**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Geovanny Henein\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

For each of the below questions, write a short sentence or two to express (in your own words) your answer. Keep the answers short, but use complete, correct, English sentences.

If it helps to clarify the questions, feel free to mentally prefix all the questions with the phrase "According to the video…"

1. After you’ve watched all the videos, please answer this question:  
   Of all the videos that you watched, if you could pick one video to be re-recorded by the instructor outside of class which would you choose? Why?  
   (Keep in mind the recording outside of class will omit any pauses from the instructor answering student questions, have less hemming and hawing, etc, and generally be more concise)

|  |
| --- |
| < Write your answer here > |

**VIDEO: While Loops**

1. In a nutshell, how does the **while** loop execute?

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| --- |
| Contrast with the while loop, which tests the condition before the code within the block is executed, the do-while loop is an exit-condition loop. This means that the code must always be executed first and then the expression or test condition is evaluated. If it is true, the code executes the body of the loop again. |

1. What is typically true of a situation where you would want to use a while loop?  
   (At the outset/start of the execution of the loop, what does the while loop typically NOT know?)

|  |
| --- |
| If it’s it’ll check once, and then comeback and checks again. You countdown, because you don’t know how many times it’ll go through the loop. |

1. Around the 3:10 mark the instructor explains a good example of where you might use a while loop (one that’s much better than the loop that counts down which is used at the start). What is this example ,and why is it a good situation to use a while loop?

|  |
| --- |
| Whenever you’re asking the user for input. Like type in a number you don’t know when the user is going to type in because they can type in what you asked for or something else. |

1. Syntactically, do we need the opening and closing curly braces that follow the line with the word while on it? If you do NOT have curly braces then which lines are considered to be part of the while loop (i.e,. which lines will be repeated)?

|  |
| --- |
| No, we only need it for the only single process that follows it. |

**VIDEO: For Loops**

1. A **for** loop is made for doing what?   
   Also – fill in the blank: “Knowing ­\_\_\_\_\_\_\_\_\_\_ is usually a good indicator that you should use a for loop”

|  |
| --- |
| When the program reaches here. If you know the number for which how mant times it will go through it. |

1. Copy the example of the for loop that was show in the video here:

|  |
| --- |
| For (int I =0; I < 10; i++) |

1. What does **i++** do?

|  |
| --- |
| Increases by one. |

1. Inside the for loop, what symbol do you use to separate the initialization from the check from the increment?

|  |
| --- |
| ; semi colon |

1. When you arrive at the for loop (on line 25), how many times do you do the **int i = 0** part? Is it possible that the program might ever skip this part?

|  |
| --- |
| Once, I don’t think so because you initial it. |

1. When you arrive at the for loop (on line 25), what is done after the the **int i = 0** part? What is the minimum number of times that this part will be done?

|  |
| --- |
| You do the body of the loop, then do the increment. Then go to the next |

1. Next, the **for** loop will do the body of the loop? What is the body of the loop given in the example in the video?

|  |
| --- |
| Console.writeline(afterloop) |

1. Next, the **for** loop will do what part of the loop?

|  |
| --- |
| Body part or the main thing. |

1. If any point the check part is false, what does the program skip? What does it do next?

|  |
| --- |
| Checks again or goes onto the next thing. |

**VIDEO: Do-While Loops**

1. What is the major difference between a do-while loop and the other two types of loops that we looked at?

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| --- |
| All the other do the checks. This one is do this once then check and see if this is needed |

1. Do…while loops MUST have a semi-colon where?

|  |
| --- |
| Wherever you want really. |

1. In C# (and many other languages), what is **whitespace**? What implication does this definition have in terms of where we can put extra blank lines in our programs?

|  |
| --- |
| Any where that you can put a blank space. You can just put spaces anywhere and it wont really matter. |

**VIDEO: Increment (++) and decrement (--) operators**

1. Exactly how does **x--** work?

|  |
| --- |
| X starts with a value of 10 then stash it somewhere then decrease it by one so when I’m done I’ll have a value of 9. |

1. Give the example of C# code that illustrates this that was used in the video, and make sure to explain why it prints 10 and NOT 9.

|  |
| --- |
| Console.writeline(“x is: {0}” , x--“); it will write the 10 then increase it or decrease it depending on the ++ or -- |

1. Exactly how does **--x** work?

|  |
| --- |
| It will do the decrement the value first then use the resulting value in the expression |

1. Give the example of C# code that illustrates this that was used in the video, and make sure to explain why it prints 9 twice and NOT 10 then 9 (and then prints 8 twice instead of 9 and then 8, etc, etc).

|  |
| --- |
| Console.writeline(“x is: {0}” , --x“);  Console.writeline(“x is: {0}” =======, x“); get x the decrease it by one then printout the decreased value again |

1. In the following code snippet, why does it not matter whether use you i++ (as written) or ++i?  
   for( int i = 0; i < 10; **i++**)

|  |
| --- |
| Because im not using the value of I afterwards. |

**VIDEO: Compound operators (+=, \*=, etc)**

1. In addition to C#, what other languages have the ++ and -- operators? Very briefly explain why.

|  |
| --- |
| Java because anything that has a c like uses it. |

1. Does **++x++;** work?   
   (You only need a yes/no answer for this question, and then you need to remember this answer when writing up your own programs. ☺ )

|  |
| --- |
| No. |

1. Instead of writing out **x = x + 2;**, how can I write an equivalent statement using a compound operator?

|  |
| --- |
| X += 2 |

1. List out the other compound operators used in the video, and which basic operation each one does:

|  |
| --- |
| X\*= 2; x- x\*2  X /=2; x mod equal |

**VIDEO: Random Numbers: Seed Values**

1. Can C# actually generate a truly random number? What is the brief, intuitive explanation that’s offered in the video?

|  |
| --- |
| We can’t generate truly random numbers. There are things that makes it look like it’s mathematically random but it’s never truly random. |

1. Copy down the line that creates a Random object from the example in the video.  
   If the parentheses are left empty, what is used as the “seed value”?

|  |
| --- |
| Random nums = new Random( ); when the object is created it’s going to grab the clock value. |

1. How does C# generate a random number each time that my program calls the **nums.Next()** method?

|  |
| --- |
| C# will take the seed value then grind it in a mathematical function then it will give me a new value. |

1. If one creates a second Random object that is given the same seed value (as a previously created Random object) what will be true about the sequence of “random” numbers that it generates?

|  |
| --- |
| If I use the exact seed value I would see the exact random numbers. |

1. Briefly give an example of where this might be useful:

|  |
| --- |
| If you have tests then it can retry different stuff. So if it’s a testing a software for me it will try different things but if one specific thing got a bug then I know the exact seed value to get that bug again |

1. Given that the Random object is an adequate (but not great) random number generator, give an example or two of situations where you should avoid using the normal, **Random** class to generate random numbers:

|  |
| --- |
| Cryptography like an online poker game where you’re actually using real money. |

1. Copy down the line that creates a Random object with a seed value of 100 from the example in the video

|  |
| --- |
| Random numTwo = new Random(100); |

**VIDEO: Random Numbers: the .Net-specific .Next(min, maxPlusOne) method**

1. Pseudo-mathematically speaking, what do we mean when we say the numbers we’re generating are random?

|  |
| --- |
| Like these are all the random values so there are some numbers that you would never see also no more one value than the others. |

1. Given a Random object named nums, what possible numbers will **nums.Next()** generate?   
   Make sure to be clear about the smallest possible number, the largest possible number, and the type (double, float, int, etc)

|  |
| --- |
| It’s a number from 0-2.1billion and these are all integers. |

1. Given a Random object named nums, what possible numbers will **nums.Next(1, 7)** generate?   
   Make sure to be clear about the smallest possible number, the largest possible number, and the type (double, float, int, etc)

|  |
| --- |
| Range is 1 including 1 and to 7 not including 7 integers |

1. Given a Random object named nums, what is the largest possible number that **nums.Next(1, 7)** might generate? (Yes, this duplicates what’s being asked for in the prior question, but getting this wrong is a very common mistake so it’s good to write your answer out twice)

|  |
| --- |
| 7 |

1. Given a Random object named nums, what possible numbers will **nums.NextDouble()** generate?   
   Make sure to be clear about the smallest possible number, the largest possible number, and the type (double, float, int, etc)

|  |
| --- |
| Random double values 0 to 1 including 0 and not including the value of 1 integers. |

**VIDEO: Random Numbers: Seed Values & non-random numbers**

1. Describe what will the following block of code produce as output (obviously you can’t know the exact numbers it will produce, so instead focus on what distinctive behavior it will demonstrate)

for (i = 0; i < 5; i++)

{

Random nums = new Random(); // seed value based on time

Console.WriteLine("Next number: {0}", nums.Next());

}

|  |
| --- |
| Same number every time through the loop |

1. **Why** does the code produce the output that it does in the prior question?

|  |
| --- |
| Because it’s going through the loop very fast. |

1. How should you fix this problem?

|  |
| --- |
| Thread.sleep() |

1. Ideally, how many random number generators should your program create?

|  |
| --- |
| Just once. |

**VIDEO: Random Numbers: Using the plain .Next() & modulus ( % )**

1. If I wanted to randomly generate whole numbers in the range of [1,5], what C# expression would I use?

|  |
| --- |
| rng.next()%5)+1 |

1. Using the above expression, if **rng** randomly generates 1 what value will the overall expression produce? Make sure to explain each and every ‘step’ that the computer goes through in order to arrive at your answer.

|  |
| --- |
| 2 because it will go mod 5 +1 |

1. What part of the expression (that you listed for the question that’s two before this question) determines how many values you get? Which part determines the lowest possible value that you’ll see?

|  |
| --- |
| %\_\_\_\_\_\_\_\_\_)+\_\_\_\_\_\_\_\_\_ |