Project name : Array Multiplication

Creating date : 31/03/2025

Created by : Rowshon ara ferdousi

Student ID : 0182420012101253

GitHub ID :

Course Instructor : Md. Jehadul Islam Mony

Department : Computer Science & Engineering

Institution : Leading University,Sylhet

/\*

#include <stdio.h>

int main() {

int MAX\_SIZE;

printf("Enter the size of the array: ");

scanf("%d", &MAX\_SIZE);

int arr[MAX\_SIZE];

int n = 0; // current size of the array

int choice, value, index, i, found;

while (1) {

printf("\n1. Insert a number (at end or specific index)\n");

printf("2. Update a number by index\n");

printf("3. Delete a number by index\n");

printf("4. Search for a number\n");

printf("5. Find largest and smallest number\n");

printf("6. Exit\n");

printf("Enter your choice: ");

scanf("%d", &choice);

switch (choice) {

case 1: // Insert

if (n >= MAX\_SIZE) {

printf("Array is full!\n");

} else {

printf("Enter the number to insert: ");

scanf("%d", &value);

printf("Do you want to insert at a specific index? (1 = Yes, 0 = No): ");

int opt;

scanf("%d", &opt);

if (opt == 1) {

printf("Enter index (0 to %d): ", n);

scanf("%d", &index);

if (index >= 0 && index <= n) {

// Shift elements to the right to make space

for (i = n; i > index; i--) {// ride a number moving

arr[i] = arr[i - 1];

}

arr[index] = value;

n++;

printf("Number inserted at index %d.\n", index);

} else {

printf("Invalid index!\n");

}

} else {

// Insert at the end

arr[n] = value;

n++;

printf("Number inserted at the end.\n");

}

}

// Print updated array

printf("Updated array: ");

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

printf("%d ", arr[i]);

}

break;

case 2: // Update

printf("Enter index to update (0 to %d): ", n - 1);

scanf("%d", &index);

if (index >= 0 && index < n) {

printf("Enter new value: ");

scanf("%d", &value);

arr[index] = value;

printf("Number updated successfully.\n");

} else {

printf("Invalid index!\n");

}

// Print updated array

printf("Updated array: ");

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

printf("%d ", arr[i]);

}

break;

case 3: // Delete

printf("Enter index to delete (0 to %d): ", n - 1);

scanf("%d", &index);

if (index >= 0 && index < n) {

for (i = index; i < n - 1; i++) {

arr[i] = arr[i + 1];

}

n--;

printf("Number deleted successfully.\n");

} else {

printf("Invalid index!\n");

}

// Print updated array

printf("Updated array: ");

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

printf("%d ", arr[i]);

}

break;

case 4: // Search

printf("Enter number to search: ");

scanf("%d", &value);

found = 0;

for (i = 0; i < n; i++) {

if (arr[i] == value) {

printf("Number found at index %d\n", i);

found = 1;

break;

}

}

if (found==0) {

printf("Number not found.\n");

}

break;

case 5: // Find largest and smallest

if (n == 0) {

printf("Array is empty!\n");

} else {

int largest = arr[0];

int smallest = arr[0];

for (i = 1; i < n; i++) {

if (arr[i] > largest)

largest = arr[i];

if (arr[i] < smallest)

smallest = arr[i];

}

printf("Largest number: %d\n", largest);

printf("Smallest number: %d\n", smallest);

}

break;

case 6: // Exit

printf("Exiting the program. Goodbye!\n");

return 0;

default:

printf("Invalid choice! Please try again.\n");

}

}

return 0;