C PROGRAMMING
Lab 5

1st semester 2023-2024

Introduction

A pointer in C is a variable that stores the memory address of another variable or data element. Pointers provide a way to work directly with memory locations, allowing you to access and manipulate data efficiently

Declaring Pointers:

To declare a pointer, you use the * symbol followed by the data type.
For example, int *ptr; declares a pointer to an integer.

Assigning Pointers:

You can assign a pointer the memory address of a variable using the address-of operator &.
For example, int x = 42; int *ptr = &x; assigns the address of the integer variable x to the pointer ptr

Introduction

```
#include <stdio.h>
#include <stdlib.h>
int main() {
  int vec[3];
  vec[0] = 1;
  vec[1] = 2;
  vec[2] = 3;
  printf("vec[2]=%d\n", vec[2]);
          //  same as
          // printf("vec[2]=%d\n", *(vec+2));
  return 0;
}
```

Assignments

Solve the following problems in 2 ways:
- first, without pointers
- second, with pointers (pointer arithmetics instead of array[i]), but using your own user defined functions:

1. Write a program that reads 2 arrays and merges the two arrays into third array. Before merging, sort the 2 arrays in ascending order.

2. Write a program that reads a 2D array and prints transpose of the array.

3. Write a program that reverses a string (array of char) entered by the user.