27/5/2020

Roojary
4AL16EC046
6B- DSP

* FFT using Matlab study & analysis of FIR & IIR, filtering signal, ECG signal Analysis.

→ Fast fourier transform using matlab

```
clear all;
close all;
clc;
fs = 1000
ts = 1/fs
dt = 0:ts:5-ts
f1 = 10;
f2 = 30;
f3 = 30;
f3 = 70
y1 = 10 * sin (2 * pi * f1 * dt)
y2 = 10 * sin (2 * pi * f2 * dt)
y3 = 10 * sin (2 * pi * f3 * dt)
yx = y1 + y2 + y3
subplot (4,1,1)
plot (dt, y1, 'r')
subplot (4,1,2)
```

Scanned with CamScanner

```
fff = ff (1:nfft2/2)
figure()
xfft = fs*(0:nfft2/2)/nfft2
plot (abs(fff))
```

ECG signal analysis using matlab:

```
sig = load ('ecg.csv')
plot(sig) xlabel ('samples')
ylabel ('Electrical Activity')
title ('ECG signal sampled')
plot(sig, 'ro')
beat_count = 0;
for k = 2: length (sig) - 2
if (sig(k) > sig(k-1) & sig(k) > sig (k+1) & sig(k) > 1)
```

Scanned with CamScanner

Looping through the key value pairs:

```
# create a mapping of state to abbreviation
states = {
'Oregon': 'OR',
'Florida': 'FL',
'California': 'CA',
'New York': 'NY',
'Michigan': 'MI'
}

# create a basic set of states & some cities in them
~~cities ['NY']~~
cities = {'CA': 'San Francisco',
          'MI': 'Detroit',
          'FL': 'Jacksonville'}

# add some more cities
cities ['NY'] = 'New York'
cities ['OR'] = 'Portland'

# Print out some cities
print ('-' *10)
print ("NY state has:", cities ['NY'])
Print ("Florida's abbreviation is": states ['Florida']

# do it by using the state abbreviation
```

Scanned with CamScanner

#print every city in state
print ('-' * 10)

for abbrev, city in cities.items():
print(f'{abbrev} has city {city}')

now do both at the same time
print ('-' * 10)
for state, abbrev in states.items():
print(f"{state} state is abbreviated {abbrev}")
print(f" {&} has city {cities['abbrev']}")

#get a city with a default values
city = cities.get('FL', 'Does not exist')
print(f"The city for the state 'TX' is: {city}")

Break in a while loop as while loop never ends.

```
x = 256
total = 0

while x > 0;
    if total > 400;
break
```

Scanned with CamScanner

```
while line <=5
    pos = 1
    while pos < line:
        #This print will add space after priting the value
        print(pos)

    #increment the value of pos by one
    pos+ =1
else:
    #This print will add newline after printing the value
    print(Pos)

#increment the value of line by one
line + =1
```

- Another while inside a while.

```
i=1
while i <11:
    j = 0
    while j<i:
        print('*', end = '')
        j = j+1
    print()
    i= i+1
print('Rest of the program')
```

Scanned with CamScanner