**Chapter 6a - Review Questions**

1. **What is object-oriented analysis, and what are some advantages of using this technique?**

* Object-oriented analysis is a popular system development option that sees a system from the viewpoint of the objects as they function and interact. An object represents a real person, place, event or transaction. The objects have certain attributes that are characteristics that describe the object, methods that are tasks/functions the object performs when it receives a message to do so. Similar objects are often grouped together in what is called a class. Attributes are used to describe the characteristics of the object, and methods define specific tasks that the object can perform. The object-oriented method is popular because it is very interactive, integrates easily with various programming codes (C++, Java, etc.), is reusable and easy to maintain.

1. **Define an object, and give an example.**

* An object is a representation of a person, place, event or transaction. It includes data as well as the processes that affect the data. In terms of an object representing a person, a STUDENT or INSTRUCTOR would be good examples of objects. An example of a place might be BLACKBOARD LEARNING ENVIRONMENT. An event might be CLASS REGISTRATION, and the transaction could be CHAPTER 6 HOMEWORK SUBMITTED or CHAPTER 6 HOMEWORK GRADED.

1. **Define an attribute, and give an example.**

* Attributes are characteristics that describe the object. Objects can have only a few attributes or they can have many attributes depending on the business requirements of the system and its users. Objects can inherit attributes from other objects as well. Objects can also have attributes based upon their current status, which is called a state. An example of an attribute might be STUDENT NUMBER or INSTRUCTOR TYPE.

1. **Define a method, and give an example.**

* A method is a specific task that an object can perform. It is used to describe what and how an object does something. An example of a method would be ADD STUDENT.

1. **Define encapsulation, and explain the benefits it provides.**

* Encapsulation means that all data and methods are self-contained. An object can be viewed as a black box because a message to the object will trigger changes within the object without specifying how the changes must be carried out. Limiting access to the internal processes prevents an object’s internal code from being altered by another object or process. Encapsulation allows modular use of objects anywhere within a system, because objects are able to send and receive messages, but are not able to alter the internal methods of another object.

**Chapter 6a - Personal Trainer, INC**

1. **Identify possible use cases and actors, and create a use case diagram for the Personal Trainer information system.**

* See attached use case diagram

1. **Select one of the use cases and create a class diagram.**
   * See attached class diagram

**Chapter 6a - Case in Point 6.1: HILLTOP MOTORS**

