*MINI PROJECT*

*PRINTING TRANSPOSE OF MATRIX*

#include <stdlib.h>

typedef struct vec\_int\_2d {

int \*element\_ptr;

int row\_count;

int col\_count;

} Vec\_int\_2d;

Vec\_int\_2d create\_2d\_vec(int row\_count, int col\_count);

int get\_element\_2d\_vec(Vec\_int\_2d vec, int row\_index, int col\_index);

void set\_element\_2d\_vec(Vec\_int\_2d vec, int row\_index, int col\_index,

int value);

Vec\_int\_2d create\_2d\_vec(int row\_count, int col\_count) {

Vec\_int\_2d return\_vec = {

.element\_ptr = (int \*)malloc((row\_count \* col\_count) \* sizeof(int)),

.row\_count = row\_count,

.col\_count = col\_count,

};

return return\_vec;

}

int get\_element\_2d\_vec(Vec\_int\_2d vec, int row\_index, int col\_index) {

return vec.element\_ptr[row\_index \* vec.col\_count + col\_index];

}

void set\_element\_2d\_vec(Vec\_int\_2d vec, int row\_index, int col\_index,

int value) {

vec.element\_ptr[row\_index \* vec.col\_count + col\_index] = value;

}

// Program to Find the Transpose of a Matrix

#include <stdio.h>

int main() {

Vec\_int\_2d a, transpose;

int r, c, user\_input\_iterator;

printf("Enter rows and columns: ");

scanf("%d %d", &r, &c);

a = create\_2d\_vec(r, c);

transpose = create\_2d\_vec(c, r);

printf("\nEnter matrix elements:\n");

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

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

printf("Enter element a%d%d: ", i + 1, j + 1);

scanf("%d", &user\_input\_iterator);

set\_element\_2d\_vec(a, i, j, user\_input\_iterator);

}

printf("\nEntered matrix: \n");

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

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

printf("%d ", get\_element\_2d\_vec(a, i, j));

if (j == c - 1)

printf("\n");

}

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

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

set\_element\_2d\_vec(transpose, j, i, (get\_element\_2d\_vec(a, i, j)));

}

printf("\nTranspose of the matrix:\n");

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

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

printf("%d ", get\_element\_2d\_vec(transpose, i, j));

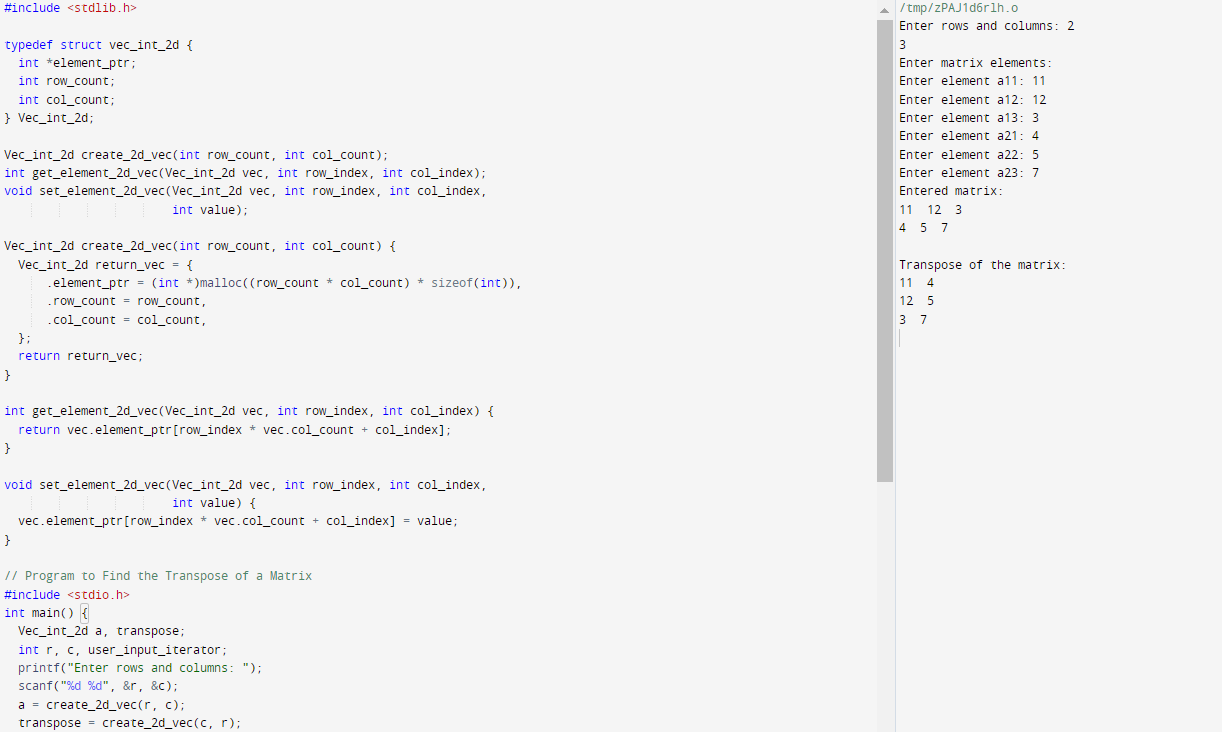
if (j == r - 1)

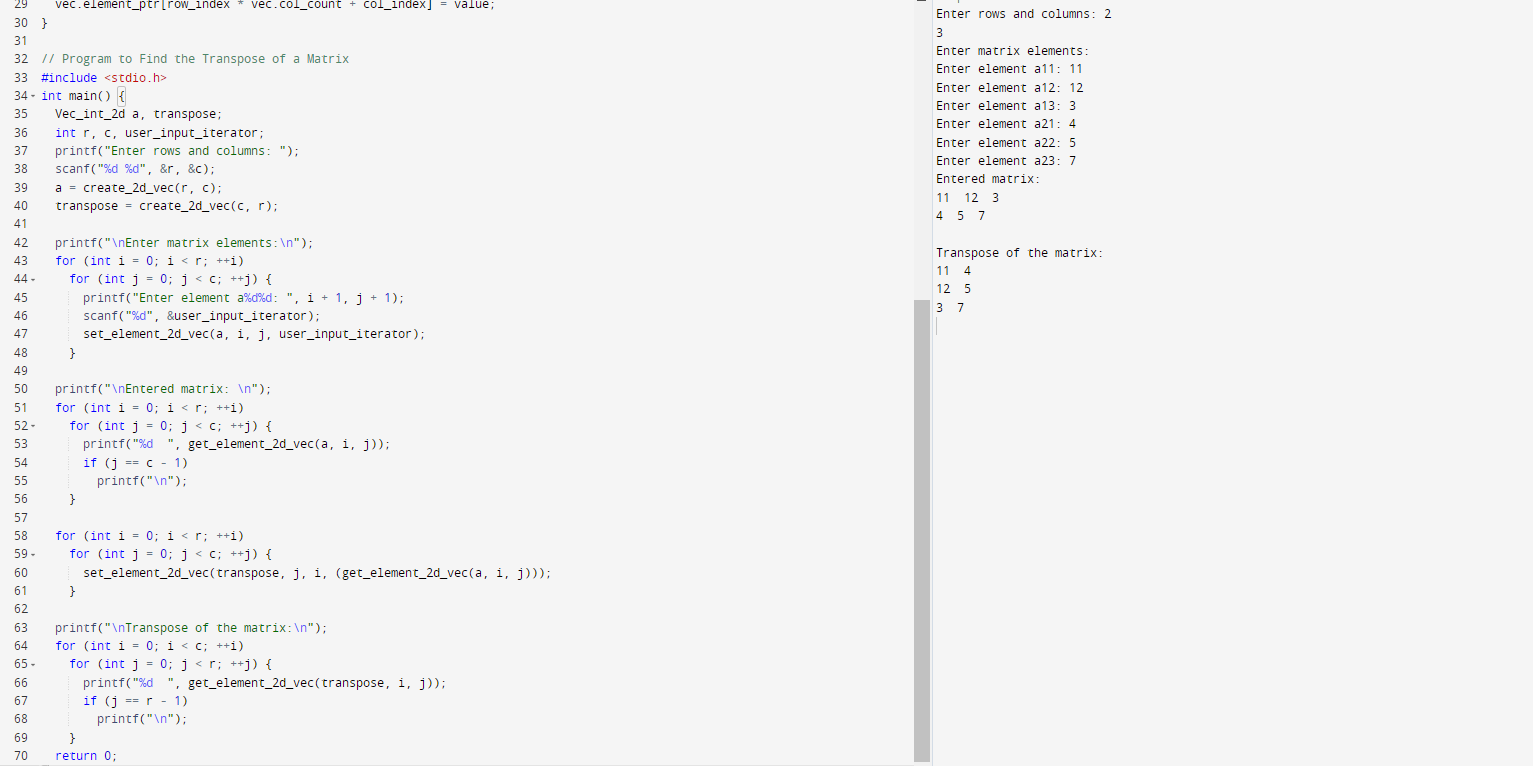
printf("\n");

}

return 0;

}





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SECTION:D2