01 Introduction to C# and Data Types

Understanding Data Types

Test your Knowledge 1

.

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

A person’s telephone number: String

A person’s height: float

A person’s age: int

A person’s gender (Male, Female, Prefer Not To Answer): enum

A person’s salary: double

A book’s ISBN: String

A book’s price: int

A book’s shipping weight: short

A country’s population: long

The number of stars in the universe: ulong

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 difference between value type and reference type variables? What is

boxing and unboxing?

|  |  |
| --- | --- |
| Value type | Reference type |
| Directly hold the value | Hold the memory address or reference for the value |
| Stored in stack memory | Reference type stored in heap memory |
| Not be collected by garbage collector | Will be collected by garbage collector |
| Can be created by Struct, Enum | Class, interface, delegate, array |
| Not accept null values | Accept null values |

* Boxing is covert value type to reference type
* Unboxing is convert reference type to value

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

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

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

* Manages the allocation and release of memory for an application.

Controlling Flow and Converting Types

Test your Knowledge

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

* Compiler error cs0020. Division by constant zero

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

* Cannot implicitly convert type double to int.

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

* give sign largest of the value in that variable

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

* in pre increment, the value is incremented and then it is assigned
* in post increment the value is first assigned and then it is incremented

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

statement?

* Break is terminate the current loop and switch statement.
* Continue is skip the execution of current iteration
* Return terminates execution of the function in which it appears and return control and function’s result to the caller.

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

* Initialization, condition, incrementing/decrementing.

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

* = is assign variable to the value
* == is to compare(equals to)

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

* Yes.

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

* Character replaces the default keyword to signify that it should match anything if reached.

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

statement?

* Public IEnumerator GetEnumerator(){return (IEnumerator) this;}