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Experiment No.	9

AIM:	Demonstrate the use of pointers to solve a given problem.
Program 1	
PROBLEM STATEMENT :	Write a program to reverse the position of all elements in the array using pointers.
PROGRAM:	<pre> #include <stdio.h> /*void reverse(int *arr, int size) { int *start = arr; int *end = arr + size - 1; while (start < end) { int temp = *start; *start = *end; *end = temp; start++; end--; } }*/ void reverse (int *arr, int size) { int temp; for (int i = 0; i < size/2; i++) { temp = arr[i]; arr[i] = arr[size - i - 1]; arr[size - i - 1] = temp; } } </pre>

```

    }
}

void print(int *arr, int size)
{
    for (int i = 0; i < size; i++)
    {
        printf("%d ", arr[i]);
    }
}

int main()
{
    int arr[] = {10,20,30,40,50,60,70,80,90,100};
    int size = sizeof(arr) / sizeof(arr[0]);

    printf("Array before reversing: ");
    print(arr, size);

    reverse(arr, size);

    printf("\nArray after reversing: ");
    print(arr, size);

    return 0;
}

```

RESULT:

```

..[cyclops cyclops] - [~/Desktop/PSIPL Semester 1/Experiment 9] - [Sun Nov 26, 10:48]
..[$] <(>) gcc reverse\ the\ array.c
..[cyclops cyclops] - [~/Desktop/PSIPL Semester 1/Experiment 9] - [Sun Nov 26, 10:48]
..[$] <(>) ./a.out
Array before reversing: 10 20 30 40 50 60 70 80 90 100
Array after reversing: 100 90 80 70 60 50 40 30 20 10
..[cyclops cyclops] - [~/Desktop/PSIPL Semester 1/Experiment 9] - [Sun Nov 26, 10:48]
..[$] <(>) |

```

Program 2

PROBLEM STATEMENT :

Write a program to perform matrix addition using pointers.

PROGRAM:

```
#include <stdio.h>

void add(int mat1[][3], int mat2[][3], int result[][3], int rows,
int columns) {
    for (int i = 0; i < rows; i++)
    {
        for (int j = 0; j < columns; j++)
        {
            (*(result+i)+j) = (*(mat1+i)+j) + (*(mat2+i)+j);
        }
    }
}

void printMatrix(int matrix[][3], int rows, int columns) {
    for (int i = 0; i < rows; i++)
    {
        for (int j = 0; j < columns; j++)
        {
            printf("%d ", matrix[i][j]);
        }
        printf("\n");
    }
}

int main()
{
    int matrix1[3][3] = {{1, 2, 3}, {4, 5, 6}, {7, 8, 9}};
    int matrix2[3][3] = {{9, 8, 7}, {6, 5, 4}, {3, 2, 1}};
    int result[3][3];
    //scanf ("%d", *(n+i)+g);")
    add(matrix1, matrix2, result, 3, 3);

    printf("Matrix 1:\n");
    printMatrix(matrix1, 3, 3);
```

```

printf("\nMatrix 2:\n");
printMatrix(matrix2, 3, 3);

printf("\nResult:\n");
printMatrix(result, 3, 3);

return 0;
}

```

RESULT:

```

..[cyclops cyclops] - [~/Desktop/PSIPL Semester 1/Experiment 9] - [Sun Nov 26, 10:46]
..[$] <(> gcc matrix\ addition\ \ .c
..[cyclops cyclops] - [~/Desktop/PSIPL Semester 1/Experiment 9] - [Sun Nov 26, 10:46]
..[$] <(> ./a.out
Matrix 1:
1 2 3
4 5 6
7 8 9

Matrix 2:
9 8 7
6 5 4
3 2 1

Result:
10 10 10
10 10 10
10 10 10
..[cyclops cyclops] - [~/Desktop/PSIPL Semester 1/Experiment 9] - [Sun Nov 26, 10:46]
..[$] <(> |

```

CONCLUSION:

I have understood what double pointers are, how to use them, and how to solve array based questions with pointers.