

DAILY ASSESSMENT FORMAT

Date: 25/05/20	Name: Yashaswini R
Course: DSP	USN: 4AL17EC098
Topic: Introduction to Fourier Series & Fourier Transform, Fourier Series – Part 1 & 2, Complex Fourier Series, Fourier Series using Matlab, Fourier Series using Python, Fourier Series and Gibbs Phenomena Using Matlab	Semester & section: 6 th , B

FORENOON SESSION

Image of session

Fourier Transform (& wavelets) databookuw.com

Coordinate transform

$u(x,y,t)$

$u_t =$

Fourier Series $e^{ikx} = \cos(kx) + i\sin(kx) := \psi_k$ databookuw.com

$\langle f(x), g(x) \rangle = \int_{-\pi}^{\pi} f(x) \bar{g}(x) dx$

$f(x) = \sum_{k=-\infty}^{\infty} c_k e^{ikx} = \sum_{k=-\infty}^{\infty} (\alpha_k + i\beta_k) (\cos(kx) + i\sin(kx))$

$(c_k = \bar{c}_{-k} \text{ if } f(x) \text{ is real})$

$\langle \psi_j, \psi_k \rangle = \int_{-\pi}^{\pi} e^{ijx} e^{-ikx} dx = \int_{-\pi}^{\pi} e^{i(j-k)x} dx = \frac{1}{i(j-k)} [e^{i(j-k)x}]_{-\pi}^{\pi}$

$= \begin{cases} 0 & \text{if } j \neq k \\ 2\pi & \text{if } j = k \end{cases}$

Diagrams: A triangular pulse $f(x)$ and several sine waves.

Report

Fourier series:

Fourier series is a periodic function composed of harmonically related sinusoids combined by a weighted summation. With appropriate weights one cycle of the summation can be made to approximate an arbitrary function in that interval.

Basic Results. is called a Fourier series. Since this expression deals with convergence, we start by defining a similar expression when the sum is finite. a_n and b_n are called the coefficients of $F_n(x)$

Fourier transform:

A Fourier transform is a mathematical transform which decomposes a function into its constituent frequencies, such as the expression of a musical chord in terms of the volumes and frequencies of its constituent notes. The term Fourier transform refers to both the frequency domain representation and the mathematical operation that associates the frequency domain representation to a function of time.

Complex fourier series:

The complex Fourier series is presented first with period 2π , then with general period. The connection with the real-valued Fourier series is explained and formulae are given for converting between the two types of representation.

Discrete Fourier transform:

Discrete Fourier transform converts a finite sequence of equally-spaced samples of a function into a same-length sequence of equally-spaced samples of the discrete-time Fourier transform, which is a complex-valued function of frequency. The interval at which the DTFT is sampled is the reciprocal of the duration of the input sequence

Applications :

Fourier analysis has many scientific applications – in physics, partial differential equations, number theory, combinatorics, signal processing, digital image processing, probability theory, statistics, forensics, option pricing, cryptography, numerical analysis, acoustics, oceanography, sonar, optics, diffraction, geometry, protein structure analysis, and other areas. This wide applicability stems from many useful properties of the transforms: The transforms are linear operators and, with proper normalization, are unitary as well. The transforms are usually invertible.

Date: 25/05/20	Name: Yashaswini R
Course: Python	USN: 4AL17EC098
Topic: Fixing programming error, Application 3: Build a website blocker	Semester & section: 6th , B
Github Repository: Yashaswini	

FORENOON SESSION DETAILS

Image of session:

The screenshot shows the Atom editor with a file named `script.py` open. The code in the editor is as follows:

```

1 from flask import Flask
2
3 app=Flask(__name__)
4
5 @app.route('/')
6 def home():
7     return "Website content goes here!"
8
9 if __name__=="__main__":
10     app.run(debug=True)
11

```

Below the code editor, the terminal output is visible, showing the installation of Flask and the execution of the script:

```

Requirement already satisfied (use --upgrade to upgrade): itsdangerous==0.21 in c:\users\adi\appdata\local\programs\python\python35\lib\site-packages (from flask)
Requirement already satisfied (use --upgrade to upgrade): MarkupSafe in c:\users\adi\appdata\local\programs\python\python35\lib\site-packages (from Jinja2>=2.4->flask)
Installing collected packages: flask
Running setup.py install for flask
Successfully installed flask-0.10.1
PS C:\pp\Demo\d_flask_website\Demo> python .\script1.py
* Restarting with stat
* Debugger is active!
* Debugger pin code: 231-698-889
127.0.0.1 - - [13/Dec/2015 22:24:11] "GET / HTTP/1.1" 200 -
127.0.0.1 - - [13/Dec/2015 22:24:12] "GET /Favicon.ico HTTP/1.1" 404 -

```

Overlaid on the right side of the terminal output are two text boxes:

Case 1 - Script executed:
`__name__ = "__main__"`

Case 2 - Script Imported:

The screenshot shows a video player interface. The video content displays a Python script for a GUI using Tkinter:

```

1 from tkinter import *
2
3 window=Tk()
4
5 def is_to_miles():
6     print("Success!")
7
8 b1=Button(window,text="Execute",command=is_to_miles)
9 b1.grid(row=0,column=0)
10
11 e1=Entry(window)
12 e1.grid(row=0,column=1)
13
14 t1=Text(window,height=1,width=20)
15 t1.grid(row=0,column=2)
16
17 window.mainloop()

```

Below the code, the terminal output shows the successful execution of the script:

```

PS D:\pp\kinter section> python .\script1.py
Success!
Success!
Success!
Success!
PS D:\pp\kinter section>

```

On the right side of the video player, there is a sidebar titled "Course content" with a list of sections:

- ☐ 171. Connecting GUI Widgets with Callback Functions (10min)
- ☐ 172. Create a Multi-widget GUI (Practice) (1min)
- ☐ 173. Solution (1min)
- Section 22: Interacting with Databases (0 / 6 | 45min)
- Section 23: Application 5: Build a

Report:**Fixing programming errors**

- The correct way to fix a Python error one of the things that separates them from novices is that they know how to fix an error.
- Not knowing how to fix an error will not only waste a lot of time, but even worse it can demotivate you to the point where you feel dump and give up learning how to program.
- In this reading we will learn the secrets of finding and fixing a Python code error.

Syntax Error: invalid syntax

- In this case the error type is a Syntax Error.
- That means you have written something that doesn't follow the Python syntax rules.
- So, now you have an idea of what error you are dealing with. For an overview of possible Python error types we can look here.
- In this case it started to read the first line and it detected round brackets after the assignment operator.

Website Blocker Using Python

This is real world program which blocks certain distracting website like Facebook, Youtube etc. during your work hours.

About the program

In this program is that we will pass the link of websites which you think is distracting and the time that you are working on your computer and program will block those website. Every system have host file whether it is Mac, Windows or Linux. Host file in Mac and Linux : /etc/hosts Host file in Windows.