First code:

**1.Write a C program to reverse a given string without using any additional library functions.**

#include <stdio.h>

void reverseString(char\* str) {

int start = 0;

int end = 0;

while (str[end] != '\0') {

end++;

}

end--;

while (start < end) {

char temp = str[start];

str[start] = str[end];

str[end] = temp;

start++;

end--;

}

}

int main() {

char str[100];

printf("Enter a string: ");

scanf("%s", str);

reverseString(str);

printf("Reversed string: %s\n", str);

return 0;

}

5. **Explain the concept of pointers in C and write a program to swap the values of two variables using pointers**

#include <stdio.h>

void swap(int \*x, int \*y) {

int temp = \*x;

\*x = \*y;

\*y = temp;

}

int main() {

int a, b;

printf("Enter the value of a: ");

scanf("%d", &a);

printf("Enter the value of b: ");

scanf("%d", &b);

printf("Before swapping: a = %d, b = %d\n", a, b);

swap(&a, &b);

printf("After swapping: a = %d, b = %d\n", a, b);

return 0;

}

3. **Explain the concept of structures in C and write a program to store student information (name, roll number, marks) using a structure.**

#include <stdio.h>

// Define a structure to store student information

struct Student {

char name[50];

int roll\_number;

float marks;

};

int main() {

struct Student student1;

// here we input the details ………..

printf("Enter student's name: ");

//here we read a string input (including spaces) and store it in student1.name……….

fgets(student1.name, sizeof(student1.name), stdin);

printf("Enter student's roll number: ");

scanf("%d", &student1.roll\_number);

printf("Enter student's marks: ");

scanf("%f", &student1.marks);

// Output student details…………

printf("\nStudent Information:\n");

printf("Name: %s", student1.name);

printf("Roll Number: %d\n", student1.roll\_number);

printf("Marks: %.2f\n", student1.marks);

return 0;

}

**Implement a function in C that takes an integer array and its size as arguments and sorts the elements of the array in ascending order using a selection sort algorithm.**

#include <stdio.h>

//Doing Function to perform selection sort on an array

void selectionSort(int arr[], int size) {

int i, j, minIndex, temp;

// Loop over each element in the array

for (i = 0; i < size - 1; i++) {

// Assume the current element is the minimum

minIndex = i;

// TO Find the minimum element in the unsorted part of the array

for (j = i + 1; j < size; j++) {

if (arr[j] < arr[minIndex]) {

minIndex = j;

}

}

// HERE Swap the found minimum element with the current element

if (minIndex != i) {

temp = arr[minIndex];

arr[minIndex] = arr[i];

arr[i] = temp;

}

}

}

// Function to print an array

void printArray(int arr[], int size) {

int i;

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

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

}

printf("\n");

}

int main() {

int arr[] = {64, 25, 12, 22, 11};

int size = sizeof(arr) / sizeof(arr[0]);

printf("Original array: ");

printArray(arr, size);

// Sort the array

selectionSort(arr, size);

printf("Sorted array: ");

printArray(arr, size);

return 0;

}