How to use the program GENERATION v 1.0

(first module of QextNewEdition)

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1. About Generation:

This program is designed to classify linear codes over small finite fields. The use does not require special programming language skills.

2. Installation:

No installation required. You only need to create a directory with a name you choose and download a version of the program that corresponds to the operating system you are using - Linux or Windows.

3. Starting:

3.1) For Windows - Run the program like any other executable program.

3.2) For Linux - The program is a console application and therefore should be started with the following commands:

./generation

or

chmod +x generation //after that

./generation

!!!Important!!! To run properly, you need to run a single copy in a directory!

4. User interface:

Six different options can be selected after starting:

1. Start
2. Change input parameters
3. Restriction on weights
4. Restriction on proportional coordinates
5. Dual distance
6. Brute generation

5. Some explanation

If you choose 1 directly the program generates the extended Golay [24,12,8] code and writes the result in a file named '24_12_8.2' (a generator matrix) and the generator matrices of all considered codes during the generation process in '24_12_8.2h' The program generates one more file named '24_12_8.2inf' with information about the lengths, dimensions and number of codes obtained during the generation process (this information is about the codes generated by the matrices from the file '24_12_8.2h').

If you choose 5 the program generates all [24,k,8] codes as the lowest value for k must be given. The results are written in a file named '24_12_8.2b'. The generator matrices of all considered codes during the generation process in '24_12_8.2bh' The program generates one more file named '24_12_8.2binf' with information about the lengths, dimensions and number of codes obtained during the generation process.

If you want to change the parameters of the considered codes, you should choose 2. There is a possibility to fix self-orthogonality and/or divisibility of the codes. To give additional restrictions on the weights, choose item 3. Item 4 is for restrictions of the number of proportional columns in a generator matrix. If you are looking for codes with dual distance at least 3, there are no proportional columns for dimension k and at most q proportional columns for length k-1.

For more details and information on the form of the results and the intermediate inscriptions, see the previous version of Q-Extension.

If you have any questions or comments, please do not hesitate to email me at iliyab@math.bas.bg

6. Results and Download:
http://www.moi.math.bas.bg/moiuser/~data/Software/QextNewEdition.html