ECE-4year-Code-Challenge 2

MATLAB CODE FOR ECG:

```
x=0.01:0.01:2;
default=input(&#39;Press 1 if u want default ecg signal else press 2:\n&#39;);
if(default==1)
li=30/72;
a_pwav=0.25;
d_pwav=0.09;
t_pwav=0.16;
a_qwav=0.025;
d_qwav=0.066;
t_qwav=0.166;
a_qrswav=1.6;
d_qrswav=0.11;
a_swav=0.25;
d_swav=0.066;
t_swav=0.09;
a_twav=0.35;
d_twav=0.142;
t_twav=0.2;
a_uwav=0.035;
d_uwav=0.0476;
t_uwav=0.433;
else
rate=input(&#39;\n\nenter the heart beat rate :&#39;);
li=30/rate;
```

```
%p wave specifications
fprintf(&#39;\n\np wave specifications\n&#39;);
d=input(&#39;Enter 1 for default specification else press 2: \n&#39;);
if(d==1)
a_pwav=0.25;
d_pwav=0.09;
t_pwav=0.16;
else
a_pwav=input(&#39;amplitude = &#39;);
d_pwav=input(&#39;duration = &#39;);
t_pwav=input(&#39;p-r interval = &#39;);
d=0;
end

%q wave specifications
fprintf(&#39;\n\nq wave specifications\n&#39;);
d=input(&#39;Enter 1 for default specification else press 2: \n&#39;);
if(d==1)
a_qwav=0.025;
d_qwav=0.066;
t_qwav=0.166;
else
a_qwav=input(&#39;amplitude = &#39;);

d_qwav=input(&#39;duration = &#39;);
t_qwav=0.166;
d=0;
end
```

```
%qrs wave specifications
fprintf(&#39;\n\nqrs wave specifications\n&#39;);
d=input(&#39;Enter 1 for default specification else press 2: \n&#39;);
if(d==1)
a_qrswav=1.6;
d_qrswav=0.11;
else
a_qrswav=input(&#39;amplitude = &#39;);
d_qrswav=input(&#39;duration = &#39;);
d=0;
end

%s wave specifications
fprintf(&#39;\n\ns wave specifications\n&#39;);
d=input(&#39;Enter 1 for default specification else press 2: \n&#39;);
if(d==1)
a_swav=0.25;
d_swav=0.066;
t_swav=0.09;
else
a_swav=input(&#39;amplitude = &#39;);
d_swav=input(&#39;duration = &#39;);
t_swav=0.09;
d=0;
end
```

```
%t wave specifications
fprintf(&#39;\n\nt wave specifications\n&#39;);
d=input(&#39;Enter 1 for default specification else press 2: \n&#39;);
if(d==1)
a_twav=0.35;
d_twav=0.142;
t_twav=0.2;
else
a_twav=input(&#39;amplitude = &#39;);
d_twav=input(&#39;duration = &#39;);
t_twav=input(&#39;s-t interval = &#39;);
d=0;
end

%u wave specifications
fprintf(&#39;\n\nu wave specifications\n&#39;);
d=input(&#39;Enter 1 for default specification else press 2: \n&#39;);
if(d==1)
a_uwav=0.035;
d_uwav=0.0476;
t_uwav=0.433;
else

a_uwav=input(&#39;amplitude = &#39;);
d_uwav=input(&#39;duration = &#39;);
t_uwav=0.433;
d=0;
end
```

```
end
pwav=p_wav(x,a_pwav,d_pwav,t_pwav,li);
%qwav output
qwav=q_wav(x,a_qwav,d_qwav,t_qwav,li);
%qrswav output
qrswav=qrs_wav(x,a_qrswav,d_qrswav,li);
%swav output
swav=s_wav(x,a_swav,d_swav,t_swav,li);
%twav output
twav=t_wav(x,a_twav,d_twav,t_twav,li);
%uwav output
uwav=u_wav(x,a_uwav,d_uwav,t_uwav,li);
%ecg output
ecg=pwav+qrswav+twav+swav+qwav+uwav;
figure(1)
plot(x,ecg);
```