```java
package problem1;

public class MyStringList {
	private final int INITIAL_LENGTH = 4;
	private String[] strArray;
	private int size;

	public void sort(){
		if(this.strArray == null || this.strArray.length <=1) {
			return;
		}
		int len = this.strArray.length;
		int temp = 0;
		for(int i = 0; i < len; ++i){
			int nextMinPos = minpos(i,len-1);
			swap(i,nextMinPos);
		}

	}
	void swap(int i, int j)
	{
		String temp = this.strArray[i];
		this.strArray[i] = this.strArray[j];
		this.strArray[j] = temp;

	}
	//find minimum of arr between the indices bottom and top
	public int minpos(int bottom, int top)
	{
		String m = this.strArray[bottom];
		int index = bottom;
		for(int i = bottom+1; i <= top; ++i)
		{

			if (this.strArray[i]!=null)
			{
				if(this.strArray[i].compareTo(m)<0)
				{
					m = this.strArray[i];
					index = i;
				}
			}


		}
		//return location of min, not the min itself
		return index;
	}


	public MyStringList() {
		strArray = new String[INITIAL_LENGTH];
		size = 0;
	}
```

```
	public void add(String s){
		if(size == strArray.length) resize();
		strArray[size++] = s;
	}

	public String get(int i){
		if(i < 0 || i >= size){
			return null;
		}
		return strArray[i];
	}

	public boolean find(String s){
		for(String test : this.strArray)
		{


			if (test  != null)

			{
				//System.out.printf("%s -- %s -- %s
\n",test,s,test.equals(s));
				if(test.equals(s))
				{
					return true;
				}
			}

		}
		return false;
	}

	public void insert(String s, int pos){
		if(pos > size) return;
		if(pos >= strArray.length||size+1 > strArray.length) {
			resize();
		}
		String[] temp = new String[strArray.length+1];
		System.arraycopy(strArray,0,temp,0,pos);
		temp[pos] = s;

		System.arraycopy(strArray,pos,temp,pos+1, strArray.length - pos);
		strArray = temp;
		++size;

	}

	public boolean remove(String s){
		if(size == 0) return false;
		int index = -1;
		for(int i = 0; i < size; ++i ){
			if(strArray[i].equals(s)){
				index = i;
				break;
			}
```

```
            }
            if(index==-1) return false;
            String[] temp = new String[strArray.length];
            System.arraycopy(strArray,0,temp,0,index);
            System.arraycopy(strArray,index+1,temp,index,strArray.length-
(index+1));
            strArray = temp;
            --size;
            return true;
      }


      private void resize(){
            System.out.println("resizing");
            int len = strArray.length;
            int newlen = 2*len;
            String[] temp = new String[newlen];
            System.arraycopy(strArray,0,temp,0,len);
            strArray = temp;
      }

      boolean recurse(int a, int b, String val) {
            int mid = (a+b)/2;

            if(this.strArray[mid].compareTo(val)==0)
            {
                  return true;
            }

            if(a > b) {
                  return false;
            }

            if(this.strArray[mid].compareTo(val)>=1)
            {
                  return recurse(mid+1, b, val);
            }
            return recurse(a,mid-1,val);
      }
            //search a sorted array
            boolean search(String val) {
                  boolean b = recurse(0,this.strArray.length-1, val);
                  return b;
            }

      public String toString(){
            StringBuilder sb = new StringBuilder("[");
            for(int i = 0; i < size-1; ++i){
                  sb.append(strArray[i]+", ");
            }
            sb.append(strArray[size-1]+"]");
            return sb.toString();
      }
      public int size() {
            return size;
```

```
	}

	public static void main(String[] args){
		String[] datainit= {"big", "small", "tall", "short", "round",
"square",
		 "enormous", "tiny","gargantuan", "lilliputian",
		 "numberless", "none", "vast", "miniscule"};

		MyStringList l = new MyStringList();
		for (String string : datainit) {
			l.add(string);

		}
		System.out.println("Solution point A");
		System.out.println(l);
		System.out.println("done");
		System.out.println("Solution point B");
		String[] databaseSearch= {"number","tiny"};

		l.sort();
		for (String string : databaseSearch) {
			System.out.printf("Well we ask to database if '%s'  exits or
not db , and result is %s \n",string , (l.find(string) ? "Yes" : "No"  ) );

		}
		System.out.println("Done");



	}

}
```

```
<terminated> MyStringList [Java Application] C:\Program Files\Java\jre1.8.0_60\bin\javaw.exe (12 jun. 2018 23:05:46)
resizing
resizing
Solution point A
[big, small, tall, short, round, square, enormous, tiny, gargantuan, lilliputian, numberless, none, vast, miniscule]
done
Solution point B
Well we ask to database if 'number'  exits or not db , and result is No
Well we ask to database if 'tiny'  exits or not db , and result is Yes
Done
```

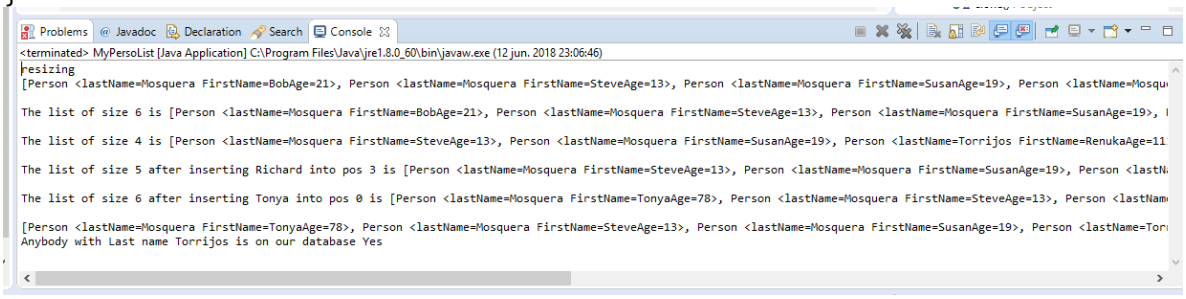
Problem 2

```
package problem2;

import java.util.Arrays;

public class MyPersoList {
	private final int INITIAL_LENGTH = 4;
	private Person[] strArray;
	private int size;

	public MyPersoList() {
```

```
        strArray = new Person[INITIAL_LENGTH];
        size = 0;
}
// Add element in last
public void add(Person s){
        if(size == strArray.length) resize();
        strArray[size++] = s;
}

public Person get(int i){
        if(i < 0 || i >= size){
                return null;
        }
        return strArray[i];
}

public boolean find(String lastName)
{
        for(Person test : strArray)
        {
                if(test.getLast().equals(lastName))
                {
                        return true;
                }
        }
        return false;
}

/*public void insert(String s, int pos){
        if(pos > size) return;
        if(pos == strArray.length||size+1 > strArray.length) {
                resize();
        }
        String[] temp = new String[strArray.length+1];
        System.arraycopy(strArray,0,temp,0,pos);
        temp[pos] = s;

        System.arraycopy(strArray,pos,temp,pos+1, strArray.length - pos);
        strArray = temp;
        ++size;
}*/

 public void insert(Person s, int pos)
 {
 if(pos<0 || pos > size)
         {
                return;
         }
        if(pos == strArray.length||size+1 > strArray.length)
        {
                this.resize();
        }

        Person[] temp = new Person[strArray.length+1];
```

```
        for(int i = 0; i < pos; i++)
         {
           temp[i] = strArray[i];
         }

    temp[pos] = s;
    for(int i = pos + 1; i < strArray.length; i++)
    {
       temp[i] =strArray[i - 1];
    }
    strArray = temp;
             ++size;
}

       public boolean remove(Person s){
             if(size == 0) {
                   return false;
             }
             int index = -1;
             for(int i = 0; i < size; ++i )
             {
                   if(strArray[i].equals(s)){
                         index = i;
                         break;
                   }
             }
             if(index==-1) {
                   return false;
             }
             Person[] temp = new Person[strArray.length];
             System.arraycopy(strArray,0,temp,0,index);
             System.arraycopy(strArray,index+1,temp,index,strArray.length-
(index+1));
             strArray = temp;
             --size;
             return true;
       }

       private void resize(){
             System.out.println("resizing");
             int len = strArray.length;
             int newlen = 2*len;
             Person[] temp = new Person[newlen];
             System.arraycopy(strArray,0,temp,0,len);
                // strArray = Arrays.copyOf(strArray, newlen);
             strArray = temp;
       }
       public String toString(){
             StringBuilder sb = new StringBuilder("[");
             for(int i = 0; i < size-1; ++i){
                   sb.append(strArray[i]+", ");
             }
             sb.append(strArray[size-1]+"]\n");
             return sb.toString();
       }
```

```
    public int size() {
          return size;
    }
    public boolean isEmpty(){
          return(size==0);
    }
  public Object clone()
  {
    Person[] temp = Arrays.copyOf(strArray, size);
    return temp;

  }
          public static void main(String[] args) {
                MyPersoList l = new MyPersoList();
                String last = "Mosquera";
                String person_to_find = "Torrijos";



                l.add(new Person(last, "Bob", 21));
                l.add(new Person(last, "Steve", 13) );
                l.add(new Person(last, "Susan", 19) );
                l.add(new Person(last, "Mark", 43) );
                l.insert(new Person("Torrijos", "Renuka", 11) , 4);
                System.out.println(l);
                l.add(new Person(last, "Dave", 15) );
                System.out.println("The list of size "+l.size()+" is "+l);
                l.remove(new Person(last, "Mark", 18) );
                l.remove(new Person(last, "Bob", 28)  );
                System.out.println("The list of size "+l.size()+" is "+l);
                l.insert(new Person(last, "Richard", 28) ,3);
                System.out.println("The list of size "+l.size()+" after
inserting Richard into pos 3 is "+l);
                l.insert(new Person(last, "Tonya", 78) ,0);
                System.out.println("The list of size "+l.size()+" after
inserting Tonya into pos 0 is "+l);
                Person[] x = (Person[]) l.clone();
           System.out.println(Arrays.toString(x));

           /// well we now to find a person using method find

           System.out.printf("Anybody with Last name %s is on our database %s
\n",person_to_find, ( l.find(person_to_find) ? "Yes" : "No") );
      }

}
```



```
```