Python Programming

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Contents

1 The Socket

- The socket represents a way to send and receive data
- Allows IPv4 and v6 addressing,
- Broadcast/Unicast

1.1 Class Types

- `SOCK_STREAM` - r/w UDP
- `SOCK_DGRAM` - "DataGram" - UDP
- `SOCK_RAW` - Lower level ICMP stuff

2 Listening to a Socket

- Specify the host and port to bind and listen two
- Accept incoming connections
- This makes a new socket for the connection (conn)

```
import socket
HOST = '' # means all interfaces
PORT = 5000 # a non-privileged port
with socket.socket(socket.AF_INET6) as s:
    s.bind((HOST, PORT))
    s.listen(1)
    conn, addr = s.accept()
    with conn:
        print('Connection from:', addr)
        while True:
            data = conn.recv(1024)
            if not data: break
            conn.sendall(data)
```

3 Writing to a Socket

- Make a socket
- Connect to host
- use sendall
- read any reply
- close socket

```
# Echo client program
import socket
HOST = '::1' # The host (this is local host)
PORT = 5000 # The same port we used
with socket.socket(socket.AF_INET, socket.SOCK_STREAM) as s:
    s.connect((HOST, PORT))
    s.sendall(b'Hello, world')
```

```
8       data = s.recv(1024)
9   print('Received: ', repr(data))
```