

## Assignment 5

### Computer Science Tutor

#### FASTA -ZIP

Given a DNA sequence stored in a FASTA-file. Write a program that reads the FASTA file, compresses it and saves the compressed file. Your program should also be capable of reading the compressed file and restore it to the original FASTA file.

Write a program called **<faz.exe>** that has the following functionality if issued at the command prompt:

**<faz.exe> <filename>.fa**

- ◆ Reads the FASTA file with <filename>.fa and stores it as a compressed file with filename <filename>.faz
- ◆ The size of <filename>.faz should be strictly less than the size of <filename>.fa

**<faz.exe> <filename>.faz**

- ◆ Reads the compressed FASTA file with <filename>.faz and restores it as the original uncompressed file with filename <filename>.fa

NB Your program should work on the uncompressed given example fasta file that contains the sequence of the 1<sup>st</sup> human chromosome (size ~241 MByte). You will receive a grade 10 for this assignment, if the total size of your faz file of this chromosome plus the size of your program (including dll's, and any further files necessary to execute it) is less than the size of the given .gz file.

#### OpenGL and Glut

In the given glut.zip file you will find 3 example computer graphics programs that use OpenGL and Glut.

1. Unzip the file, and build and run the examples <bounce> and <particle>.
2. Study and try to understand the event-driven structure of the program by browsing through the codes.
3. <right>-click on the solution name of one of the examples and select <Properties>. In the <Property Pages> select <Configuration Properties><C/C++>. Now note the <Additional Include Directories>: '.\GL\glu' has been added to the default paths to include directories in order to be able to locate the header file <glut.h>.
4. Similarly, select <Configuration Properties><Linker> and note the paths for the <Additional Library Directories>. This is to enable the linker to link to the glut libraries.
5. Compile and build the <newave> program using MS Visual Studio 2010. Clean the solution before zipping and submitting the directory.