:
Target 3:

---

**Answer:**

---

Target 1 : double

Target 2 : Double

Target 3 : out

### Question: 239

---

HOTSPOT

You are building an application in Microsoft Visual Studio 2013.

You have the following code.

---

```
#define DEBUG

using System;
using System.Diagnostics;

public class TestClass
{
    [Conditional("DEBUG")]
    public void LogData()
    {
        Trace.WriteLine("LogData1");
    }
    public void RunTestClass()
    {
        this.LogData();

#if (DEBUG)
        Trace.WriteLine("LogData2");
#endif
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

Statement	Yes	No
When RunTestClass executes, LogData1 will be written if the application starts in DEBUG mode.	<input type="radio"/>	<input checked="" type="radio"/>
When RunTestClass executes, LogData2 will be written if the application starts in DEBUG mode.	<input checked="" type="radio"/>	<input type="radio"/>
When RunTestClass executes, LogData2 will be written if the application starts in RELEASE mode.	<input type="radio"/>	<input checked="" type="radio"/>

Answer:

Statement	Yes	No
When RunTestClass executes, LogData1 will be written if the application starts in DEBUG mode.	<input type="radio"/>	<input checked="" type="radio"/>
When RunTestClass executes, LogData2 will be written if the application starts in DEBUG mode.	<input checked="" type="radio"/>	<input type="radio"/>
When RunTestClass executes, LogData2 will be written if the application starts in RELEASE mode.	<input type="radio"/>	<input checked="" type="radio"/>

Question: 240

**HOTSPOT**

You have the following code:

```
[DataContract]
public class Class1
{
    string oneValue;
    [DataMember]
    public string OneValue
    {
        get { return oneValue; }
        set { oneValue = value; }
    }
    public Class1(string _oneValue)
    {
        oneValue = _oneValue;
    }
}
[DataContract]
public class Class2
{
    List<string> values;
    [DataMember]
    public List<string> Values
    {
        get { return values; }
        set { values = value; }
    }
    public Class2(List<string> _values)
    {
        values = _values;
    }
    public Class2()
    {
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

Statement	Yes	No
Class1 can be serialized by using the BinaryFormatter class.	<input type="radio"/>	<input checked="" type="radio"/>
Class2 can be serialized by using the BinaryFormatter class.	<input checked="" type="radio"/>	<input type="radio"/>
Class2 can be serialized by using the DataContractSerializer class.	<input type="radio"/>	<input checked="" type="radio"/>

---

**Answer:**

---

No  
Yes  
No

### Question: 241

---

DRAG DROP

You have a class named Customer and a class named Order.

The customer class has a property named Orders that contains a list of Order objects.

The Order class has a property named OrderDate that contains the date of the Order.

You need to create a LINQ query that returns all of the customers who had at least one order during the year 2005.

You write the following code.

```
List<Customer> customersWithOrdersIn2005 =
    customers.Target 1(c => c.Orders.Target 2(
        o Target 3 o.OrderDate.Year Target 4 2005)).ToList();
```

How should you complete the code? To answer, drag the appropriate code elements to the correct targets in the answer area

- a. Each code element may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

---

**Answer:**

---

Target 1 : Where

Target 2 : Join

Target 3 : =>

Target 4 : ==

---

**Question: 242**

---

**HOTSPOT**

You have the following code:

```
private static Dictionary<string, int> CreateTestData()
{
    Dictionary<string, int> dict = new Dictionary<string, int>()
    {
        {"Accounting", 1},
        {"Marketing", 2},
        {"Operations", 3}
    };
    return dict;
}
private static bool? FindInList(string searchTerm, int value)
{
    Dictionary<string, int> data = CreateTestData();
    return data.Contains(new KeyValuePair<string,int>(searchTerm,value));
}
```

Use the drop-down lists to select the answer choice that completes each statement.

If the search term is set to “Finance”, and value is set to 0, the result will be [answer choice].



A dropdown menu with a blue border and a small downward arrow icon. Inside, there are three options: "false", "true", and "null", each on a separate line.

If the search term is set to “Accounting”, and value is set to 1, the result will be [answer choice].



A dropdown menu with a blue border and a small downward arrow icon. Inside, there are three options: "false", "true", and "null", each on a separate line.

If the search term is set to “Accounting”, and value is set to 2, the result will be [answer choice].



A dropdown menu with a blue border and a small downward arrow icon. Inside, there are three options: "false", "true", and "null", each on a separate line.

---

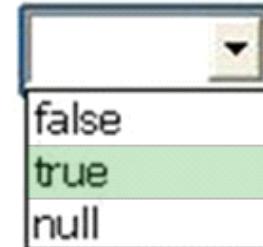
Answer:

---

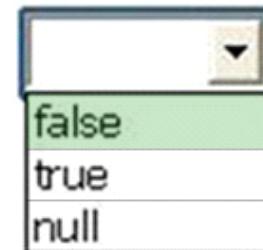
If the search term is set to “Finance”, and value is set to 0, the result will be [answer choice].



If the search term is set to “Accounting”, and value is set to 1, the result will be [answer choice].



If the search term is set to “Accounting”, and value is set to 2, the result will be [answer choice].



### Question: 243

You plan to create a list of customers named customers. Each customer will have a name and a key. The name and the key will be strings.

You will use the following code to retrieve customers from the list.

```
customers[aKey].toString();
```

You need to identify which class must be used to declare the customers list. The solution must ensure that each key is unique. Which class should you identify?

- A. ArrayList
- B. Dictionary
- C. List
- D. Array

---

**Answer: B**

---

### Question: 244

DRAG DROP

An application serializes and deserializes XML from streams. The XML streams are in the following format:

```
<Name xmlns="http://www.contoso.com/2012/06">
  <LastName>Jones</LastName>
  <FirstName>David</FirstName>
</Name>
```

The application reads the XML streams by using a `DataContractSerializer` object that is declared by the following code segment:

### Target 1

```
class Name
```

```
{
```

### Target 2

```
public string FirstName { get; set; }
```

### Target 3

```
public string LastName { get; set; }
```

```
}
```

Which attributes should you include in Target If Target 2 and Target 3 to complete the code? (To answer, drag the appropriate attributes to the correct targets in the answer area)

- a. Each attribute may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

**Attributes**

- [DataContract(Namespace="http://www.contoso.com/2012/06")]
- [DataMember(Order=10)]
- [DataMember]
- [DataContract(Name="http://www.contoso.com/2012/06")]
- [DataMember(Name="http://www.contoso.com/2012/06", Order=10)]
- [DataContract]
- [DataMember(Name="http://www.contoso.com/2012/06")]

**Answer Area**

Target 1:	Attribute
Target 2:	Attribute
Target 3:	Attribute

---

### Answer:

---

Target 1:  
[DataContract(Namespace="http://www.contoso.com/2012/06")]

Target 2:  
[DataMember(Order=10)]

Target 3:  
[DataMember]

**Question: 245**

You are developing a C# application. The application references and calls a RESTful web service named EmployeeService. The EmployeeService web service includes a method named GetEmployee which accepts an employee ID as a parameter. The web service returns the following JSON data from the method.

**{"Id":1,"Name":"David Jones"}**

The

following code segment invokes the service and stores the result:

```
WebClient client = new WebClient();
byte[] employeeData = client.DownloadData("http://localhost:2588/EmployeeService.svc/GetEmployee/1");
```

You need to

convert the returned JSON data to an Employee object for use in the application.

Which code segment should you use?

A)

```
using (Stream stream = new MemoryStream(employeeData))
{
    DataContractJsonSerializer dataContractJsonSerializer = new DataContractJsonSerializer(typeof(Employee));
    Employee retrievedEmployee = dataContractJsonSerializer.ReadObject(stream) as Employee;
    ...
}
```

B)

```
using (Stream stream = new MemoryStream(employeeData))
{
    var formatter = new System.Runtime.Serialization.Formatters.Binary.BinaryFormatter();
    var jsonMethod = new MethodCall(new[] { new Header("json", "GetEmployee") });
    Employee employee = (Employee)formatter.DeserializeMethodResponse(stream, null, jsonMethod);
```

C)

```
using (Stream stream = new MemoryStream(employeeData))
{
    DataContractSerializer dataContractSerializer = new DataContractSerializer(typeof(Employee));
    var employee = (Employee)dataContractSerializer.ReadObject(XmlReader.Create(stream));
    ...
}
```

D)

```
using (Stream stream = new MemoryStream(employeeData))
{
    DataContractSerializer dataContractSerializer = new DataContractSerializer(typeof(Employee));
    dataContractSerializer.WriteObject(stream, new Employee());
    ...
}
```

- A. Option A
- B. Option B
- C. Option C
- D. Option D

**Answer: A**

**Question: 246**

You are developing a Windows Forms (WinForms) application. The application displays a TreeView that has 1,000 nodes.

You need to ensure that if a user expands a node, and then collapses the TreeView, the node object is kept in memory unless the Garbage Collector requires additional memory.

Which object should you use to store the node?

- A. GC
- B. Handle
- C. Cache
- D. WeakReference

---

**Answer: D**

---

References:

<https://msdn.microsoft.com/en-us/library/ms404247.aspx>

### **Question: 247**

---

You have the following line of code. Type type1 = typeof^MyClass);

You need to create an object named obj that has a type of type1.

Which line of code should you use?

- A. object obj = Activator.CreateInstance("type 1".GetType());
- B. type1 obj = Activator.CreateInstance(type1);
- C. type1 obj = Activator.CreateInstance("type1".GetType());
- D. object obj = Activator.CreateInstance(typ1);

---

**Answer: B**

---

### **Question: 248**

---

DRAG DROP

You need to validate whether string strJson is a valid JSON string.

```
var serializer = new Target_1();
var result = serializer.Target_2<Dictionary<string, object>>(strJson);
```

How should you complete the code? To answer, drag the appropriate code elements to the correct targets in the answer area

a. Each code element may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

**Code segments**

DataContractJsonSerializer  
Deserialize  
JavaScriptSerializer  
ReadObject  
SerializationInfo  
Serialize  
XmlSerializer

**Answer Area**

Target 1: \_\_\_\_\_

Target 2: \_\_\_\_\_

---

**Answer:**

---

**Code segments**

\_\_\_\_\_  
Deserialize  
JavaScriptSerializer  
\_\_\_\_\_  
SerializationInfo  
Serialize  
XmlSerializer

**Answer Area**

Target 1:DataContractJsonSerializer

Target 2:ReadObject

**Explanation:**

```
serializer = new DataContractJsonSerializer();
var result = serializer.ReadObject<Dictionary<string, object>>(StrJson);
```

**Question: 249**

You need to write a console application that meets the following requirements:

If the application is compiled in Debug mode, the console output must display Entering debug mode. If the application is compiled in Release mode, the console output must display Entering release mode.

Which code should you use?

- A. 

```
#define DEBUG
    Console.WriteLine("Entering debug mode");
#define RELEASE
    Console.WriteLine("Entering release mode")
```
- B. 

```
#if (DEBUG)
    Console.WriteLine("Entering debug mode");
#else
    Console.WriteLine("Entering release mode");
#endif
```
- C. 

```
#region DEBUG
    Console.WriteLine("Entering debug mode");
#endregion
#region RELEASE
    Console.WriteLine("Entering release mode")
#endregion
```
- D. 

```
if(System.Reflection.Assembly.GetExecutingAssembly().IsDefined
    (typeof(System.Diagnostics.Debugger), false))
    Console.WriteLine("Entering debug mode");
else
    Console.WriteLine("Entering release mode")
```

- A. Option A  
B. Option B  
C. Option C  
D. Option D

---

**Answer: B**

---

### Question: 250

---

You plan to debug an application remotely by using Microsoft Visual Studio 2013.

You set a breakpoint in the code.

When you compile the application, you get the following error message: "The breakpoint will not currently be hit. No symbols have been loaded for this document."

You need to ensure that you can debug the application remotely.

What should you do?

- A. Modify the AssemblyInfo.es file.  
B. Copy .exe files to the Symbols folder on the local computer.  
C. Copy the .cs files to the remote server.  
D. Use .NET Remote Symbol Loading.

---

**Answer: A**

---

References:

<https://msdn.microsoft.com/en-us/library/y7f5zaaa.aspx>

### Question: 251

---

You are implementing a new method named ProcessData

- a. The ProcessData() method calls a third-party component that performs a long-running operation to retrieve stock information from a web service.

The third party component uses the IAsyncResult pattern to signal completion of the long-running operation so that the UI can be updated with the new values.

You need to ensure that the calling code handles the long-running operation as a System.Threading.Tasks.Task object to avoid blocking the UI thread.

Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Apply the async modifier to the ProcessData() method signature.
- B. Call the component by using the TaskFactory FromAsync() method.
- C. Apply the following attribute to the ProcessData() method signature:  
[MethodImpl(MethodImplOptions.Synchronized)]
- D. Create a TaskCompletionSource<T> object.

---

Answer: BD

### Question: 252

---

You are developing an application in C#.

The application uses exception handling on a method that is used to execute mathematical calculations by using integer numbers.

You write the following catch blocks for the method (line numbers are included for reference only):

```
01  catch(ArithmeticException e) {Console.WriteLine("Arithmetic error");}  
02  catch(ArgumentException e) {Console.WriteLine("Bad Argument");}  
03  catch(Exception e) {Console.WriteLine("General error");}  
04  
05  
06  
07
```

You need to add the following code to the method:

```
catch(DivideByZeroException e) {Console.WriteLine("Divide by zero");}
```

At which line should you insert the code?

- A. 01
- B. 03
- C. 05
- D. 07

---

Answer: A

### Question: 253

---

You are developing an application.

You need to declare a delegate for a method that accepts an integer as a parameter, and then returns an integer. Which type of delegate should you use?

- A. Action< string, string>
- B. Func<string, string>
- C. Func< string>
- D. Action< string>

---

**Answer: B**

---

### Question: 254

---

DRAG DROP

You have the following code.

```
public Target 1 Target 2 < string> GetAsync(string uri)
{
    var httpClient = new HttpClient();
    var content = Target 3 httpClient.Target 4(uri);
    return await Task .Run(() => content);
}
```

You need to complete the method to return the content as a string.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets in the answer area.

a. Each code element may be used once, more than once or not at all. You may need to drag the split bar between panes or scroll to view content.

---

#### Code Segments

async
await
GetString
GetStringAsync
Task

#### Answer Area

Target 1:	
Target 2:	
Target 3:	
Target 4:	

---

**Answer:**

---

**Answer Area**Target 1: **async**Target 2: **Task**Target 3: **await**Target 4: **GetStringAsync****Question: 255**

You have the following code.

```
List<string> myData = new List<string>();
```

```
myData.Add("string1");
myData.Add("string2");
myData.Add("string3");
```

You need to remove all of the data from the myData list.

Which code should you use?

- A. for (int i = 0; i <= myData.Count; i++)
 myData.RemoveAt(i);
- B. while (myData.Count != 0)
 myData.RemoveAt(0);
- C. foreach(string currentString in myData) myData.Remove(currentString);
- D. for (int i = 0; i <= myData.Count; i++)
 myData.RemoveAt(0);

**Answer: C****Question: 256****DRAG DROP**

You have the following code.

```
int input = Convert.ToInt32(Console.ReadLine());
string classify;
classify = (Target1 Target2 Target3) Target4 "positive" : "negative";
```

You need to ensure that the classify string contains the next “positive” if the input number is more than zero and “negative” if the input number is less than or equal to zero.

How should you complete the code? To answer, drag the appropriate code elements to the correct targets in the answer area

- a. Each code element may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

Code Segments	Answer Area
&	Target 1: Code element
:	Target 2: Code element
?	Target 3: Code element
<	Target 4: Code element
>	
0	
input	

---

**Answer:**

---

Target 1:	input
Target 2:	>
Target 3:	0
Target 4:	?

### Question: 257

---

#### HOTSPOT

You are writing a code to handle exceptions for a C# application.

You need to identify different ways to handle an exception named ex.

Which line of code should you use for each task? To answer, select the appropriate line of code for each task in the answer area.

Rethrow the original exception and keep the exception type.

throw;
throw ex;
throw new Exception();

Rethrow the original exception type and reset the exception stack trace.

throw;
throw ex;
throw new Exception();

Reset the exception stack trace and reset the exception type.

throw;
throw ex;
throw new Exception();

Rethrow the original exception and keep the exception type.

throw;
throw ex;
throw new Exception();

Rethrow the original exception type and reset the exception stack trace.

throw;
throw ex;
throw new Exception();

Reset the exception stack trace and reset the exception type.

throw;
throw ex;
throw new Exception();

#### References:

<https://blogs.msdn.microsoft.com/perfworld/2009/06/15/how-can-i-throw-an-exception-without-losing-the-original-stack-trace-information-in-net/>

---

### Question: 258

---

#### DRAG DROP

You are developing an application that implements a set of custom exception types. You declare the custom exception types by using the following code segments:

```
public class ContosoException : System.Exception { ... }
public class ContosoDbException : ContosoException { ... }
public class ContosoValidationException : ContosoException { ... }
```

The application includes a function named DoWork that throws .NET Framework exceptions and custom exceptions. The application contains only the following logging methods:

```
static void Log(Exception ex) { ... }
static void Log(ContosoException ex) { ... }
static void Log(ContosoValidationException ex) { ... }
```

The application must meet the following requirements:

- When ContosoValidationException exceptions are caught, log the information by using the static void Log(ContosoValidationException ex) method.
- When ContosoDbException or other ContosoException exceptions are caught, log the information by using the static void Log(ContosoException ex) method.
- When generic exceptions are caught, log the information by using the static void Log(Exception ex) method.

You need to meet the requirements.

You have the following code:

```
try
{
    DоРork();
}
catch Target 1
{
    Log(ex);
}
catch Target 2
{
    Log(ex);
}
catch Target 3
{
    Log(ex);
}
```

Which code segments should you include in Target 1, Target 2 and Target 3 to complete the code? (To answer, drag the appropriate code segments to the correct targets in the answer area.)

a. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.)

#### Code Segments

- (ContosoValidationException ex)
- (ContosoException ex)
- (Exception ex)
- (ContosoDbException ex)

#### Answer Area

- |           |              |
|-----------|--------------|
| Target 1: | Code Segment |
| Target 2: | Code Segment |
| Target 3: | Code Segment |

---

Answer:Target 1: **(ContosoValidationException ex)**Target 2: **(ContosoDbException ex)**Target 3: **(ContosoException ex)**

---

**Question: 259**

---

**HOTSPOT**

You have the following code.

```
public class Order
{
    public int OrderId { get; set; }
    public DateTime { get; set; }
    public Order(int orderId, DateTime OrderDate)
    {
        OrderId = orderId;
        OrderDate = OrderDate;
    }
}

public class OrderDetails : Order
{
    public string ProductName { get; set; }
    public OrderDetails(string productName, int orderId, DateTime orderDate)
        : base(OrderId, OrderDate)
    {
        ProductName = ProductName;
    }
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

Statement	Yes	No
The OrderId property is inherited by OrderDetails.	<input type="radio"/>	<input type="radio"/>
A new property named ProductName is added to the Order constructor.	<input type="radio"/>	<input type="radio"/>
OrderId and OrderDate are required parameters when you create OrderDetails objects.	<input type="radio"/>	<input type="radio"/>

---

Answer:

Statement	Yes	No
The OrderId property is inherited by OrderDetails.	<input checked="" type="radio"/>	<input type="radio"/>
A new property named ProductName is added to the Order constructor.	<input type="radio"/>	<input checked="" type="radio"/>
OrderId and OrderDate are required parameters when you create OrderDetails objects.	<input checked="" type="radio"/>	<input type="radio"/>

References:

<https://docs.microsoft.com/en-us/dotnet/csharp/programming-guide/classes-and-structs/inheritance>