How to start the application

1. clone the repo to dir of your choice

```
git clone <http.. repo>
```

2. from the commandline switch to the "Debug" folder

```
cd Debug
```

- start the server by entering "start server"

```
start server
```

- start the client by entering "start client localhost"
  - NOTE: instead of localhost, you could also choose a valid IP that your server runs on

```
start client localhost
```

How to run the application

Serverside

- you need to configure the "DMX_CONFIG.txt" file to match the connected DMX resources. It is located under the /Debug folder.
  - The file has the following format:

```
<NO of available spots>
<Index-Spot0> <Feature-Count-Spot0>
<Index-Spot1> <Feature-Count-Spot1>
...
```

- the serverside displayes a log feed of the actions and communication steps that took place.
- Dont be concerned with that, it is just used as a Debug/Info Log

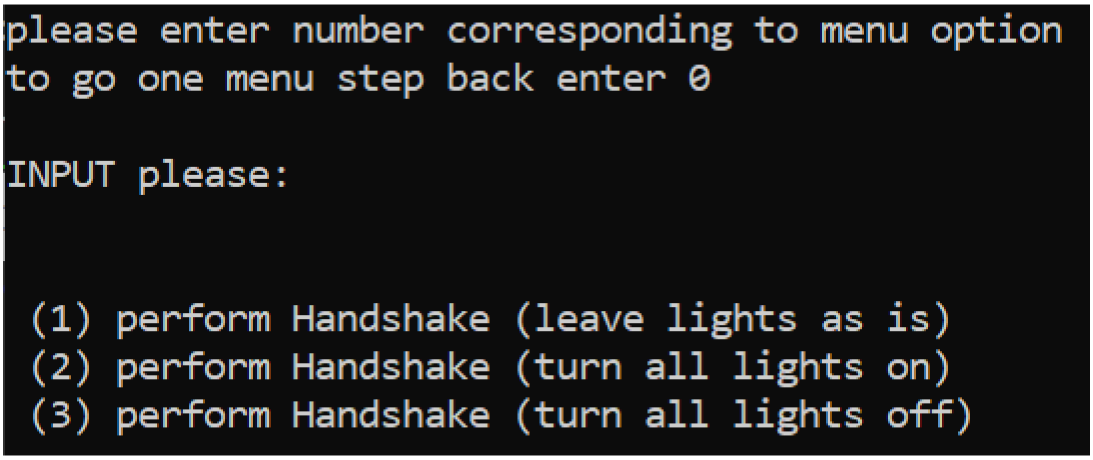
Client Side

- On the client side you have a rudermentary comandlien Interface to talk to the server.

- The Interface consists of multiple menues that you can orient between by entering the resepctive numbers.
  - To go one menu back simply enter 0

Start Menu

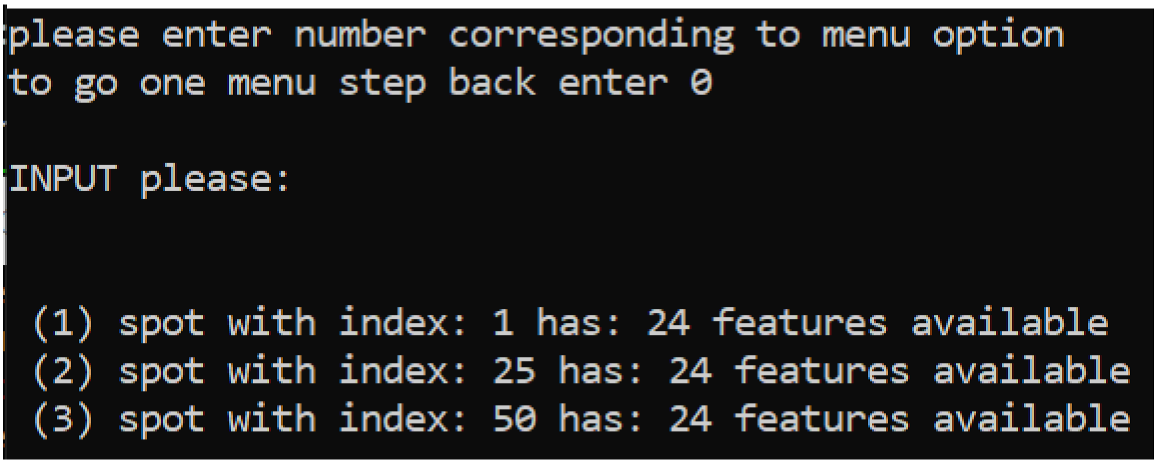
- You have 3 option on how you would like to perform the handshake with the server.



```
please enter number corresponding to menu option
to go one menu step back enter 0

INPUT please:


 (1) perform Handshake (leave lights as is)
 (2) perform Handshake (turn all lights on)
 (3) perform Handshake (turn all lights off)
```

Select Spot Menu

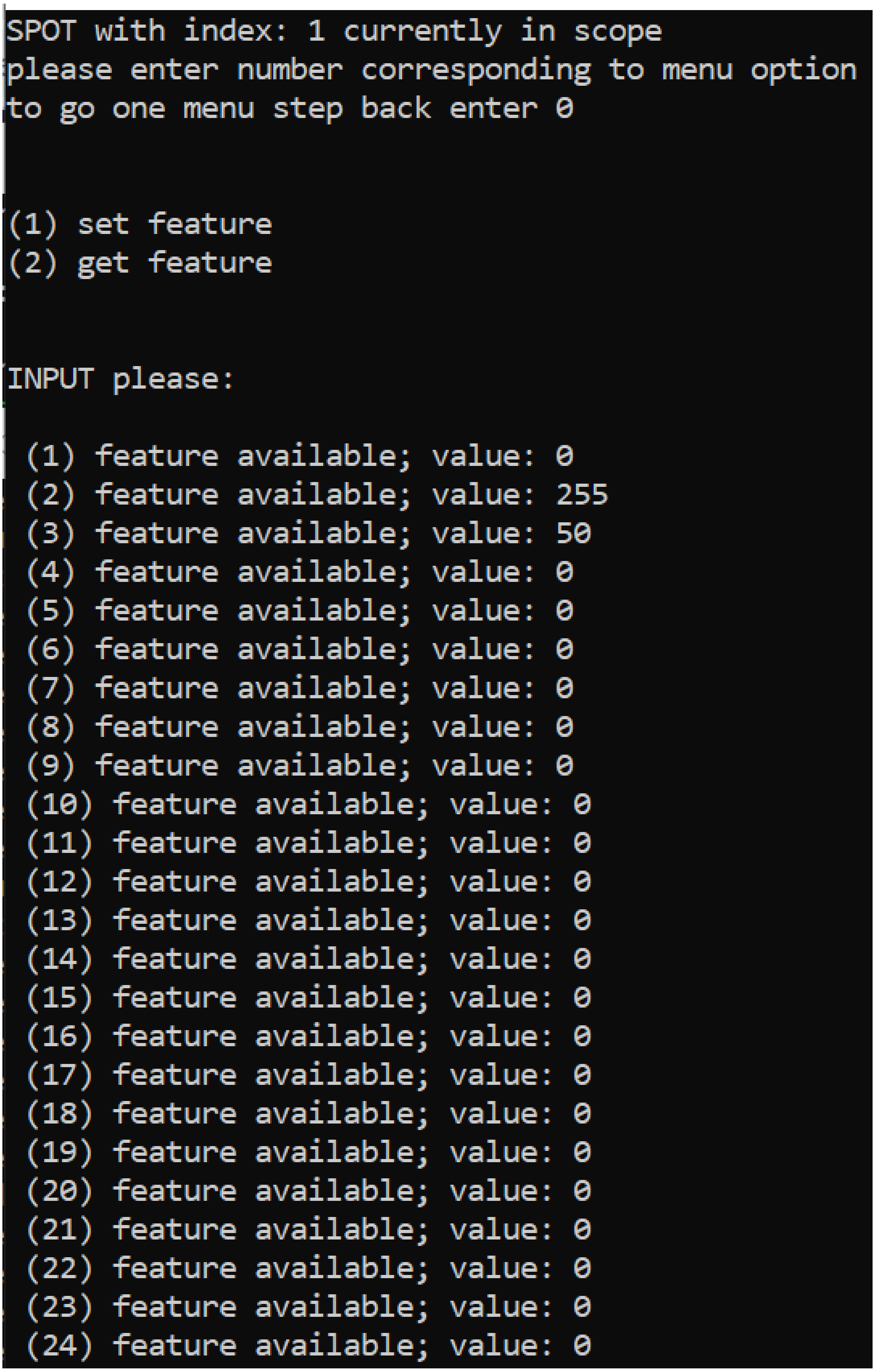
- In this menu, you can select which of the spots you would like to "interact" with



```
please enter number corresponding to menu option
to go one menu step back enter 0

INPUT please:


 (1) spot with index: 1 has: 24 features available
 (2) spot with index: 25 has: 24 features available
 (3) spot with index: 50 has: 24 features available
```

Single Spot Menu

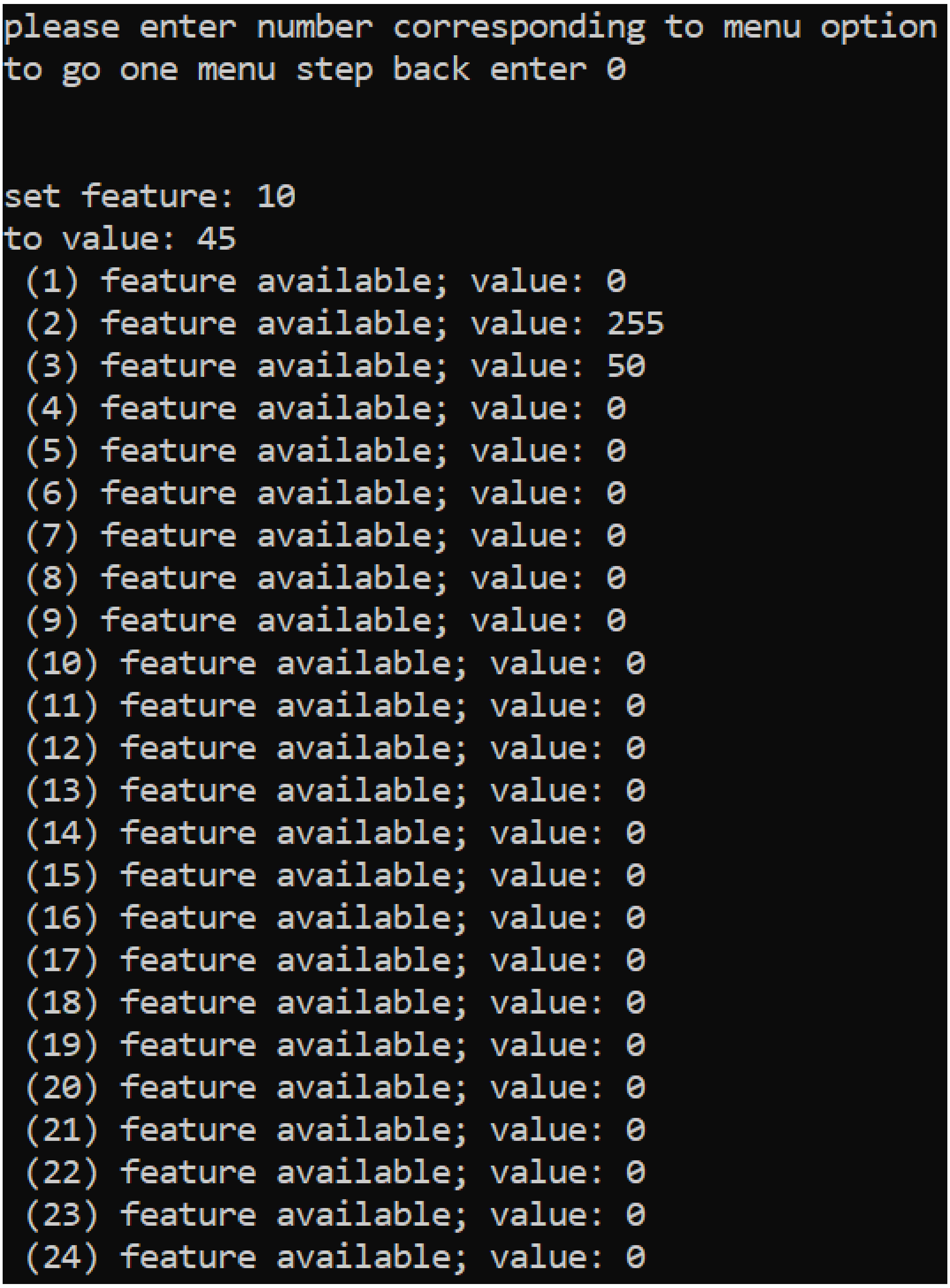
- in this mennu, you cann see all the features of the selected spot.
- furthermore you are able to set a feature or request(get) the value of a feature from the server.



```
SPOT with index: 1 currently in scope
please enter number corresponding to menu option
to go one menu step back enter 0


(1) set feature
(2) get feature


INPUT please:

 (1) feature available; value: 0
 (2) feature available; value: 255
 (3) feature available; value: 50
 (4) feature available; value: 0
 (5) feature available; value: 0
 (6) feature available; value: 0
 (7) feature available; value: 0
 (8) feature available; value: 0
 (9) feature available; value: 0
 (10) feature available; value: 0
 (11) feature available; value: 0
 (12) feature available; value: 0
 (13) feature available; value: 0
 (14) feature available; value: 0
 (15) feature available; value: 0
 (16) feature available; value: 0
 (17) feature available; value: 0
 (18) feature available; value: 0
 (19) feature available; value: 0
 (20) feature available; value: 0
 (21) feature available; value: 0
 (22) feature available; value: 0
 (23) feature available; value: 0
 (24) feature available; value: 0
```

Set Feature

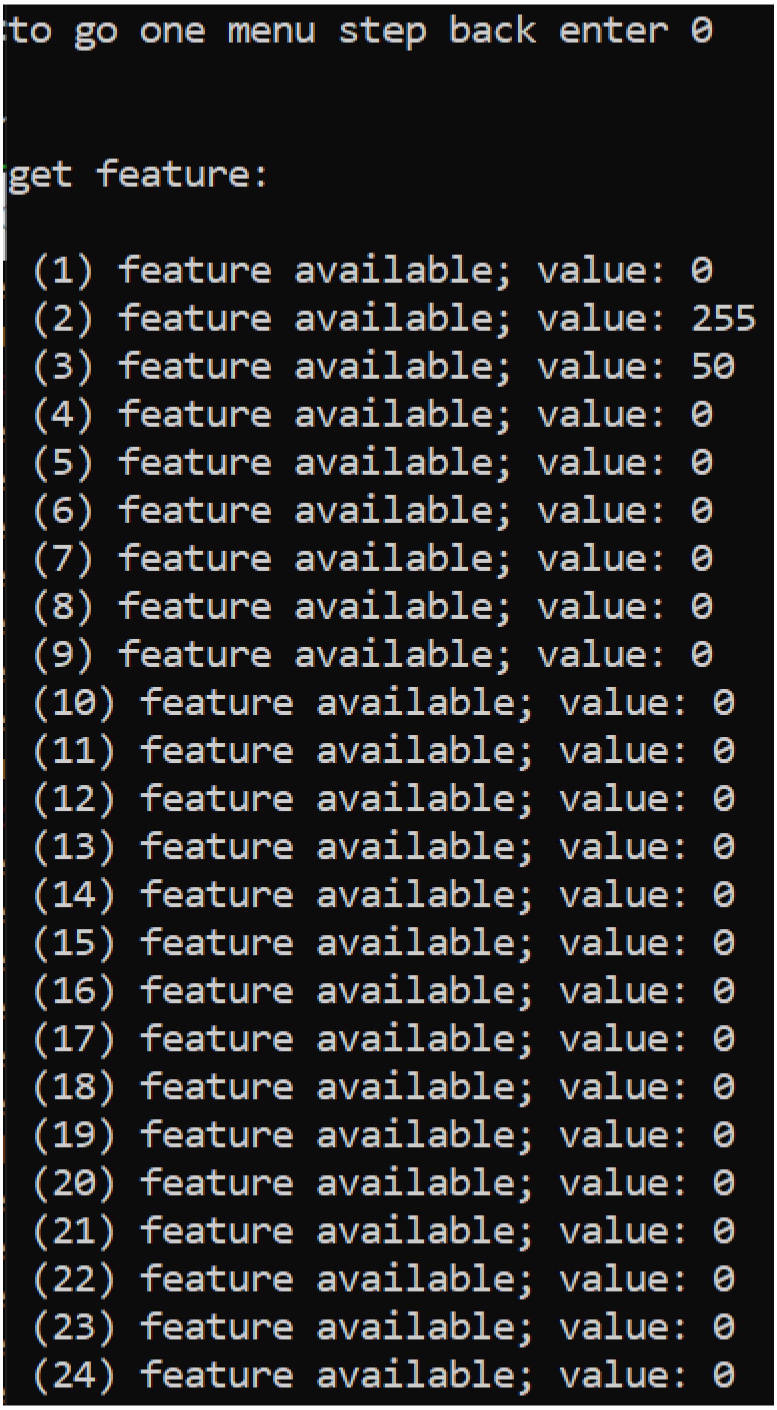
- first you need to enter the number of the feature you would like to set, and hit enter.
- you then need to enter the value you would like the feature to be set with.



```
please enter number corresponding to menu option
to go one menu step back enter 0


set feature: 10
to value: 45
 (1) feature available; value: 0
 (2) feature available; value: 255
 (3) feature available; value: 50
 (4) feature available; value: 0
 (5) feature available; value: 0
 (6) feature available; value: 0
 (7) feature available; value: 0
 (8) feature available; value: 0
 (9) feature available; value: 0
 (10) feature available; value: 0
 (11) feature available; value: 0
 (12) feature available; value: 0
 (13) feature available; value: 0
 (14) feature available; value: 0
 (15) feature available; value: 0
 (16) feature available; value: 0
 (17) feature available; value: 0
 (18) feature available; value: 0
 (19) feature available; value: 0
 (20) feature available; value: 0
 (21) feature available; value: 0
 (22) feature available; value: 0
 (23) feature available; value: 0
 (24) feature available; value: 0
```

Get Feature

- you need to enter the number of the feature you would like to request its value from the server.



```
to go one menu step back enter 0


get feature:

 (1) feature available; value: 0
 (2) feature available; value: 255
 (3) feature available; value: 50
 (4) feature available; value: 0
 (5) feature available; value: 0
 (6) feature available; value: 0
 (7) feature available; value: 0
 (8) feature available; value: 0
 (9) feature available; value: 0
 (10) feature available; value: 0
 (11) feature available; value: 0
 (12) feature available; value: 0
 (13) feature available; value: 0
 (14) feature available; value: 0
 (15) feature available; value: 0
 (16) feature available; value: 0
 (17) feature available; value: 0
 (18) feature available; value: 0
 (19) feature available; value: 0
 (20) feature available; value: 0
 (21) feature available; value: 0
 (22) feature available; value: 0
 (23) feature available; value: 0
 (24) feature available; value: 0
```

Understanding the application

Data

- the client and the server both create a datastructure that holds information on all the available spots and the values of their features.
- upon performing the handshake these structures might get set to all 1, all 0 or left as is (only on the server side)
- If the client or the server terminates the value information of the features is lost.
  - If only the client terminates, but the server remains running, the client can select the "perform Handshake (leave lights as is)" option to not override the data on the server. He can then follow up by requesting the values of all the features he is interested in, to relearn about their value.

Connection

In case the connection is lost, the server and the client react in differnt ways:

Role	Reaction
Server	Keeps runing, waits for new connection
Client	Terminates