Laboratorium 12

Programowanie sieciowe 3

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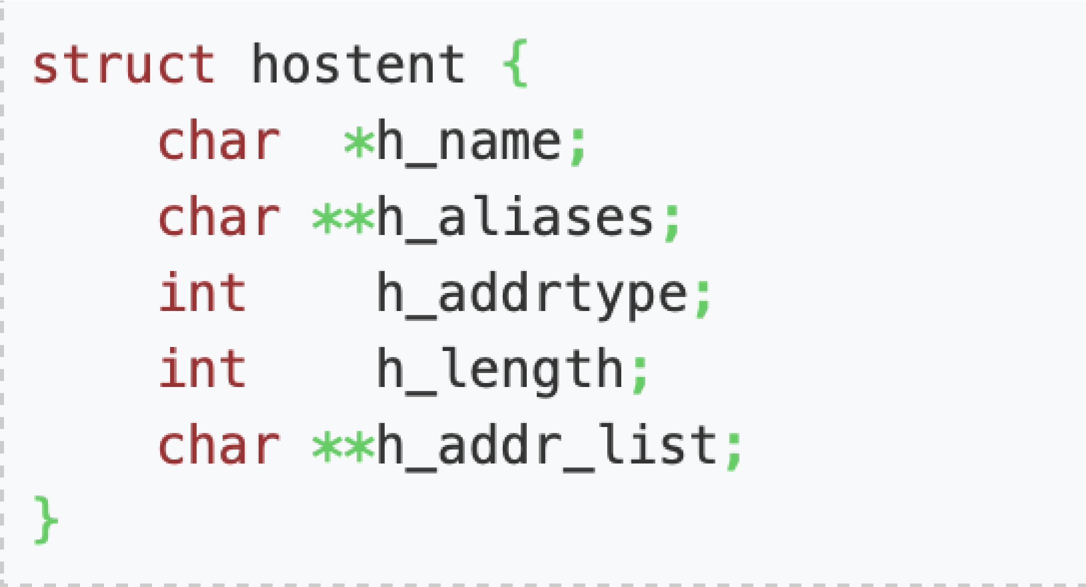
> Funkcje dotyczące stacji:

gethostent (int stayopen);

#include <netdb.h>extern int h_errno;

struct hostent *gethostbyname(const char *nazwa);

#include <sys/socket.h>   /* dla AF_INET */
struct hostent *gethostbyaddr(const void *addr, socklen_t len, int type);



```
struct hostent {
    char   *h_name;
    char  **h_aliases;
    int     h_addrtype;
    int     h_length;
    char  **h_addr_list;
}
```

1. Przejrzyj manual do funkcji set/get/endhostent.

- Jaki plik przeszukują funkcje set/get/endhostent?

  /etc/hosts

- Co oznaczają poszczególne pola struktury hostent?

h_name oficjalna nazwa hosta

h_aliases alternatywne nazwy

h_addrtype typ addr

h_length ilość bajtów addr

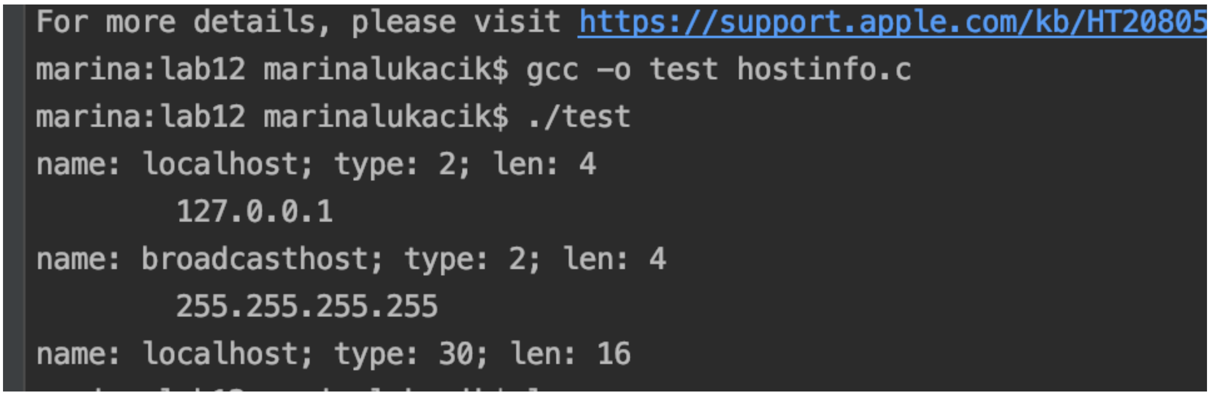
h_addr_list pierwszy addr z listy

Program hostinfo.c

```
From file etc/hosts :

192.168.1.172 drivefoo.local
172.168.15.95 aragefoo.local
172.168.15.105 livgfoo.local
172.168.16.109 upsirsfoo.local
172.168.15.140 bacorthfoo.local
172.168.15.142 bacouthfoo.local
172.168.16.144 drisfoo.local
172.168.15.152 nghborfoo.local
172.168.15.154 fntfoo.local
172.168.18.151 as.local
```

Wynik programu:

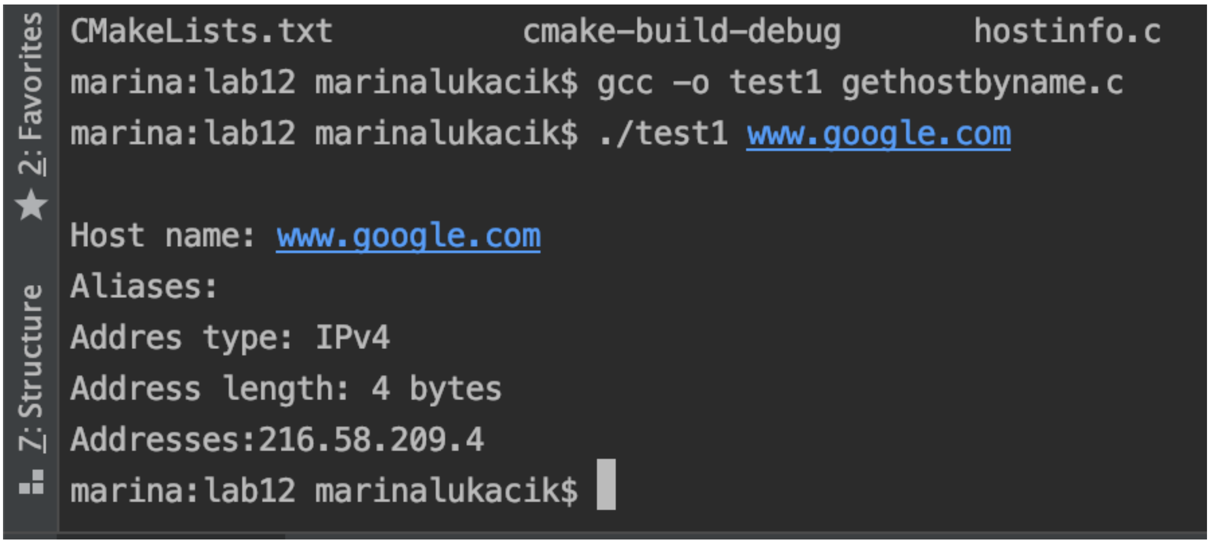


```
For more details, please visit https://support.apple.com/kb/HT20805
marina:lab12 marinalukacik$ gcc -o test hostinfo.c
marina:lab12 marinalukacik$ ./test
name: localhost; type: 2; len: 4
        127.0.0.1
name: broadcasthost; type: 2; len: 4
        255.255.255.255
name: localhost; type: 30; len: 16
```

W naszym programie otrzymujemy jeszcze dodatkowo nazwy parametrów oraz ich wartości.

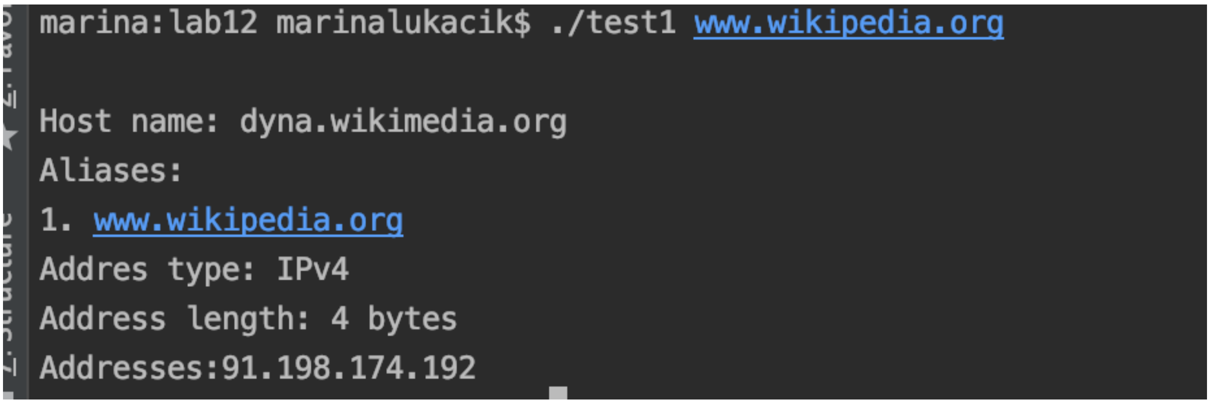
> 💡 gethostbyname (const char *name, struct hostent *ret, char *buf, size_t buflen,
>   struct hostent **result, int *h_errnop)

1) Sprawdzić działanie programu dla www.google.com oraz innych wybranych adresów symbolicznych.



```
CMakeLists.txt          cmake-build-debug       hostinfo.c
marina:lab12 marinalukacik$ gcc -o test1 gethostbyname.c
marina:lab12 marinalukacik$ ./test1 www.google.com

Host name: www.google.com
Aliases:
Addres type: IPv4
Address length: 4 bytes
Addresses:216.58.209.4
marina:lab12 marinalukacik$ 
```

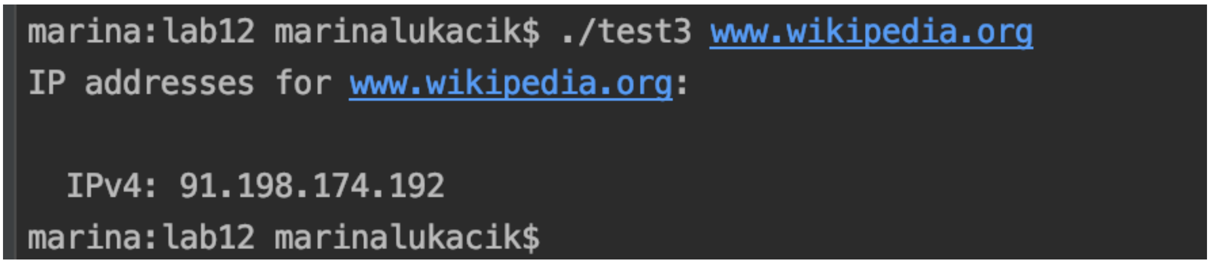


```
marina:lab12 marinalukacik$ ./test1 www.wikipedia.org

Host name: dyna.wikimedia.org
Aliases:
1. www.wikipedia.org
Addres type: IPv4
Address length: 4 bytes
Addresses:91.198.174.192
```

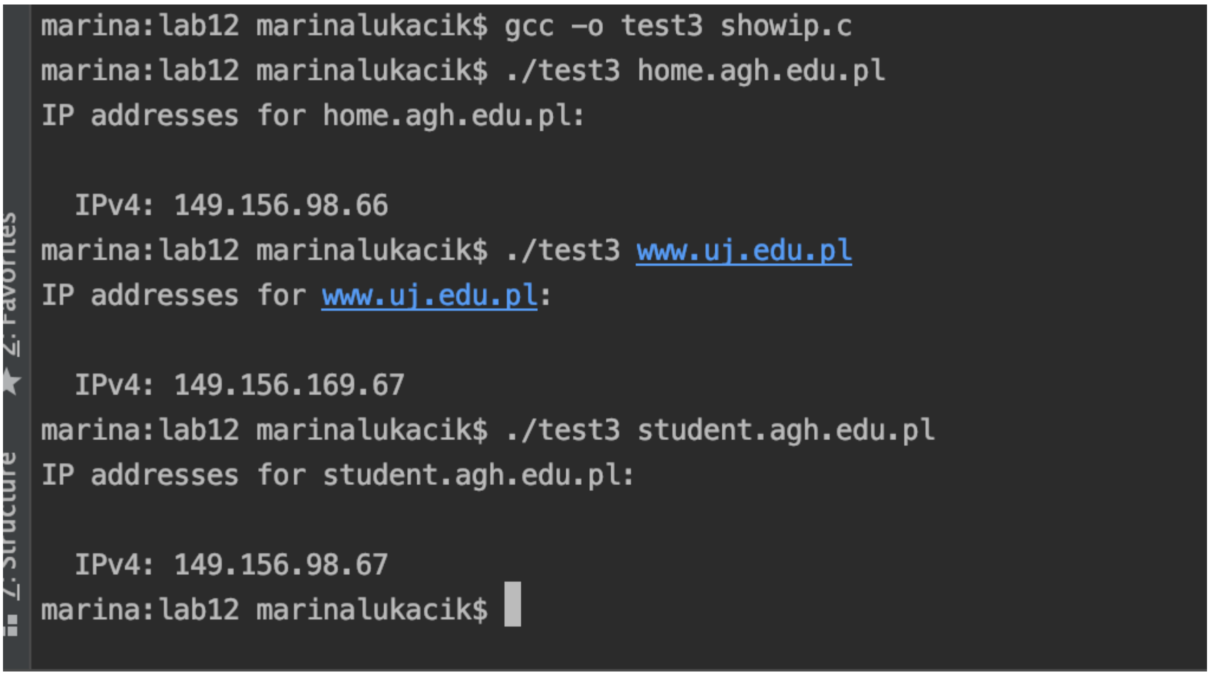
> ## Przeczytać manual do funkcji getaddrinfo :

```
int getaddrinfo(const char *node,
                const char *service,
                const struct addrinfo *hints,
                struct addrinfo **res);
```



```
marina:lab12 marinalukacik$ ./test3 www.wikipedia.org
IP addresses for www.wikipedia.org:

  IPv4: 91.198.174.192
marina:lab12 marinalukacik$
```



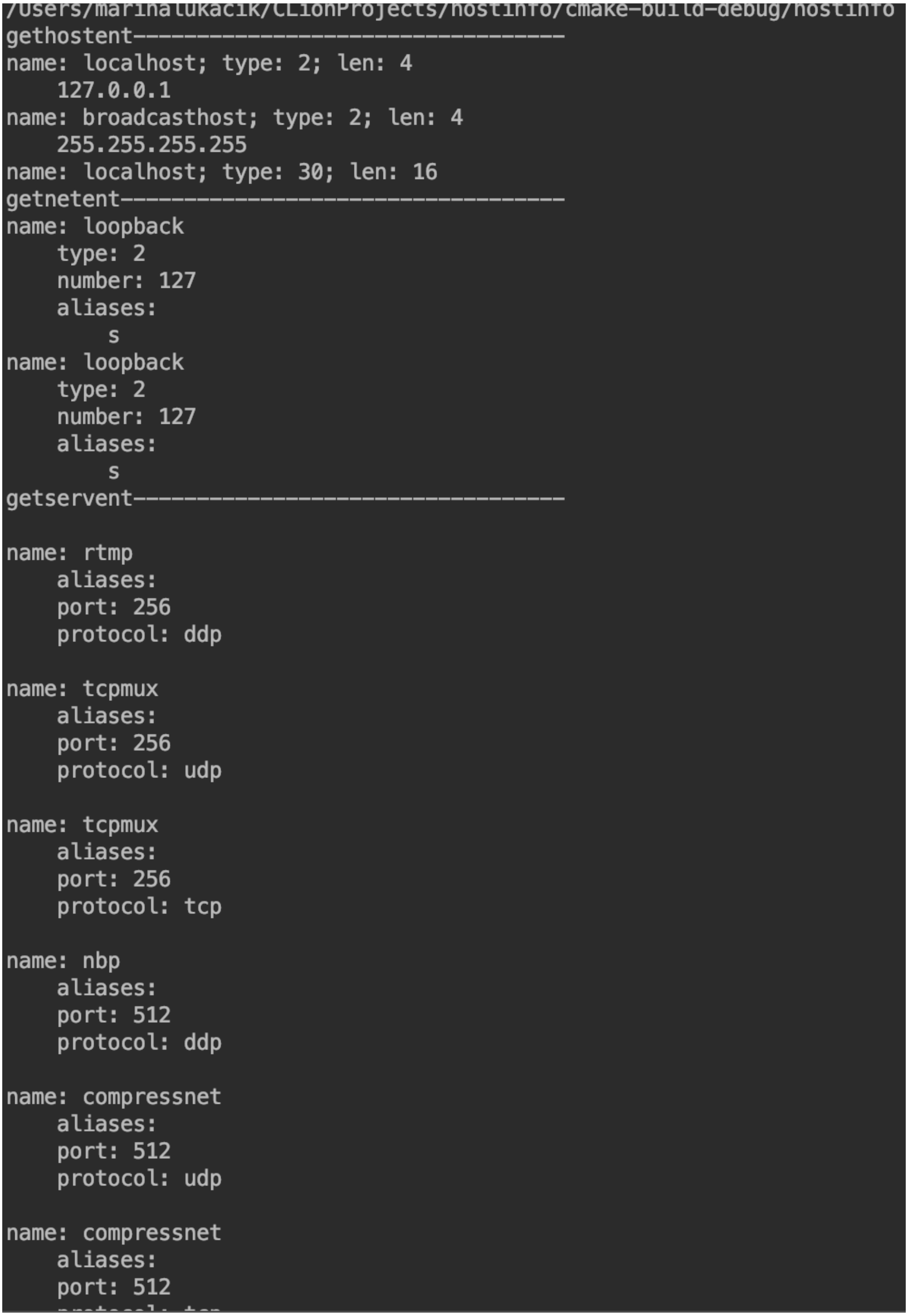
```
marina:lab12 marinalukacik$ gcc -o test3 showip.c
marina:lab12 marinalukacik$ ./test3 home.agh.edu.pl
IP addresses for home.agh.edu.pl:

  IPv4: 149.156.98.66
marina:lab12 marinalukacik$ ./test3 www.uj.edu.pl
IP addresses for www.uj.edu.pl:

  IPv4: 149.156.169.67
marina:lab12 marinalukacik$ ./test3 student.agh.edu.pl
IP addresses for student.agh.edu.pl:

  IPv4: 149.156.98.67
marina:lab12 marinalukacik$ 
```

hostinfo.c



```
/Users/marinalukacik/CLionProjects/hostinfo/cmake-build-debug/hostinfo
gethostent----------------------------------
name: localhost; type: 2; len: 4
    127.0.0.1
name: broadcasthost; type: 2; len: 4
    255.255.255.255
name: localhost; type: 30; len: 16
getnetent-----------------------------------
name: loopback
    type: 2
    number: 127
    aliases:
        s
name: loopback
    type: 2
    number: 127
    aliases:
        s
getservent----------------------------------

name: rtmp
    aliases:
    port: 256
    protocol: ddp

name: tcpmux
    aliases:
    port: 256
    protocol: udp

name: tcpmux
    aliases:
    port: 256
    protocol: tcp

name: nbp
    aliases:
    port: 512
    protocol: ddp

name: compressnet
    aliases:
    port: 512
    protocol: udp

name: compressnet
    aliases:
    port: 512
    protocol: tcp
```