1. What type would you choose for the following “numbers”?
   1. A person’s telephone number - String
   2. A person’s height - ushort
   3. A person’s age - byte
   4. A person’s gender (Male, Female, Prefer Not To Answer) - char/string
   5. A person’s salary - double
   6. A book’s ISBN - string
   7. A book’s price - float
   8. A book’s shipping weight - float
   9. A country’s population - ulong
   10. The number of stars in the universe - ulong
   11. The number of employees in each of the small or medium businesses in the United Kingdom (up to about 50,000 employees per business) - ushort
2. What are the differences between value type and reference type variables? What is boxing and unboxing?

The difference between value type and reference type variables are:

* Value type will directly hold the value, while reference type will hold the memory address / reference to this value
* Value types are stored in stack memory, and reference type are stored in heap memory
* Value type will not be collected by garbage collector, while reference type will be collected by a garbage collector
* Value type can be created by Struct or Enum, while reference type can be created by class, interface, delegate or array
* Value type cannot accept null values, but reference type can accept null values

Boxing is the process of converting a value type variable into reference type one; unboxing is the process of converting a reference variable into a value type variable.

1. What is meant by the terms managed resource and unmanaged resource in .NET

"Unmanaged resource" is used to describe something not directly under the control of the garbage collector; while “managed resource” is used to describe something directly under the control of the garbage collector.

1. What's the purpose of Garbage Collector in .NET?

NET's garbage collector manages the allocation and release of memory for your application. Each time you create a new object, the common language runtime allocates memory for the object from the managed heap

**Controlling Flow and Converting Types**

Test your Knowledge

1. What happens when you divide an int variable by 0?

System.DivideByZeroException has been thrown, “Attempted to divide by zero”.

2. What happens when you divide a double variable by 0?

The result is infinity.

3. What happens when you overflow an int variable, that is, set it to a value beyond its range?

Error - “Integral constant is too large”

4. What is the difference between x = y++; and x = ++y;?

X = y++: assign y to x first and increment y by 1;

X = ++y: increment y by 1 first and then assign this value to x

5. What is the difference between break, continue, and return when used inside a loop statement?

Break: stop the loop and execute the code outside the loop;

Continue: skip the current loop and continue the next one;

return : return the value and stop this function

6. What are the three parts of a for statement and which of them are required?

7. What is the difference between the = and == operators?

8. Does the following statement compile? for ( ; true; ) ;

9. What does the underscore \_ represent in a switch expression?

10. What interface must an object implement to be enumerated over by using the foreach statement?