Structured peer-to-peer flooding network

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Exercise 2.4

Testing

To implement and test the solution, the incremental software development process was applied using the spiral approach, sketched below:

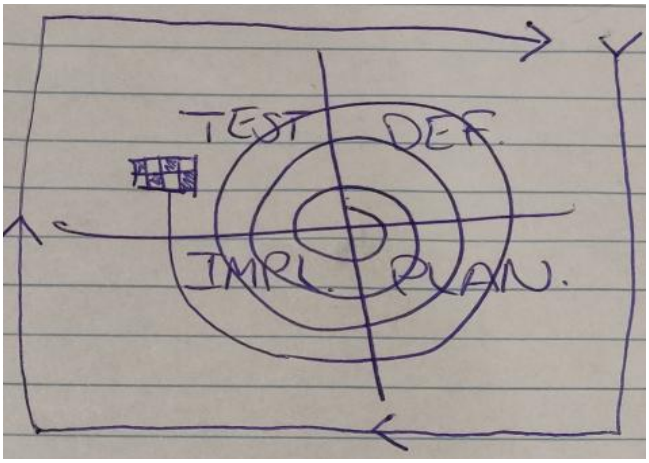

Figure 1: Development process

First, the requirements specification was analyzed thoroughly and the overall system was defined. Second, an overall plan was outlined of how to structure and implement the requirements specified in testable modules.
Having made the plan, the process began as the group, first, defined the first module to implement. Second, planned how to implement it. Third, implemented it, and, fourth, tested it. To test a module its functionality was simply evaluated against the requirement it was sought to implement. Thus, if the module implemented the requirements defined, the module was considered successful.
Once a module was implemented, the next iteration began of 1) define module, 2) plan implementation, 3) implement and 4) test. This was iterated until product of this project was realized, which can be found in the folder associated with this .pdf.

Eventual consistency

The system has eventual consistency due to how the broadcast mechanism implemented in the server of each peer works. If the server receives a message that it has not seen before, it 1) broadcasts the message to its connected peers and 2) unicasts the message to the peer the client of the peer in question is connected to. This ensures that, eventually, all peers will receive have seen all messages, **assuming** that all peers are connected to the network at the point in time where the message is sent.