

Chapter 24

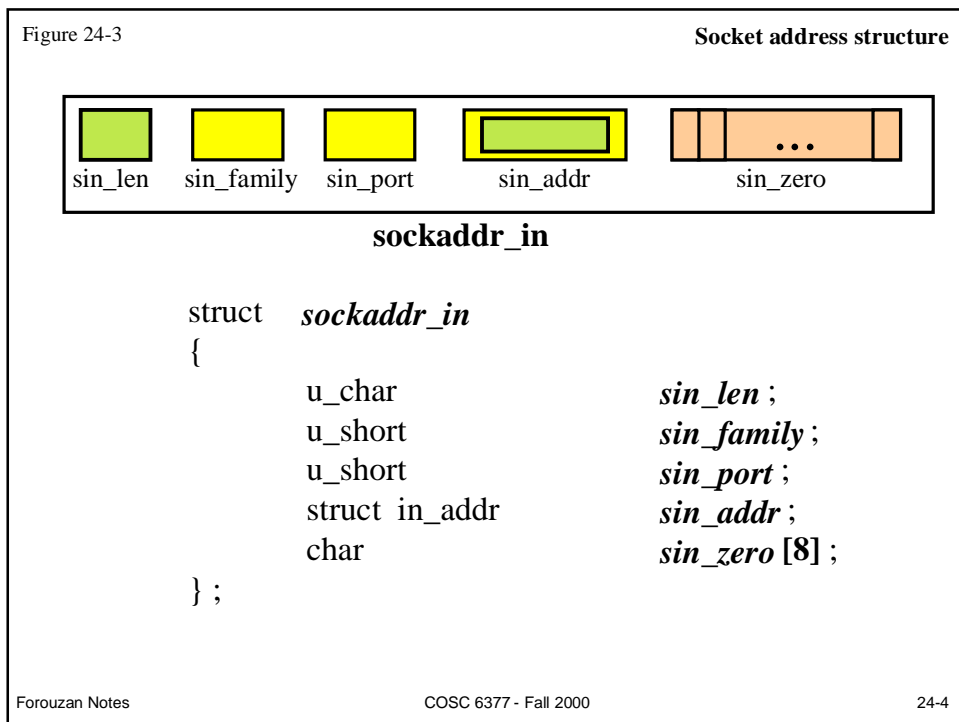
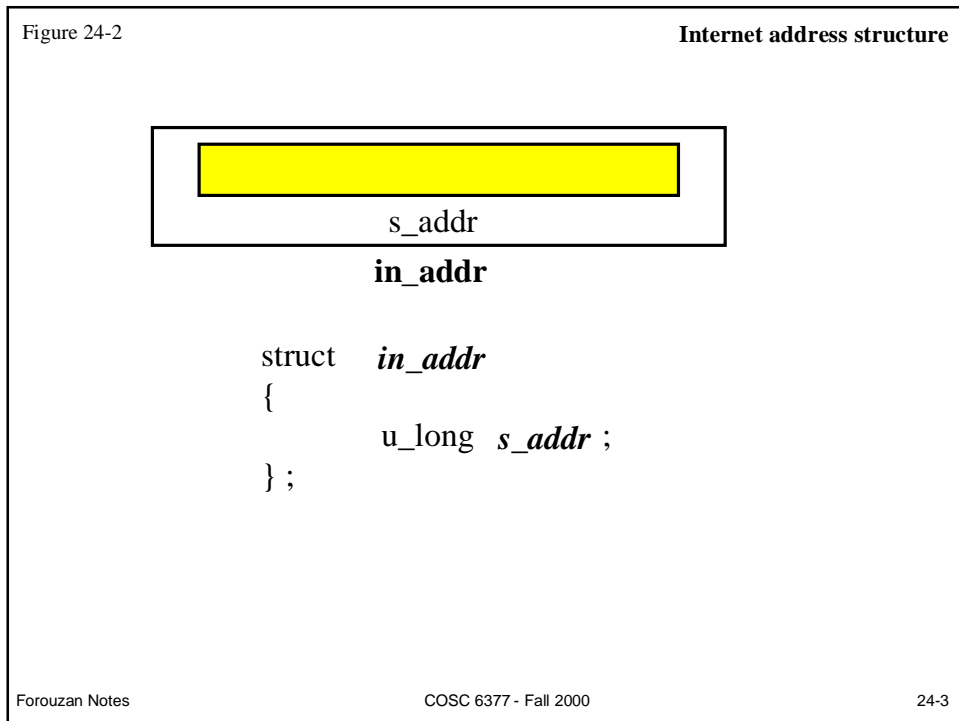
Socket Interface

- **Sockets**
- **Socket System Calls**
- **Connectionless Iterative Server**
- **UDP Client-Server Programs**
- **Connection-Oriented Concurrent Server**
- **TCP Client-Server Programs**

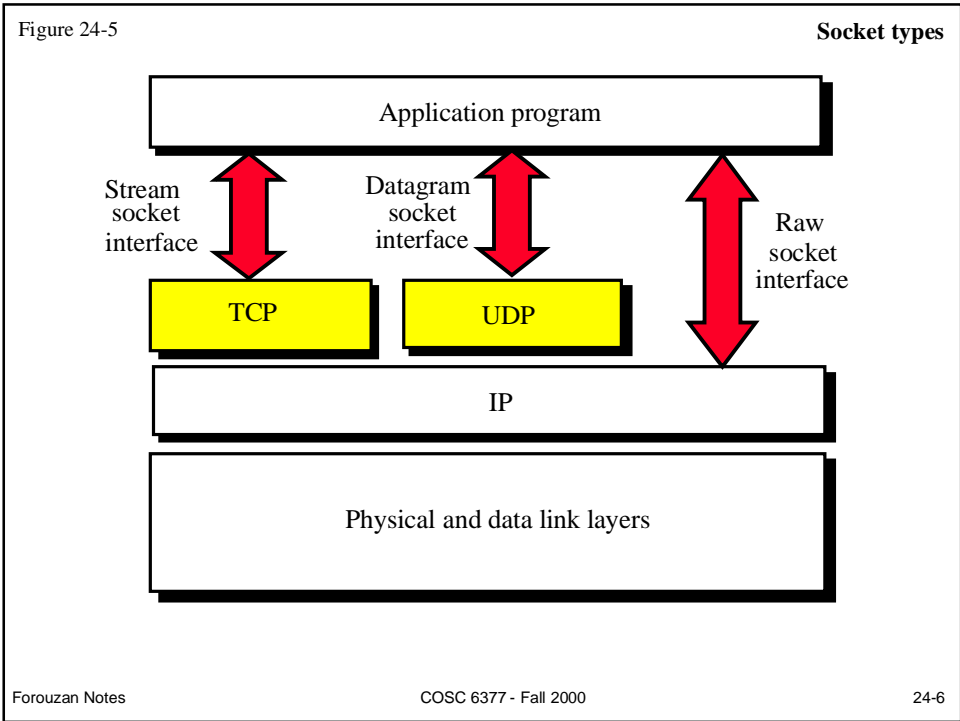
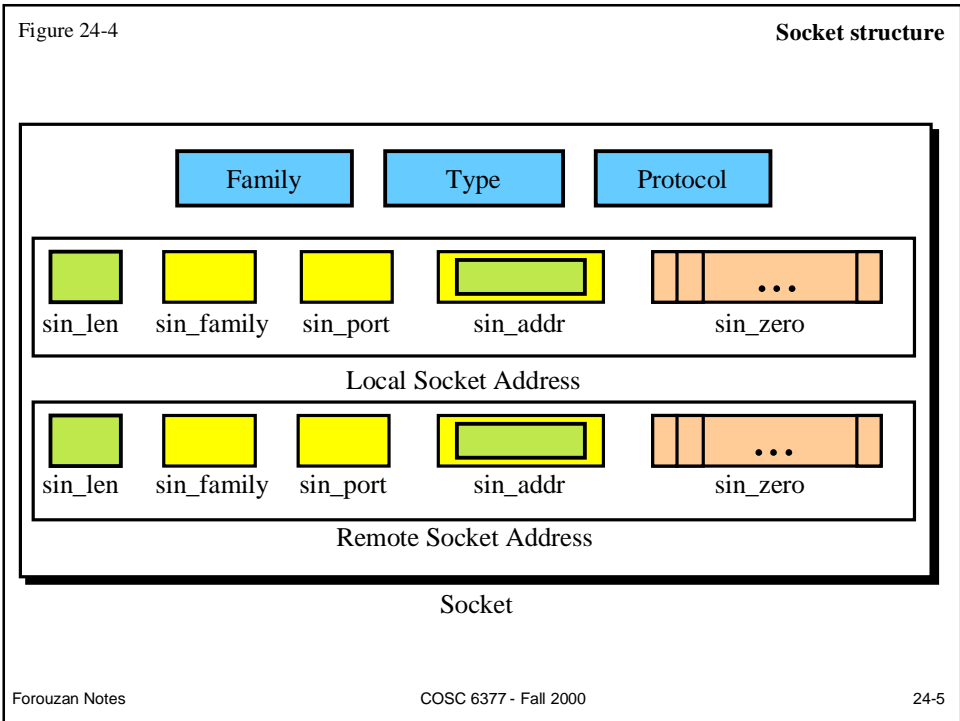
Figure 24-1

Data types

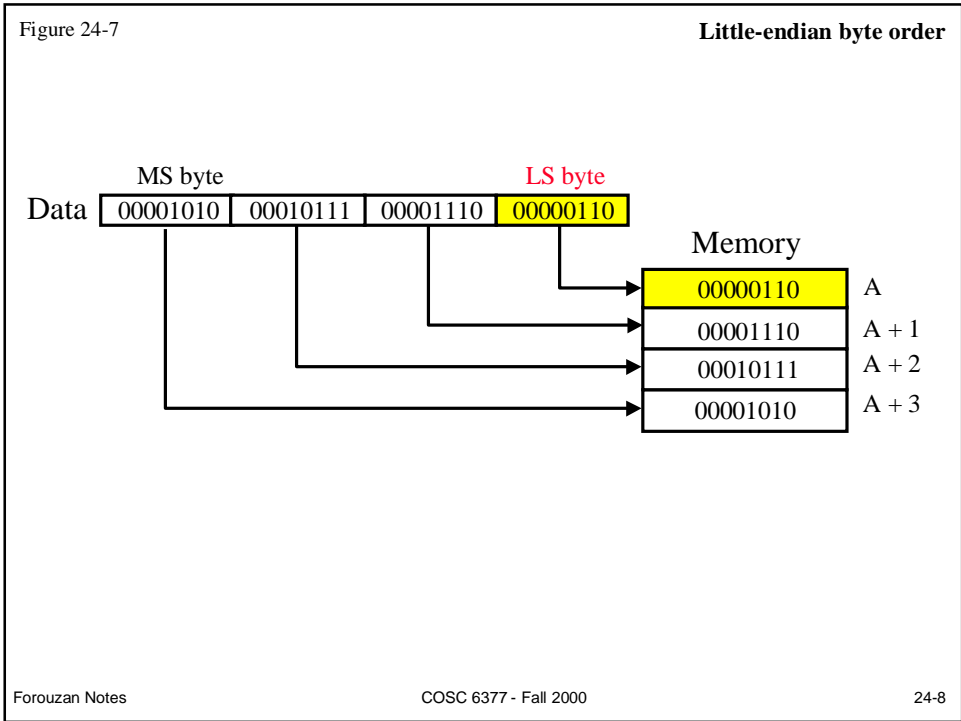
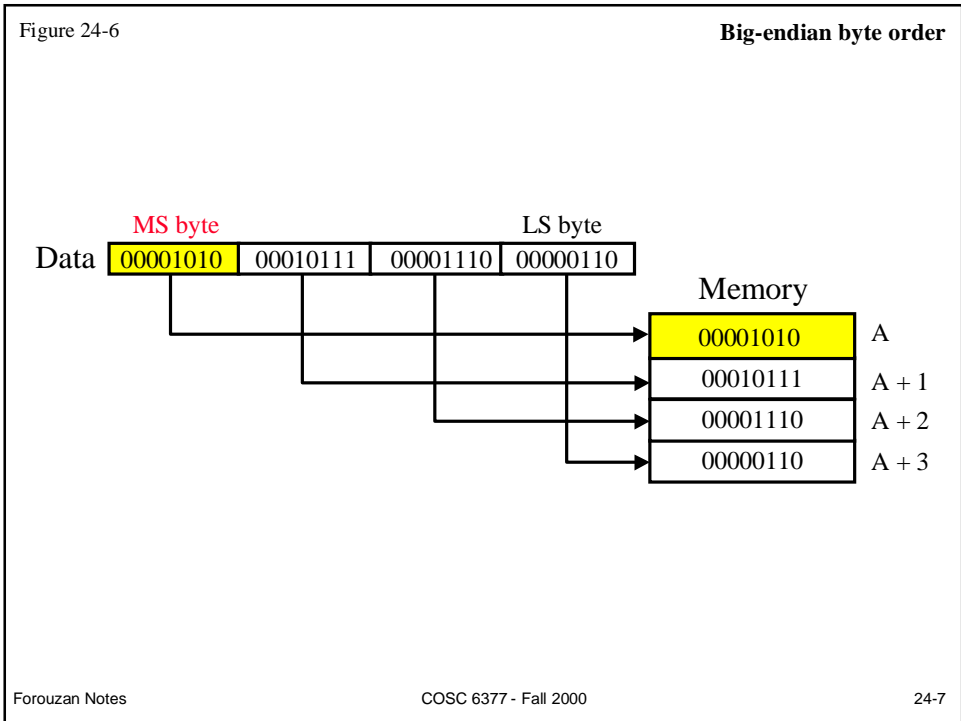
u_char	Unsigned 8-bit character
u_short	Unsigned 16-bit integer
u_long	Unsigned 32-bit integer



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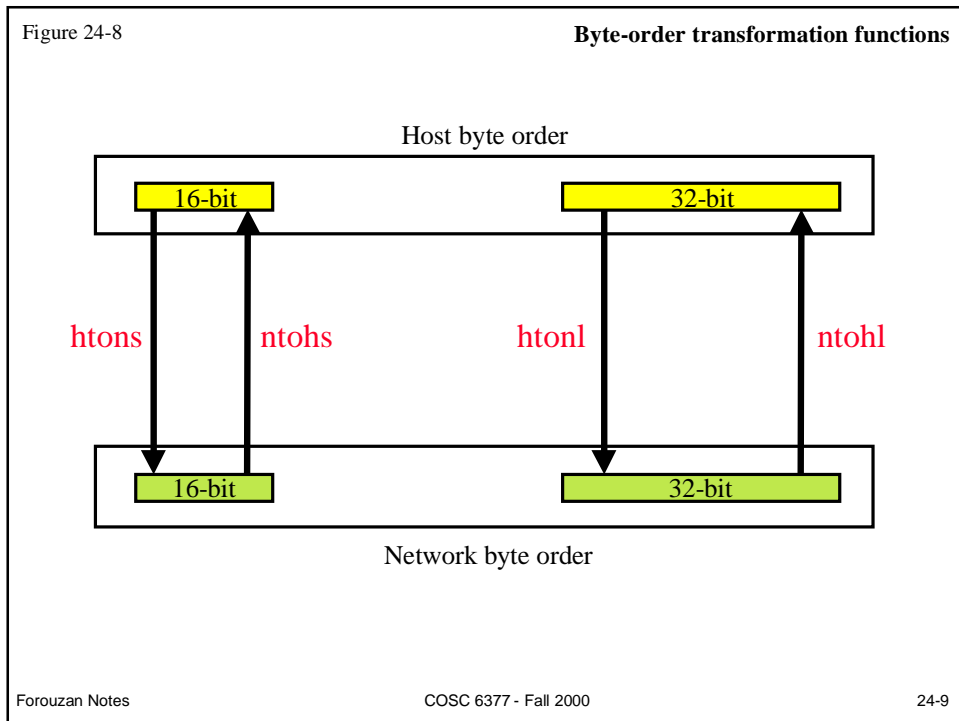


Figure 24-9 Declarations for byte-order transformation

```

u_short  htons ( u_short  host_short );

u_short  ntohs ( u_short  network_short );

u_long   htonl ( u_long   host_long );

u_long   ntohl ( u_long   network_long );
    
```

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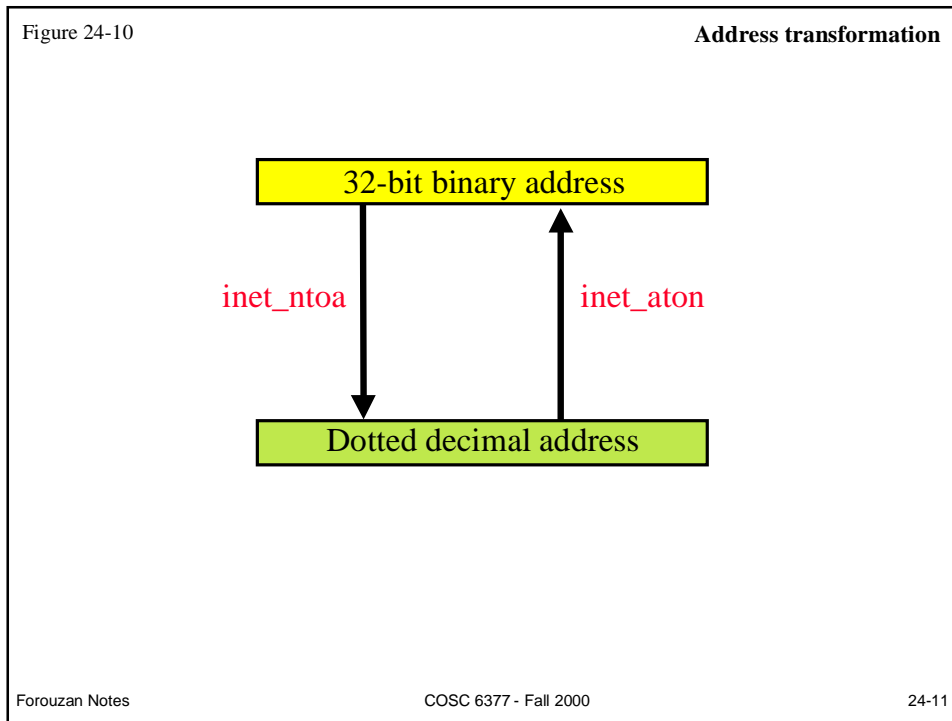


Figure 24-11 Declarations for transformation functions

```
int      inet_aton ( const char  *strptr , struct in_addr *addrptr );  
char    *inet_ntoa ( struct in_addr inaddr );
```

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Figure 24-12

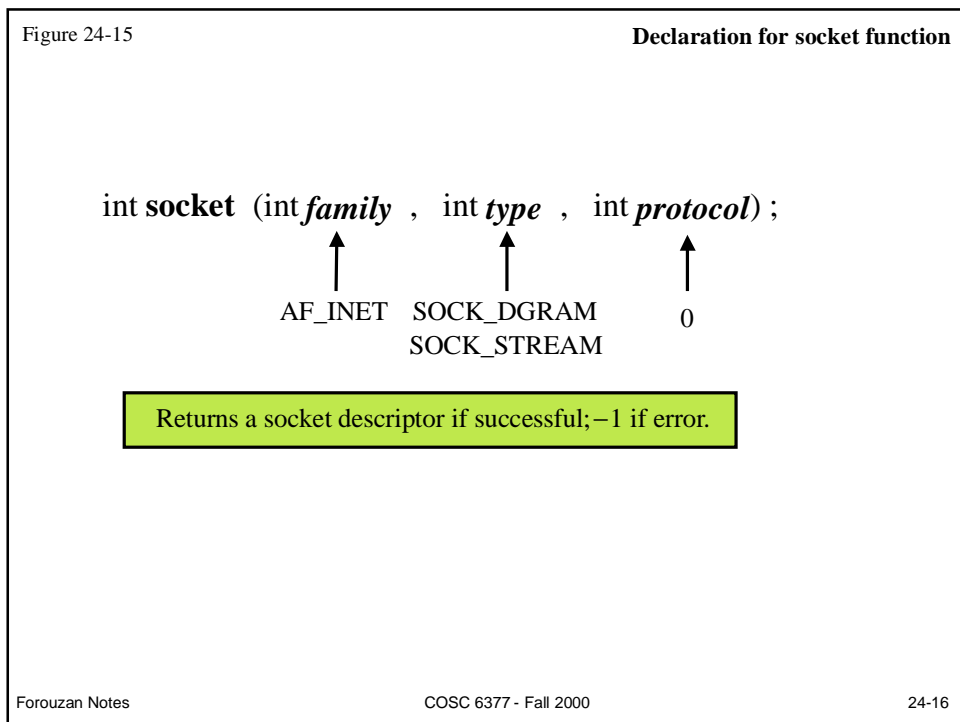
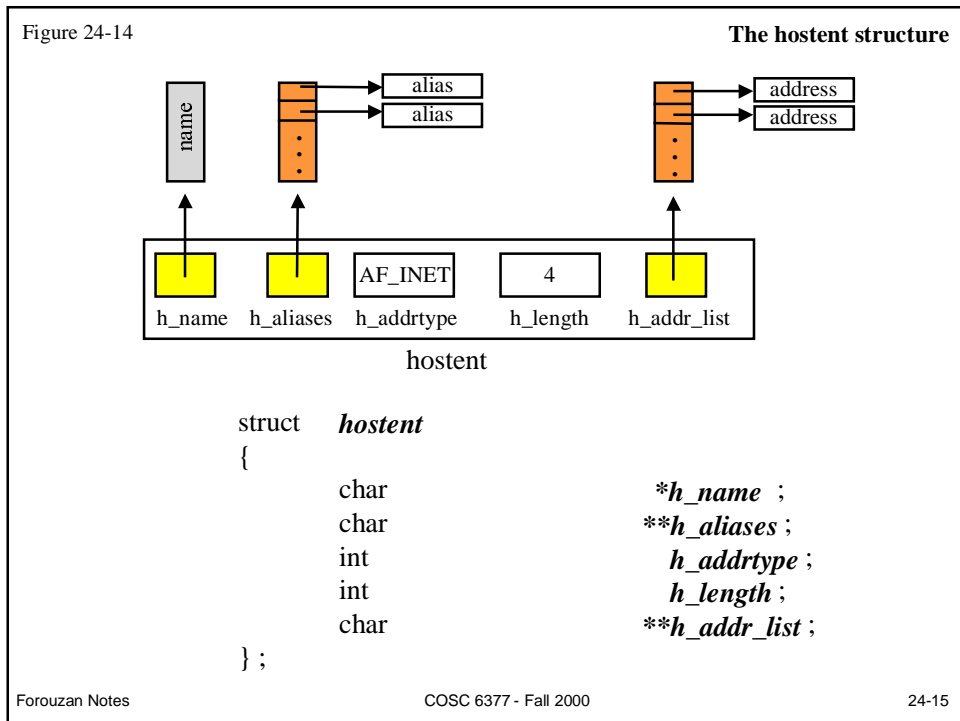
Declaration for byte-manipulation functions

```
void *memset ( void *dest , int chr , int len );  
  
void *memcpy ( void *dest , const void *src , int len );  
  
int memcmp ( const void *first , const void *second , int len );
```

Figure 24-13

Declaration for gethostbyname

```
struct hostent *gethostbyname ( const char *hostname );
```



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Figure 24-16

Declaration for bind function

```
int bind (int sockfd , const struct sockaddr_in *localaddr , int localaddrlen) ;
```

Returns 0 if successful; -1 if error.

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Figure 24-17

Declaration for connect function

```
int connect (int sockfd , const struct sockaddr_in *serveraddr , int serveraddrlen) ;
```

Returns 0 if successful; - 1 if error

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Figure 24-18

Declaration for listen function

```
int listen (int sockfd , int backlog) ;
```

Returns 0 if successful; - 1 if error

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Figure 24-19

Declaration for accept function

```
int accept (int sockfd , const struct sockaddr_in *clientaddr , int *clientaddrlen) ;
```

Returns a socket descriptor if successful; - 1 if error

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Figure 24-20

Declaration for `sendto` function

```
int sendto (int sockfd , const void *buf , int buflen , int flags ,  
            const struct sockaddr_in *toaddr , int toaddrlen ) ;
```

Returns number of bytes sent if successful; - 1 if error

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Figure 24-21

Declaration for `recvfrom` function

```
int recvfrom (int sockfd , const void *buf , int buflen , int flags ,  
              const struct sockaddr_in *fromaddr , int *fromaddrlen ) ;
```

Returns number of bytes sent if successful; - 1 if error

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Figure 24-22

Declaration for read function

```
int read (int sockfd , const void *buf , int buflen ) ;
```

Returns number of bytes read if successful; 0 for end of file; -1 if error.

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Figure 24-23

Declaration for write function

```
int write (int sockfd , const void *buf , int buflen ) ;
```

Returns number of bytes written if successful; -1 if error.

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Figure 24-24 Declaration for close function

```
int close (int sockfd ) ;
```

Returns 0 if successful;- 1 if error

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