TCP/IP & THREADS

Network communication protocol

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Abstraction of one endpoint of a comm. channel

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- sendall(data) send data
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- close() end the communication

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sock = socket.socket(socket.AF_INET, socket.SOCK_STREAM)
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client.close() # close connection
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Gotchas Stream based

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# Client
client.sendall("msg1\n")
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# Server
data = sock.recv(512)
# data may be b"msg1\nmsg2\nmsg3\n"
# but also b"ms", b"msg1", ...
# => you have to delimit messages by yourself
```

How to recognize disconnect

```
data = sock.recv(512)
if len(data) == 0:
    # error during transmission, disconnect
```

Operations are blocking by default

```
sock.accept()  # blocks until a client connects
sock.sendall(b"...")  # blocks until all data is sent
sock.recv(512)  # blocks until (some) data is received
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string = byte_data.decode()
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- You have to use processes to get parallelism

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    for _ in range(5):
        print("Thread {}".format(num))
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    t = threading.Thread(target=fun, args=(i, ))
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    for _ in range(5):
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import threading
threads = []
for i in range(3):
    t = threading.Thread(target=fun, args=(i, ))
    t.start()
    threads.append(t)
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        print("Thread {}".format(num))

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threads = []
for i in range(3):
    t = threading.Thread(target=fun, args=(i, ))
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for t in threads:
    t.join() # block until thread ends
```