**ملف الطالب لمعمل هياكل بيانات**

**اسم الطالب:خليل محمد الورد**

**التخصص:تقنية معلومات**

# القسم الأولhاستمارة تقييم ملف الطالب

**إنجاز التكاليف**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| الاسبوع | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | الاجمالي |
| 1 |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |  |  |

**إنجاز تمارين المعمل**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| الاسبوع | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | الاجمالي |
| 1 |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| الاسبوع | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | الاجمالي |
| نسبة الأنجاز |  |  |  |  |  |  |  |  |  |  |  |  |  |

**إنجاز المشروع**

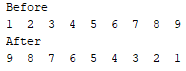
## 

# القسم الثاني

**معمل 1**

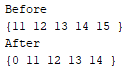
## معمل 1

### حل التمارين التي تم حلها أثناء المعمل:

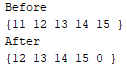
**1.import** java.util.Arrays;  
  
**public class** Array {  
**public static void** main(String[] args) {  
**int** a[]={1,2,3,4,5,6,7,8,9};  
System.***out***.println(**"Before"**);  
**for** (**int** i = 0; i<a.**length**; i++) {  
System.***out***.print(a[i] + **" "**);  
  
  
 }  
System.***out***.println();  
  
**int** n= a.**length**-1;  
**for** (**int** i = 0; i<a.**length**/2; i++) {  
**int** temp=a[i];  
 a[i]=a[n];  
 a[n]=temp;  
 n--;  
  
 }  
System.***out***.print(**"After \n"**);  
**for** (**int** j = 0; j <a.**length**; j++) {  
System.***out***.print(a[j]+**" "**);  
  
 }  
 }  
  
}

**The Output**

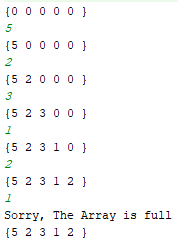
**The Output**



2.**public class** Array2 {  
**static int** *a*[]={11,12,13,14,15};  
**public void** printBefore(){  
System.***out***.print(**"{"**);  
**for** (**int** i = 0; i<*a*.**length**; i++) {  
System.***out***.print(*a*[i] + **" "**);  
  
  
 }  
System.***out***.println(**"}"**);  
  
 }  
**public void** ShiftRight(){  
**int** i ;  
**for** ( i =*a*.**length**-1; i>0 ; i--) {  
*a*[i] = *a*[i - 1];  
 }  
*a*[i]=0;  
  
  
 }  
**public void** print(){  
System.***out***.print(**"{"**);  
**for** (**int** i = 0; i<*a*.**length**; i++) {  
System.***out***.print(*a*[i] + **" "**);  
  
  
 }  
System.***out***.println(**"}"**);  
  
 }  
  
**public static void** main(String[] args) {  
System.***out***.println(**"Before"**);  
  
Array2 c=**new** Array2();  
c.printBefore();  
System.***out***.println(**"After"**);  
  
 Array2 d=**new** Array2();  
d.ShiftRight();  
d.print();  
 }  
}

3.**public class** Array3 {  
**static int** *a*[]={11,12,13,14,15};  
**public void** print() {  
System.***out***.print(**"{"**);  
**for** (**int** i = 0; i<*a*.**length**; i++) {  
System.***out***.print(*a*[i] + **" "**);  
  
  
 }  
System.***out***.print(**"}"**);  
  
 }  
  
**public void** ShiftLift(){  
**int** i ;  
**for** ( i =0; i<*a*.**length**-1 ; i++) {  
*a*[i] = *a*[i + 1];  
 }  
*a*[i]=0;  
  
  
 }  
**public void** printAfter(){  
System.***out***.print(**"{"**);  
**for** (**int** i = 0; i<*a*.**length**; i++) {  
System.***out***.print(*a*[i] + **" "**);  
  
  
 }  
System.***out***.println(**"}"**);  
  
 }  
  
**public static void** main(String[] args) {  
System.***out***.println(**"Before"**);  
 Array3 c=**new** Array3();  
c.print();  
  
System.***out***.println(**"\nAfter"**);  
 Array3 d=**new** Array3();  
d.ShiftLift();  
d.print();  
 }  
 }

**The Output**

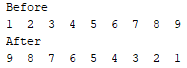
4.**import** java.util.Scanner;  
  
**public class** Array4{  
**int** []**a**= **new int**[5];  
**public void** print() {  
System.***out***.print(**"{"**);  
**for** (**int** i = 0; i<**a**.**length**; i++) {  
System.***out***.print(**a**[i] + **" "**);  
  
  
 }  
System.***out***.println(**"}"**);  
  
 }  
**int numOfElements**=0;  
**public void** add(**int** newE){  
**if** (**numOfElements**<**a**.**length**){  
**a**[**numOfElements**++]=newE;  
 }  
**else**System.***out***.println(**"Sorry, The Array is full"**);  
 }  
**public void** printAfter(){  
System.***out***.print(**"{"**);  
**for** (**int** i = 0; i<**a**.**length**; i++) {

**The Output**

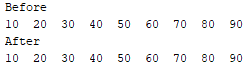
System.***out***.print(**a**[i] + **" "**);  
  
  
 }  
System.***out***.println(**"}"**);  
  
 }  
  
**public static void** main(String[] args) {  
 Array4 c=**new** Array4();  
c.print();  
 Scanner s =**new** Scanner(System.***in***);  
**while** (**true**){  
c.add(s.nextInt());  
c.printAfter();  
 }  
 }  
}

### حلول تكالبف المعمل:

### 1.Write a Java method that Reverse an array using another array.

**public class** pr1 {  
**static int**[] *a* = {1,2,3,4,5,6,7,8,9};  
**int**[] **b** = **new int**[*a*.**length**];  
**public void** print (){  
System.***out***.println(**"Before"**);  
**for**(**int** i=0;i<*a*.**length**;i++)  
System.***out***.print(*a*[i] + **" "**);  
System.***out***.println();  
  
 }  
**public void** Switch(){  
System.***out***.println(**"After"**);  
**for**(**int** i=*a*.**length**-1;i>=0;i--) {  
**b**[i]=*a*[i];  
System.***out***.print(**b**[i] + **" "**);  
 }  
 }  
  
**public static void** main(String[] args) {  
 pr1 p=**new** pr1();  
p.print();  
p.Switch();  
  
 }  
}

**The Output**

2.**Write a Java method that Clone an array to a backup array.**

**public class** pr2 {  
**static int**[] *a* = {10,20,30,40,50,60,70,80,90};  
**int**[] **b**=**new int**[*a*.**length**];  
**public void** print (){  
System.***out***.println(**"Before"**);  
**for**(**int** i=0;i<*a*.**length**;i++)  
System.***out***.print(*a*[i] + **" "**);  
System.***out***.println();  
  
 }  
**public void** Copy(){  
System.***out***.println(**"After"**);  
**for**(**int** i=0;i<*a*.**length**;i++) {  
**b**[i]=*a*[i];  
System.***out***.print(**b**[i] + **" "**);  
 }  
 }  
  
**public static void** main(String[] args) {  
 pr2 p=**new** pr2();  
p.print();  
p.Copy();  
 }}

**The Output**

3.**Write a Java method that remove elements from an array.**

  
**public class** Array6 {  
**int** []**a**={1,2,3,4,5,6,7,8,9};  
**public void** print() {  
**for** (**int** i = 0; i<**a**.**length**; i++) {  
  
System.***out***.print(**a**[i] + **" "**);  
 }  
System.***out***.println();  
 }  
**public void** delete(**int** z){  
**int** num=**a**.**length**;  
**for** (**int** i = 0; i<**a**.**length**; i++) {  
**if** (z==**a**[i]){  
 s=i;  
 }  
 }  
**for** (**int** i = s; i<**a**.**length**; i++) {  
**if** (i==**a**.**length**-1){  
**a**[**a**.**length**-1]=0;  
  
 }  
**else a**[i]=**a**[i+1];  
 }  
 num--;  
  
 }  
  
**public static void** main(String[] args) {  
 Array6 a = **new** Array6();  
a.print();  
a.delete(8);  
a.print();  
 }  
}

**The Output**

**4.Write a Java method that repeatedly selects and removes a random entry from an array until the array holds no more entries.**

**The Output**

**import** java.util.Random;  
  
**public class** pr5 {  
**int** []**a**={1,2,3,4,5,6,7,8,9};  
**public void** print(){  
**for** (**int** i = 0; i<**a**.**length**; i++) {  
System.***out***.print(**a**[i] + **" "**);  
System.***out***.println();  
 }  
**public void** Random(){  
 Random r = **new** Random();  
**int** s=r.nextInt(10);  
**int** p=0;  
**for** (**int** i = 0; i<**a**.**length**; i++) {  
**if** (**a**[i]==s){  
 p=i;  
 }  
 }  
**for** (**int** i = p; i<**a**.**length**; i++) {  
**if** (i==**a**.**length**-1){  
**a**[**a**.**length**-1]=0;  
 }  
**else a**[i]=**a**[i+1];  
 }  
System.***out***.println(s);  
 }  
  
**public static void** main(String[] args) {  
 pr5 p = **new** pr5();  
p.print();  
p.Random();  
p.print();  
 }  
}