

Branch : MCA

Semester : Spring Semester 2021-22

Course Code : CA3205

Laboratory Name : Numerical Computing using C++

Assignment No. : ASSIGNMENT – 4 (GROUP- II)

Assignment Title : copy constructor, static, and friend functions

- 1) Define a class **IntStack** with data members top and a pointer to integers. The class also has the following member functions:
 - i. IntStack() : Default constructor, dynamically allocate memory of 10 integers and set the top to -1.
 - ii. IntStack(size) : Parameterized constructor, dynamically allocate the memory of 'size' integers and set top to -1.
 - iii. IntStack(const IntStack &): copy constructor , create memory for called object , copies the data from argument object , and update top variable.
 - iv. int pop(): pop up and returns the topmost element of the stack.
 - v. void push(int val) : push the value to the stack.

- 2) Define a class **Partners** having two nonstatic data members; partnerid and contribute_amount. It has one static data member companyfund that indicate the total fund contributed by the partners. It consists of the following member functions.
 - i. A parameterized constructor, which set the partnerid and his/her contribution for the company. At the same time it also updates the company fund
 - ii. addamount(amount) : amount is added existing contribute_amount and to the companyfund.
 - iii. payBills(amount) : a static member function that pays bill from the companyfund.
 - iv. withdrawamount(amount) : the amount is deducted from existing contribution of a partner and update the companyfund.

- 3) Define a class **Triangle** having following data members : side1, side2, and side3. Here, side is an object of class Line with only data member len. The class consists of the following member functions:
 - i. Triangle(Line, Line, Line) : parameterized constructor.
 - ii. Triangle(const &Triangle) : a copy constructor.
 - iii. setSide(Line, Line, Line): set the sides of a triangle.
 - iv. showSides(void) : show the sides of a triangle.

v. float findArea(void) : returns area of the triangle.

Make functions **friend** of the required class wherever necessary.

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