1. **Write** a program in **C language** for maintaining a database of student records and perform the following operations**.** 
   1. Create Database
   2. Display Database
   3. Delete Records
   4. Update Record
   5. Search Record
   6. Insert the record
2. **Write** a program in **Java language** for maintaining a database of student records and perform the following operations**.** 
   1. Create Database
   2. Display Database
   3. Delete Records
   4. Update Record
   5. Search Record
   6. Insert the record
3. Design a class ‘Complex ‘with data members for the real and imaginary parts. Provide default and Parameterized constructors. Write a program to perform arithmetic operations (add, subtract, multiply, and divide) of two complex numbers.
4. Design a class ‘bag’ that consists of zero or more objects of the same type. Each object can be described by its color and weight. Design a Java program to create a new object. This can be done in two ways. If the user provides information about the color and/or weight of the object to be created then this information will be used to create the object otherwise the object will be created using default values for these attributes. Provide a facility to keep track of the total number of objects and the total weight of objects from a bag. Use constructor, static variable, and method.
5. Define two classes to store distance. One of the classes should store distance in centimeters and meters and other should store distance in feet’s and inches. Read two distances, one for each class and compute sum or differences between them as par the user’s choice. Display answer in the unit provided by user. Use friend function, function overloading, constructors etc.
6. **Write** a program for maintaining a database of student records and perform the following operations using **multilevel inheritance** (student1->student2->student3).
   1. Create Database
   2. Display Database
   3. Delete Records
   4. Update Record
   5. Search Record
   6. Insert the record
7. Design and develop inheritance for a given case study: Employee class has Emp\_name, Emp\_id, Address, Mail\_id, and Mobile\_no as members (instance variables). Inherit the classes: Programmer, Team Lead, Assistant Project Manager and Project Manager from employee class. Add Basic Pay (BP) as the member of all the inherited classes with 97% of BP as DA, 10 % of BP as HRA, 12% of BP as PF, 0.1% of BP for staff club fund. Generate pay slips for the employees with their gross and net salary.
8. Design a base class shape method compute\_area() for calculating area of shape. Derive three classes: triangle, rectangle, and circle. Make compute\_area() as overriding method and redefine this method in the derived class to suit their requirements. Write a program that accepts dimensions of triangle/rectangle/circle and display calculated area. Implement **dynamic binding** for given case study.
9. Design **template class** for matrix operation with relevant data members. Implement member functions to add two matrices. Execute the code using **C++ language**.
10. Design **template function** for sorting an array in ascending/descending order. Execute the code using **C++ language**.
11. Implement a generic program using any collection class to count the number of elements in a collection that have a specific property such as even numbers, odd number, prime number and palindromes.