04 March 2024 20:44

1.Addition of matrix

```
#include <stdio.h>
#define SIZE 3
int main()
{
 int A[SIZE][SIZE];
 int B[SIZE][SIZE];
 int C[SIZE][SIZE];
 int row, col, i, sum;
 printf("name:Kongara.sai\n");
 printf("reg no:192365025\n");
 printf("Enter elements in matrix A of size %dx%d: \n", SIZE, SIZE);
 for(row=0; row<SIZE; row++)
 {
 for(col=0; col<SIZE; col++)
 {
 scanf("%d", &A[row][col]);
 }
 }
 printf("\nEnter elements in matrix B of size %dx%d: \n", SIZE, SIZE);
 for(row=0; row<SIZE; row++)
 {
 for(col=0; col<SIZE; col++)
 {
 scanf("%d", &B[row][col]);
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 scanf("%d", &B[row][col]);
 }
 }
 for(row=0; row<SIZE; row++)
 {
 for(col=0; col<SIZE; col++)
 {
 sum = 0;
 for(i=0; i<SIZE; i++)
 {
 sum += A[row][i] * B[i][col];
 }
 C[row][col] = sum;
 }
 }
 printf("\nProduct of matrix A * B = \n");
 for(row=0; row<SIZE; row++)
 {
 for(col=0; col<SIZE; col++)
 {
 printf("%d ", C[row][col]);
 }
 printf("\n");
 }
```

```
return 0;
}
```

```
name:k. sai
reg.no: 192365025
Enter elements in matrix A of size 3x3:
1 2 3
1 2 3
1 2 3

Enter elements in matrix B of size 3x3:
1 2 3
1 2 3
1 2 3

Sum of matrices A+B =
2 4 6
2 4 6
2 4 6
```

2.Multiplication of two matrices

```
#include <stdio.h>
#define SIZE 3
int main()
{
 int A[SIZE][SIZE];
 int B[SIZE][SIZE];
 int C[SIZE][SIZE];
 int row, col, i, sum;
 printf("name:Kongara sai\n");
 printf("reg no:192365025\n");
 printf("Enter elements in matrix A of size %dx%d: \n", SIZE, SIZE);
 for(row=0; row<SIZE; row++)
 {
 for(col=0; col<SIZE; col++)
 {
 scanf("%d", &A[row][col]);
 }
 }
 printf("\nEnter elements in matrix B of size %dx%d: \n", SIZE, SIZE);
 for(row=0; row<SIZE; row++)
 {
 for(col=0; col<SIZE; col++)
 {
          scanf("%d", &B[row][col]);
 }
 }
 for(row=0; row<SIZE; row++)
 {
 for(col=0; col<SIZE; col++)
 {
 sum = 0;
 for(i=0; i<SIZE; i++)
 {
 sum += A[row][i] * B[i][col];
 }
 C[row][col] = sum;
 }
```

```
}
printf("\nProduct of matrix A * B = \n");
for(row=0; row<SIZE; row++)
{
for(col=0; col<SIZE; col++)
{
printf("%d ", C[row][col]);
}
printf("\n");
}
return 0;
}
```

```
name:Kongara sai
reg no:192365025
Enter elements in matrix A of size 3x3:
1 2 3
1 2 3
1 2 3

Enter elements in matrix B of size 3x3:
1 2 3
1 2 3
1 2 3

Product of matrix A * B =
6 12 18
6 12 18
6 12 18
```

3.Transpose of matrix

```
#include <stdio.h>
#define MAX_ROWS 3
#define MAX_COLS 3
int main()
{
int A[MAX_ROWS][MAX_COLS];
int B[MAX_COLS][MAX_ROWS];
int row, col;
printf("name:Kongara sai\n");
printf("reg no.:192365025\n");
printf("Enter elements in matrix of size %dx%d: \n", MAX_ROWS, MAX_COLS);
for(row=0; row<MAX_ROWS; row++)
{
for(col=0; col<MAX_COLS; col++)
{
scanf("%d", &A[row][col]);
}
```

```
}
for(row=0; row<MAX_ROWS; row++)
{
for(col=0; col<MAX_COLS; col++)
{
B[col][row] = A[row][col];
}
}
printf("\nOriginal matrix: \n");
for(row=0; row<MAX_ROWS; row++)
{
for(col=0; col<MAX_COLS; col++)
{
printf("%d ", A[row][col]);
}
printf("\n");
}
printf("Transpose of matrix A: \n");
for(row=0; row<MAX_COLS; row++)
{
for(col=0; col<MAX_ROWS; col++)
{
printf("%d ", B[row][col]);
}
printf("\n");
}
return 0;
}
```

```
name:Kongara sai
reg no.:192365025
Enter elements in matrix of size 3x3:
1 2 3
1 2 3
5 6 7

Original matrix:
1 2 3
1 2 3
5 6 7
Transpose of matrix A:
1 1 5
2 2 6
3 3 7
```

4.Insert an element in an array

```
#include <stdio.h>
#define MAX_SIZE 100
int main()
{
 int arr[MAX_SIZE];
 int i, size, num, pos;
 printf("name:Komgara sai\n");
 printf("reg no.:192365025\n");
 printf("Enter size of the array : ");
```

```
 scanf("%d", &size);
 printf("Enter elements in array : ");
 for(i=0; i<size; i++)
 {
 scanf("%d", &arr[i]);
 }
 printf("Enter element to insert : ");
 scanf("%d", &num);
 printf("Enter the element position : ");
 scanf("%d", &pos);
 if(pos > size+1 || pos <= 0)
 {
 printf("Invalid position! Please enter position between 1 to %d", size);
 }
 else
 {
 for(i=size; i>=pos; i--)
 {
 arr[i] = arr[i-1];
 }
arr[pos-1] = num;
 size++;
 printf("Array elements after insertion : ");
 for(i=0; i<size; i++)
 {
 printf("%d\t", arr[i]);
 }
 }
 return 0;
}
```

```
name:Komgara sai
reg no.:192365025
Enter size of the array : 3
Enter elements in array : 1 2 3
Enter element to insert : 7
Enter the element position : 2
Array elements after insertion : 1      7       2       3
--------------------------------
```

5.Deletion of element

```
#include <stdio.h>
#define MAX_SIZE 100
int main()
{
 int arr[MAX_SIZE];
 int i, size, pos;
 printf("name: Kongara sai\n");
 printf("reg no.:192365025\n");
 printf("Enter size of the array : ");
 scanf("%d", &size);
 printf("Enter elements in array : ");
 for(i=0; i<size; i++)
 {
 scanf("%d", &arr[i]);
```

```
}
printf("Enter the element position to delete : ");
scanf("%d", &pos);
if(pos < 0 || pos > size)
{
printf("Invalid position! Please enter position between 1 to %d", size);
}
else
{
for(i=pos-1; i<size-1; i++)
{
arr[i] = arr[i + 1];
}
size--;
printf("\nElements of array after delete are : ");
for(i=0; i<size; i++)
{
printf("%d\t", arr[i]);
}
}
return 0;
}
```

```
name: Kongara sai
reg no.:192365025
Enter size of the array : 3
Enter elements in array : 1 2 3
Enter the element position to delete : 2

Elements of array after delete are : 1  3
--------------------------------
```

6.Sum of diagonal

```
#include <stdio.h>
int main() {
 int rows, cols, sum = 0;
 printf("name:Kongara sai\n");
 printf("reg.no.:192365025\n");
 printf("Enter the number of rows and columns of the square matrix: ");
 scanf("%d", &rows);

 int matrix[rows][rows];

 printf("Enter the elements of the matrix:\n");
 for (int i = 0; i < rows; i++) {
 for (int j = 0; j < rows; j++) {
 scanf("%d", &matrix[i][j]);
 if (i == j) {
 sum += matrix[i][j];
 }
 }
 }

 printf("The sum of diagonal elements of the matrix is: %d\n", sum);
```

```
return 0;
}
```

```
name:Kongara sai
reg.no.:192365025
Enter the number of rows and columns of the square matrix: 3
Enter the elements of the matrix:
1 2 3
1 2 3
1 2 3
The sum of diagonal elements of the matrix is: 6

--------------------------------
```

7.Merge two array

```
#include <stdio.h>
int main() {
 int size1, size2, size_merged;
printf("name:Komgara sai\n");
printf("reg no.192365025n");
 printf("Enter the size of the first array: ");
 scanf("%d", &size1);
 int arr1[size1];
 printf("Enter elements of the first array:\n");
 for (int i = 0; i < size1; i++) {
 scanf("%d", &arr1[i]);
 }
 printf("Enter the size of the second array: ");
 scanf("%d", &size2);
 int arr2[size2];
 printf("Enter elements of the second array:\n");
 for (int i = 0; i < size2; i++) {
 scanf("%d", &arr2[i]);
 }
 size_merged = size1 + size2;
 int merged[size_merged];
 for (int i = 0; i < size1; i++) {
 merged[i] = arr1[i];
 }
 for (int i = 0; i < size2; i++) {
 merged[size1 + i] = arr2[i];
 }
 printf("Merged Array:\n");
 for (int i = 0; i < size_merged; i++) {
 printf("%d ", merged[i]);
 }
 return 0;
}
```

```
name:Komgara sai
reg no.192365025nEnter the size of the first array: 3
Enter elements of the first array:
3
2
3
Enter the size of the second array: 1
Enter elements of the second array:
7
Merged Array:
3 2 3 7
--------------------------------
```

8.No of dublicate

```
#include <stdio.h>
#define MAX_SIZE 100
int main()
{
 int arr[MAX_SIZE];
 int i, j, size, count = 0;
 printf("name:Kongara sai\n");
 printf("reg no.:192365025\n");
 printf("Enter size of the array : ");
 scanf("%d", &size);
 printf("Enter elements in array : ");
 for(i=0; i<size; i++)
 {
 scanf("%d", &arr[i]);
 }
 for(i=0; i<size; i++)
 {
 for(j=i+1; j<size; j++)
 {
 if(arr[i] == arr[j])
 {
 count++;
 break;
 }
 }
 }
 printf("\nTotal number of duplicate elements found in array = %d", count);
 return 0;
}
```

```
name:Kongara sai
reg no.:192365025
Enter size of the array : 5
Enter elements in array : 1 2 2 3 2

Total number of duplicate elements found in array = 2
--------------------------------
```

9.search

```
#include <stdio.h>
int main() {
 int arr[100], n, i, search, flag = 0;
printf("name kongara sai\n");
printf("reg no.:192365025\n");
 printf("Enter the number of elements in the array: ");
 scanf("%d", &n);
 printf("Enter %d elements:\n", n);
 for (i = 0; i < n; i++) {
 scanf("%d", &arr[i]);
 }
 printf("Enter the element to search: ");
 scanf("%d", &search);
 for (i = 0; i < n; i++) {
 if (arr[i] == search) {
 printf("Element found at location %d.\n", i + 1);
 flag = 1;
 break;
 }
 }
 if (flag == 0) {
 printf("Element not found in the array.\n");
 }
 return 0;
}
```

```
name kongara sai
reg no.:192365025
Enter the number of elements in the array: 3
Enter 3 elements:
1 2 3
Enter the element to search: 3
Element found at location 3.

--------------------------------
```

10.Increasing/ascending

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
int cmp_asc(const void *a, const void *b) {
 return (*(char*)a - *(char*)b);
}
int cmp_desc(const void *a, const void *b) {
 return (*(char*)b - *(char*)a);
}
int main() {
 printf("name :Kongara sai\n");
 printf("reg no.:192365025\n");
```

```
 char str[100];
 printf("Enter a string of characters (numbers and alphabets): ");
 scanf("%s", str);
 int len = strlen(str);
 qsort(str, len, sizeof(char), cmp_asc);
 printf("Ascending Order: %s\n", str);
 qsort(str, len, sizeof(char), cmp_desc);
 printf("Descending Order: %s\n", str);
return 0;
}
```

```
name :Kongara sai
reg no.:192365025
Enter a string of characters (numbers and alphabets): asdfg
Ascending Order: adfgs
Descending Order: sgfda
```

11.Valid string

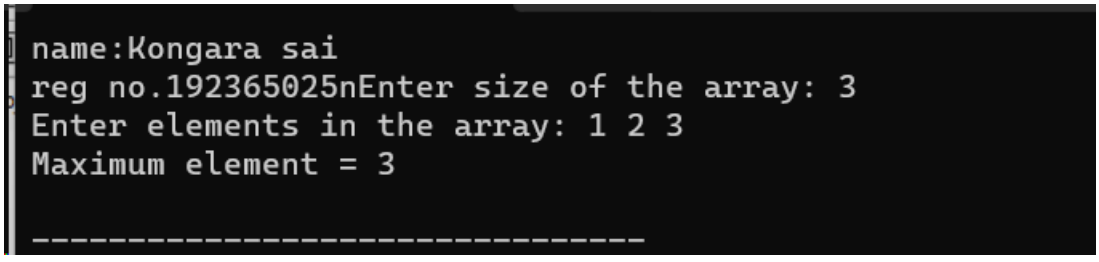
```
#include <stdio.h>
int main() {
 char str[100];
 int isValid = 1;
 int i = 0;
printf("name: Kongara sai\n");
printf("reg no.:192365025\n");
 printf("Enter a string: ");
 scanf("%s", str);
 while (str[i] != '\0') {
 if (!((str[i] >= 'a' && str[i] <= 'z') || (str[i] >= 'A' &&
str[i] <= 'Z'))) {
 isValid = 0;
 break;
 }
 i++;
 }
 if (isValid)
 printf("The string is valid.\n");
 else
 printf("The string is not valid.\n");
 return 0;
}
```

```
name: Kongara sai
reg no.:192365025
Enter a string: sai
The string is valid.

--------------------------------
```

12.Largest num in array

```
#include <stdio.h>
#define MAX_SIZE 100
int main()
```

```
{
 int arr[MAX_SIZE];
 int i, max, min, size;
 printf("name:Kongara sai\n");
 printf("reg no.192365025n");
 printf("Enter size of the array: ");
 scanf("%d", &size);
 printf("Enter elements in the array: ");
 for(i=0; i<size; i++)
 {
 scanf("%d", &arr[i]);
 }
 max = arr[0];
 min = arr[0];
 for(i=1; i<size; i++)
 {
 if(arr[i] > max)
 {
 max = arr[i];
 }
 if(arr[i] < min)
 {
 min = arr[i];
 }
 }
 printf("Maximum element = %d\n", max);
 return 0;
}
```



13.Repeated num

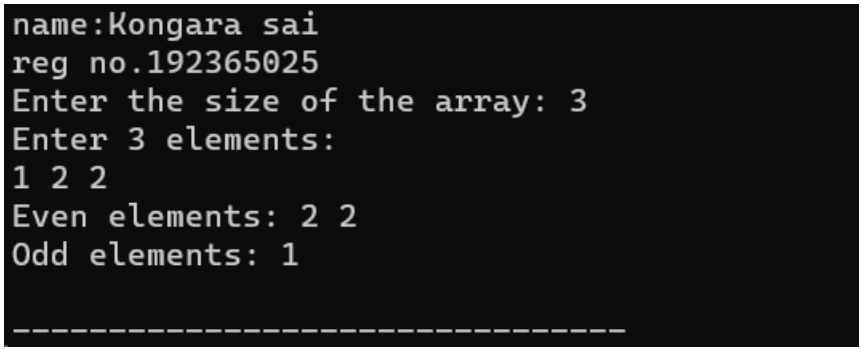
```
#include <stdio.h>
int main() {
 int arr[100], n;
printf("name:Kongara sai\n");
printf("reg no.:192365025\n");
 printf("Enter the size of the array: ");
 scanf("%d", &n);
 printf("Enter %d elements of the array: ", n);
 for (int i = 0; i < n; i++) {
 scanf("%d", &arr[i]);
 }
 printf("Repeated elements in the array: ");
for (int i = 0; i < n; i++) {
 for (int j = i + 1; j < n; j++) {
 if (arr[i] == arr[j]) {
 printf("%d ", arr[i]);
 break;
```

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

```
name:Kongara sai
reg no.:192365025
Enter the size of the array: 3
Enter 3 elements of the array: 1 2 2
Repeated elements in the array: 2
```

14.Even and odd

```
#include <stdio.h>
int main() {
 int n;
printf("name:Kongara sai\n");
printf("reg no.192365025\n");
 printf("Enter the size of the array: ");
 scanf("%d", &n);

 int arr[n];

 printf("Enter %d elements:\n", n);
 for (int i = 0; i < n; i++) {
 scanf("%d", &arr[i]);
 }

 printf("Even elements: ");
 for (int i = 0; i < n; i++) {
 if (arr[i] % 2 == 0) {
 printf("%d ", arr[i]);
 }
 }
 printf("\n");

 printf("Odd elements: ");
 for (int i = 0; i < n; i++) {
if (arr[i] % 2 != 0) {
 printf("%d ", arr[i]);
 }
 }
 printf("\n");

 return 0;
}
```



15.Sum of rows and columns

```
#include <stdio.h>
#define MAX_ROWS 100
#define MAX_COLS 100
int main() {
 int matrix[MAX_ROWS][MAX_COLS];
 int rows, cols;
 printf("name:Kongara sai\n");
printf("reg no.192365025\n");
printf("Enter the number of rows and columns of the matrix: ");
 scanf("%d %d", &rows, &cols);
 printf("Enter the elements of the matrix:\n");
 for (int i = 0; i < rows; i++) {
 for (int j = 0; j < cols; j++) {
 scanf("%d", &matrix[i][j]);
 }
 }
 printf("The matrix is:\n");
 for (int i = 0; i < rows; i++) {
 for (int j = 0; j < cols; j++) {
 printf("%d ", matrix[i][j]);
 }
 printf("\n");
 }
 printf("Sum of elements in each row:\n");
 for (int i = 0; i < rows; i++) {
 int rowSum = 0;
 for (int j = 0; j < cols; j++) {
 rowSum += matrix[i][j];
 }
 printf("Row %d: %d\n", i+1, rowSum);
 }
 printf("Sum of elements in each column:\n");
 for (int j = 0; j < cols; j++) {
 int colSum = 0;
 for (int i = 0; i < rows; i++) {
 colSum += matrix[i][j];
 }
 printf("Column %d: %d\n", j+1, colSum);
 }
 return 0;
}
```

```
name:Kongara sai
reg no.192365025
Enter the number of rows and columns of the matrix: 3

3
Enter the elements of the matrix:
1 2 3
1 2 3
1 2 3
The matrix is:
1 2 3
1 2 3
1 2 3
Sum of elements in each row:
Row 1: 6
Row 2: 6
Row 3: 6
Sum of elements in each column:
Column 1: 3
Column 2: 6
Column 3: 9
```

16.5th iterated elememt

```
#include <stdio.h>
int main() {
 int arr[] = {1, 2, 3, 4, 5, 6, 7, 8, 9, 10};
 int size = sizeof(arr) / sizeof(arr[0]);
 int i;
 printf("name:Kongara sai\n");
printf("reg no.192365025\n");
printf("5th Iterated elements in the array: ");
 for (i = 4; i < size; i += 5) {
 printf("%d ", arr[i]);
 }
 printf("\n");
 return 0;
}
```

```
name:Kongara sai
reg no.192365025
5th Iterated elements in the array: 5 10
```