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Warm-up Exercises

Questions

1. Give two examples of instant messaging applications.
Solution
Teams, Facebook messenger, Whatsapp, ICQ, skype, zoom, Discord, ...
2. How many bits are in one byte?
Solution
8 bits
3. Why are "ancient" programming languages like COBOL and FORTRAN still in use?
Solution
Many banking systems still rely on COBOL in the current day.

#: The least significant (rightmost) bit of even numbers in binary representation is 1. _____

Solution

No

#: Commands for managing the IDE and for developing, maintaining and executing programs are contained in the menus, which are located on the menu bar. _____

Solution

Yes

#: Is the following statement true: $010000 < 001111$? _____

Solution

No

#: You can browse the web from within the Visual Studio Community environment. _____

Solution

?

#: Visual Studio Enterprise can be used to create apps only in C#. _____

Solution

No

#: High-level computer languages are easily understood by a computer without any need of translation. _____

Solution

No

#: An assembler converts assembly language programs into machine language. _____

Solution

Yes

#: Is the role of CPU to govern computing devices and processes?

Solution

Yes

#: Was Windows system developed in sixties? _____

Solution

No

#: Do console applications provide visual environment? _____

Solution

?

1. Computers process data, using sets of instructions called ...

- specifications
- computer programs
- recipes
- hardware

1. _____ Law states that every year or two, the computing power of computers doubles without any increase in price.

- Gate's
- Moore's
- Henderson's
- None of the above.

1. The main purpose of the AUL unit is: _____.

- to store permanent data
- to store temporary data
- to cool the computer down and prevent overheating

to perform calculations and logical comparisons for the computer

1. Binary code is: _____.

- a complex, but easy to use, modern programming language
- a series of 0s and 1s
- high-level machine language instructions
- a series of characters representing the numbers 0 to 9

1. The order of simplicity (easiest to hardest) to a human of the three basic types of languages is: _____.

- high-level, assembly, machine
- assembly, machine, high-level
- machine, high-level, assembly
- machine, assembly, high-level

1. Which of the following is *true*: C# _____.

- is object oriented
- contains a powerful class library
- is not limited to web-based applications
- all of the above

1. Visual C# programs are created using Microsoft's Visual Studio—a collection of software tools called a(n) _____.

- operating system
- Integrated Programming Environment
- Integrated Development Environment
- Class Library

1. The purpose of the Visual Studio Enterprise is to _____.

- create a program
- run a program
- debug a program
- all of the above

1. This menu contains commands for opening projects, closing projects, printing project data, etc.

- View menu
- Edit menu
- Tools menu
- File menu

1. A single line comment in C# begins with which double symbol?

- **
- //
- ##
- \$\$

1. Which method is the starting point of any C# program?

- Open
- Main
- Start
- none of these.

1. All statements in C# end with:

- semicolon
- colon
- comma
- full stop

1. Violations of language rules are referred to as:

- semantic errors
- syntax errors
- run-time errors
- none of these

1. What operator is used to denote remainder (modulo) operation?

- &
- %
- #
- @

1. Which of the following is in highest-to-lowest order of operator precedence?

- multiplication, division, parentheses
- addition, subtraction, division
- parentheses, multiplication, addition
- none of these

1. In C# code: `Console.WriteLine($"Initial value is: {myAccount.GetNumber()}");`
which method is called (executed) first?

- WriteLine()
- GetNumber()
- they are called at the same time
- none of these

1. Which of these are binary operators?

- / (division)
- * (multiplication)
- + (addition)
- all of these

1. You can declare the same variable twice in a C# code.

- Yes
- No

1. It is good to initialize all variables upon their creation (declaration).

- Yes
- No

1. Is = the equality operator in C#?

- Yes
- No

1. Visual C# programs are created using Microsoft's Visual Studio—a collection of software tools called a(n) _____.

- Operating system
- Integrated Programming Environment
- Integrated Development Environment
- Class Library.

1. The starting point of a C# application is the

- Main
- Start
- Open
- None of the above.

1. C# statements in C# usually end with:

- :
- ;
- #
- .

1. _____ are violations of language rules.

- Logic errors
- Syntax errors
- Run-time errors
- None of the above.

1. A variable is:

- An instruction for the compiler
- A location in memory where a value is stored
- A description of a method call (including the argument list)
- None of the above.

1. What is an algorithm?

- The actions (and their order) that solve a particular problem
- An English description of a problem to be solved
- The declaration of an object.

- None of the above.
- 1. The order of simplicity (easiest to hardest) to a human of the three basic types of languages is:
 - High-level, machine, assembly
 - Machine, high-level, assembly
 - Assembly, machine, high-level
 - High-level, assembly, machine.
- 1. Which of these are binary operators?
 - * (multiplication)
 - + (addition/concatenation)
 - / (division)
 - All of these.
- 1. What is the correct order of actions in developing software?
 - Define the problem, develop an algorithm, code a C# program, run tests
 - Code a C# program, develop an algorithm, run tests
 - Code a C# program, run tests, develop an algorithm.
 - Define the problem, run tests, code a C# program.
- 1. What is the resulting value of c at the end of the following code segment?

```
int c = 5;  
c *= --c;
```

- 25
- 15
- 20
- None of the above

- 1. What value will be printed on the output:

```
int A = 16; int B = 3;  
Console.WriteLine(A/B);
```

- 1
- 5.33
- 1
- 5

- 1. Some compilers will automatically remove body statements from loops that do not need to be executed multiple times through a process known as _____.
 - Classification
 - Optimization
 - Interpretation

- None of the above.

Problems

1. Find 3 syntax errors in this short C# code.

```
int num11 =1;
int num2 ==2;
if num11>-num2) {Console.WriteLine("Yes");}
else {Console.WriteLie("No");}
```

Solution

```
int num11 =1;
```

```
int num2 ==2; // == comparison operator cannot be used with variable
declaration
```

```
if num11>-num2) {Console.WriteLine("Yes");} // if condition missing open
parenthesis
```

```
else {Console.WriteLie("No");} // WriteLie is not a method in the Console
class, whereas WriteLine is.
```

1. What sequence will appear on the output of this C# code? Which parameter of `SD(int[] A, int B)` method is passed by value?

```
using System;
class Program
{
    static void SD(int[] A, int B)
    {
        A[2] += A[2];
        B /= B;
    }
    static void Main(string[] args)
    {
        int[] A = { 0, 1, 2, 3 };
        S(A, A[2]);

        Console.WriteLine($"{A[0]},{A[1]},{A[2]},{A[3]}");
    }
}
```

Solution

The sequence that appears in the output is 0, 1, 4, 3. The parameter `int B` is passed by value.

2. Consider the following code:

```

for (int y = 1; y <= 3; y++)
{
    for (int z = 1; z < 5; z++)
        Console.Write("Scene " + y + ", take " + z + ". ")
    ↵ );
    Console.WriteLine();
}

```

- How many times does the outer loop iterate (i.e., how many scenes are shot)?
- How many times does the inner loop iterates (i.e., how many takes for each scene)?
- Finally, what is the total number of iteration of the nested loops (i.e., how many takes are made, total)?

Solution

3, 4, 12

1. Mark the pretest loops:

- do while
- switch
- while
- for
- if-else-if

Solution

for and while are the pretest loops

2. Which of the following correctly declares and creates a two-dimensional rectangular array of integers?

- int[,] sum = new int(10, 40);
- int[,] sum = new int(25, 43);
- int sum[] = new int(20, 20);
- None of the above.

3. C# supports two types of two-dimensional arrays:

- quadrilateral and isosceles
- jagged and rectangular
- jagged and round
- None of the above.