

You must answer the following two questions to the best of your ability.

If you are not sure of the answer to a question, try to answer it anyways. It is still better to answer something (and show you tried) than nothing.

If something seems unclear or ambiguous, make some reasonable assumptions and state them in your answer.

Feel free to use any documentation you want.

Question 1:

Your task will be to parse a "Sensequake .bin" data file. "Sensequake .bin" data files have the following format:

- The file starts with a text (ASCII) header followed by binary data.
- The text header is separated from the data by two newlines (more precisely: "\r\n\r\n").
- The text header contains multiple lines, the last of which (before the "\r\n\r\n") contains a list of axes separated by spaces (e.g. " Vx Vy Ax Az " means that there are 4 axes: Vx, Vy, Ax and Az).
- The data is packed binary containing multiple "frames". Each "frame" contains as many "samples" as there are axes in the aforementioned list. There is no separation (like spaces) between frames or samples.
- Each "sample" is made of 3 bytes. To decode it, you must treat these 3 bytes as the 3 most significant bytes of a 4 bytes little-endian signed integer where the least significant byte is set to 0.

In file "quesion1.cpp", implement a function which reads a "Sensequake .bin" file, prints its header, and then prints the decoded data as text with a space between samples and a newline between frames.

The code should be written in C++20 (or an earlier C/C++ standard) and, when compiled, should run on a PC. The only library you can use is the C++ (or C) standard library.

A "Setup7_sensor3.bin" file is provided as an example of a "Sensequake .bin" file for testing.