1)

char \* longestCommonPrefix(char \*\* strs, int strsSize){

if (strsSize == 0) {

return "";

}

// set the first string in the array as the initial prefix

char \*prefix = strs[0];

// iterate over the rest of the strings in the array

for (int i = 1; i < strsSize; i++) {

char \*str = strs[i];

int j = 0;

// find the longest common prefix between the current prefix and the current string

while (prefix[j] != '\0' && str[j] != '\0' && prefix[j] == str[j]) {

j++;

}

// update the prefix to the longest common prefix

prefix[j] = '\0';

}

return prefix;

}

2)

#include <stdio.h>

int binarySearch(int arr[], int l, int r, int x) {

while (l <= r) {

int mid = l + (r - l) / 2;

if (arr[mid] == x)

return mid;

if (arr[mid] < x)

l = mid + 1;

else

r = mid - 1;

}

return -1;

}

int main() {

int arr[] = { 2, 3, 4, 10, 40 };

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

int x = 10;

int result = binarySearch(arr, 0, n - 1, x);

(result == -1)

? printf("Element is not present in array")

: printf("Element is present at index %d", result);

return 0;

}

3)

#include <stdio.h>

void main() {

int n,arr[20],i,k ,j,temp;

printf("Enter number of elements of the array :");

scanf("%d",&n);

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

printf("Enter an element of the array:");

scanf("%d",&arr[i]);

}

for (i = 0; i < n - 1; i++) ;

{

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

if (arr[j] > arr[j + 1]);

{

temp = arr[j];

arr[j] = arr[j + 1];

arr[j + 1] = temp;

}

}

}

printf("Array after implementing Bubble sort: ");

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

{

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

}

}

4)

#include <stdio.h>

int multiply(int number1, int number2); // function prototype for multiply function

int addition(int number1, int number2); // function prototype for addition function

int main() {

int number1; // first number

int number2; // second number

int result\_multiply;

int result\_addition;

printf("Please enter first number: ");

scanf("%d", &number1);

printf("Please enter second number: ");

scanf("%d", &number2);

result\_multiply = multiply(number1, number2);

printf("Multiplication of the two numbers is %d\n", result\_multiply);

result\_addition = addition(number1, number2);

printf("Addition of the two numbers is %d\n", result\_addition);

return 0;

}

int multiply(int number1, int number2) {

return number1 \* number2;

}

int addition(int number1, int number2) {

return number1 + number2;

}

5)

#include <stdio.h>

int main() {

int arr[] = {1, 9, 2, 7, 6, 3, 5, 10, 4, 8};

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

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

while(arr[i] != i+1) {

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

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

arr[i] = temp;

}

}

printf("Rearranged array: ");

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

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

}

return 0;

}