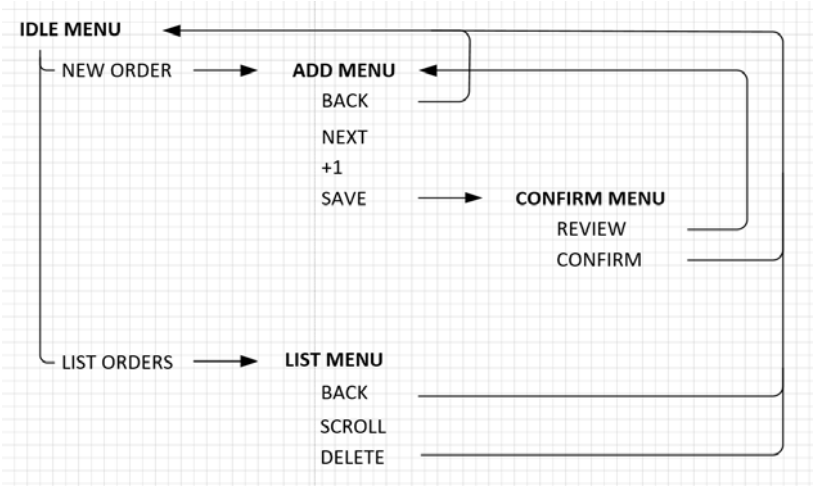
PART 6 – SOFTWARE FUNCTIONALITY

More complex than it looks –

Obviously – the base code will support the LoRa radios, LCD displays, 7-segment nodes, matrix display nodes and any other hardware peripherals we choose later…

Next, I must identify the methods of operation in the UI.
The configuration of each node to be 'offline' with a PC using the USB-serial console, and all live operations at the point-of-sale site will be through the payment/server and delivery/service nodes.

Payment/Server node
Offline configuration – set node address, adding / deleting and editing sale items & pricing.
Live operation – Create a new order, add items/quantities to the order – then store it for subsequent delivery. A receipt printer may be used to create an ORDER receipt fir the customer to present at the Delivery/Service node.
The actual payment for each sale is taken separately at this time.



Payment/Server LCD-Menu structure

Delivery/Service node
Offline configuration by serial-USB only needs to set the node address.
Live operation involves button presses to choose the order being delivered/served, then 'clearing it from the 'open order' list.
Challenge – customer for the lowest order[0] doesn't show up… operator needs to 'serve' another order, and the system will flag lower orders as 'due for collection'.

Seven-segment display nodes
Offline configuration with serial-USB used to set the node address and items_of_interest configured.
Live operation – sequences through the items_of_interest to display active order/item details.
This node has no user controls – it simply polls the server node at a preset interval.

Matrix display nodes
Offline configuration by serial-USB only needs to set the node address and items_of_interest configured.
Live operation – alternates between the word 'NEXT', and order[0] number, advising the customers of the next order to be collected.
This node has no user controls – it simply polls the server node at a preset interval.
Challenge – when there are uncollected low orders 'due for collection'. The display should cycle through all orders from order[0] up that are flagged as 'due for collection'.

Now there's some real progress. The server node with LCD and buttons is almost complete, and the data is reflected on the seven-segment display as intended. Now I probably need to spend more time on the matrix display.

```
Creating sample orders
from EEPROM items
####################
---------------------
Order[00] 0000 created
[01]  1x Chicken Satay    linked to order 00
[02]  2x Beef Satay       linked to order 00
---------------------
Order[01] 0001 created
[01]  3x Chicken Satay    linked to order 01
[03]  1x Drink 375ml      linked to order 01
---------------------
Order[02] 0002 created
[03]  6x Drink 375ml      linked to order 02
[05]  1x Lamb Soup bowl   linked to order 02
---------------------
Order[03] 0003 created
[03]  1x Drink 375ml      linked to order 03
[02]  1x Beef Satay       linked to order 03

Server waiting for incoming message

---------------------
*** LIST ORDERS ***
Indx Qty Description          Price
[00]: Order #0000
     1x  5pc Chicken Satay    $10.00
     2x  5pc Beef Satay       $20.00
[01]: Order #0001
     3x  5pc Chicken Satay    $30.00
     1x  ONE Drink 375ml      $2.00
[02]: Order #0002
     6x  ONE Drink 375ml      $12.00
     1x  ONE Lamb Soup bowl   $8.00
[03]: Order #0003
     1x  ONE Drink 375ml      $2.00
     1x  5pc Beef Satay       $10.00
---------------------
*** ORDER_ITEMS ***
indx ordr [    ] -> item  srvs
 0 = [00] [0000] -> [01]   1
 1 = [00] [0000] -> [02]   2
 2 = [01] [0001] -> [01]   3
 3 = [01] [0001] -> [03]   1
 4 = [02] [0002] -> [03]   6
 5 = [02] [0002] -> [05]   1
 6 = [03] [0003] -> [03]   1
 7 = [03] [0003] -> [02]   1
---------------------
*** LIST ITEMS ***
Item   Description          Price   on Order
[01]   5pc Chicken Satay    $ 10.00   +020
[02]   5pc Beef Satay       $ 10.00   +015
[03]   ONE Drink 375ml      $  2.00   +008
[04]   ONE Coffee 300ml     $  3.50   +000
[05]   ONE Lamb Soup bowl   $  8.00   +001
---------------------
*** NEW ORDER ITEMS ***
Item  Servs Description
[01]    0   Chicken Satay
[02]    0   Beef Satay
[03]    0   Drink 375ml
[04]    0   Coffee 300ml
[05]    0   Lamb Soup bowl
```

I included some diagnostic sample data, and (serial) list functions to check everything was going where it was supposed to!

I've spent a bit of time cleaning up the software and getting the LCD layout to fit…
20x4 display with 4 buttons is a squeeze – but it all works quite well.
Also did some test on battery operation - *SUCCESS* !