# LAB TASK 06- CLASSES

## Instructions

1. Make your own files (2 files for each class). Name of files must be same as class name such that for Point class there are header file (Point.h), Implementation file(Point.cpp). Run test cases for testing your program.
2. Please use the macros and pre processor instructions (#ifndef, #define, #endif) in each class header file.
3. Data member names of each class should be the same as per mentioned in each question.
4. Please read the questions carefully, read them twice even thrice to understand them completely.
5. In case of any query, please raise your hands and we will be there to solve your query.
6. Please concentrate, understand and code. Good Luck :)

### Problem 1:

Design a class IntType (an updated version of C++ int class having extra functionality) with one member
variable of type int and following member functions:

- void setNum(int x);
- int getNum() const;
- int numLength();
- string int_to_string();
- int reverseNum();
- int sum_all_digits();
- float avg_of_digits()
- int sum_even_digits();
- int sum_odd_digits();

Some global function in intType.cpp.

int add(intType & num1, intType & num2);
int sub(intType & num1, intType & num2);
int multiply(intType & num1, intType & num2);
int divide(intType & num1, intType & num2);

### Problem 2:

Create an employee class, member data should comprise an int for storing the employee number, string for storing name, an array of four phone numbers of employee, and a float for storing the employee's compensation.
Write the following member functions:-

- Default and parameterized constructors
- Copy constructor Employee(Employee &copy)
- Setters getters for data members
- Update the phone number after searching the number
  `bool updatePhone(int searchVal, int updateValue)`

Write a function **Max** in employee.cpp having one parameter (an array of employee objects) that will return the name of employee having maximum compensation.

- MAX_COMP( employee e[ ], int size);

## Problem 3:

We have to implement a scenario where we have to simulate a park ticket system. A park has some specific seating capacity, we also have ticket price, and total amount we get for the day. Price of ticket per head is Rs. 20/- . Write the following member functions

- Default and parameterized constructor
- copy constructor Park(Park &copy)
- Setters and getters for each data member
- A function that perform entrance in the park (function has one argument the number of persons going into the park)
- On exit updating of the capacity (one argument how many people left the park)
- Total amount we get for the day (return total amount of the day).
- Isfull function that will check is there no more capacity in the park

Note: You also has to maintain the count of people in the parks

## Problem 4:

1 Write a class named as Holiday that represents a holiday during the year. This class has three private data members:

- name: A string that represents the name of holiday.
- day: An integer that holds the day of the month of holiday.
- month: A string that holds the month the holiday is in.

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- Write a default constructor that initializes each data member of class such that name with NULL, day with 0 and month with NULL
- Holiday()

3 Write a constructor that accepts the arguments for each data member such that string n assigned to name, int d to day and string m to month.

- Holiday(const string &n, int d, const string &m)
- Note*:Use member function initialization for all data members.
- Also a copy constructor Holiday(Holiday & copy)

4 Generate getter setter of each member variable : such that name should never be greater than 50 characters, day should never be negative and month should not be greater than 10 characters.

- bool setName(const string &s)
- string getName() const
- bool setDay(int u)
- int getDay() const
- bool setMonth(const string &p)
- string getMonth() const

5 Write a global function **inSameMonth** in Holiday.cpp file which takes two Holiday objects as arguments, compares two objects of the class Holiday, and returns true if they have the same month otherwise false.
bool inSameMonth (const Holiday &a, const Holiday &b)

6 Write a global function avgDate in Holiday.cpp file which takes an array of type Holiday and its size as its argument and returns a double that is the average of all the day data member in the Holiday array arr. You may assume that the array is full (i.e. does not have any NULL entries).

double avgDate(Holiday arr[], int size)