

Programing Languages 1

Exam 2 sample

2014. spring

*I accept the rules and regulations of the university and the class. At the beginning of the semester I was informed about the criteria to pass (provided in written form on the homepage of the class).
Without signature this exam can not be graded, and counted in to the final grade.*

signature

name

1. Write a C program that reads in 20 integer numbers from the keyboard to an array (2p). Your program has to print out the smallest even (2p) and the largest odd number (2p).

Example run:

```
Give a number please... 2
Give a number please... 1
...
Give a number please... 25
The smallest even: 2,
The largest odd: 25,
```

2. Write a C program in which you read in numbers from the file (`in.txt`) (2p). The first line of the file tells how many numbers will come (1p). Count how many values are above 30 in the file and print it to the screen (2p).

Example run:

```
(If the file in.txt contains:
5
12
37
29
30
32)
Output: 2 values are above 30
```

3. Write a C program that reads in two numbers fro the keyboard (e.g. a and b) and then it prints out a+b, a-b, a*b and a/b (2p). In your program you **must** implement and use the following function (4p):

```
void calculate(int a, int b, int *sum, int *diff, int *mul, int *div);
```

Where a and b are the operands, and sum, diff, mul and div have the addresses of variables. The function must not print out anything to the screen.

Example run:

```
a: 5
b: 4
a+b: 9
a-b: 1
a*b: 20
a/b: 1
```

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4. Create a C program, in which you define a structure to hold information about a book (2p). A book has the following properties: title, author, number of pages and year of publishing. In your program read in data for two books to two struct type variables (2p) and after this print out the data of that book that was published earlier (2p). (In the title and the name fields use _ instead of spaces.) Use the format shown below when you print back the data. (1p)

Example run:

```
Book1 author: Jane_Austen
Book1 title: Pride_and_prejudice
Book1 year: 1813
Book1 pages: 254
Book2 author: Lev_Tolstoy
Book2 title: The_death_of_Ivan_Ilyich
Book2 year: 1886
Book2 pages: 513
```

```
Earlier: Lev_Tolstoy - The_death_of_Ivan_Ilyich - 1886 - 513
```

5. Write a C program in which you read in English words from the keyboard (1p) and print out those words to a file (out.txt) (2p) that start with the letter 'a' (1p). Write and use a function to decide whether a word starts with the character 'a' or not (2p).

Example run:

```
Give a word please... apple
Give a word please... banana
Give a word please... pear
Give a word please... ananas
Give a word please... plum
```

(Now in the file out.txt we have:

```
apple
ananas
```

)

