Assignment 1 & 2

Understanding Data Types

1. What type would you choose for the following “numbers”?

* A person’s telephone number: string
* A person’s height: int
* A person’s age: int
* A person’s gender (Male, Female, Prefer Not To Answer): enum
* A person’s salary: decimal
* A book’s ISBN: string
* A book’s price: decimal
* A book’s shipping weight: float
* A country’s population: uint
* The number of stars in the universe: decimal
* The number of employees in each of the small or medium businesses in the
* United Kingdom (up to about 50,000 employees per business): uint

1. What are the difference between value type and reference type variables? What is boxing and unboxing?

* A data type is a value type if it holds a data value within its own memory space. It means the variables of these data types directly contain values.
* A reference type doesn't store the value directly. Instead, it store a reference to the address where value is being stored.
* Boxing refers to conversion of a data-type to a reference-type value
* Unboxing refers to conversion of a reference-type to a data-type value

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

* CLR is the basic and Virtual Machine component of the .NET Framework.

It is the run-time environment in the .NET Framework that runs the codes and helps in making the development process easier by providing the various services

* Managed resources are those that are pure . NET code and managed by the runtime and are under its direct control.
* Unmanaged resources are those that are not directly under the control of the garbage collector. File handles, pinned memory, COM objects, database connections etc.

1. Whats the purpose of Garbage Collector in .NET?

* Garbage collection, in the context of .NET, is the process by which the common language runtime (CLR) of .NET framework manages the memory by allocating and releasing memory automatically.

Controlling Flow and Converting Types

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

Ans: You will get a DivideByZeroException.

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

Ans: You will get either a infinity or NaN.

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

Ans: The value will wrap and becomes negative

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

Ans: In x = y++ statement, original y value would be assigned to x, and then y plus 1.

In x = ++y statement, y will increase one first, and then be assigned to x.

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

Ans:

break: will terminate the loop.

Continue: The continue statement stop current iteration and start next one.

Return: The return statement terminates execution of the function

1. What are the three parts of a for statement and which of them are required?
2. What is the difference between the = and == operators?

Ans:

= is use to assign value.

== is use to compare values.

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

Ans: Yes, it will start a endless loop.

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

Ans: Default situation.

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

Ans: An object must implement IEnumerable interface to be using in a foreach statement.

Practice:

int max = 500;

for (byte i = 0; i < max; i++)

{

WriteLine(i);

}

Ans: This will create an infinite loop. Because byte’s maximum will never reach max.

Arrays and Strings

1. When to use String vs. StringBuilder in C#

Ans: Sse string when you don’t manipulate the value; use StringBuilder when you’d like to manipulate the value multiple times.

1. What is the base class for all arrays in C#

Ans: System.Array

1. How do you sort an array in C#
2. Ans: you can use Array.Sort() to sort an array
3. What property of an array object can be used to get the total number of elements in an array

Ans: All arrays have a Length property.

1. Can you store multiple data types in System.Array?

Ans: you can store all kinds of data types In a object array, since all objects are extended from object.

1. What’s the difference between the System.Array.CopyTo() and System.Array.Clone()

Ans:

CopyTo() method copies the elements into another existing array.

Clone() method returns a new array (a shallow copy) object containing all the elements in the original array..

Both of them perform a shallow copy.