Background:

Read the article "Fault Tolerance by Design Diversity: Concepts and Experiments" by A. Avizienis & J. P. J. Kelly.

Task description:

Write an example program that has three methods. The main program calls these methods. Each method must contain a fault, which will be intentionally introduced in the program code. The main program will be partially fault-tolerant.

One of the methods introduces a fault that remains invisible (latent) to the main program. Fault in the second method shall manifest as an error, but will be detected by the main program and handled (tolerated) by method invocation. The third fault should be left unhandled by the main program and propagate as a failure to the user.

Requirements:

In the program, each fault must be carefully documented, as well as the execution sequence that causes the faults to propagate as errors or failures.

The purpose of the exercise is to show that you have understood the threefold model of malfunctions presented in the article.

The program code must run on the Department's workstations. Please do NOT use the shell servers (e.g. melkki, melkinkari,melkinpaasi, or alkokrunni) for programming this task.

Write a document that describes what your program tries to achieve.