**Question 1:**

* {179, 721, 639, 549, 292, 427, 335, 435, 62}

**Key%9**

**0** 🡪 639🡪549 **1** 🡪 721 **2** 🡪 335 **3** 🡪 435 **4** 🡪 427 **5** 🡪 292 **8** 🡪 179 🡪 62

**(Key/9)%9**  
**1**🡪335 🡪 179 **2**🡪427 **3**🡪435 **5**🡪292 **7**🡪549 **8**🡪639🡪721🡪62

**(key/81)**

**0**🡪62 **2**🡪179 **3**🡪292 **4**🡪335 **5**🡪427🡪435 **6**🡪549 **7**🡪639 **8**🡪721

**Question 2:**

**Algorithm** sorting4Elements (A n)

**Input: Array A with 4 Elements as n  
output: Sorted Array A**

**If(A[0]> A[1])  
 lower1 = A[1]  
 lower2=A[0]**

**Else:  
 lower1=A[1]**

**Lower2=A[0]**

**If(A[2]>A[3])**

**Lower3=A[3]**

**Lower4=A[2]**

**Else:  
 lower3=A[2]**

**Lower4=A[3]**

**If(lower3<lower2)**

**If(lower3<lower1)**

**Small1=lower3**

**If(lower4<lower1)**

**Small2=lower4  
 small3=lower1**

**Small4=lower2**

**return A**

**Else:  
 small2=lower1**

**If(lower2<lower4)**

**Small3=lower2**

**Small4=lower4**

**return A**

**Else:**

**Small3=lower4**

**small4=lower2**

**return A**

**Else:**

**Small1=lower1  
if(lower2>lower3)**

**Small2=lower3**

**If(lower2>lower4)**

**Small3=lower4**

**Small4=lower3**

**Else:**

**Small3=lower3**

**Small4=lower4**

**Else:**

**Small2=lower2**

**Small3=lower3  
 small4=lower4**

**return A**

* **This algorithm is assuming for the worst case only**

**Question 3:**

**fbsArray(A,n)**

**Array A of a length  n**

**k<-0**

**y<-0**

**if(n is even)**

**new Array (even\_array,n/2)**

**new Array odd\_array,n/2)**

**if(n is odd)**

**new Array (even\_array,n/2+1)**

**new Array odd\_array,n/2)**

**for(i<-0 to n-1)**

**if(i%2==0)**

**even\_array[k]=a[i]**

**k++**

**if(i%2!=0)**

**odd\_array[y]=a[i]**

**y++**

**Arrays.*sort*(even\_array)**

**Arrays.*sort*(odd\_array, Collections.*reverseOrder*())**

**k=0**

**y=0**

**for (i<-0 to n-1)**

**if(i%2==0)**

**a[i]=even\_array[k]**

**k++**

**else**

**a[i]=odd\_array[y]**

**y++;**

**if(n%2!=0 && a[1]<a[n-1])**

**break**

**if(n%2==0 && a[1]<a[a.length-2])**

**break**