

Laboratory 02 – 13.10.2020

1) **5pkt.** Write a C program to convert specified days into years, weeks and days.
Note: Ignore leap year.

- Declare a variable that holds the number of days. Initialize it with 1329.
- Declare a variable that holds the number of years. Assign this variable the value of an expression that calculates a number of years based on the number of days.
- Declare a variable that holds the number of weeks. Assign this variable the value of an expression that calculates the number of weeks based on the number of days.
- Calculate the number of days.
- List the number of years, weeks and days.

Test Data : Number of days : 1329

Expected Output : Years: 3, Weeks: 33, Days: 3

2) **5pkt.** Write a C program to calculate the distance between the two points.

Distance Formula: Given the two points (x_1, y_1) and (x_2, y_2) , the distance d between these points is given by the formula:

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

- Declare 4 variables of the appropriate type and then assign them values: $x_1 = 25$, $y_1 = 15$, $x_2 = 35$, $y_2 = 10$.
- Declare the variable d and assign it a distance value using the formula above.
- To calculate the square root, call `sqrt()` from `math.h`.
- Print the result on the screen by calling `printf()` from `stdio.h`

Test Data :

Input: $x_1=25$, $y_1=15$, $x_2=35$, $y_2=10$

Expected Output: Distance between the said points: 11.180340

3) **5pkt.** Write a C program that swaps two numbers using third variable.

- Declare two integers x and y and assign them the values 5 and 7, respectively.
- Print the values of x and y to the screen.
- Declare an additional variable t .
- Make three assignments using an additional variable t , so that x and y exchange values.
- Print the values of x and y after the swap.

Test Data :

Before swapping the value of $x:5$, $y: 7$

After swapping the value of $x:7$ $y: 5$

4) **5pkt.** Write a C program that swaps two numbers **without** using third variable.

- Declare two integers x and y and assign them the values 5 and 7, respectively.
- Print the values of x and y to the screen.
- Three assignments are required to swap the values of the variables x and y .
The values of variables can be swapped with one addition and two subtractions.
- Print the values of the variables x and y after the swap..

Test Data :

Before swapping the value of x:5 y: 7

After swapping the value of x: 7 y: 5