

1. Write a program contains a class Data that has data members: A[20] (double), B[20] (double), n (number of elements of A and B). This class contains the following:
  - a. Operator >> ( input only A's elements)
  - b. Function to set the elements of B such that each  $B_i$  is equal to  $\sum_{j=0}^{i+1} \frac{n-i+j}{A_j}$ .
  - c. Operator << (only A).
  - d. Operator [ ] (used to display B' s elements)
  - e. Operator -=
  - f. Operators: ++ postfix, ++prefix
  - g. Operator >= (only B)

In main function, define several objects and apply all functions and operators on them.

2. Write a program contains a class Mark that has data members: M[20][20] (double), n (dimension of matrix), m (dimension of matrix). This class contains the following:
  - i. Operator >> (input only all elements of M except last row),
  - ii. Function to set the elements of last row such that each element  $M_{n-1,i} = \sum_{j=0}^{n-2} \frac{M_{j,i}}{n-1}$  (for  $i=0\dots m-1$ ).
  - iii. operator << (display only all elements of M except last row),
  - iv. Operator [ ] (used to display only elements of last row)

- v. **Operator +=**
- vi. **Operator > (to compare between two last rows for two objects).**
- vii. **Operators :-- postfix, --prefix**

**In main function, define several objects and apply all functions and operators on them.**