Homework 36

Course «C Programming Language»

Topic: Introduction to the programming language "C"

Homework

Exercise 1.
Display one couplet of your favorite song or one fragment of your favorite verse, indicating the author or artist. Use the escape-sequences for formatting.

Exercise 2.
Display the verse «Every hunter wants ...» so that each "color" will start from a new string and corresponding number of tabs.

Exercise 3.
Write an advertisement for a sale of something and output it to the screen in that form which would have to be.

For example:

Sell puppies.

Breed: Rottweiler.

……

Tel.: 222-22-22

222 | 222 |

22 | 22 |

22 | 22 |

and so on.

Exercise 4.
Three resistances R1, R2, R3 are given. Calculate the value of the resistance R0 according to the formula: 1 / R0 = 1 / R1 + 1 / R2 + 1 / R3.

Test example: R1=2, R2=4, R3=8 R0 = 1.142857

Exercise 5.
Given the length of a circle, calculate the area of a circle using a formula S = pi * R2, calculate the radius from the formula of a length of a circle: L = 2 * pi * R

Note: pi = 3.14

Exercise 6.
Calculate the traveled distance for the rectilinear uniformly accelerated motion using a formula S = v * t + (a * t2) / 2, where v - speed, t - time, and a - acceleration.

Exercise 7.
The user enters from the keyboard a distance to the airport and the time which he needs to get to the airport. Calculate at what speed he needs to go.

Exercise 8.
The user enters from the keyboard a time of the commencement and completion of the call (hours, minutes and seconds). Calculate a cost of calls, if the cost of one minute is 30 cents.

Exercise 9.
The user enters from the keyboard a distance, gasoline consumption per 100 km and a cost of three kinds of gasoline. Display a comparative table with a cost of travel using different types of gasoline.

Homework 36

Course «C Programming Language»

Topic: Branching Statements and Logical Operators

Homework

Exercise 1.
The user enters from the keyboard a six-digit integer. Write a program that determines whether the entered number is a lucky number (the lucky number is a six-digit number, in which the sum of the first three numbers equals to the sum of other three numbers). If the user entered not a six-digit integer, an error message is output.

Exercise 2.
The user enters a four-digit number. It is necessary to change 1 and 2, 3 and 4 digits of this number. If the user enters not a four-digit number, an error message is output.

Exercise 3.
The user enters from the keyboard 7 integers. Write a program that determines a maximum integer among these 7 integers (The hint is that the solution must be simple)**.**

Exercise 4.
The cargo aircraft should fly with a cargo from point A to point C through point B. The fuel tank capacity of the cargo aircraft is 300 liters. The fuel consumption per 1 km, depending on the weight of cargo of the aircraft, is following:

- up to 500 kg: 1 liter / km;
- up to 1000 kg: 4 liters / km;
- up to 1500 kg: 7 liters / km;
- up to 2000 kg: 9 liters / km;
- more than 2,000 kg - the plane does not lift.

The user inputs a distance between points A and B, B and C, and the weight of cargo. The program must calculate what minimum amount of fuel is necessary for refueling the aircraft in point B, in order to fly from point A to point C. If you can't overcome any of given distances - the program should display a message about the impossibility to fly according to the entered route.

Exercise 5.
The user enters two dates (day, month and year as integers). It is necessary to determine and display a number of days between these two dates. The calculations must take into account leap years, as well as a correct number of days in months (March - 31 September - 30, February of the non-leap year - 28, etc.).

Exercise 6.
Manager's salary is $ 200 + a percentage of sales, the selling up to $ 500 - 3 %, from 500 to 1000 - 5 %, over 1000 - 8 %. The user enters from the keyboard a level of sales for three managers. Determine their salaries, determine who is the best manager, overcharging him a bonus of $ 200 output the results to the screen.