

Data Field	1,2 or 4 (depending on the value of the Data Length field)	an unsigned integer value	an unsigned integer value
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Write a program that reads such a file and stores these fields in a simple linked list of appropriate data structures. The input file shall be given as the first argument. As the second argument the program shall receive the name of a text output file. The program shall compute the minimum, maximum and average integer based on the data it has read from the input file. The program shall also count the number of 1 byte, 2 byte and 4 byte integers.

The program shall write the following data in the text output file:

```

Minimum integer: <minimum integer>
Maximum integer: <maximum integer>
Average integer: <average integer>
Number of 1 byte integers: < 1 byte integer count >
Number of 2 byte integers: < 2 byte integer count >
Number of 4 byte integers: < 4 byte integer count >

```

```
Number of 1 byte integers: < 1 byte integer count >  
Number of 2 byte integers: < 2 byte integer count >  
Number of 4 byte integers: < 4 byte integer count >
```

The test file to be used shall be:

```
http://staff.cs.upl.ro/~valy/pt/frames1.bin
```

The file can be downloaded using the "wget" command (download using a standard browser is not recommended);

```
wget http://staff.cs.upl.ro/~valy/pt/frames1.bin
```

It is mandatory for the program to receive the filenames as arguments. Also it is mandatory for the program to have a certain degree of functionality in order to be graded (a program that doesn't do anything shall not be graded).

The efficiency of your program shall be greatly considered when grading.

The dimension of the input file shall be considered ~~unknown~~. The program must work in any

Question 1

Not yet
answered

Marked out of
1.00

Write a program that computes the letter frequency of a text file given as the first argument to the program. The program shall write the result in an output text given as the second argument. The letter frequency represents the percentage of appearance of each letter in a text. The letters that shall be included in the letter frequency graph shall be the uppercase letters and lowercase letter. All of other characters that are present in the text shall be included in the statistic all in the same category defined as other.

The output text file shall have the following structure: each line shall contain the letter and the percentage of appearance as following:

```
<letter> - <percentage>
```

Example:

```
a - 34.734%  
b - 2.314%
```

The percentage shall be calculated in floating point with double precision.

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```
http://staff.cs.upt.ro/~valy/pt/random_text.txt  
http://staff.cs.upt.ro/~valy/pt/random_chars.txt
```

The files can be downloaded using the "wget" command (download using a standard browser is not recommended):

```
wget http://staff.cs.upt.ro/~valy/pt/random_text.txt  
wget http://staff.cs.upt.ro/~valy/pt/random_chars.txt
```

It is mandatory for the program to receive the filenames as arguments. Also it is mandatory for the program to have a certain degree of functionality in order to be graded (a program that doesn't do anything shall not be graded).

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The files can be downloaded using the "wget" command (download using a standard browser is not recommended):

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wget http://staff.cs.upl.ro/~valy/pt/random_text.txt  
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It is mandatory for the program to receive the filenames as arguments. Also it is mandatory for the program to have a certain degree of functionality in order to be graded (a program that doesn't do anything shall not be graded).

The efficiency of your program shall be greatly considered when grading.

The dimension of the input file shall be considered unknown. The program must work in any situation regardless of the file size.

Error handling is mandatory. Your program must be as error proof as possible. (error checking suggestions: argument correctness, memory allocation, file operations - open, read, write - correctness...etc)

Maximum file size: 100MB, maximum number of files: 1

Question 1

Not yet
answered

Marked out of
1.00

Consider a binary file that has an unlimited number of frames of the following structure:

Field Name	Field size (bytes)	Field value	Field meaning
SOF (Start of frame)	1	0x01	Determines the start of a new frame
Data Length	1	0x01 - for data field length of 1 byte 0x02 - for data field length of 2 bytes 0x04 - for data field length of 4 bytes	Determines the length of the following data field

Question 1

Not yet
answered

Marked out of
1.00

Write a function to add unique floating point values in a binary search tree. Use epsilon $\epsilon = 1e-3$ for comparing the floating point values by default, if this value it is not provided as a command line argument. The accepted precision should not go below $1e-12$. Show a menu if you feel it is appropriate. Code comments are mandatory

Maximum file size: 100MB, maximum number of files: 1



Files



You can drag and drop files here to add them.

Question 1

Not yet
answered

Marked out of
1.00

Copy the contents of an arbitrary file containing at least 100 bytes in the working directory. For example the `/etc/passwd` file might have a few kilobytes available as a source. You can use the command `cp` in order to copy the file, described in the GNU/Linux man page.

Write a program to open the copied file named `filecopy.bin` in binary mode. Read the file 2 bytes at a time using appropriate unsigned integers and insert the values into an ordered circular doubly linked list. Print the list on the screen. Show a menu if you feel it is appropriate. Code comments are mandatory.

Maximum file size: 100MB, maximum number of files: 1



Files



Question 1

Not yet
answered

Marked out of
1.00

A text file contains an N by N matrix with unsigned integer values. The last line in the file contains just N , the dimension of the square matrix. The matrix element $A[i][j]$ is 0 if there is no road from node i to node j , otherwise the distance from i to j is stored as an unsigned integer. Write a program which parses the matrix from the input text file provided as a command line argument, and create a double linked circular list of lists based on the connectivity from the matrix: all nodes that have a direct road to or from i should be inserted into the circular list where node i is present. Node i becomes the head of a simple linked list containing all nodes connected to it in the matrix. Consequently, the circular list contains all the nodes in the matrix. Show a menu if you feel it is appropriate. Code comments are mandatory.

Maximum file size: 100MB, maximum number of files: 1



Files



Question 1

Not yet
answered

Marked out of
1.00

Write a program which generates an array with function pointers pointing to the following functions from `<math.h>`: `sin()`, `cos()`, `log()`, `sqrt()`. Generate a secondary array with the names of these functions and allow the user to select which function to call using a menu.

- Read a number and apply the selected function to it, then print the result on the screen.
- Write a function to compare the result of calling `sin()`, `cos()`, `log()` and `sqrt()` directly, as well as calling them via the function pointers array. If the results are ok, print "Results are ok". Be careful when comparing floating point numbers!
- Print a table containing the addresses of the original functions in one row, and the addresses of the function pointers in a second row. Use `printf`.

Maximum file size: 100MB, maximum number of files: 1



Files



Question 1

Not yet
answered

Marked out of
1.00

Determine an arrangement of N integers, so when placed in a circle, the sum of the all the multiplication of integers on consecutive positions is maximum. The value N is read from a text file called input.txt and the solutions are printed in another text file called output.txt, one solution on each line, integers separated by "-".

Ex: $N=6$ si $nr=(1,2,3,4,5,6)$ solution= $1-2-4-6-5-3$ for which the sum is $1*2+2*4+4*6+6*5+5*3+3*1=82$

Note: Commenting the code is mandatory.

Maximum file size: 100MB, maximum number of files: 1



Files



Question 1

Not yet
answered

Marked out of
1.00

Generate all injective functions $f: \{1, 2, \dots, n\} \rightarrow \{1, 2, \dots, m\}$.

One function is injective if and only if x_1 si x_2 are two random elements from the function domain with the property that if $f(x_1) = f(x_2)$, then ca $x_1 = x_2$.

The values n and m are read from a text file called input.txt, each values are situated on a separate line.

Example for $n = 2$, and $m = 3$

$f(1)=1$

$f(2)=2$

$f(1)=1$

$f(2)=3$

$f(1)=2$

Question 1

Not yet
answered

Marked out of
1.00

Let there be a set of n different valued coins. Print all the possibilities in which one may pay a sum S using those coins.

The input values are read from a text file called `input.txt` with the following structure: on the first line there is one integer representing the value S , on the next line the values of the coins, separated by spaces.

Example for `input.txt`:

5

4 1 3 2 1

Note: Commenting the code is mandatory.

Maximum file size: 100MB, maximum number of files: 1

Question 1

Not yet
answered

Marked out of
1.00

Generate all 10 digit telephone numbers which start with 0721 prefix and have 3 distinct even digits. The solutions are printed in a file called output.txt, one solution per line, with the format: prefix, followed by space, followed by the other digits, followed by ",".

Ex:

0721 468193,

0721 864179,

Note: Commenting the code is mandatory.

Maximum file size: 100MB, maximum number of files: 1



Files



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Write a program that reads such a file and stores these fields in a simple linked list of appropriate data structures. The input file shall be given as the first argument. As the second argument the program shall receive the name of a text output file. The program shall compute