**214189E – SENARATHNA G.G.P.C.**

* MULTIDIMENSIONAL ARRAYS.

**Exercises,**

**01)**

**a)**

#include <stdio.h>  
int main() {  
 int arr[3][3] = {2,3,5,1,8,9,6,7,0};  
  
 printf("3\*3 Metrix is:\n");  
 for(int i = 0;i < 3;i++) {  
 for(int j = 0;j < 3;j++) {  
 printf("%d ", arr[i][j]);  
 }  
 printf("\n");  
 }  
  
 return 0;  
}

**b)**

#include <stdio.h>  
int main() {  
 int n,m;  
 printf("Input the number of rows and colomns:\n");  
 scanf("%d%d", &n,&m);  
  
 int arr[n][m];  
 printf("Input the number of elements in %d\*%d Metrix:\n", n,m);  
  
 for(int i = 0;i < n;i++) {  
 for(int j = 0;j < m;j++) {  
 scanf("%d", &arr[i][j]);  
 }  
 }  
 for(int i = 0;i < n;i++) {  
 for(int j = 0;j < m;j++) {  
 printf("%d ", arr[i][j]);  
 }  
 printf("\n");  
 }  
  
 return 0;  
}

**02)**

**a)**

#include <stdio.h>  
int main() {  
 int arr [3][3] = {2,3,5,1,8,9,6,7,0};  
  
 for(int i = 0;i < 3;i++) {  
 for(int j = 0;j < 3;j++) {  
 printf("%d ", arr[i][j]);  
 }  
 printf("\n");  
 }  
 for(int i = 0;i < 3;i++) {  
 int sum = 0;  
 for(int j = 0;j < 3;j++) {  
 sum = sum + arr[i][j];  
 }  
 printf("summation of %d row:%d\n", (i+1),sum);  
 }  
  
 return 0;  
}

**b)**

#include <stdio.h>  
  
void arr(int r,int c);  
  
int main() {  
 int n,m;  
 printf("Input the number of rows & colomns:\n");  
 scanf("%d%d", &n,&m);  
  
 arr(n,m);  
  
 return 0;  
}  
  
void arr(int r,int c) {  
 int arr[r][c];  
 printf("Input the number of elements in %d\*%d Metrix:\n", r,c);  
 for(int i = 0;i < r;i++) {  
 for(int j = 0;j < c;j++) {  
 scanf("%d", &arr[i][j]);  
 }  
 }  
 for(int i = 0;i < r;i++) {  
 for(int j = 0;j < c;j++) {  
 printf("%d ", arr[i][j]);  
 }  
 printf("\n");  
 }  
 for(int i = 0;i < r;i++) {  
 int sum = 0;  
 for(int j = 0;j < c;j++) {  
 sum = sum + arr[i][j];  
 }  
 printf("summation of %d row: %d\n", (i+1),sum);  
 }  
}

**03)**

#include <stdio.h>  
int main() {  
 int sum\_d1 = 0,sum\_d2 = 0;  
 int arr [3][3] = {2,3,5,1,8,9,6,7,0};  
  
 for(int i = 0;i < 3;i++) {  
 for(int j = 0;j < 3;j++) {  
 printf("%d ", arr[i][j]);  
 }  
 printf("\n");  
 }  
 for(int i = 0;i < 3;i++) {  
 int sum = 0;  
 for(int j = 0;j < 3;j++) {  
 sum = sum + arr[i][j];  
 }  
 printf("summation of %d row:%d\n", (i+1),sum);  
 }  
 printf("\n");  
 for(int i = 0;i < 3;i++) {  
 for(int j = 0;j < 3;j++) {  
 if(i == j) {  
 sum\_d1 = sum\_d1 + arr[i][j];  
 }  
 if(i + j == 2) {  
 sum\_d2 = sum\_d2 + arr[i][j];  
 }  
 }  
 }  
 printf("summation of d1 & d2:%d %d", sum\_d1,sum\_d2);  
  
 return 0;  
}

**04)**

#include <stdio.h>  
int main() {  
 int arr[3][3];  
 printf("Enter the number of elements in 3\*3 Metrix:\n");  
  
 for(int i = 0;i < 3;i++) {  
 for(int j = 0;j < 3;j++) {  
 scanf("%d", &arr[i][j]);  
 }  
 }  
 for(int i = 0;i < 3;i++) {  
 for(int j = 0;j < 3;j++) {  
 printf("%d ", arr[i][j]);  
 }  
 printf("\n");  
 }  
 return 0;  
}

**05)**

#include <stdio.h>  
int main() {  
 int arr1[2][2],arr2[2][2],arr3[2][2];  
  
 printf("Input number of elements in 2\*2 Metrix 01:\n");  
 for(int i = 0;i < 2;i++) {  
 for(int j = 0;j < 2;j++) {  
 scanf("%d", &arr1[i][j]);  
 }  
 }  
 printf("Input number of elements in 2\*2 Metrix 02:\n");  
 for(int i = 0;i < 2;i++) {  
 for(int j = 0;j < 2;j++) {  
 scanf("%d", &arr2[i][j]);  
 }  
 }  
 printf("Addition of Metrix 01 & Metrix 02:\n");  
 for(int i = 0;i < 2;i++) {  
 for(int j = 0;j < 2;j++) {  
 arr3[i][j] = arr1[i][j] + arr2[i][j];  
 printf("%d ", arr3[i][j]);  
 }  
 printf("\n");  
 }  
 return 0;  
  
}

**06)**

#include <stdio.h>  
int main() {  
 int Met\_01[3][3] = {2,2,3,3,2,4,1,3,4};  
 int Met\_02[3][3] = {3,5,7,4,2,1,3,2,1};  
 int Met\_00[3][3];  
  
 printf("Metrix 01:\n");  
 for(int i = 0;i < 3;i++) {  
 for(int j = 0;j < 3;j++) {  
 printf("%d ", Met\_01[i][j]);  
 }  
 printf("\n");  
 }  
  
 printf("Metrix 02:\n");  
 for(int i = 0;i < 3;i++) {  
 for(int j = 0;j < 3;j++) {  
 printf("%d ", Met\_02[i][j]);  
 }  
 printf("\n");  
 }  
 printf("Multiplication of Metrix 01 & Metrix 02:\n");  
 for(int i = 0;i < 3;i++) {  
 for(int j = 0;j < 3;j++) {  
 int sum = 0;  
 for(int k = 0;k < 3;k++) {  
 sum = sum + Met\_01[i][k] \* Met\_02[k][j];  
 }  
 Met\_00[i][j] = sum;  
 printf("%d ", Met\_00[i][j]);  
 }  
 printf("\n");  
 }  
 return 0;  
}