Shifting element to left in an array

t

2

|  |  |  |
| --- | --- | --- |
| 0 | 1 | 2 |

|  |  |  |
| --- | --- | --- |
| 2 **5** | 5 **7** | 7 2 |

**import** **static** java.lang.System.out;

**import** java.util.\*;

**public** **class** Myclass {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.in);

**int**[] arr= {2, 5, 7};

**int** t=arr[0];//2

1. 1
2. 2

2 3

**int** i;

**for**(i=0;i<arr.length-1 ;i++)

arr[i]=arr[i+1];

arr[i]=t;//

**for**(**int** n:arr)

out.print(n);//5 7 2

}

}

7

t

Shift element to right in an array

**import** **static** java.lang.System.***out***;

**import** java.util.\*;

|  |  |  |
| --- | --- | --- |
| 0 | 1 | 2 |

|  |  |  |
| --- | --- | --- |
| 2 7 | 5 2 | 7 5 |

**public** **class** Myclass {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

**int**[] arr= {2, 5, 7};

2🡺t

2 1

1 0

**int** t=arr[arr.length-1];

**int** i;

**for**(i=arr.length-1;i>0 ;i--)

arr[i]=arr[i-1];

arr[i]=t;

**for**(**int** n:arr)

***out***.print(n);

}

}

TASK🡺 9 5 7 4 3 1 2

Stack

Q🡺Bubble sort

arr

highest element set at the end

arr

**import** **static** java.lang.System.***out***;

**import** java.util.\*;

Heap

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 |
| 0 | 1 | 2 | 3 | 4 |
| 5 | 6 | 2 | 1 | 3 |

**public** **class** Myclass {

**public** **static** **void** main(String[] args) {

8 9 6 5 2 1 3🡺

Scanner sc=**new** Scanner(System.***in***);

I=1

5 2 1 3 6

2 5 1 3 6

2 1 5 3 6

2 1 3 5 6

**int**[] arr= {5,6,2,1,3};

I=0

b*sort*(arr);

**for**(**int** n:arr)

5 6 2 1 3

5 2 6 1 3

5 2 1 6 3

5 2 1 3 6

***out***.print(n);

}

**public** **static** **void** bsort(**int**[] arr) {

**int** t,i,j;

**int** n=arr.length;//5

2 1 3 5 6

1 2 3 5 6

**for**(i=0;i<n-1;i++)

{

**for**(j=0;j<**n-1-i**;j++)

{

**if**(arr[j]>arr[j+1])

{ t=arr[j];

1 2 3 5 6

arr[j]=arr[j+1];

arr[j+1]=t;

}

}

}

}

}

8 2 4 3 1

Task🡺 9 5 8 7 3 1 2

Q🡺Selection sort

arr

Lowest element set at the beginning

arr

O index will be compared with all element data

**import** **static** java.lang.System.***out***;

**import** java.util.\*;

Heap

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 |
| 5 | 6 | 2 | 1 | 3 |

**public** **class** Myclass {

**public** **static** **void** main(String[] args) {

Scanner sc=**new** Scanner(System.***in***);

1 6 5 2 3

1 5 6 2 3

1 2 6 5 3

5 6 2 1 3

5 6 2 1 3

2 6 5 1 3

1 6 5 2 3

**int**[] arr= {5,6,2,1,3};

s*sort*(arr);

**for**(**int** n:arr)

***out***.print(n);

}

**public** **static** **void** ssort(**int**[] arr) {

**int** t,i,j;

1 2 3 6 5

1 2 3 5 6

1 2 6 5 3

1 2 5 6 3

1 2 3 6 5

**int** n=arr.length;//5

**for**(i=0;i<n-1;i++)

{

**for**(j=i+1;j<n;j++)

{

**if**(arr[i]>arr[j])

{

9 6 2 8 3 5 4 1

t=arr[i];

arr[i]=arr[j];

arr[j]=t;

4 5 5 7 5

4 5 7 5 5 🡺n--

}

}

}

}

}

Q🡺 Accept 5 element in an array , accept a number to be search and print message number found or not? If found also print its index.

import static java.lang.System.out;

import java.util.\*;

arr

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 |
| 5 | 2 | 1 | 8 | 9 |

public class Main {

2000

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

no

Heap

stack

int[] arr= {5,2,1,8,9};

int no=8;

int index= searchdata(arr,no);

8

if(index!=-1)

out.println("Number Found at index "+index);

else

out.println("Number Not Found");

}

public static int searchdata(int[] arr,int no) {

int i;

for(i=0;i<5;i++)

{ if(arr[i]==no)

{ return i;

}

}

return i;

}

}

public static int searchdata(int[] arr,int no) {

arr

int i,index=-1;

2000

for(i=0;i<5;i++)

{ if(arr[i]==no)

{ index=i;

no

break;

8

}

}

return index;

}

}

Q🡺Binary search

Data has to be in sorted order

It use concept of divide and conquer.

Binary is faster provided data is in sorted order

import static java.lang.System.out;

import java.util.\*;

public class Main {

public static void main(String[] args) {

Scanner sc=new Scanner(System.in);

int no=8;

int[] arr= {1,2,3,4,5,6,7,8,9,10};

bsearch(arr,no);

}

public static void bsearch (int[] arr,int no) {

3

M

U

L

int l=0,u=9,m,flag=0;

0

9

4

while(l<=u) 0 <=9 0<=3 0<=0 0<-1

{ m=(l+u)/2; // 0+9/2🡺4 0+3/2🡺1 0+0/2==0

if(no>arr[m]) //0>4(5) 0> 1(2)0 >0(1)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

l=m+1;//

else if(no<arr[m]) // 0< 5) 0<2 0<1

u=m-1; // 4-1=3 1-1==0 0-1=-

Number to be searched **6 3 0 11 5**

6🡺 l= 5 u=6 m=5

0🡺 l =0 u-1 m0

11🡺 l=10 u =9 m= 9

5🡺 l=0 u=9 m=4

3🡺l=2 u=3 m=2

else{

flag=1;

break;

}

}

if(flag==1)

out.print("element found");

else

out.print("element Not found");

}

}

N=5

n--;

4🡺0 -3

Accept 5 element in an array having repeated entry , print unique array.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 |
| 2 | 5 | 5 | 5 | 7 |
| 2 | 5 | 5 | 7 | 7 |
| 2 | 5 | 7 | 7 | 7 |

Eg. Input 2 5 5 5 7

O/P= 2 5 7

**import** **static** java.lang.System.***out***;

**import** java.util.\*;

**public** **class** Myclass {

**public** **static** **void** main(String[] args) {

5

4

3

Scanner sc=**new** Scanner(System.***in***);

7 8 8 9 2🡺comment j---

l

**int**[] arr= {2, 5, 5,5,7};

**int** i,j,k;

**int** l=arr.length;//5 4

7 8 8 8 2

**for**(i=0;i<l-1;i++)

{

5 2 5 5 2

5 2 5 2 -

5 2 2 - -

5 2 - - -

**for**(j=i+1; j<l;j++)// 5 5

{

**if**(arr[i]==arr[j])🡺5 5

{

**for**(k=j;k<l-1;k++)

arr[k]=arr[k+ 1];

j--;//

l--;//

}

}

}

**for**(**int** n=0;n<l;n++)

***out***.print(arr[n]);

}

}

Accept 5 element in an array and print lowest element and its index

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 |
| 8 | 5 | 3 | 1 | 9 |

o/p🡺1 at index 3

int min=arr[0]; int minindex=0

int size=arr.length

for(i=1;i<size;i++)

{

If(min>arr[i]) //8> 5 5>3 3 >1 1>9==no

{

Min=arr[i]//5 3 1

Minindex=i;//1 2 3

}

}

Min minindex

9 6 4 3 1 2

Public static void selctionsort(int a[],int n)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 |
| 8 | 5 | 3 | 1 | 9 |

Min=i

Min=0

Min=j

Min=1

Min=j

Min=2

Min=j

Min=3

1 5 3 8 9

{ int temp,i,j;

for(i=0;i<n-1;i++)

{ min=i;

for(j=i+1;j<n;j++)

{ if(a[min])>a[j])

min=j;

}

if(min!=i) 3!=0

{ temp=a[min];

a[min]=a[i]

a[i]=temp;

}

}

}

I🡺1 i=2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 |
| 1 | 3 | 5 | 8 | 9 |

Min=i

Min=2 No

No

I=2 Min=2

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 |
| 1 | 5 | 3 | 8 | 9 |

Min=i

Min=1

Min=j

Min=2

No

No

I==1 min=2

1 3 5 8 9

I=3

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 0 | 1 | 2 | 3 | 4 |
| 1 | 3 | 5 | 8 | 9 |

Min=I

Min=3 No

I=3 min3

5

9 5 8 6 3 1

1 3 8 6 5 9

Min=i

Min=2

Min=j

Min=3

Min=j

Min=4

1 3 5 6 8 9



1 5 8 6 3 9

Min=i

Min=1

Min=j

Min=4

1 3 8 6 5 9

9 5 8 6 3 1

Min=i

Min=0

Min=j

Min=1

Min=j

Min=4

Min=j

Min=5

1 5 8 6 3 9