Lab Cycle 3

1.Define a class **Date**. Overload the operator '+' such that it adds a given date with a certain number of days.

2. Distance is measured in feet and inches units. Use operator overloading for '+' operator for adding two such distances and '<' for comparing two such distances. (one of the operator functions should be implemented as a friend function.)

3. Write a program using operator overloading to overload Stream operators (<< and >>) to read and display the objects of complex class.

4. A class representing distance is measured in the unit of feet and inches. Write a program to do conversion from meter unit to objects of class type and objects of class type to meter.

5. Polar coordinates are represented in angle and radius format while rectangular coordinates represented as (x,y). Define classes for both types and include member functions to convert from polar to rectangular coordinates.(conversion from class to class.)

6. **Employee** class contain details like name,emp no,pay rate, constructor function and a pay() function. **Manager** class inherits from the employee and has the option of drawing pay on hourly basis or salary basis and has an additional data is salaried(bool). Class **Supervisor** is derived from the employee and has an additional field department and is always salaried. Base and both derived classes should contain the pay() function with the same name.

7. Write a C++ program to create a class STUDENT with age name and register number. Using Inheritance, derive two classes MTech-stud and BTech-stud.List both the category of students in the increasing order of marks(for BTech-stud) and gpa(for MTech-stud). In case of tie, display whichever name comes first. Make sort() function as a virtual function.

8. Implement the base class Shape and derive triangle,rectangle,circle and square classes from it. Implement functions to compute the area and perimeter of the polygon. Use the concept of pure virtual functions.