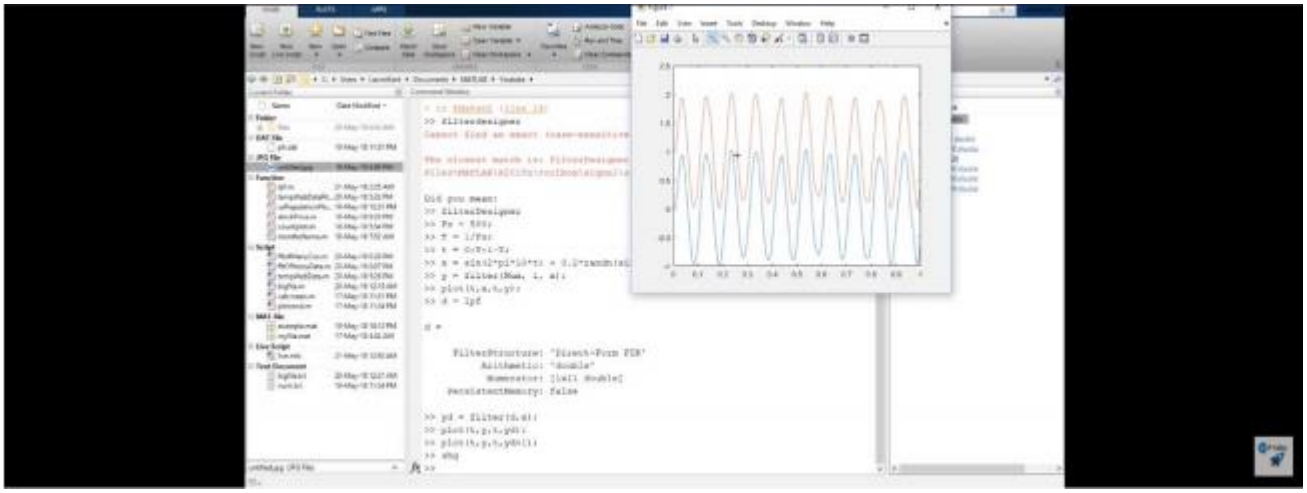
DAILY ASSESSMENT FORMAT

Date:	**27/05/2020**	**Name:**	**Kishan shetty**
Course:	**Digital signal processing**	**USN:**	**4AL17EC041**
Topic:	**Fourier transform, fast fourier transform, wavelet transform,ECG signal analysis using MATLAB**	**Semester & Section:**	**6th sem 'A' sec**
Github Repository:	**Kishanshetty-041**		

FORENOON SESSION DETAILS

Image of session



Report

FIR and IIR Filters

- **In signal processing, a finite impulse response (FIR) filter is a filter whose impulse response (or response to any finite length input) is of finite duration, because it settles to zero in finite time.**
- **An infinite impulse response (IIR) filter is a digital filter that depends linearly on a finite number of input samples and a finite number of previous filter outputs.**
- **The crucial difference between FIR and IIR filter is that the FIR filter provides an impulse response of finite period. As against IIR is a type of filter that generates impulse response of infinite duration for a dynamic system.**

Matlab code:

```
Fs=1000;
Ts=1/Fs;
dt=0:Ts:2-Ts;
```

```
f1=10;
f2=30;
f3=70;
y1=10*sin(2*pi*f1*dt);
y2=10*sin(2*pi*f2*dt);
y3=10*sin(2*pi*f3*dt);
y4=y1+y2+y3;
subplot(4,1,1);
plot(dt,y1, 'r');
subplot(4,1,2);
plot(dt,y2, 'r');
subplot(4,1,3);
plot(dt,y3, 'r');
subplot(4,1,4);
plot(dt,y4, 'r');
nfft=length(y4);
nfft2=2^nextpow2(nfft);

ff=fft(y4,nfft2);
plot(abs(ff));
```

Wavelet transform:

A wavelet transform is a linear transformation in which the basis functions (except the first) are scaled and shifted versions of one function, called the "mother wavelet." If the wavelet can be selected to resemble components of the image, then a compact representation results

DWT and CWT

- **The Discrete Wavelet Transform (DWT), simply put, is an operation that receives a signal as an input (a vector of data) and decomposes it in its frequential components.**
- **the Continuous Wavelet Transform (CWT) is a formal (i.e., non-numerical) tool that provides an overcomplete representation of a signal by letting the translation and scale parameter of the wavelets vary continuously.**

Implementation of signal filtering using WT in matlab:

```
close all;
clear all;
clc;
[k,Fs]=audioread['man_voice.wav']
k=k*0.5/rms(k);
k=awgn(k,12,'measured');
[c,1]=wavedec(k,3, 'db4');
b=wthresh(c, 's' ,0.25);
```

```
y=waverec(b,1, 'db4');
y=y*0.5/rms(y));
sound(y,Fs);
```

ECG signal analysis using matlab:

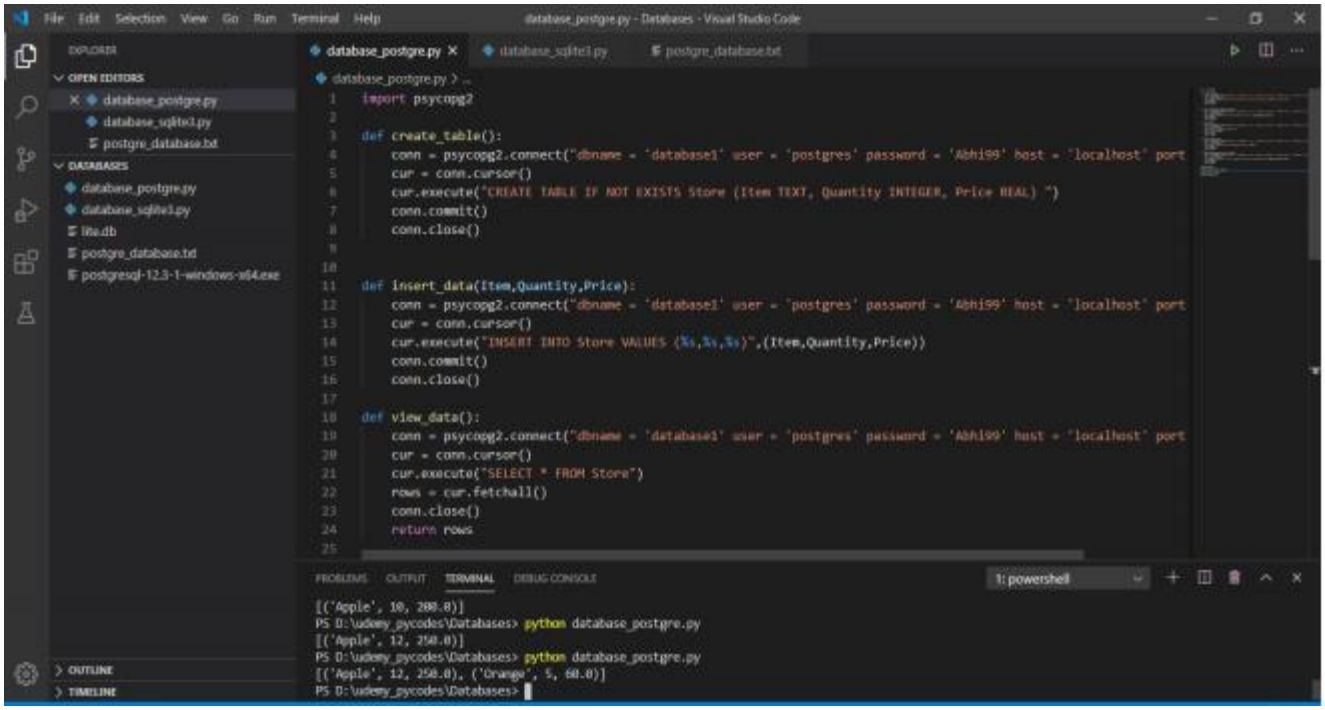
```
sig=load('ecg.txt');
plot(sig)
xlabel('samples');
ylabel('electrical activity');
title('ECG signal sampled at 100hz')
hold on
plot(sig,'r0')
```

DAILY ASSESSMENT FORMAT

Date:	**27/05/ 2020**	**Name:**	**Kishan shetty**
Course:	**Python**	**USN:**	**4AL17EC041**
Topic:	**Graphical user interface with tkinter, Interacting with databases**	**Semester & Section:**	**6th sem 'a' sec**
Github Repository:	**Kishanshetty-041**		

AFTERNOON SESSION DETAILS

Image of session



Report

Interacting with Databases

• A database is an organized collection of structured information, or data, typically stored electronically in a computer system. A database is usually controlled by a database management system (DBMS). Together, the data and the DBMS, along with the applications that are associated with them, are referred to as a database system, often shortened to just database

. • Data within the most common types of databases in operation today is typically modeled in rows and columns in a series of tables to make processing and data querying efficient. The data can then be easily

accessed, managed, modified, updated, controlled, and organized. Most databases use structured query language (SQL) for writing and querying data.

- SQLite is a relational database management system (RDBMS) contained in a C library. In contrast to many other database management systems, SQLite is not a client–server database engine. Rather, it is embedded into the end program.
- The PostgreSQL can be integrated with Python using psycopg2 module. sycopg2 is a PostgreSQL database adapter for the Python programming language. psycopg2 was written with the aim of being very small and fast, and stable as a rock.
- Standard process of interacting with database consists of five steps.

They are:

  - Connect to database.
  - Create a cursor object.
  - Write an SQL query.
  - Commit changes.
  - Close database connection.

- To create a new table in SQLite and PostgreSQL, CREATE TABLE statement is used.
- Cursor is a Temporary Memory or Temporary Work Station. It is Allocated by Database Server at the Time of Performing DML operations on Table by User. Cursors are used to store Database Tables.
- Selecting, Inserting, Updating and Deleting SQLite records and PostgreSQL records can be done using SELECT, INSERT, UPDATE AND DELETE SQL commands respectively.