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***School of Mechanical & Manufacturing Engineering (SMME),***

***National University of Science and Technology (NUST),***

***Sector H-12, Islamabad***

**Program**: BE-Mechanical **Section**: ME-15 B

**Session**: Fall 2023 **Semester**: 1st

**Course Title**: Fundamentals of Programming

**Lab Manual #9:**

***“\_Functions and Multidimensional Arrays\_\_\_\_”***

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**TASK:**

#include <iostream>

using namespace std;

void inverse(int arr[][3], double inv[][3]) {

double det = arr[0][0] \* (arr[1][1] \* arr[2][2] - arr[2][1] \* arr[1][2]) - arr[0][1] \* (arr[1][0] \* arr[2][2] - arr[1][2] \* arr[2][0]) + arr[0][2] \* (arr[1][0] \* arr[2][1] - arr[1][1] \* arr[2][0]);

if (det == 0) {

cout << "Inverse does not exist." << endl;

return;

}

double invdet = 1 / det;

for (int i = 0; i < 3; i++) {

for (int j = 0; j < 3; j++) {

double temp = arr[(j + 1) % 3][(i + 1) % 3] \* arr[(j + 2) % 3][(i + 2) % 3] - arr[(j + 1) % 3][(i + 2) % 3] \* arr[(j + 2) % 3][(i + 1) % 3];

inv[i][j] = temp \* invdet;

}

}

}

int main() {

int arr[3][3];

cout << "Enter the elements of the matrix: " << endl;

for (int i = 0; i < 3; i++) {

for (int j = 0; j < 3; j++) {

cin >> arr[i][j];

}

}

double inv[3][3];

inverse(arr, inv);

cout << "The inverse of the matrix is: " << endl;

for (int i = 0; i < 3; i++) {

for (int j = 0; j < 3; j++) {

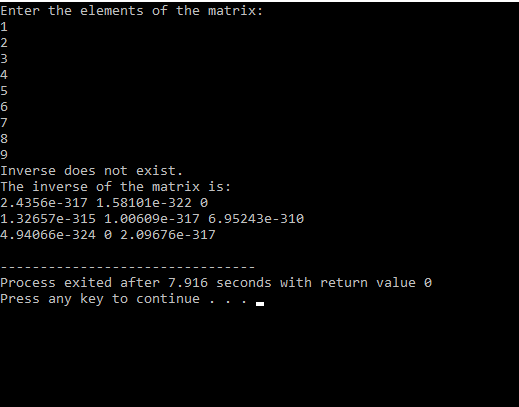
cout << inv[i][j] << " ";

}

cout << endl;

}

return 0;

}