INFO 5100 - Application Engineering & Dev

Homework to Chapter 9

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In the following pages, I will answer the questions in the Midterm Exam, providing detailed responses. Your feedback is greatly appreciated, and I am open to any additional guidance or expectations you may have for this assignment.

Non-Programming Assignment

1. What is class constructor and why is it needed?

Ans: A class constructor is a special method that is automatically called when an instance of the class is created. In Java, the constructor is defined with the same as the class and it may or may not have any arguments.

It is used to initialize an object at the time when it is created, give default values to the attributes of the instances. For example:

```
public class MyConstructor
{
	int myAttribute;
	public MyConstructor()
	{
		myAttribute = 0;
	}
	public static void main(String[] args)
	{
		MyConstructor obj = new MyConstructor(); // constructor is called
		System.out.println(obj.myAttribute); // prints 0
	}
}
```

2. What is the meaning of the following access modifiers: “public”, “private”, “protected”, and “default”?

Ans: **Access modifiers** in Java specifies the accessibility or scope of a field, method, constructor, or class. We can change the access level of fields, constructors, methods, and class by applying the access modifier on it. This provides security, accessibility, encapsulation of the program. There are four types of Java access modifiers:

Private: The access level of a private modifier is only within the class. It cannot be accessed from outside the class.

Default: The access level of a default modifier is only within the package. It cannot be accessed from outside the package. If you do not specify any access level, it will be the default.

Protected: The access level of a protected modifier is within the package and outside the package through child class. If you do not make the child class, it cannot be accessed from outside the package.

Public: The access level of a public modifier is everywhere. It can be accessed from within the class, outside the class, within the package and outside the package.

3. What is the meaning of the following non-access modifiers: “final” and “abstract”?

Ans: Non Access Modifiers are the keywords that helps introduce additional functionalities to methods, attributes, etc.

The **final** keyword indicates that the specific class cannot be extended or a method cannot be overridden.

If **abstract** keyword is applied to a class or method, it indicates that the class cannot be instantiated directly, or the method has no implementation and must be implemented by a subclass

4. What is a Java package?

Ans: In Java, a package is a way to organize related classes and interfaces into a single namespace. It helps in avoiding naming conflicts and provides a modular structure to the code. They are used to group related classes, interfaces, and sub-packages together. These are supposed to be imported in the java file before using. For example: java.util