23.05.2023

Introduction To Computer Programming
Laboratory 10

Labwork - 1

1. Declare a 10 element array and initialize the elements with random values. Display the array. Use pointer for all operations. Write C code.

2. Define a function to compute results of division. Remember that division has two results; quotient and remainder, return them both. Write C code by using function prototype given below.

```
void division(int dividend, int divisor, int*quotient, int*remainder);
```

3. A computer program receives a word from user, removes vowels except the first one, and saves in another string. Saved string is displayed. Write C code using pointers.

Labwork - 2

1. Write a program in C to print all the alphabets using pointer.

2. Write a program in C to sort 10 numbers that user will enter from lowest to highest. Save numbers in an array and use pointers to sort.

3. Write a program in C to print a string in reverse using a pointer.

4. Write a program in C to find the factorial of a given number using pointers.

5. A computer program receives a, b, and c coefficients of a second order polynomial, ax2+bx+c, from user. A function is called to compute roots of the polynomial. Write C code by using function prototype given below.

```
void roots(double a, double b, double c, double*x1r, double*x1i,
double*x2r, double*x2i);
```

Note: x1r is the real part of the first root and x1i is the imaginary part.

Formulas: $\Delta = b^2 - 4 \cdot a \cdot c \; x_{1,2} = \frac{-b}{2 \cdot a} \mp \frac{\sqrt{\Delta}}{2 \cdot a}$

Hint: You may want to store real part and imaginary part of a root in different variables, even if value is equal to zero.