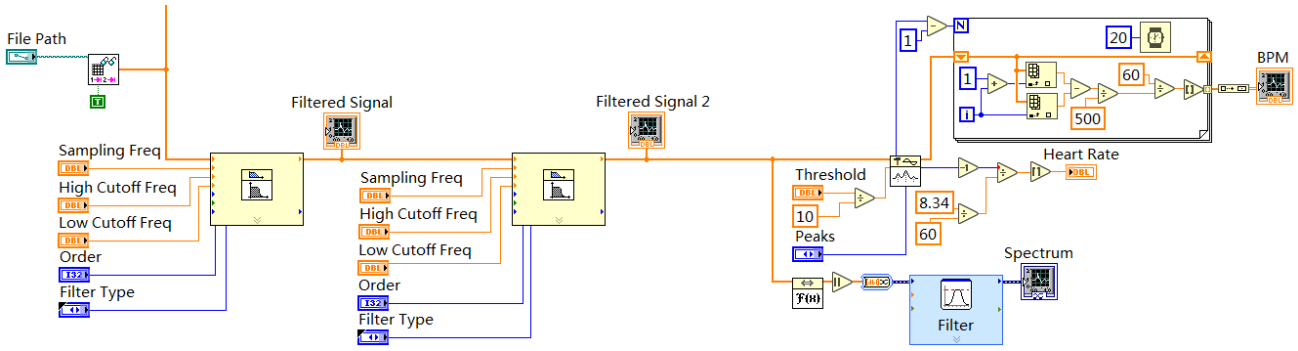

Figure 1. Task 8 and Task 9 in LabVIEW

The modified code in LabVIEW is shown as Figure 1.

Task 8

In order to calculate the heart beats per minute (BPM), the peaks of R wave are extracted first. The threshold is set to 3 volts. Thus, there are 10 peaks (10 beats) during the time of 8.34 seconds, generating 9 periods of heart beat. Heart rate can be calculated as shown in Figure 2, which is 65 beats per minute ((10-1)/8.34*60).

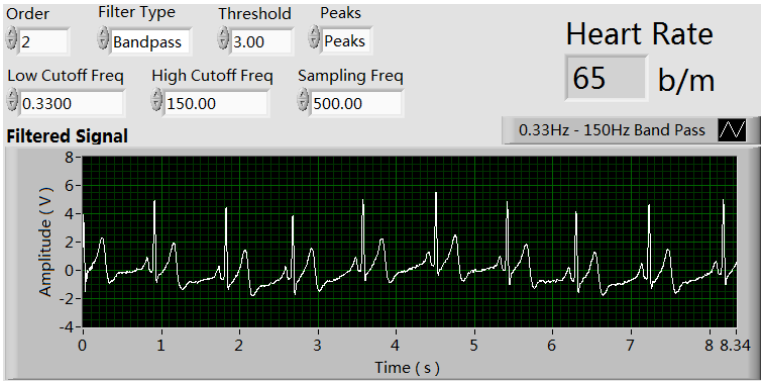

Figure 2. Heart Rate of ECG Signal

Task 9

In this part, BPM is calculated by every two peaks of ECG signal. For example, the distance between the first peak and the second peak is 453.54. There are 500 samples in one second. Thus, the time interval between the first two peaks is 453.54/500 ≈ 0.91s, which means that first heart beat period is o.91s. At this moment, the BMP is 60/0.91 ≈ 66. The BMP measured by the interval between every two peaks is shown in Figure 3.

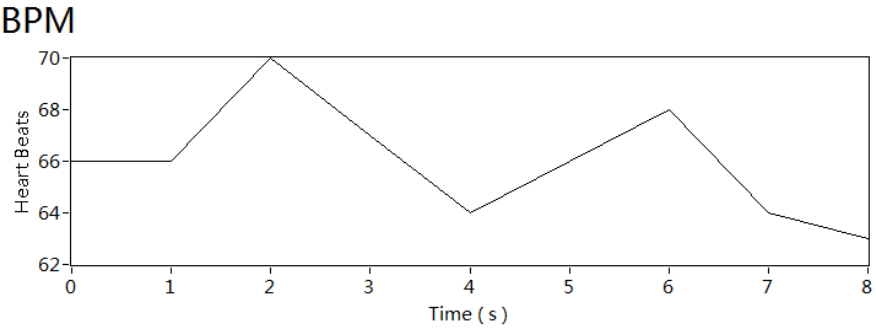

Figure 3. Heart Beats per Minute

Task 10

The cut off frequency of low pass filter I used is really 0.02.