Strayer University

**Object-oriented Programming versus Procedural Programming**

Week 10

**Technical Paper Assignment**

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By

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**Object-oriented Programming / Event-Driven Programming versus Procedural Programming.**

This assignment is about a term Technical paper which is going to compare the **Object-oriented Programming (OOP) / Event-Driven Programming (EDP) versus Procedural Programming (PP). I will break down each of this to make everything easy to understand. Then I will** Identify two advantages to using OOP as compared to using only PP. Next, I will Create one original example of a class with at least one attribute and one method. I will go head Identify what the class in question represents, the attributes the class stores, and the purpose of the related method. Next, I will examine the relationship between the class, attributes, and methods that I have identified. In addition, I will describe one feature of object-oriented programming that Visual Logic lacks. And I will conclude by Identifying one advantage to using event-driven programming, as compared to using purely procedural programming.

Before I go any further, I would like to define the following terms**. Object-oriented Programming, Event-Driven Programming and Procedural Programming.** According to an article and I quote “Object-oriented programming (OOP) is a programming language model organized around objects rather than "actions" and data rather than logic. Historically, a program has been viewed as a logical procedure that takes input data, processes it, and produces output data.”. While, “event-driven programming is a programming paradigm in which the flow of the program is determined by events such as user actions (mouse clicks, key presses), sensor outputs, or messages from other programs/threads” On the other hand “Procedural programming can be defined as a subtype of imperative programming as a programming paradigm based upon the concept of procedure calls, in which statements are structured into procedures (also known as subroutines or functions).”

**Some Advantages of using OOP compared to using PP**

OOP has got a lot of advantages compared to PP. Two of the most important ones are the use of module and the maintenance of the it. In OOP, programs are made up of modules, which are parts of a program that can be coded and tested separately, and then assembled to form a complete program. In addition, it gives the modular structure for programs which makes it good for defining abstract datatypes where implementation details are hidden and the unit has a clearly defined interface. Moreover, it makes the program easy to maintain and modify the existing as new objects can be created with small differences to existing ones. In PP, on the other hand, the modules are procedures which are sequence of statements.

**An example of a class with at least one attribute and one method.**

An example of a class is a person class with an attribute of first name, last name and some method of set LastName() and set LastName() which will set the first name and the last name in the class. It can be simplified by the following class below.

class person

set LastName(string, name)

set LastName(string, name)

getFirstName()

FirstName

getLastName()

LastName

The above class shows the person class containing two data fields that represent a person’s first name and last name. They can be set by using the setFirstName and setLastName()which takes a single string parameter named name, and that it returns first name and last name. This can be achieved by the getFirstName() and getLastName() which return first name and the last name.

**Feature of object-oriented programming that Visual Logic lacks.**

Some of the features which OOP has which cannot be found in Visual Logic is the Polymorphism and Encapsulation. Polymorphism is the situations in which one method is used with a variety of arguments and Encapsulation is the combination of all the object’s attributes and methods into a single package. These two features cannot be done in Visual which put OOP at an advantage.

**Identify at least one (1) advantage to using event-driven programming, as compared to using purely procedural programming**.

The advantage of this programming paradigm is that it's very intuitive and naturally well-suited to applications whose control flow are based, not on its structure, but rather on internal or external events. Therefore event-driven programming is so popular with GUI programming.

.Advantagesof event-driven programming approach as follows:1.It allows for more interactive programs. Almost all the modernGUIprogramsusesevent driven programming. JavaScript is the example of event-driven based programming language but in procedure based program, there needto write all the complex function for performing any event based operation.2.Event-driven programmingcan be implemented using hardware interrupts, whichwill reduce the power is being used by the computer.3.It allows sensors and other hardware to easily interact with the software but inprocedure programming there is no predefined methods which can handle sensorsevent i.e. it require to write own function i.e. more complex as compare to event-driven approach.

**Explain and identify object-oriented concepts.**

The concepts which object oriented programming has are as follows, the use of Classes, Objects, Inheritance, Polymorphic and Encapsulation. A class is a group or collection of objects with common attributes. The Objects are tangibles example of a class and it is an instance of a class. While Inheritance is the process of acquiring the traits of one’s predecessors. The Polymorphism is the situations in which one method is used with a variety of arguments and Lastly Encapsulation is the combination of all the object’s attributes and methods into a single package.

Once a class is defined, many number ofobjects can be created which belong to the same class.Objects:Objects are basic run-time entities in an object-oriented programming approach.Problems are analyzed in terms of objects and nature of the communication among them. When aprogram is run, objects interact with each other by sending request and different objects can alsobe interact with each other without knowing the data or code.Inheritance:It’sthe process by which objects can inherits the properties of the objects ofother class. In OOPs, inheritance provides reusability of same code like adding additionalfeatures to an existing class without modifying the class. It achieve by deriving a new class fromthe existing one.Data Abstraction and Encapsulation:Abstraction mentions to the act of representingrequired features without including the backg

**Conclusion**

Finally, I have talked about some advantages of OOP, examine some classes, describe some features which visual logic lucks, identifying some advantages of event-driven programming, as compared to using purely procedural programming and some other important things about OOP. I think OOP is better because it makes programming easy by using the modules which make the reuse of some method easy.

**Bibliography**

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