

Date: 27 May 20

Course: DSP

Topic: fast fourier transform

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Sem & :- 6<sup>th</sup> sem

Sec B Section

- \* The  $f(t)$  of function of time is complex-valued function of frequency, whose magnitude represents the amount of frequency present in the original function.
- \* Fourier transform is not limited to time, but the domain of the original function is referred to as time domain.
- \* Fast fourier transform (FFT) is an algorithm that computes the discrete fourier transform DFT of a sequence or its inverse.
- \* Fourier analysis converts a signal domain and vice versa.
- \* The difference in speed can be enormous, especially for long data sets where  $N$  may be in thousands or millions.

code:-

```
Fs = 1000;  
Ts = 1/Fs;  
dt = 0.1*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);
```

```
fft ft = fft(y4, nfft2);
```

```
plot(abs(ft));
```

\* 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, 'ro');
```

Date:- 27 May 20

Course:- python

Topic:- Graphical user Interface  
with Tkinter

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Sem & :- 6<sup>th</sup> sem

Sec B section

- \* Python offers multiple options for developing GUI. Out of all the GUI methods, tkinter is the most commonly used method.
- \* It is a standard python interface to the Tk GUI toolkit shipped with python. python with tkinter is the fastest & easy way to create GUI application.
- \* To create a ~~tk~~ tkinter app - Importing the module.
- \* tkinter create the main window (container) add any number of widgets to the main window. Apply the event trigger on the widgets.
- \* Note that the name of the module in python 2.x is 'Tkinter' and in python 3.x it is 'tkinter'.
- \* Import tkinter, there are two main methods used which the user needs to remember while creating the python application with GUI Tk.
- \* To create a main window, tkinter offers a method 'Tk'.
- \* To change the name of the window, you can change the class name to the desired one.
- \* `mainloop()` is an infinite loop used to run the application wait for an event to occur and process the event as long as the window is not closed `m.mainloop()`



import tkinter

- \* `m = tkinter.Tk()` "widgets are added here"
- \* `m.mainloop()` tkinter also offers access to the geometric configuration of the widgets which can organize the widgets in the present windows.
- \* The storage of interactions in publicly available databases allows access to a large volume of interaction data and subsequent analysis of the interactions.