Name : MUHAMMAD MUBASHAR ALI

Student ID : BSIET02213012

Subject : Object Oriented Programming

Lab # 01

Review Questions

Question # 01

What is object oriented programming ?

Answer

Object-oriented programming (OOP) is a computer programming model that organizes software design around data, or objects, rather than functions and logic. An object can be defined as a data field that has unique attributes and behavior. The main aim of OOP is to bind together the data and the functions that operate on them so that no other part of the code can access this data except that function. It provides a way of modularizing programs by creating portioned memory area for both data and functions that can be used as templates for creating copies of such modules on demand .

Question # 02

What is the difference between C and object oriented programming ?

Answer

|  |  |
| --- | --- |
| C | OOP |
| It is a procedural programming language | It is an object driven language |
| Function and operator overloading is not supported | Function and operator overloading is supported |
| It follows the top – down approach | It follows the bottom – up approach |
| It does not support information hiding | It support information hiding |
| The file extension of C program is .c | The file extension of the object oriented programming is .cpp |
| A big program code is divided into small pieces which is called functions | A big program code is divided into objects and classes |
| The data is not secured | The data is secured so it can’t be accessed by external functions |
| Focuses on methods or process instead of data | Focuses on data instead of method or procedure |
|  | |

Question # 03

What is the difference between a class and a structure ?

Answer

|  |  |
| --- | --- |
| Class | Structure |
| A blueprint that defines the variables and the methods common to all objects of a certain kind | A structure is a value type data type that can hold related data of various data types |
| Can inherit from other classes or structures | Cannot inherit other classes or structures |
| Can have a destructor | Does not have a destructor |
| Instantiates an object using a new keyword | Instantiates an object without using a new keyword |
| Instance of a class is an object | Instance of a structure is a structure variable |
| The keyword ‘class’ defines a Class | The keyword ‘struct’ defines a Structure |
| If there are no access specifiers declared , then the members are private | If there are no access specifiers declared , then the members are public |

Question # 04

Give any example of polymorphism and explain in your words?

Answer

Polymorphism is one of the core concepts of object-oriented programming (OOP) and describes situations in which something occurs in several different forms. In computer science, it describes the concept that you can access objects of different types through the same interface.

Example

A real-life example of polymorphism is a person who at the same timecanhave different characteristics. A man at the same time is a father, a husband, and an employee. So the same person exhibits different behavior in different situations.

Explanation

To know whether an object is polymorphic, you can perform a simple test. If the object successfully passes multiple **is-a**or [**instance of**](https://docs.oracle.com/javase/tutorial/java/nutsandbolts/op2.html) tests, it’s polymorphic. As described in our post about [inheritance](https://stackify.com/oop-concept-inheritance/), all Java classes extend the class Object. Due to this, all objects in [Java](https://stackify.com/content/java/) are polymorphic because they pass at least two **instance of**checks.