***Q1. Write a program in a function named q1 that takes two integer arrays of size 5 each as input from the user, adds the corresponding elements of the two arrays, and stores the result in a third array. Then, display the elements of the third array.***

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| #include <iostream>  // Function to add corresponding elements of two arrays and display the result  void q1() {  const int size = 5;  // Declare three arrays of size 5  int array1[size], array2[size], resultArray[size];  // Get user input for the first array  std::cout << "Enter 5 integers for the first array:" << std::endl;  for (int i = 0; i < size; ++i) {  std::cout << "Enter element " << i + 1 << ": ";  std::cin >> array1[i];  }  // Get user input for the second array  std::cout << "Enter 5 integers for the second array:" << std::endl;  for (int i = 0; i < size; ++i) {  std::cout << "Enter element " << i + 1 << ": ";  std::cin >> array2[i];  }  // Add corresponding elements and store the result in the third array  for (int i = 0; i < size; ++i) {  resultArray[i] = array1[i] + array2[i];  }  // Display the elements of the third array  std::cout << "Result array after adding corresponding elements:" << std::endl;  for (int i = 0; i < size; ++i) {  std::cout << resultArray[i] << " ";  }  std::cout << std::endl;  }  int main() {  // Call the function q1  q1();  return 0;  } |

***Q2. Write a program in a function named q2 to find and display the frequency of a given element in an array of 20 integers.***

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| #include <iostream>  // Function to find and display the frequency of a given element in an array  void q2() {  const int size = 20;  int arr[size];  // Get user input for the array  std::cout << "Enter 20 integers for the array:" << std::endl;  for (int i = 0; i < size; ++i) {  std::cout << "Enter element " << i + 1 << ": ";  std::cin >> arr[i];  }  // Get the element to find its frequency  int targetElement;  std::cout << "Enter the element to find its frequency: ";  std::cin >> targetElement;  // Calculate and display the frequency of the given element  int frequency = 0;  for (int i = 0; i < size; ++i) {  if (arr[i] == targetElement) {  ++frequency;  }  }  std::cout << "Frequency of " << targetElement << " in the array: " << frequency << std::endl;  }  int main() {  // Call the function q2  q2();  return 0;  } |

***Q3. Write a program in a function named q3 to find and display the index of the first occurrence of a given element in an array of 25 integers.***

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| #include <iostream>  // Function to find and display the index of the first occurrence of a given element in an array  void q3() {  const int size = 25;  int arr[size];  // Get user input for the array  std::cout << "Enter 25 integers for the array:" << std::endl;  for (int i = 0; i < size; ++i) {  std::cout << "Enter element " << i + 1 << ": ";  std::cin >> arr[i];  }  // Get the element to find its index  int targetElement;  std::cout << "Enter the element to find its index: ";  std::cin >> targetElement;  // Find and display the index of the first occurrence of the given element  int index = -1;  for (int i = 0; i < size; ++i) {  if (arr[i] == targetElement) {  index = i;  break; // Break the loop as soon as the first occurrence is found  }  }  if (index != -1) {  std::cout << "Index of the first occurrence of " << targetElement << ": " << index << std::endl;  } else {  std::cout << targetElement << " not found in the array." << std::endl;  }  }  int main() {  // Call the function q3  q3();  return 0;  } |

***Q4.*** ***Write a program in a function named q4, to find the maximum element in each row of a 2D integer array of size 4x4 and display the results.***

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| #include <iostream>  // Function to find the maximum element in each row of a 2D array  void q4() {  const int rows = 4;  const int cols = 4;  int matrix[rows][cols];  // Get user input for the 2D array  std::cout << "Enter 16 integers for a 4x4 matrix:" << std::endl;  for (int i = 0; i < rows; ++i) {  for (int j = 0; j < cols; ++j) {  std::cout << "Enter element at position (" << i + 1 << ", " << j + 1 << "): ";  std::cin >> matrix[i][j];  }  }  // Find and display the maximum element in each row  for (int i = 0; i < rows; ++i) {  int maxElement = matrix[i][0]; // Assume the first element is the maximum  for (int j = 1; j < cols; ++j) {  if (matrix[i][j] > maxElement) {  maxElement = matrix[i][j];  }  }  std::cout << "Maximum element in row " << i + 1 << ": " << maxElement << std::endl;  }  }  int main() {  // Call the function q4  q4();  return 0;  } |

***Q5. Write a program in a function named q5 that asks the user to enter values in two 2D matrices. After that, it calculates and displays the product of two matrices as the resultant matrix. Take size 5x5 ( Please consider matrix multiplication rules)***

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| #include <iostream>  const int rows = 5;  const int cols = 5;  // Function to calculate the product of two matrices  void q5() {  int matrix1[rows][cols];  int matrix2[rows][cols];  int resultMatrix[rows][cols];  // Get user input for the first matrix  std::cout << "Enter values for the first 5x5 matrix:" << std::endl;  for (int i = 0; i < rows; ++i) {  for (int j = 0; j < cols; ++j) {  std::cout << "Enter element at position (" << i + 1 << ", " << j + 1 << "): ";  std::cin >> matrix1[i][j];  }  }  // Get user input for the second matrix  std::cout << "Enter values for the second 5x5 matrix:" << std::endl;  for (int i = 0; i < rows; ++i) {  for (int j = 0; j < cols; ++j) {  std::cout << "Enter element at position (" << i + 1 << ", " << j + 1 << "): ";  std::cin >> matrix2[i][j];  }  }  // Calculate the product of the matrices  for (int i = 0; i < rows; ++i) {  for (int j = 0; j < cols; ++j) {  resultMatrix[i][j] = 0;  for (int k = 0; k < cols; ++k) {  resultMatrix[i][j] += matrix1[i][k] \* matrix2[k][j];  }  }  }  // Display the resultant matrix (product of the two matrices)  std::cout << "Resultant matrix (Product of the two matrices):" << std::endl;  for (int i = 0; i < rows; ++i) {  for (int j = 0; j < cols; ++j) {  std::cout << resultMatrix[i][j] << " ";  }  std::cout << std::endl;  }  }  int main() {  // Call the function q5  q5();  return 0;  } |