

## Lab Work - Help Sheet 1

Once you have the raspberry pi and range finder set up and the ***GestureDetector.py*** program running, you should first observe the readings that you receive from the range finder when you make the various gestures above it.

The loop() function in the demonstration program is the most important part of that program. You need to extend its behaviour to complete the tasks. As it stands, all it does is report the reading from the range finder over and over again.

As it says in the task description "As soon the value reported falls less than a threshold of 100 centimetres the program should start recording the values until the value reported goes above 100 centimetres again. The recorded values will need to be added to a list, and once the recording is complete it needs to be interpreted as a movement."

So you need to add code to the program that can tell when the range goes down below the threshold and when it comes back up.

```
while(True):  
    distance = getSonar()  
    print(distance)  
    sleep(0.1)
```

You need to have a boolean flag variable that changes state when the threshold goes down or up, and that is used to control whether you record the incoming values into a list.

The logic you need looks like this:

read the distance

**If** the distance is below the threshold

**if** the flag saying we are below the threshold is not already set to true

        ➔ We have just dropped below the threshold so we must create a new list to start recording, that is `list = []`

    set the flag saying we are below the threshold to true

    append the distance to the list

**else if** the distance is above the threshold

    print the list out (or eventually analyse it to recognise a gesture)

    set the flag saying we are below the threshold to false