

Bash Shell Script to add two Matrices

In this program, you will learn how to add two matrices using array. Bash only supports one-dimensional array so we will use the below logic to access elements of array.

If the matrix has a size m by n, so i goes from 0 to (m-1) and j from 0 to (n-1).

```
matrix[i][j] = array[i*n + j]
```

```

#Bash script to add two matrix
matrix1=(1 2 3 4 5 6 7 8 9) #Matrix of size 3 by 3
matrix2=(11 12 13 14 15 16 17 18 19) #Matrix of size 3 by 3
rows=3
cols=3
echo "First matrix"
for((i=0; i<rows; i++))
do
    for((j=0; j<cols; j++))
    do
        index=$((i*cols+j))
        echo -n "${matrix1[index]} "
    done
    echo
done

echo "Second matrix"
for((i=0; i<rows; i++))
do
    for((j=0; j<cols; j++))
    do
        index=$((i*cols+j))
        echo -n "${matrix2[index]} "
    done
    echo
done

k=0
matrix3=()
for((i=0; i<rows; i++))
do
    for((j=0; j<cols; j++))
    do
        index=$((i*cols+j))
        matrix3[k]=$((${matrix1[index]} + ${matrix2[index]}))
        k=$((k+1))
    done
done
echo "Addition of two matrix"
for((i=0; i<rows; i++))
do
    for((j=0; j<cols; j++))
    do
        index=$((i*cols+j))
        echo -n "${matrix3[index]} "
    done
    echo
done

```

Output of the above program

First matrix

1 2 3

4 5 6

7 8 9

Second matrix

11 12 13

14 15 16

17 18 18

Addition of two matrix

12 14 16

18 20 22

24 26 27