server

CLOSED → create socket → ACCEPTING

ACCEPTING → wait SYN (self-loop)

receive ACK (CLOSED ← CLOSING)

ACCEPTING → receive SYN / send SYN and ACK → SYN RECEIVED

ACK timeout / resend FIN ACK (CLOSING self-loop)

ACK timeout / resend SYN ACK (SYN RECEIVED self-loop)

SYN RECEIVED → receive ACK → ESTABLISHED

receive FIN / send FIN and ACK (ESTABLISHED → CLOSING)

client

receive FIN and ACK / send ACK (FIN SENT → CLOSED)

CLOSED → create connection / send SYN → SYN SENT

FIN ACK timeout / resend FIN (FIN SENT self-loop)

SYN ACK timeout / resend SYN (SYN SENT self-loop)

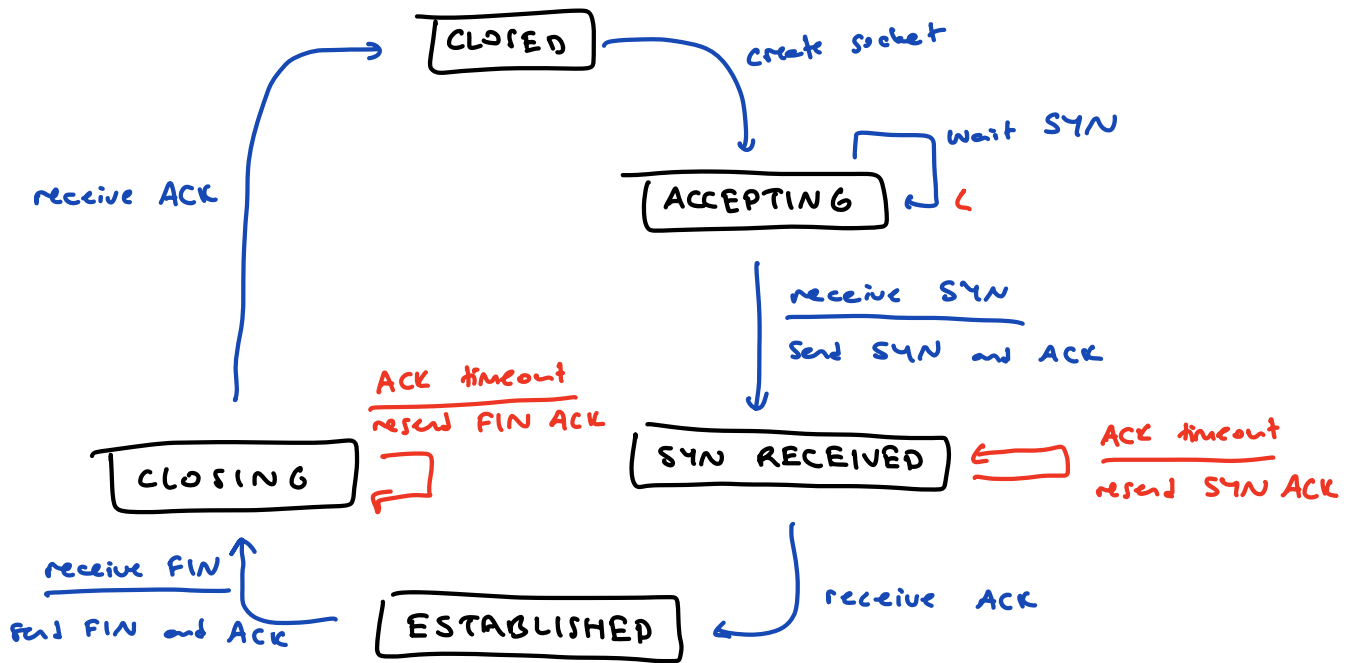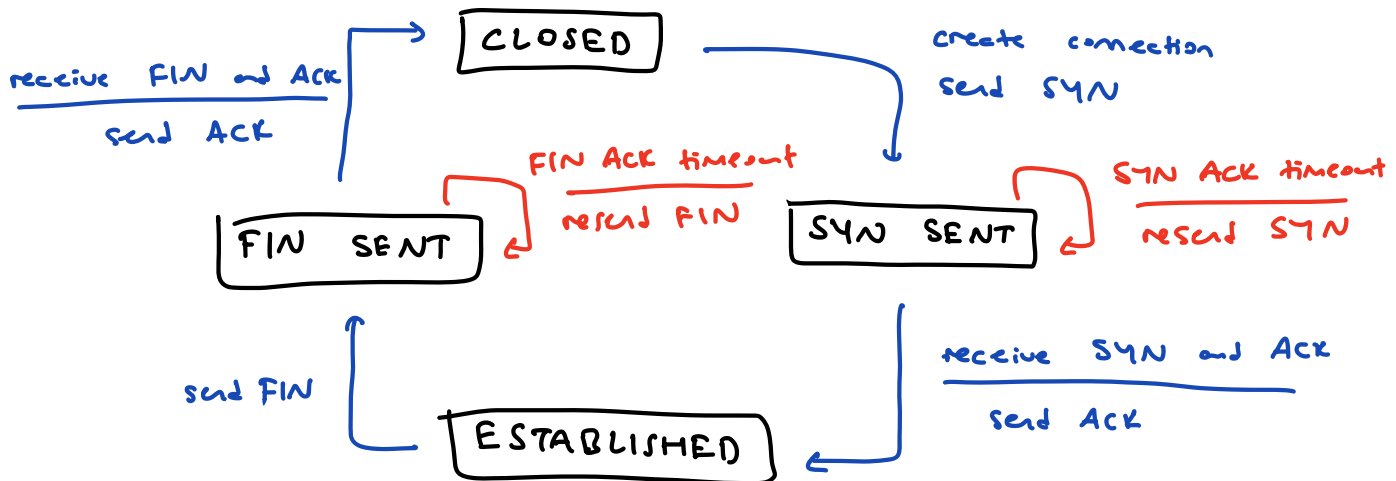receive SYN and ACK / send ACK (SYN SENT → ESTABLISHED)

send FIN (ESTABLISHED → FIN SENT)

SYN / ACK / FIN timeouts are for any type of error causing the segment to not arrive to the client correctly.

merged

CLOSED

server creates
listening socket

client creates connection
and sends SYN

SYN ACK timeout
resend SYN

ACCEPTING

SYN-SENT

server recv SYN
server send SYN ACK

ACK timeout
resend SYN ACK

client recv SYN ACK
client send ACK

SYN_RECEIVED

server recv ACK

ESTABLISHED

server recv FIN
server send FIN ACK

ACK timeout
resend FIN ACK

FIN ACK timeout
resend FIN

client send FIN

CLOSING

FIN_SENT

server recv ACK

client recv FIN ACK
send ACK

CLOSED