```
//41 Identity matrix checking
/*
* C Program to check if a given matrix is an identity matrix
*/
#include <stdio.h>

int main (void)
{
        int a[10][10];
        int i = 0, j = 0, row = 0, col = 0;

        printf ("Enter the order of the matrix (mxn):\n");
        printf ("where m = number of rows; and\n");
        printf ("      n = number of columns\n");
        scanf ("%d %d", &row, &col);

        int flag = 0;

        printf ("Enter the elements of the matrix\n");
        for (i = 0; i < row; i++)
        {
                for (j = 0; j < col; j++)
                {
                        scanf ("%d", &a[i][j]);
                }
        }

        for (i = 0; i < row; i++)
        {
                for (j = 0; j < col; j++)
                {
                        if (i == j && a[i][j] != 1)
                        {
                                flag = -1;
                                break;
                        }
                        else if (i != j && a[i][j] != 0)
                        {
                                flag = -1;
                                break;
                        }
                }
        }

        if (flag == 0)
        {
                printf ("It is a IDENTITY MATRIX\n");
        }
        else
        {
                printf ("It is NOT an identity matrix\n");
        }

        return 0;
}
OUTPUT;
```

```
Enter the order of the matrix (mxn):
where m = number of rows; and
      n = number of columns
3 3
Enter the elements of the matrix
1 0 0
0 1 0
0 0 1
It is a IDENTITY MATRIX

Enter the order of the matrix (mxn):
where m = number of rows; and
      n = number of columns
3 3
Enter the elements of the matrix
1 2 3
4 5 6
5 8 7
It is NOT an identity matrix
```