

اور ان میں سے جس کو بہکا سکے اپنی آواز سے بہکا تارہ۔ اور ان پر اپنے سواروں اور پیاروں کو چڑھا کر لاتارہ اور ان کے مال اور اولاد میں شریک ہوتا رہ اور ان سے وعدے کرتا رہ۔ اور شیطان جو وعدے ان سے کرتا ہے سب دھوکا ہے۔ الاسراء - بنی اسرائیل ۶۳

(مسند احمد: جلد سوم: حدیث نمبر ۱۶۸۹) حضرت ابن عمر رضی اللہ عنہما سے مروی ہے کہ جناب رسول اللہ صلی اللہ علیہ وسلم نے ارشاد فرمایا تین آدمی جنت میں داخل ہوں گے اور نہ ہی قیامت کے دن اللہ ان پر نظر کرم فرمائے گا، والدین کا نافرمان، مردوں کی مشابہت اختیار کرنے والی عورت اور دیوث (وہ شخص جس کی ماں بہن بیٹی بے حیائی کا ارتکاب کریں اور اسے غیرت نہ آئے)

**Task 1:** Write function *isExist* to search and return true/ false whether element exist in array or not?  
Test your function by writing main method, expected output is given on right hand side?

<pre>public static boolean isExist(int x[], int val){     int i;     for (i=0;i&lt;x.length;i++)         if (x[i]==val)             return true;     return false; } PSVM(String args[]){     int a[]={23,36,45,11,18,19,34,26,25,39,42};     System.out.println(isExist(a,34));     System.out.println(isExist(a,37));     System.out.println(isExist(a,44));     System.out.println(isExist(a,45)); }</pre>	<p><b>Output:</b> true false false true</p>
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**Task 2:** Write function *indexOf* to search and return index if element found otherwise -1?  
Test your function by writing main method, expected output is given on right hand side?

<pre>public static int indexOf(int x[], int val){     int i, index=-1;     for (i=0;i&lt;x.length;i++)         if (x[i]==val)             index=i;     return index; } PSVM(String args[]){     int a[]={23,36,45,11,18,19,34,26,25,39,42};     System.out.println(indexOf(a,34));     System.out.println(indexOf(a,37));     System.out.println(indexOf(a,44));     System.out.println(indexOf(a,45)); }</pre>	<p><b>Output:</b> 6 -1 -1 2</p>
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**Task 3:** Write function *shiftRight* to shift larger values on right side?

Test your function by writing main method, expected output given on right hand side?

<pre>public static void shiftRight(int x[]){     int i,temp;     for (i=0;i&lt;x.length-1;i++){         if (x[i]&gt;x[i+1]){             temp=x[i];             x[i]=x[i+1];             x[i+1]=temp;         }     } } PSVM(String args[]){     int a[]={23,36,45,11,18};     shiftRight(a);     //function to print values in single row given in lecture notes     printRowWise(a);     shiftRight(a);     printRowWise(a); }</pre>	<p><b>Output:</b>  23 36 11 18 45  23 11 18 36 45</p>
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**Task 4:** Use *shiftRight* function created in task 3 to write function *bubbleSort*?

```
public static void bubbleSort(int x[]){
    int i;
    for (i=0;i<x.length;i++){
        shiftRight();
    }
}
```

**Task 5:** Write function *shuffle* to shuffle array values randomly *n* times. The simple idea is to run a loop *n* times and select 2 array indexes at random and swap their values? At the end test your method by writing main given:

```
public static void shuffle(int x[], in n){
    int i,j,k,temp;
    for (i=1;i<=n;i++){
        j=(int)(Math.random()*x.length);
        k=(int)(Math.random()*x.length);
        temp=x[j];
        x[j]=x[k];
        x[k]=temp;
    }
}
PSVM(String args[]){
    int a[]={1,2,3,4,5,6,7,8,9,10};
    shuffle(a,5);
    printRowWise(a);
    shuffle(a,7);
    printRowWise(a);
}
```

**Task 6:** [parallel arrays] Write functions to handle team score, main is given for your help:

- *public static void printScoreCard(String names[], int scores[])* to print score card as shown below

- *public static void sort(String names[], int scores[])* to sort score wise, idea is simple compare by score and swap both scores and names, two temporary variables required. One for score and other for name

<pre> PSV printScoreCard(String names[], int scores[]){     int i;     ?("Name \t\tScore");     ?ln("_____ \t_____");     for (i=0;i&lt;names.length;i++)         ?(names[i]+" \t"+scores[i]);     } PSV sort(String names[], int scores[]){     int i,j, tempScore;     String tempName;     for (i=1;i&lt;=names.length;i++)         for (j=0;j&lt;names.length-i;j++){             if (scores[j]&lt;scores[j+1]){                 tempScore=scores[j];                 scores[j]=scores[j+1];                 scores[j+1]=tempScore;                 tempName=names[j];                 names[j]=names[j+1];                 names[j+1]=tempName;             }         }     }         </pre>	<pre> PSVM (String args[]){     ?ln("World Cup Final 1999 Pakistan vs. Australia, Australia won by 8 wickets");     ?ln("(with 179 balls remaining)");     ?ln("Pakistan Score Card");     String players[]{"Saeed Anwar", "Wajahatullah", "Abdul Razzaq", "Ijaz Ahmed",         "Inzamam-ul-Haq", "Moin Khan", "Shahid Afridi", "Azhar Mahmood",         "Wasim Akram*", "Saqlain Mushtaq", "Shoaib Akhtar"};     int scores[]={15,1,17,22,15,6,13,8,8,0,2};     printScoreCard(players, scores);     sort(players, scores);     ?ln("Sort by Scores:");     printScoreCard(players, scores);     }         </pre>
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**Output:**

World Cup Final 1999 Pakistan vs. Australia, Australia won by 8 wickets (with 17 9 balls remaining)

Score Card		Sort by Scores:	
Name	Score	Name	Score
Saeed Anwar	15	Ijaz Ahmed	22
Wajahatullah	1	Abdul Razzaq	17
Abdul Razzaq	17	Saeed Anwar	15
Ijaz Ahmed	22	Inzamam-ul-Haq	15
Inzamam-ul-Haq	15	Shahid Afridi	13
Moin Khan	6	Azhar Mahmood	8
Shahid Afridi	13	Wasim Akram*	8
Azhar Mahmood	8	Moin Khan	6
Wasim Akram*	8	Shoaib Akhtar	2
Saqlain Mushtaq	0	Wajahatullah	1
Shoaib Akhtar	2	Saqlain Mushtaq	0

**Note:** To save space output is shown in two columns in actual it is up and down.