# Topic Interfaces and Generics (as004)

1. Create an interface called Payment that has a behavior (makePayment) that has 2 implementations (PaymentByCash and PaymentByCard).
   1. Create a Client to test the above for different modes of payment.
   2. Create a Factory class and a method getPaymentInstance() to make it loosely coupled.
2. Create an interface called Operator that has a method operate(int x,int y) that has multiple implementations. operate() can add 2 integers or multiply 2 integers.

Create an interface printInterface that has a method print() that can print on the console or to a file. (Class Demo)

Create a class that implements the above interfaces, and test the same.

1. Create an interface CollectionInterface that has a method addElement(T t) that adds element of any type to a collection.
   1. An interface ListInterface extends CollectionInterface, adds another version of adding any element in an index. addElement(T t,int index).
   2. Create implementation classes MyList that implements ListInterface using array implementation and MyLinkedList that implements CollectionInterface using LinkedList Implementation that also has a method addFirst(T t) that adds element in the beginning of the list.
   3. Write a client to test the above with following types.
      1. Integer
      2. String
      3. Book
   4. Hint : in case of arrays while adding elements in an index items are shifted to the right.
2. Create an interface Comparable<T t> that compares the current object of the class that implements it with the passed object to method compareTo(T t);
   1. Create a client to test the above. ( Class Demo)