UNIVERSIDAD DE LAS FUERZAS ARMADAS ESPE

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Tema: Problema de matrices

1.

```
#include <stdio.h>

#define MAX 10 // Usamos una sola constante para simplificar

int main() {
    int N, M; // N=filas, M=columnas
    int matriz[MAX][MAX];
    int suma = 0;
    int i, j;

    printf("Filas (max %d): ", MAX);
    scanf("%d", &N);

    printf("Columnas (max %d): ", MAX);
    scanf("%d", &M);

    for (i = 0; i < N; i++) {
        for (j = 0; j < M; j++) {
            printf("Ingrese [%d][%d]: ", i, j);
            scanf("%d", &matriz[i][j]);
            suma += matriz[i][j];
        }
    }

    printf("\nLa suma total de la matriz es: **%d**\n", suma);

    return 0;
}
```

2.

```
#include <stdio.h>

#define MAX 10

int main() {

   int N, matrix[MAX][MAX];

   printf("N [1-%d]: ", MAX);

   scanf("%d", &N);


   for (int i = 0; i < N; i++)

      for (int j = 0; j < N; j++) {

         printf("[%d][%d]: ", i, j);

         scanf("%d", &matrix[i][j]);
```

```
    }

  printf("\nInverso:\n");

  for (int i = N - 1; i >= 0; i--) {
    for (int j = N - 1; j >= 0; j--)
      printf("%d ", matrix[i][j]);
    printf("\n");
  }

  return 0;
}
```

3.

```
#include <stdio.h>
#include <stdio.h>
#define M_SIZE 10 // Renombrado a M_SIZE para evitar conflicto con M

int main() {
  int N, M, matrix[M_SIZE][M_SIZE], max, fila_a_evaluar, i, j;

  printf("F(N, max %d): ", M_SIZE); scanf("%d", &N);
  printf("C(M, max %d): ", M_SIZE); scanf("%d", &M);

  // Lectura
  for (i = 0; i < N; i++)
    for (j = 0; j < M; j++) {
      printf("[%d][%d]: ", i, j);
      scanf("%d", &matrix[i][j]);
    }

  printf("\nFila (1 a %d): ", N); scanf("%d", &fila_a_evaluar);
```

```
    int indice_fila = fila_a_evaluar - 1;
    max = matrix[indice_fila][0];

    // Buscar maximo
    for (j = 1; j < M; j++)
        if (matrix[indice_fila][j] > max)
            max = matrix[indice_fila][j];

    printf("\nMaximo en fila %d: %d\n", fila_a_evaluar, max);

    return 0;
}
```

4.

```
#include <stdio.h>
#define R 10
#define C 10

int main() {
    int N, M;
    int matrix[R][C];
    int fila_i, fila_j, aux, k;

    printf("F(N, max %d): ", R);
    if (scanf("%d", &N) != 1 || N <= 0 || N > R) return 1;

    printf("C(M, max %d): ", C);
    if (scanf("%d", &M) != 1 || M <= 0 || M > C) return 1;

    // Lectura
    for (int i = 0; i < N; i++)
```

```
        for (int j = 0; j < M; j++) {
            printf("[%d][%d]: ", i, j);
            if (scanf("%d", &matrix[i][j]) != 1) return 1;
        }

    printf("\nFila 1 (i, 1 a %d): ", N);
    if (scanf("%d", &fila_i) != 1 || fila_i < 1 || fila_i > N) return 1;

    printf("Fila 2 (j, 1 a %d): ", N);
    if (scanf("%d", &fila_j) != 1 || fila_j < 1 || fila_j > N) return 1;

    int index_i = fila_i - 1;
    int index_j = fila_j - 1;

    // Intercambio
    for (k = 0; k < M; k++) {
        aux = matrix[index_i][k];
        matrix[index_i][k] = matrix[index_j][k];
        matrix[index_j][k] = aux;
    } //

    // Impresión
    printf("\nResultado (%d <-> %d):\n", fila_i, fila_j);
    for (int i = 0; i < N; i++) {
        for (int j = 0; j < M; j++)
            printf("%5d", matrix[i][j]);
        printf("\n");
    }

    return 0;
}
```