

Branch : MCA

Semester : Spring Semester 2022-23

Course Code : CA3205

Laboratory Name : Numerical Computing using C++

Assignment No. : ASSIGNMENT – 6

Assignment Title : Inheritance

1) Implement the following class hierarchy by defining all functions of each class. Demonstrate the call of each function and access to each data member using an object of derived class.

Class : Bicycle

Members: frametype, wheeldiameter, handletype

Functions: getData(), printData()

Class : MotorBike (inherits Bicycle)

Members :noofGears, maxspeed, enginecapacity, meterreading, fuelconsumed

Functions: inputData(), printData(), calmilage()

2) Implement the following class hierarchy by defining all functions of each class. Demonstrate the call of each function and access to each data member using an object of bottom most class. In addition to all operations, show the order of execution for constructors and destructors for multi-level inheritance.

Class : Point

Members: xco, yco

Functions: constructors, destructors, print()

Class : Circle (inherits Point)

Members : radius

Functions: consturctors, destructors, print(), float area()

Class: Cylinder (inherits Circle)

Members : height

Functions: constructors, destructors, print, float surarea(), float volume()

3) Implement the following muliple-inheritance hierarchy. Demonstrate overriding of printdata() and object slicing while showing a function call to the corresponding version of each parent class.

Class : Student

Member : Rollno, name, branch, institute, cgpa

Function: constructors, destructors, printdata()

Class: Employee

Member : empid, name, organisation, salary

Functions : constructors, destructors, printdata()

Class : WorkingStudent (Inherits Student and Employee)

Members: (all inherited)

Functions: constructors, destructors, printdata()

4) Implement the following multiple-inheritance hierarchy. Demonstrate overriding of printdata() and object slicing while showing a function call to the corresponding version of each parent class.

Class : VegCuisine

Member : name, cost

Function: constructors, destructors, printdata()

Class: NonVegCuisine

Member : name, cost

Functions : constructors, destructors, printdata()

Class : ComboCuisine(Inherits VegCuisine and NonVegCuisine)

Members: (all inherited)

Functions: constructors, destructors, printdata()

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