Homework: Formatted Input / Output

This document defines the homework assignments from the "C Programming" Course @ Software University. Please submit as homework a single **zip** / **rar** / **7z** archive holding the solutions (source code) of all below described problems.

Problem 1. Sum of 3 Numbers

Write a program that reads **3 real numbers** from the console and prints their **sum**. Examples:

a	b	c	sum
3	4	11	18.00
-2	0	3	1.00
5.5	4.5	20.1	30.10

Problem 2. Print Company Information

A company has **name, address, phone number, fax number, web site and manager**. The manager has **first name, last name, age and a phone number**. Write a program that reads the information about a company and its manager and prints it back on the console.

program	user
Company name:	Software University
Company address:	15-18 Tintyava, Sofia
Phone number:	+359 899 55 55 92
Fax number:	
Web site:	http://softuni.bg
Manager first name:	Svetlin
Manager last name:	Nakov
Manager age:	25
Manager phone:	+359 2 981 981
Software University Address: 26 V. Kanchev, Sofia Tel. +359 899 55 55 92 Fax: (no fax) Web site: http://softuni.bg Manager: Svetlin Nakov (age: 25, tel. +359 2 981 981)	

Problem 3. Circle Perimeter and Area

Write a program that reads the radius **r** of a circle and prints its perimeter and area formatted with 2 digits after the decimal point. Examples:

r	perimeter	area
2	12.57	12.57

3.5	21.99	38.48

Problem 4. Formatting Numbers

Write a program that reads 3 numbers: an integer **a** (0 ≤ **a** ≤ 500), a floating-point **b** and a floating-point **c** and **prints them in 4 virtual columns** on the console. Each column should have a width of 10 characters. The number **a** should be printed in **hexadecimal, left aligned**; then the number **a** should be printed in binary form, padded with zeroes, then the number **b** should be **printed with 2 digits after the decimal point, right aligned**; the number **c** should be **printed with 3 digits after the decimal point, left aligned**. Examples:

a	b	c	result
254	11.6	0.5	|FE |0011111110| 11.6|0.500 |
499	-0.5559	10000	|1F3 |0111110011| -0.56|10000.000 |
0	3	-0.1234	|0 |0000000000| 3|-0.123 |

Problem 5. * Sum of 5 Numbers

Write a program that **enters 5 numbers** (given in a single line, separated by a space), **calculates and prints their sum**. Examples:

numbers	sum
1 2 3 4 5	15.00

numbers	sum
10 10 10 10 10	50.00

numbers	sum
1.5 3.14 8.2 -1 0	11.84

Problem 6. * Numbers from 1 to n

Write a program that reads an integer number **n** from the console and prints all the numbers in the interval [**1**..**n**], each on a single line. Note that you may need to use a **for**-loop. Examples:

numbers	sum
3	1 2 3

numbers	sum
5	1 2 3 4 5

numbers	sum
1	1

Problem 7. * Sum of n Numbers

Write a program that enters a number **n** and after that enters more **n** numbers and calculates and prints their sum. Note that you may need to use a **for**-loop. Examples:

numbers	sum
3 20 60 10	90.0

numbers	sum
5 2 -1 -0.5 4 2	6.5

numbers	sum
1 1	1.0

Problem 8. ** Fibonacci Numbers

Write a program that reads a number **n** and prints on the console the first **n** members of the **Fibonacci sequence** (at a single line, separated by spaces) : 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, …. Note that you may need to learn how to use loops. Examples:

n	comments
1	0
3	0 1 1
10	0 1 1 2 3 5 8 13 21 34

Problem 9. ** Numbers in Interval Dividable by Given Number

Write a program that reads two positive integer numbers and prints how many numbers **p** exist between them such that the reminder of the division by **5** is **0**. Examples:

start	end	p	comments
17	25	2	20, 25
5	30	6	5, 10, 15, 20, 25, 30
3	33	6	5, 10, 15, 20, 25, 30
3	4	0	-
99	120	5	100, 105, 110, 115, 120
107	196	18	110, 115, 120, 125, 130, 135, 140, 145, 150, 155, 160, 165, 170, 175, 180, 185, 190, 195