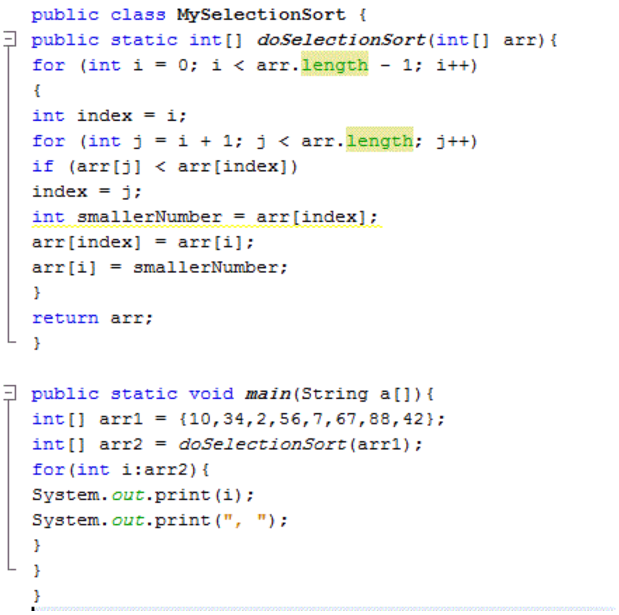
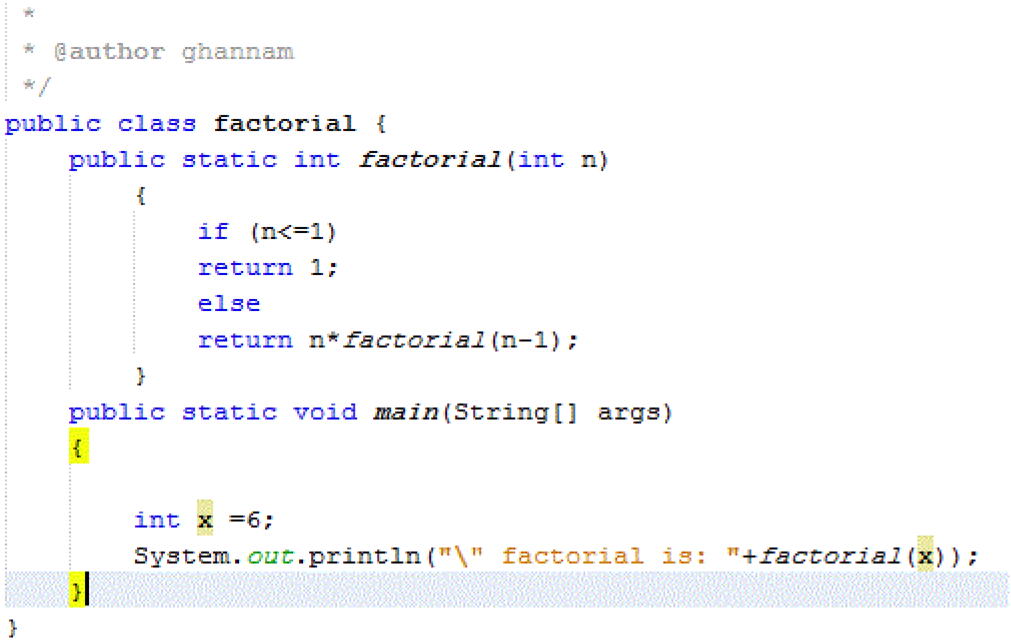
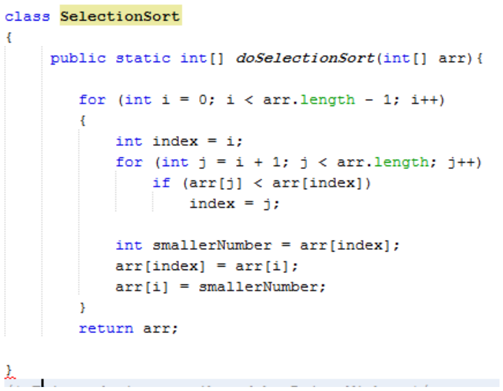


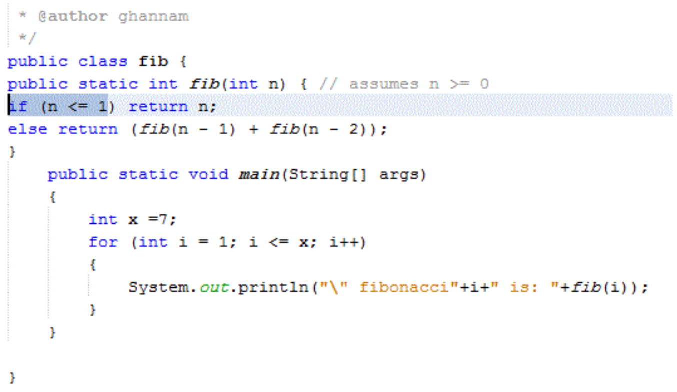
```
public class MySelectionSort {
public static int[] doSelectionSort(int[] arr){
for (int i = 0; i < arr.length - 1; i++)
{
int index = i;
for (int j = i + 1; j < arr.length; j++)
if (arr[j] < arr[index])
index = j;
int smallerNumber = arr[index];
arr[index] = arr[i];
arr[i] = smallerNumber;
}
return arr;
}

public static void main(String a[]){
int[] arr1 = {10,34,2,56,7,67,88,42};
int[] arr2 = doSelectionSort(arr1);
for(int i:arr2){
System.out.print(i);
System.out.print(", ");
}
}
}
```



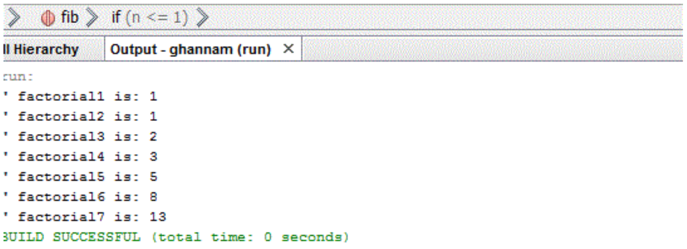
```
 *
 * @author ghannam
 */
public class factorial {
    public static int factorial(int n)
        {
            if (n<=1)
            return 1;
            else
            return n*factorial(n-1);
        }
    public static void main(String[] args)
    {

        int x =6;
        System.out.println("\" factorial is: "+factorial(x));
    }
}
```



```
class SelectionSort
{
    public static int[] doSelectionSort(int[] arr){

       for (int i = 0; i < arr.length - 1; i++)
       {
           int index = i;
           for (int j = i + 1; j < arr.length; j++)
               if (arr[j] < arr[index])
                   index = j;

           int smallerNumber = arr[index];
           arr[index] = arr[i];
           arr[i] = smallerNumber;
       }
       return arr;

}
```



```
 * @author ghannam
 */
public class fib {
public static int fib(int n) { // assumes n >= 0
if (n <= 1) return n;
else return (fib(n - 1) + fib(n - 2));
}
    public static void main(String[] args)
    {
        int x =7;
        for (int i = 1; i <= x; i++)
        {
            System.out.println("\" fibonacci"+i+" is: "+fib(i));
        }
    }

}
```



```
run:
' factorial1 is: 1
' factorial2 is: 1
' factorial3 is: 2
' factorial4 is: 3
' factorial5 is: 5
' factorial6 is: 8
' factorial7 is: 13
BUILD SUCCESSFUL (total time: 0 seconds)
```

Linked List:

Write the code to visit all elements of a linked list

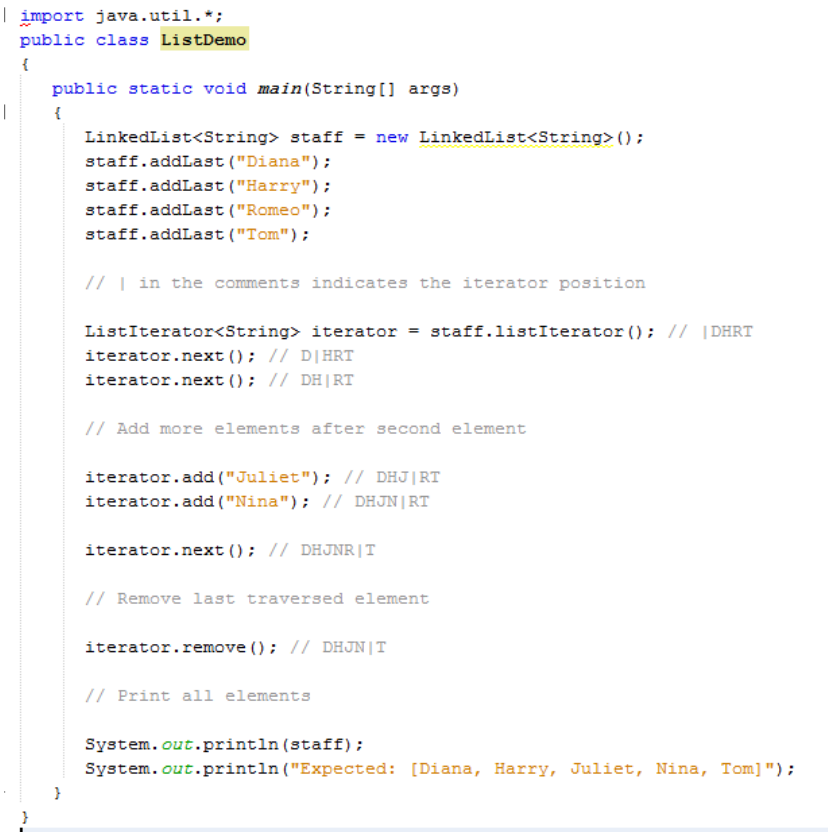
```
for (String   name : linkedlistNames){
     Do something with name}
```

Write the code to add and remove the first element of the linked list

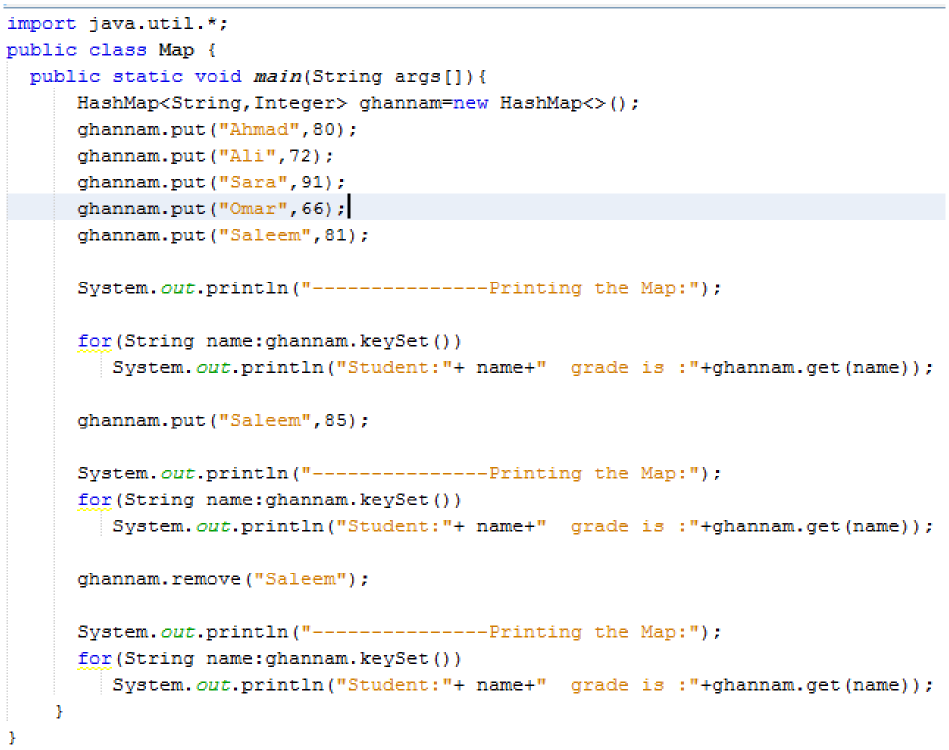
public void addFirst(Object obj) {
Node newNode = new Node();
newNode.data = obj;
newNode.next = first;
first = newNode;
}
	public Object removeFirst(){
	if (first == null)
	throw new NoSuchElementException();
	Object obj = first.data;
	first = first.next;
	return obj;
	}

Write the code to add and remove an element in the list iterator position

public void remove()
{
  if (previous == position)
    throw new IllegalStateException();
  if (position == first)
  {
    removeFirst();
  }
  else
  {
    previous.next = position.next;
  }
  position = previous;
}
	public void add(Object obj)
	{
	  if (position == null)
	  {
	    addFirst(obj);
	    position = first;
	  }
	  else
	  {
	    Node newNode = new Node();
	    newNode.data = obj;
	    newNode.next = position.next;
	    position.next = newNode;
	    position = newNode;
	  }
	  previous = position;
	}



```
import java.util.*;
public class ListDemo
{
    public static void main(String[] args)
    {
        LinkedList<String> staff = new LinkedList<String>();
        staff.addLast("Diana");
        staff.addLast("Harry");
        staff.addLast("Romeo");
        staff.addLast("Tom");

        // | in the comments indicates the iterator position

        ListIterator<String> iterator = staff.listIterator(); // |DHRT
        iterator.next(); // D|HRT
        iterator.next(); // DH|RT

        // Add more elements after second element

        iterator.add("Juliet"); // DHJ|RT
        iterator.add("Nina"); // DHJN|RT

        iterator.next(); // DHJNR|T

        // Remove last traversed element

        iterator.remove(); // DHJN|T

        // Print all elements

        System.out.println(staff);
        System.out.println("Expected: [Diana, Harry, Juliet, Nina, Tom]");
    }
}
```



```java
import java.util.*;
public class Map {
  public static void main(String args[]){
      HashMap<String,Integer> ghannam=new HashMap<>();
      ghannam.put("Ahmad",80);
      ghannam.put("Ali",72);
      ghannam.put("Sara",91);
      ghannam.put("Omar",66);
      ghannam.put("Saleem",81);

      System.out.println("---------------Printing the Map:");

      for(String name:ghannam.keySet())
         System.out.println("Student:"+ name+"  grade is :"+ghannam.get(name));

      ghannam.put("Saleem",85);

      System.out.println("---------------Printing the Map:");
      for(String name:ghannam.keySet())
         System.out.println("Student:"+ name+"  grade is :"+ghannam.get(name));

      ghannam.remove("Saleem");

      System.out.println("---------------Printing the Map:");
      for(String name:ghannam.keySet())
         System.out.println("Student:"+ name+"  grade is :"+ghannam.get(name));
    }
}
```