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Question 1:

1.a :

1.b :

First initialize the listening descriptor listenfd

The unconnected socket will convert to passive socket

`FD_SET(listenfd, &readfds);`

Then it will accept the connection request to the socket and set the maximum size of the connection all

`maxfd = add_client_sockets_to_readfds(&readfds);`

if the file descriptor of the accepted connection more than max file set by system it will return error.

`if(-1 == ret) handle_select_error();`

In the function `if(FD_ISSET(listenfd, &readfds))`

There are two system functions that cause the blocking

`Accept()` and `recv()`

The connection to be accepted causes blocking in the function.

Otherwise an error will occur on the connection.

The `recv()` causes blocking if there is no data in the buffer to be read and no blocking flag is set.

The call will close until there is a new available request needed to be listened and read.

If there is no data in the buffer to read and blocking flag is not set, the call will return an error and the error will set to be accepted.

1.c.i : Mutex is causing locking for some part of the code which makes one processor to work on part of the code. MUTEX functionality to add diagnostic capability to API, it can work within the same thread's process but not in threads shared by many processes.

1.c.ii : Yes, we can use `Time_wait` that allows for old duplication to expire from the network. We can set `tim_wat` for segment life time before close or end the connection or to consider it lost.

1.c.iii : No, because number of connected clients is bounded

1.c.iv : Yes, by locking up the ending of the address like `.chalmers.se`