During the project several problems arose that needed solving. This chapter will highlight some of those problems and their solutions. The problems that will be discussed in this chapter will be the avatar, file uploading to the database, displaying graphs, testing the gui and using the tools visual studio and github. These problems will be discussed chronological.

One of the main goals of the project was to use an avatar to stimulate a patient with his/her therapy. There was no need to program this avatar, because an implemented avatar was already given. But this caused other problems because the given implementation reduced the flexibility to use the avatar.

The first problem with the avatar was to get it displayed inside one of the program’s windows. To achieve this, the process of the avatar must be started separately and the process and window handle must be retrieved. The problem that arose was that rescaling of the avatar didn’t always succeed, neither did linking the avatar window to a window of the program.   
The solution that has been found to this problem is not a neat solution. For example, timers are used to time the correct moment for rescaling the avatar because no clear point can be determined to do this. This causes of course that slower computers do not display the avatar correctly.  
Another difficulty was that you don’t want the avatar process to close when the avatar is not displayed anymore, because loading of the avatar takes a long time. The window of the avatar needs to be hidden and displayed again when the avatar is needed again.  
The solution has been refactored several times to increase the efficiency of the use of code because multiple GUI elements use the avatar. Still a problem is that the implementation is rather specifically based on the avatar process that is used and cannot be changed easily.

The second problem with the avatar was and still partly is, to let the avatar show emotion and to let him talk. One of the problems is the robustness of the avatar itself and it still is. Quite randomly the avatar does or does not respond to the commands. Sometimes the avatar stops responding and it is not able to respond to multiple consecutive calls. Another problem is that the first time a command is given, it takes the avatar a long time to react, varying from 4 to 20 seconds. No solution for these problems has been found yet.