

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

Ans: String

A person’s height

Ans: int, I will convert Imperial units to MKS.

A person’s age

Ans: int

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

Ans: int

A person’s salary

Ans: Decimal, we need to be care about money calculation

A book’s ISBN

Ans: string, ISBM contains ‘-‘

A book’s price

Ans: Decimal, we need to be care about money calculation

A book’s shipping weight

Ans: int, I think for a book, people do not really care about the number after the decimal point, and there is not like the salary have % level calculation like bonus.

A country’s population

Ans: uint

The number of stars in the universe

Ans: double

The number of employees in each of the small or medium businesses in the United Kingdom (up to about 50,000 employees per business)

Ans: ushort

2. What are the difference between value type and reference type variables?

What is

boxing and unboxing?

Ans: value type is that when we pass our parameter, the caller will copy Value into function, object or class. Reference type is that the caller will pass the reference location in the memory into function, object or class.

Unboxing extracts the value type from the object. Boxing is make the value into object type.

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

Ans: I do not see the related ans in material, so I google it and found a post in stackoverflow

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.

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

Ans: It helps developer to manage memory resource.

Controlling Flow and Converting Types

Test your Knowledge

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

Ans: System.DivideByZeroException

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

Ans: ∞

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

Ans: It's start count from -2147483648

Like 0 1 2 3 2147483647 -2147483648

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

Ans: `x = y ++` y will be assigned to x and then add 1

`x = ++ y` y will add 1 and then assign to x

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

Ans: Break will jump out from loop, and then implement other statement in this class.

Continue will skip this turn of loop.

Return will stop the loop and return, it will skip any statement in this class.

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

Ans: Initialize, test, update

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

Ans: = is used to assign right side value to left side.

== is used to check right side value is same as left side

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

Ans: yes

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

Ans: The underscore (_) 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?

Ans: IEnumerable interface