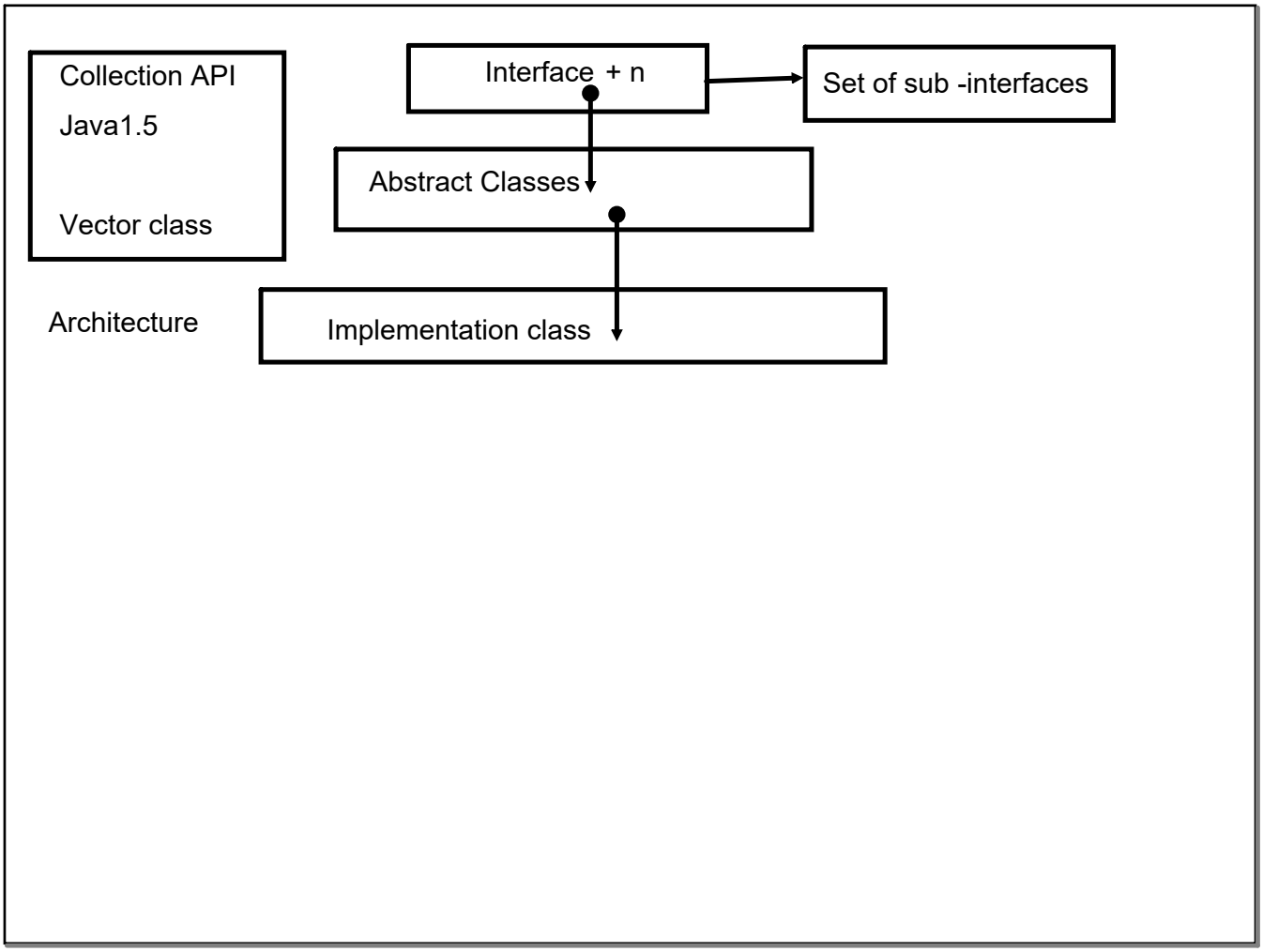
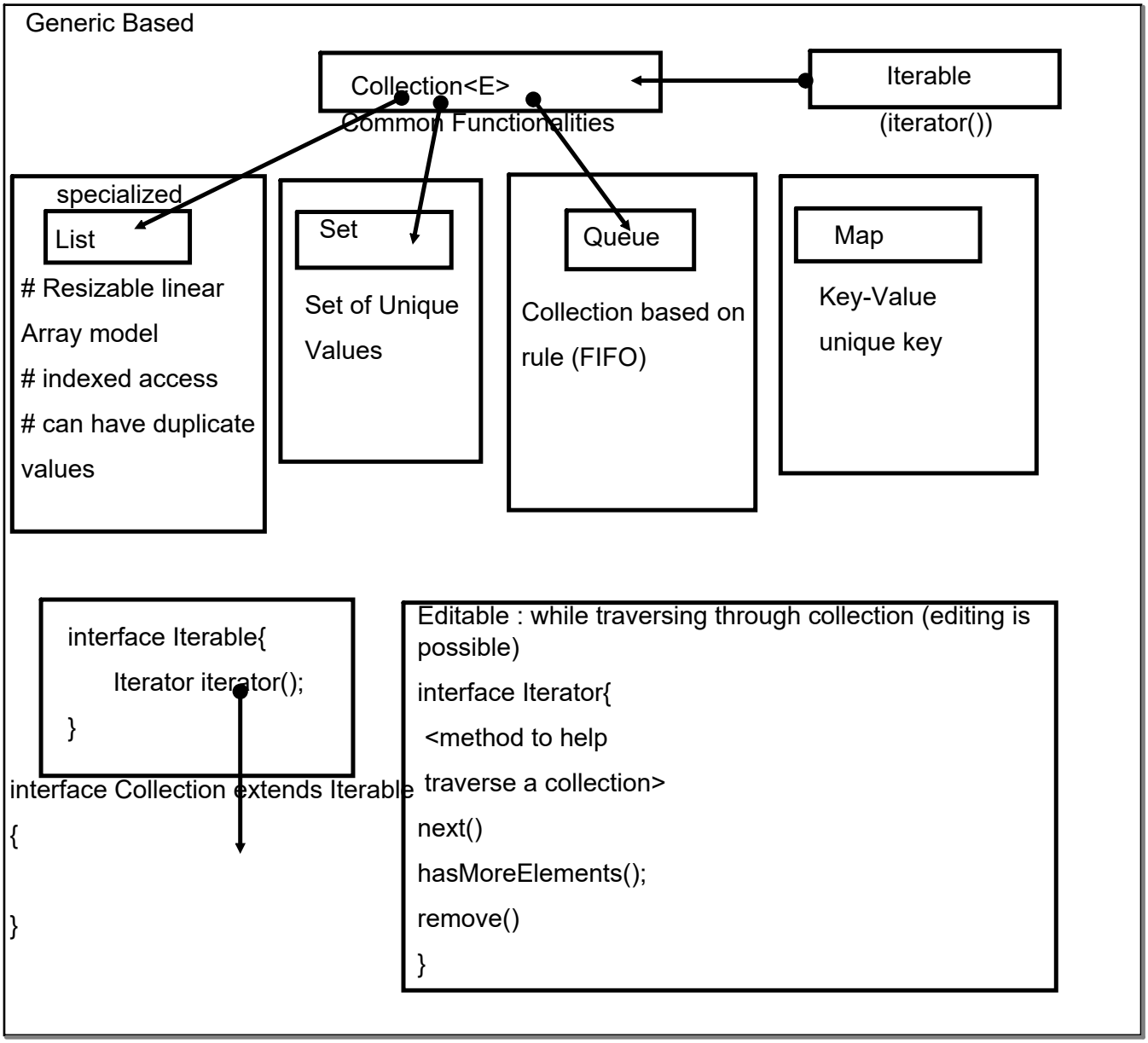
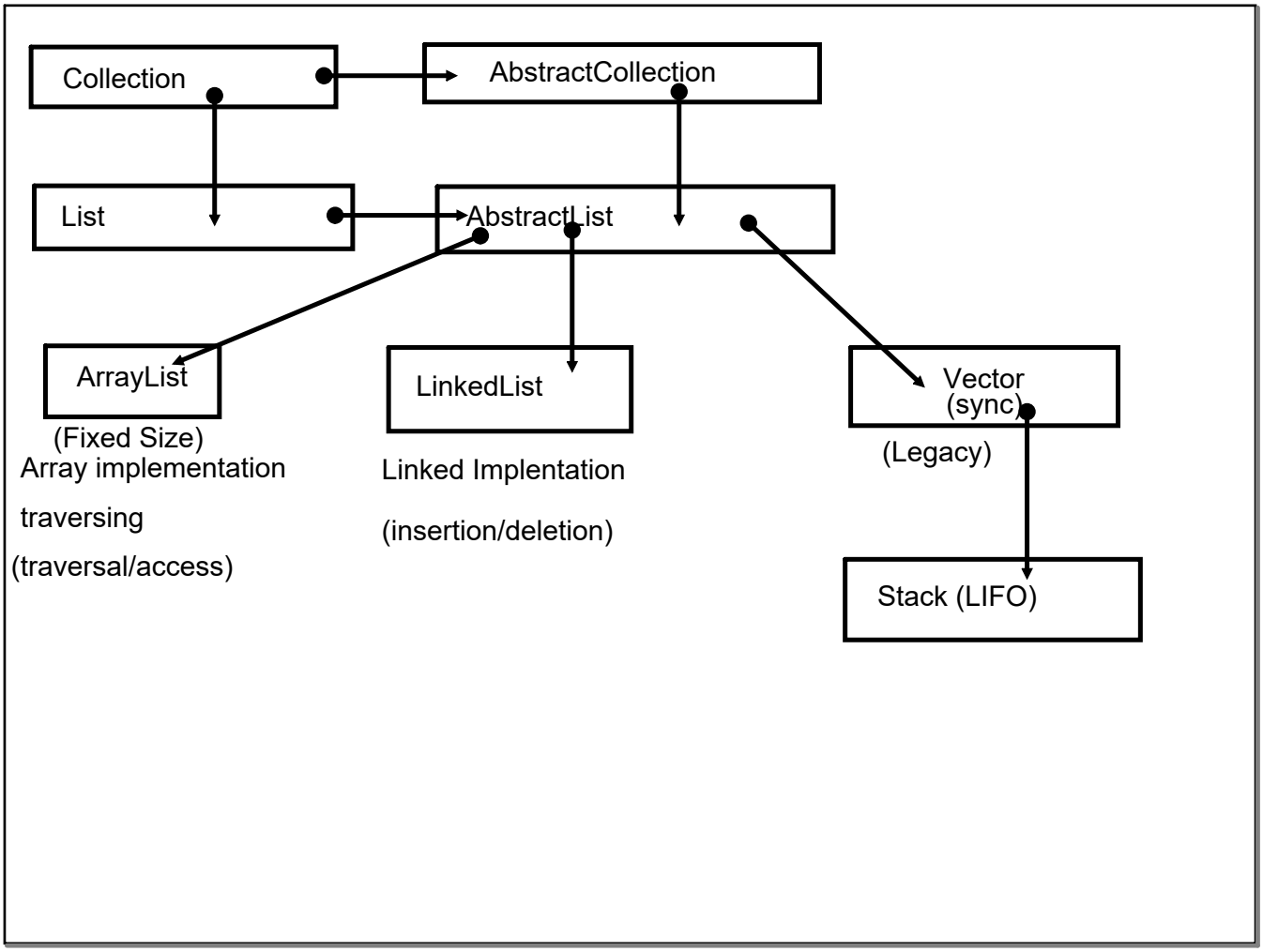
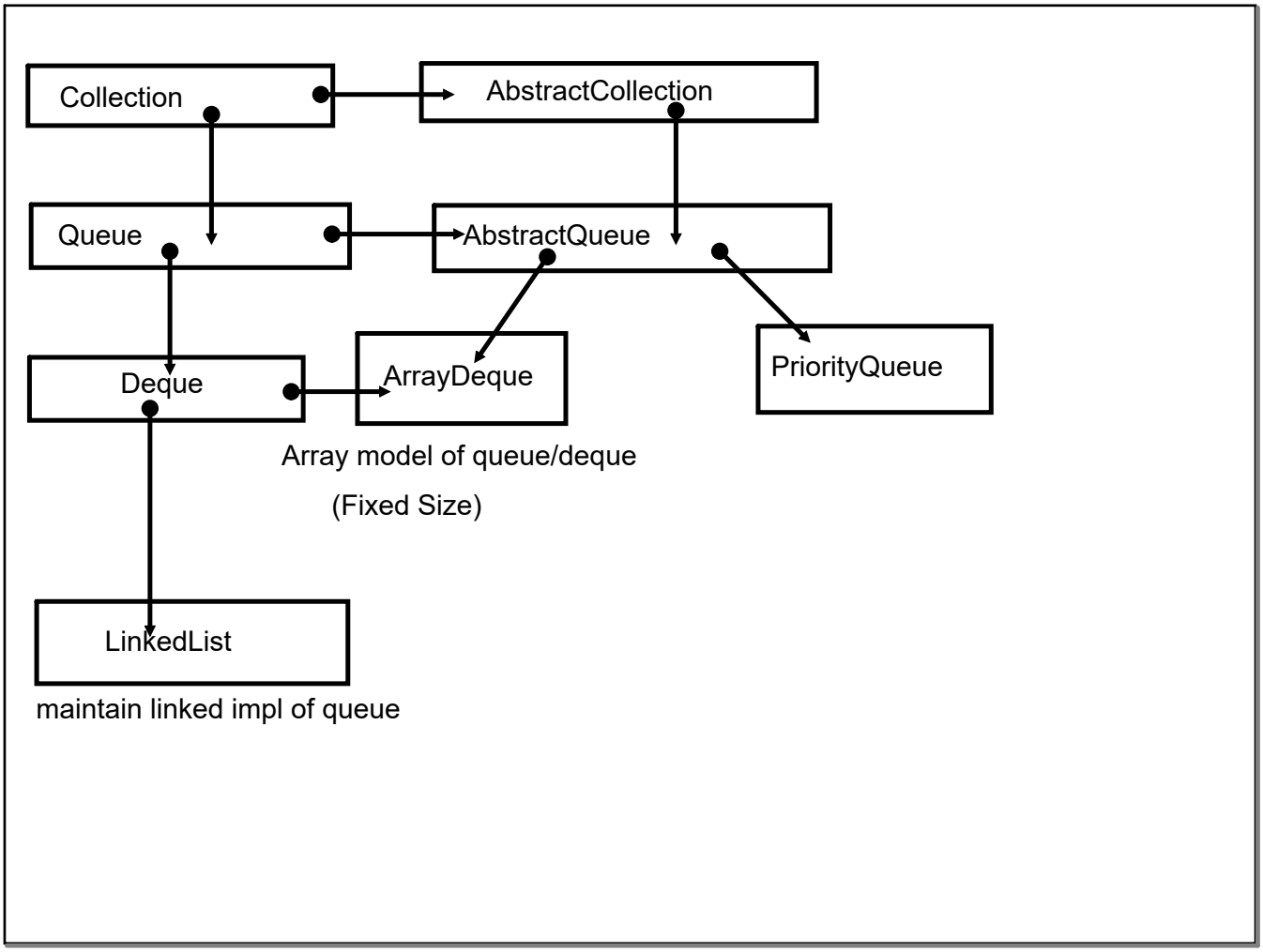
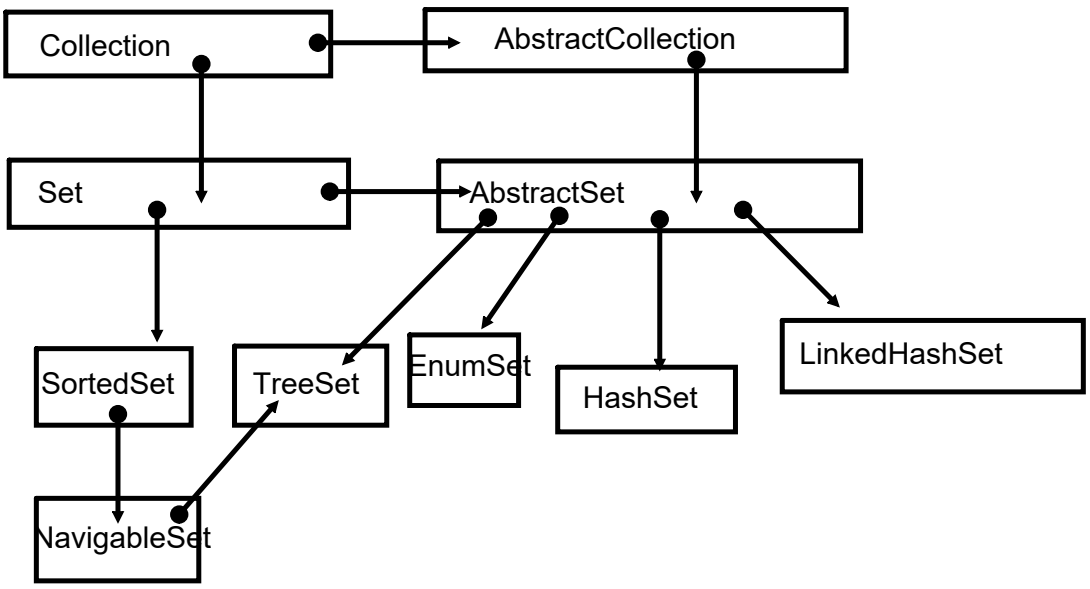

Collection API
Java1.5
Vector class
Interface + n
Set of sub -interfaces
Abstract Classes
Implementation class
Architecture


Generic Based
Collection<E>
Common Functionalities
Iterable
(iterator())
specialized
List
Resizable linear
Array model
indexed access
can have duplicate
values
Set
Set of Unique
Values
Queue
Collection based on
rule (FIFO)
Map
Key-Value
unique key
interface Iterable{
Iterator iterator();
}
interface Collection extends Iterable
{
}
Editable : while traversing through collection (editing is possible)
interface Iterator{
<method to help
traverse a collection>
next()
hasMoreElements();
remove()
}


Collection
AbstractCollection
List
AbstractList
ArrayList
(Fixed Size)
Array implementation
traversing
(traversal/access)
LinkedList
Linked Implentation
(insertion/deletion)
Vector
(sync)
(Legacy)
Stack (LIFO)


Collection
AbstractCollection
Queue
AbstractQueue
Deque
ArrayDeque
PriorityQueue
Array model of queue/deque
(Fixed Size)
LinkedList
maintain linked impl of queue



Set : Unique Values

Enums : uniques

Hashing :

HashSet : Table Hashing

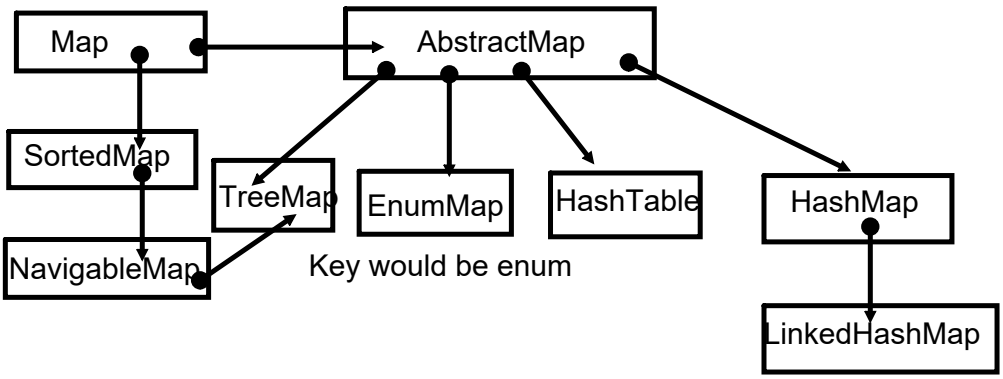
LinkedHashSet : Linked Hashing

SortedSet : maintain data in sorted

NavigableSet : Quick Navigation functionalities

Red-Black Tree

Keys must be unique



HashTable : synchronized
HashMap : HashTable

sync : Thread Safe

=> Map interface : Set<k> keySet()

V get(<K>)

returns the list of all keys as Set<>

iterate through key

Algorithm Classes

1. Arrays.
2. Collections.

@ Provide common functionalities can be applied on Array int [] and Collection

Collections.concurrentList(); // Thread safe equivalent

Java - 8

Functional-Programming
functional interface
default methods
static methods
lambdas
streams
methods references

DateTime API
Optional
Nashorn engine (javascript engine)
Extension in collection API

Traditional :(Pure OOPs) : Imperative

Functional : Declarative

Imperative :

How : focus

Pure OOPs

Embraces data mutability

Declarative

What : focus

Functional Programming (pure function)

Data immutabilty

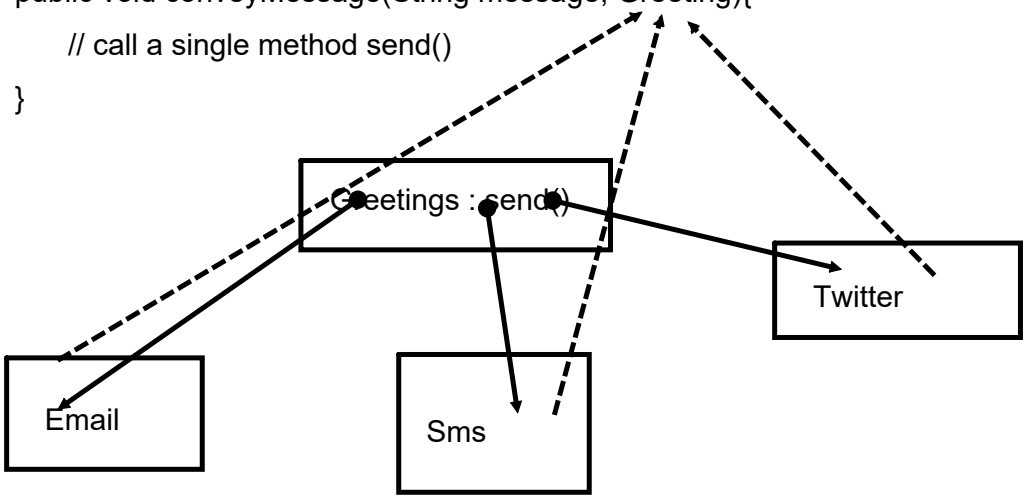
SQL style

Interfaces:

can have functions with definitions (default methods)

static methods with definitions

```
public void conveyMessage(String message, Greeting){
    // call a single method send()
}
```



LAmbda Syntax for pure function

1. not have any accessiblity modifier (nothing related to class)
2. Do not any name (anonymous function)
3. no return type
4. no param type
5. (<param>) -> { <definition>}

```
void fun(String str1, int n){
}
(str1,n) -> {
}

void fun(String str1){
}
str1 -> {
}

void fun(){
}
() -> {
}

void fun(String str1){
      // only single instruction
}
str1 -> single instruction

void fun(String str1){
      // instruction
      return a;
}

str1 -> {
      // instruction
      return a;
}
int add(int a, int b){
 return a+b;
}
// for single inst not bounded in braces return is default associated
(a, b) ->  a+b;
```

interface <reference> = <lambda expression>

only when interface is functional interface :

contains only one abstract methods

can have any number of default/static

refrence of an interface can refer to only those lambda expression whose signature matches with the only abstract method inside the interface

Runnable :

Comparator

Comparable

few protoypes have been identified which are common in use

api : functional interface

Consumer : void accept(<>), BiConsumer [two param], IntegerConsumer()

Predicate : boolean test(<>)

Function : <> apply(<>)

Supplier : <> get()