Why does using IoC and dependency injection require that you program to interfaces? Provide rationale for your answers. What are two advantages to using IoC and dependency injection?

Dependency injection is the action from the IoC principle of inverting the direction of abstraction. By referencing abstract interfaces instead of definite classes allows for the flow of controls during compile time dependency while allowing the classes to still pass information at run time. By encapsulating repetitive logic, it can then be re-used in multiple instances, and if a change is necessary to the code it can be done in a single place rather than attempting to find all instances that concept is being used. This helps to keep application code more modular and more easily testable which then increases the maintainability throughout the application’s life span.

Pine, D., Warren, G., Chan, G., & Anderson, R. (2020, October 28). *Dependency injection in .net*. https://docs.microsoft.com/en-us/dotnet/core/extensions/dependency-injection.

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