CL-217 OBJECT ORIENTED PROGRAMMING LAB

Assignment #1

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NOTE:

Only submit .cpp file of each question in a folder. Anyone who submits any other format file will get straight **ZERO.** Each question should have a separate .cpp file. Copy Paste or other UFM will also get **ZERO**.**This Assignment has high weightage and viva will be taken after submission**.

Task # 01

Create a Class called employee that contains these members: an employee number (type int), employee name (type string), employee phone numbers (an int array of size=4), employee age (type int) and the employee's compensation (in dollars; type float). Include the following member functions for an employee:

- Default constructor
- Constructor with parameters
- Destructor
- Set function for each data member
- Get function (value-returning) for each data member
- Print function for each data member
- Update function for each data member

Ask the user to fill in the data for an array of three employees **(Array must be dynamic)** and then display the information for each employee on console.

Task # 02

Design a class stringType with two member variables first and second of type string and following member functions:

- void setValues(string str1, string str2)
- void printValues()
- int maxLength()
- int compare(string s1, string s2)
- void copy(string source, string destination)
- string concatenate(string s1, string s2)
- int searchWord(string word)
- int searchChar(char ch)

Note: don't use any library function, implement your logic! Also include the default and Parameterized constructor to initialize the member variable.

Task # 03
Create a class twoDArray that contains these members:

1. 2D array of type integers created statically and its size only i.e.
2. Int SIZE=5;

int matrix[size][size].

Include the following member functions for 2DArray class:

Default and Parameterized constructors and one destructor

- Initialize();
- // initialize 2D array with random values
- Print();
- // print values of 2D array
- Transpose(); // take transpose of 2D arrayLab Tasks
- isSymmetry(); // check if matrix is symmetric or not.
- twoDArray multiply(twoDArray obj1, twoDArray obj2)

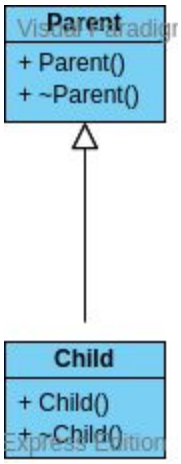
Task # 04
Design and implement a class listType that stores the elements in a program. Thus, class listType has two member variables: one an integer array(**Dynamic**), to store the elements and another size, to keep track of the number of elements in the list.
The program should be able to perform the following operations on an object of type listType :

- bool isEmptyList() const; //checks whether list is empty or not
- bool isFullList() const;// checks if list is completely filled.
- int search(int searchItem) const; //search for a number in the list
- void insert(int newElement);// function which inserts a new item in the list
- void remove(int removeElement);// function to remove a number from the list
- void printList() const;// prints all the numbers in the list
- listType(); //constructor // Creates a dynamic array
- ~listType()//Destructor // Removes the dynamic array

Write the definitions of the functions to implement the operations for the class listType as defined above. Also, write a program to test these operations on this class in the main function.

Task # 05

Consider the below given diagram. The arrow shows that Child class is derived from Parent Class and + sign shows that the member function is public.



Constructor of parent class prints “i am Parent, i got a new life” and Destructor prints “I am Parent, i am going to die”.
Do the same for child class.

In main function declare an object of Child class dynamically and than delete it. Note how the constructors and destructors get called of child and parent classes.

Task # 06

Consider the below given diagram. Do all the tasks stated in **TASK 5** for these classes.