Assignment-8

Two Dimension Array

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```c
// 1.WAP to read elements in an array (3x3) and calculat
e the sum and average of all elements.

#include<stdio.h>

int main()
{
    float av,sum=0;
    int a[3][3],i,j;
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            printf("Enter the number :");
            scanf("%d",&a[i][j]);
        }
    }
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        printf("%4d",a[i][j]);
        printf("\n");
        sum=sum+a[i][j];
        av=sum/10;
    }
    printf("The sum and average are %f and %f.",sum,av);
    return 0;
}
```

```c
// 3.WAP to read elements in an array (3x5) and calculat
e sum of columns.

#include<stdio.h>

int main(){
    int a[3][5],i,j,n,sum[5]={0,0,0,0,0};
    for (i=0;i<3;i++)
    {
        for(j=0;j<5;j++)
        {
            printf("Enter the number:");
            scanf("%d",&a[i][j]);
            if (j==0)
            sum[0]+=a[i][j];
            else if (j==1)
            sum[1]+=a[i][j];
            else if (j==2)
            sum[2]+=a[i][j];
            else if (j==3)
            sum[3]+=a[i][j];
            else
            sum[4]+=a[i][j];
        }
    }
    for (n=0;n<5;n++)
    printf("\nSum of columns %d :%d",n,sum[n]);
    return 0;
}
```

```c
// 4.WAP to find the maximum number in an array (3x3) an
d replace all the elements with the maximum.

#include<stdio.h>

int main()
{
    int a[3][3],i,j,max;
    for(i=0;i<3;i++)
    {
        for (j=0;j<3;j++)
        {
            printf("Enter the number :");
            scanf("%d",&a[i][j]);
        }
    }
    max=a[0][0];
    for (i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            if (max<a[i][j])
            max=a[i][j];
        }
    }
    printf(" The maximum number is %d",max);

    return 0;
}
```

```c
//5.WAP to read elements in an array (3x3) and calculate
 the sum of diagonal matrix.
#include<stdio.h>

int main(){
    int a[3][3],i,j,sum=0;
    for (i=0;i<3;i++)
    {
        for (j=0;j<3;j++)
        {
            printf("Enter the number :");
            scanf("%d",&a[i][j]);
            if (i==j)
            sum+=a[i][j];
        }
    }
    printf("%d is th sum of the diagonal of matrix.",sum
);
    return 0;
}
```

```c
//6.WAP to read elements in an array (3x3) and find the transpose of a matrix.
#include <stdio.h>
int main()
{
    int a[3][3], i, j;
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            printf("Enter a number : ");
            scanf("%d",&a[i][j]);
        }
    }
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
            printf("%4d",a[j][i]);
        printf("\n");
    }
    return 0;
}
```

```c
//7.WAP to add two given matrices (3x3) and print the re
sultant matrix.

#include <stdio.h>

int main()
{
    int a[3][3], n, b[3][3], i, j;
    for (n=1;n<3;n++)
    {
        printf("Enter the value for matrix %d\n",n);
        for(i=0;i<3;i++)
        {
            for(j=0;j<3;j++)
            {
                if(n==1)
                {
                  printf("Enter a number : ");
                  scanf("%d",&a[i][j]);
                }
                if(n==2)
                 {
                   printf("Enter a number : ");
                   scanf("%d",&b[i][j]);
                 }

            }
        }
    }
    printf("The sum of the two matrix is :\n");
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        {
            b[i][j] = a[i][j] + b[i][j];
            printf("%4d",b[i][j]);
```

```
        }
        printf("\n");
    }
    return 0;
}
```

```
//8.WAP to multiply two given matrices (3x3) and print t
he resultant matrix
#include <stdio.h>

int main()
{
    int  a[3][3], k, b[3][3], i, j, c[3][3];
    for (k=1;k<3;k++)
    {
        printf("Enter the value for matrix %d\n",k);
        for(i=0;i<3;i++)
        {
            for(j=0;j<3;j++)
            {
                if(k==1)
                {
                  printf("Enter a number : ");
                  scanf("%d",&a[i][j]);
                }
                if(k==2)
                 {
                   printf("Enter a number : ");
                   scanf("%d",&b[i][j]);
                 }

            }
        }
    }
```

```
    for(i=0;i<3;i++)
    {
        for(k=0;k<3;k++)
        {
            c[i][k] = 0;
            for(j=0;j<3;j++)
                c[i][k] += (a[i][j]*b[j][k]);
        }
    }
    printf("The resultant matrix is \n");
    for(i=0;i<3;i++)
    {
        for(j=0;j<3;j++)
        printf("%5d ",c[i][j]);
        printf("\n");
    }
    return 0;
}
```