Lab Work - Help Sheet 2

Example Code

In help sheet 1 the logic to record all the range finder readings for a single hand movement was given. This starts recording as soon as someone puts their hand into the range finder's beam, and stops recording when the hand is removed.

Here is sample code that does this. It requires a function analyse to be added that will look at the numbers recorded in the list and decide whether they represent a pull up, push down, low pass, hight pass, low hold or high hold hand movement.

```
handinbeam = False
while(True):
	distance = getSonar()
	if (distance < threshold):
		if (not handinbeam):
			list = []
		handinbeam = True
		list.append(distance)
	else:
		if (handinbeam):
			movement = analyse(list)
			print(movement)
		handinbeam = False

def analyse(list):
	return "to do!"
```

Implementing the *analyse* method is necessary (but you should try and use the simplest solutions possible for identifying the movements - use the length of the list to differentiate between hold and pass movements, use the average or max or minimum numbers in the list to decide between high and low, use the first and last values in the list to identify pull up and push downs).

Once that is done, you need to add the names of the movements to another list. This list just contains the names of the movements. You also need to count the number of readings when there is no hand in the beam, and once that goes above a certain amount you consider it to mean that a sequence of hand movements has been completed. When that happens, you need to analyse this list of movements to see if it corresponds to one of the commands. (You should also clear the list afterwards, ready to read a new sequence of movements).

Analysing the sequence of movements is actually very easy. You can use the join command to turn the list of movements into a single string, for example, if you had a list called *mylist* containing ["cat","dog","mouse"] then ",".join(mylist) would return a string "cat,dog,mouse".

Then you can take the command table from the task and define it as a dictionary, where the keys are individual strings representing these joined togther sequences, and the values are the command names. Then analysing the movement string just involves joining the list of movements into a string and using it as a key to access the corresponding value in the dictionary.