GDAPS1 – Practice Exercise

Review Questions

# Objective

Create questions that could appear on a study guide to prepare for the final exam.

# Details

Look back through all of the topics of this course. Create 5 thought-provoking questions that could appear on an exam. Each question should cover a different topic from this course. Your 5 questions can be short-answer, multiple-choice, coding analysis, or write-the-code questions.

Write your 5 questions, plus the answer to each question, below.

## Question 1:

Question: What is the key difference between stacks and queues? Give an example of each.

Answer: The key difference between stacks and queues is that a stack works in a “last in, first out” manner, whereas queues work in a “first in, first out” manner. An example of a stack would be a stack of cups where you cannot get to the bottom cup without taking each cup individually off of the top of it. An example of a queue would be a line of people.

## Question 2:

Question: Why are generic classes important?

Answer: Generic classes are important because they allow classes to be reusable with different data types. Rather than creating a list class for each desired data type, you could create one generic list class that allows your code to be reused with any data type.

## Question 3:

Question: What is wrong with the following code? Assume it is in a class that is properly constructed before these lines of code appear.

...

// Fields

public int mileage;

public bool isEmpty;

// Properties

public int Mileage { get { return mileage; } }

public bool IsEmpty { get { return isEmpty; } }

// Constructors & Methods ...

Answer: The issue with the code is that the mileage and isEmpty variables are already public. Typically, when we design classes, we have encapsulation in mind, which is why properties are necessary. Generally, we want to make the fields private and define what we want the user to be able to do with the properties (get or set or both).

## Question 4:

Question: What are some important features of polymorphism? Name at least two.

Answer: Polymorphism allows the child class to inherit from the parent’s methods as long as they are not private. Most notably, polymorphism allows methods to be overridden and allows several child classes to be stored in arrays or lists of the type of the parent object.

## Question 5:

Question: Each of the following objects are damageable: players, enemies, buildings, cars, weapons, and armor. What should these classes inherit from? What is a suitable name for what they’re inheriting from?

Answer: Since many of these objects are unrelated, it is appropriate to use an interface to require that all objects have a “damageable” method. A suitable name for the interface would be IDamageable as interfaces should be prefaced with an “I.”

# Friday’s class

Your instructor will choose anywhere from 15 – 30 questions from the bank of questions that all students have submitted.

On Friday, you will be given a printed “study guide” with these questions. You should begin working on it Friday, though the completed study guide will be due at the beginning of class on Monday and used as part of the exam review that day. Be sure to bring a pencil or pen to class with you!

# Submission

1) Submit: Submit this document to the appropriate Assignments dropbox in MyCourses **by the end of class today.**

2) Check-off: No checkoff for this exercise.