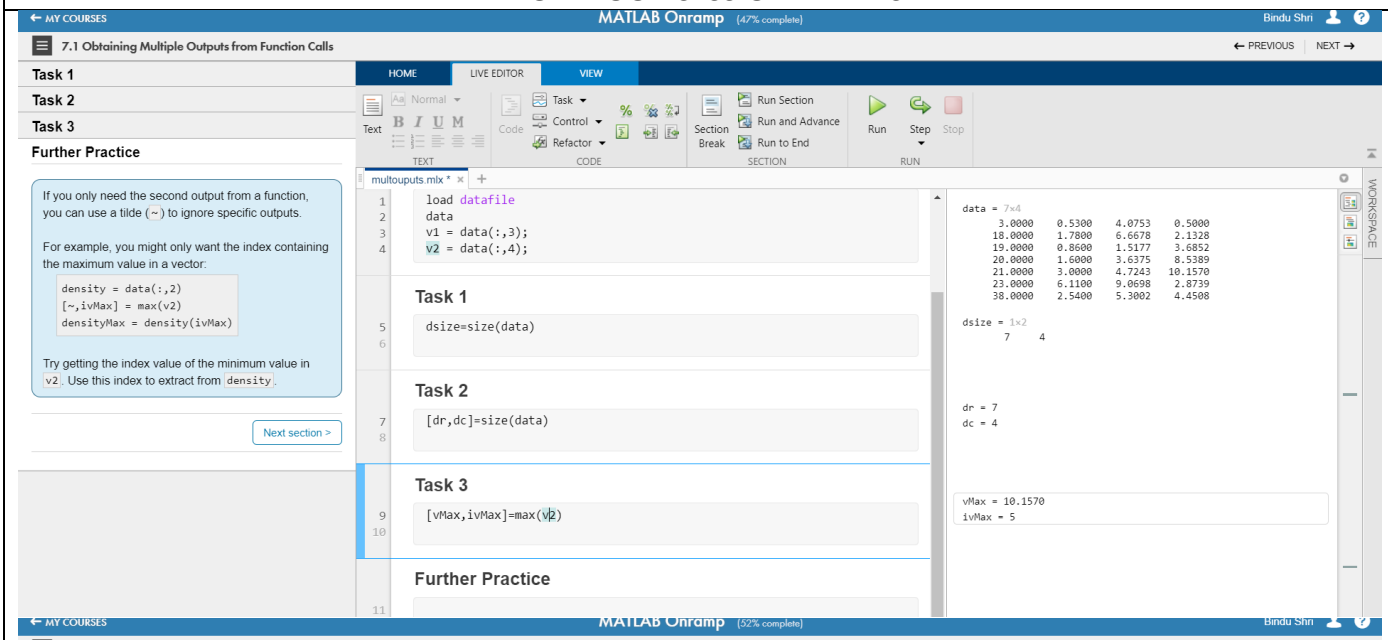
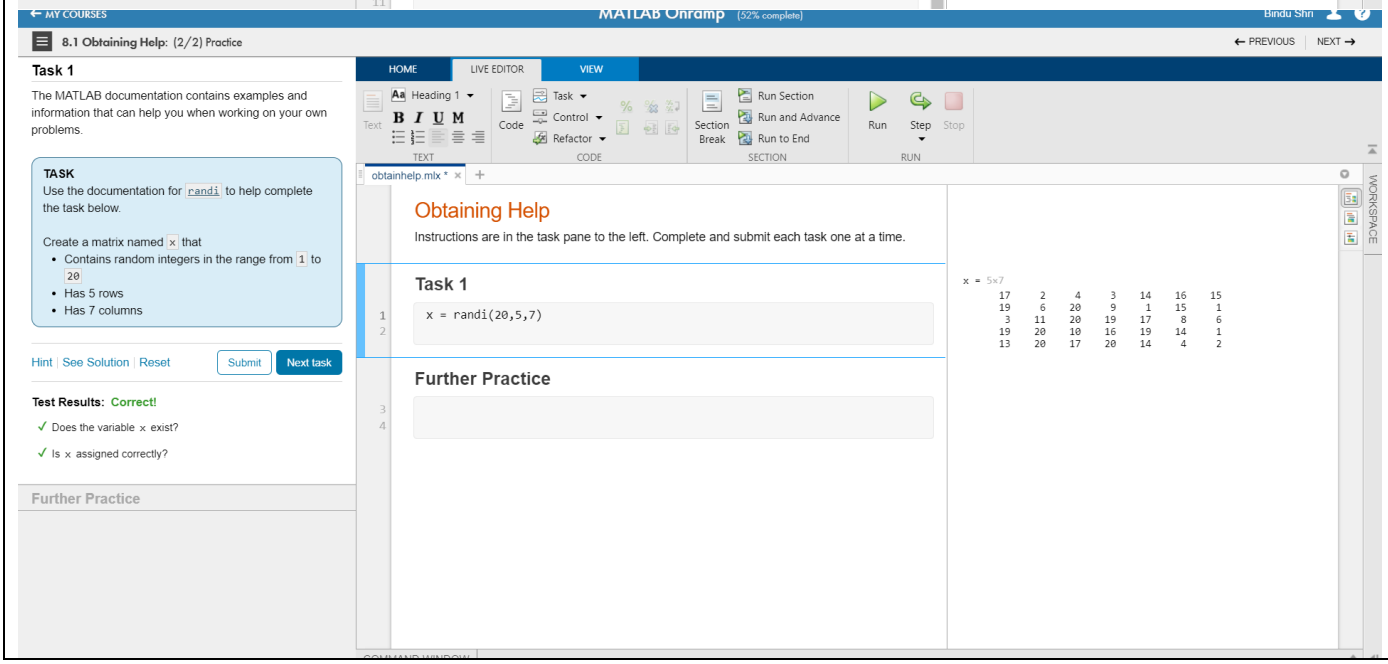
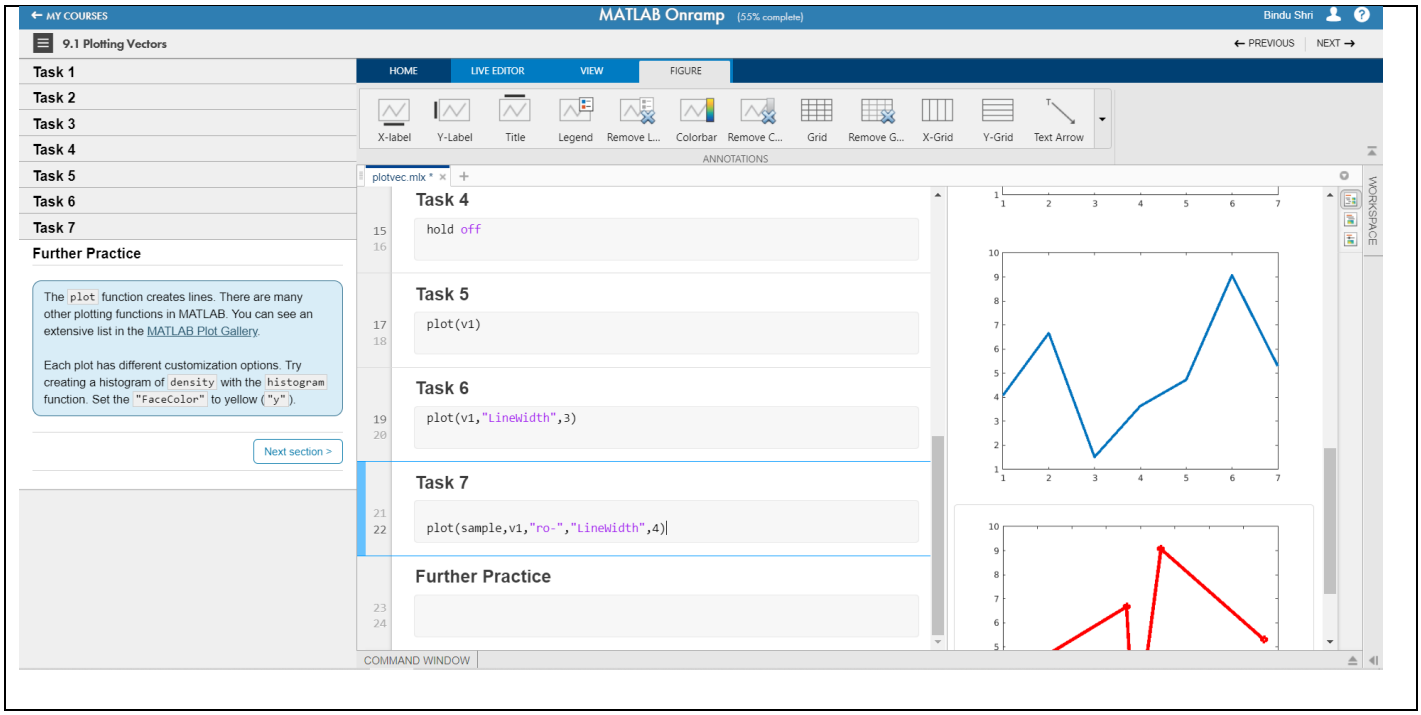
DAILY ASSESSMENT FORMAT

Date:	**07-07-2020**	**Name:**	**BINDUSHRI**
Course:	**matlab**	**USN:**	**4AL17EC011**
Topic:	**Sec6-sec10**		**6th A**
Github Repository:	**Bindushri**		

FORENOON SESSION DETAILS






MY COURSES
MATLAB Onramp (55% complete)
Bindu Shri
9.1 Plotting Vectors
PREVIOUS
NEXT
Task 1
Task 2
Task 3
Task 4
Task 5
Task 6
Task 7
Further Practice
The plot function creates lines. There are many other plotting functions in MATLAB. You can see an extensive list in the MATLAB Plot Gallery.
Each plot has different customization options. Try creating a histogram of density with the histogram function. Set the "FaceColor" to yellow ("y").
Next section >
HOME
LIVE EDITOR
VIEW
FIGURE
X-label
Y-Label
Title
Legend
Remove L...
Colorbar
Remove C...
Grid
Remove G...
X-Grid
Y-Grid
Text Arrow
ANNOTATIONS
plotvec.mlx *
Task 4
hold off
Task 5
plot(v1)
Task 6
plot(v1,"LineWidth",3)
Task 7
plot(sample,v1,"ro-","LineWidth",4)
Further Practice
COMMAND WINDOW
WORKSPACE

MY COURSES

MATLAB Onramp (58% complete)

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9.2 Annotating Plots

PREVIOUS NEXT

Task 1
Task 2
Task 3
Further Practice

You can use a variable's value in plot annotations by *concatenating* a string with a variable:

```
bar(data(3,:))
title("Sample " + sample(3) + " Data")
```

Next section >

HOME LIVE EDITOR VIEW FIGURE

X-label Y-Label Title Legend Remove L... Colorbar Remove C... Grid Remove G... X-Grid Y-Grid Text Arrow

ANNOTATIONS

annotateplot.mlx *

This code creates the plot from the last activity.

```
8  plot(sample,mass1,"ks")
9  hold on
10 plot(sample,mass2,"r*")
11 hold off
```

Task 1

```
12
13 title("Sample Mass")
```

Task 2

```
14
15 ylabel("Mass (g)")
```

Task 3

```
16 legend("Exp A","Exp B")
17
```

Further Pr'actice

```
18
19
```

COMMAND WINDOW

WORKSPACE

ENG 00:54 07-07-2020

MY COURSES

MATLAB Onramp (61% complete)

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10.1 Project - Electricity Usage

PREVIOUS NEXT

Task 1
Task 2
Task 3
Task 4
Task 5
Task 6
Task 7
Further Practice

When looking at the figure, it is clear that the industrial sector's electricity usage is fairly consistent and does not seem to fluctuate as much as the residential and commercial sectors.

Next section >

HOME LIVE EDITOR VIEW FIGURE

X-label Y-Label Title Legend Remove L... Colorbar Remove C... Grid Remove G... X-Grid Y-Grid Text Arrow

ANNOTATIONS

consumptionplot.mlx *

Task 4

```
8  comm = usage(:,2)
9  ind = usage(:,3)
10
```

Task 5

```
11 yrs = (1991:2013)'
12
```

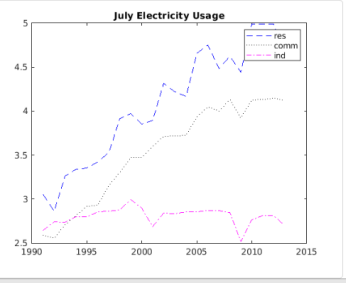
Task 6

```
13 plot(yrs,res,"b--")
14 hold on
15 plot(yrs,comm,"k:")
16 plot(yrs,ind,"m-.")
17 hold off
18
```

Task 7

```
19 title("July Electricity Usage")
20 legend("res","comm","ind")
21
```

```
yrs = 23×1
        1991
        1992
        1993
        1994
        1995
        1996
        1997
        1998
        1999
        2000
```



COMMAND WINDOW

WORKSPACE

← MY COURSES

MATLAB Onramp (64% complete)

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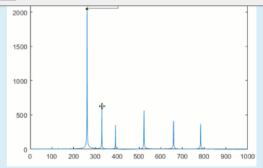
10.2 Project - Audio Frequency

← PREVIOUS NEXT →



The first three spikes are the notes comprising a middle C chord.

What are the other three spikes? When a chord is played, the signal contains *fundamental frequencies* and the associated *harmonics*. In this case, the harmonics are another octave of the same chord.

Using the frequencies in the table below, you can see that the 6 spikes in the plot correspond to the fundamental frequencies and the first harmonics of a middle C chord.

Note	Frequency
C_4	261.6
E_4	329.6
G_4	392.0
C_5	525.3
E_5	659.3
G_5	784.0

HOME LIVE EDITOR VIEW FIGURE

X-label Y-Label Title Legend Remove L... Colorbar Remove C... Grid Remove G... X-Grid Y-Grid Text Arrow

ANNOTATIONS

audiofrequency.mlx *

```
5  t = t/fs
6  plot(t,y)
7
```

Task 3

```
8  yfft = abs(fft(y))
9
```

Task 4

```
10
11 f = 0:n-1
```

Task 5

```
12 f = f*fs/n
13 plot(f,yfft)
14 xlim([0 1000])
15
```

Further Practice

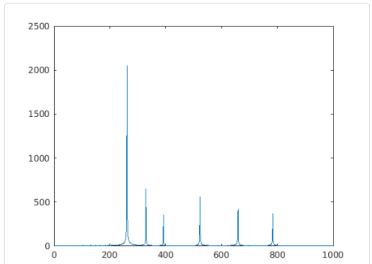
```
16
```

COMMAND WINDOW

```
yfft = 1×12288
10^3 ×
    0.0028    0.0026    0.0026    0.0026    0.0026 ...

f = 1×12288
     0     1     2     3     4     5     6     7 ...

f = 1×12288
10^3 ×
         0    0.0007    0.0013    0.0020    0.0027 ...
```



WORKSPACE

ENG 01:05

matlabacademy.mathworks.com/R2020a/portal.html?course=gettingstarted#chapter=5&lesson=1&section=2

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MATLAB Onramp (35% complete)

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5.1 Indexing into Arrays: (2/2) Practice

← PREVIOUS NEXT →

Task 1
Task 2
Task 3
Further Practice

If you only use one index with a matrix, it will traverse down each column in order. Using one index, try extracting the eighth element of data.

You can also use variables as your index. Try creating a variable `y`, and using `y` as the index to `data`.

Next section >

HOME LIVE EDITOR VIEW

Text Code Task Control Refactor Section Break Run Section Run and Advance Run to End Run Step Stop

TEXT CODE SECTION RUN

indexing.mlx *

This code sets up the interaction.

```
1  load datafile
2  data
```

Task 1

```
3  x=data(6,3)
4
```

Task 2

```
5  x=data(end,3)
6
```

Task 3

```
7  x=data(end-1,3)
8
```

Further Practice

```
9
10
```

```
data = 7×4
    3.0000    0.5300    4.0753       NaN
   18.0000    1.7800    6.6678    2.1328
   19.0000    0.8600    1.5177    3.6852
   20.0000    1.6000    3.6375    8.5389
   21.0000    3.0000    4.7243   10.1570
   23.0000    6.1100    9.0698    2.8739
   38.0000    2.5400    5.3002    4.4508

x = 9.0698

x = 5.3002

x = 9.0698
```

WORKSPACE

7/07/2020

Matlab Sec 6 — Sec 10

Matlab is designed to work naturally with arrays. for example. you can add a scalar value to all the elements of an array.

y = x + 2.

Plotting vectors.

```
load datafile
sample = data(:,1);
density = data(:,2);
V1 = data(:,3);
V2 = data(:,4);
mass1 = density .* V1;
mass2 = density .* V2;
```

This code creates ~~from~~ plot

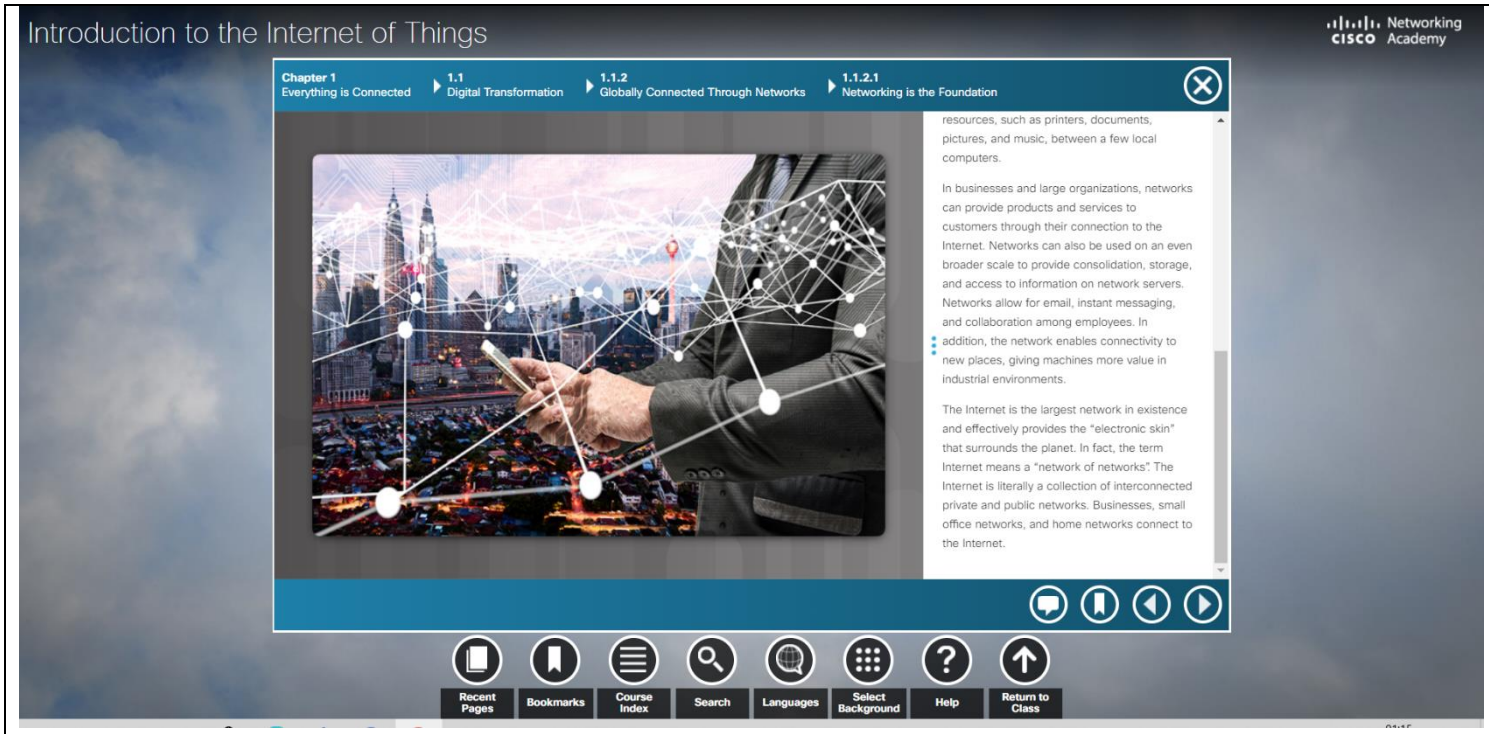
```
Plot (sample, mass1, "ks")
hold on
Plot (sample, mass2, "r*")
hold off
```

Audio - frequency

Audio-signals are usually comprised of many different frequencies.

Course:cisco networking academy-training and event

Topic:IOT-chapter1



PAN

purpose.

Personal Area Network (PAN)

Personal area networks are small networks where connected wireless devices are within personal reach (Figure 1). Connecting your smartphone to your car using Bluetooth is an example of a PAN.

Local Area Network (LAN)

LANs are typically networks in a small or local geographic area, such as a home, small business or department within a large corporation (Figure 2). LANs can connect two or more devices, including computers, printers, and wireless devices. LANs provide access to larger wide area networks (WANs) and the Internet.

Wide Area Networks (WANs)

The term WAN typically refers to a collection of LANs that provides inter-LAN and Internet connectivity for businesses and governments.

Internet The Internet is a multi-layer global

Introduction to the Internet of Things

Networking Academy

What is the IoT?

The Internet of Things (IoT) is the connection of millions of smart devices and sensors connected to the Internet. These connected devices and sensors collect and share data for use and evaluation by many organizations. These organizations include businesses, cities, governments, hospitals and individuals. The IoT has been possible, in part, due to the advent of cheap processors and wireless networks. Previously inanimate objects such as doorknobs or light bulbs can now be equipped with an intelligent sensor that can collect and transfer data to a network.

Researchers estimate that over 3 million new devices are connected to the Internet each month. Researchers also estimate that in the next four years, there are going to be over 30 billion connected devices worldwide.

Perhaps a third of connected devices will be computers, smartphones, tablets, and smart TVs. The remaining two-thirds will be other kinds of "things": sensors, actuators, and newly invented intelligent devices that monitor, control, analyze, and optimize our world.

Some examples of intelligent connected sensors are: smart doorbells, garage doors, thermostats, sports wearables, pacemakers, traffic lights, parking spots, and many others. The limit of different objects that could become intelligent sensors is limited only by our imagination.


Introduction to the Internet of Things
Networking Academy
Chapter 1
Everything is Connected
1.1
Digital Transformation
1.1.1
Digitization Transforms Business
1.1.1.5
Can smart devices think?
Can Smart Devices Think?
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Introduction to the Internet of Things
Networking Academy
Chapter 1
Everything is Connected
1.3
Summary
1.3.1
Summary
1.3.1.1
Summary
Chapter 1 | Summary
The world is quickly being covered with networks which allow digital devices to interconnect and transmit. As digital networks continue to grow around the world, and as the economic benefits of digitization continue to grow, we are seeing a digital transformation. Digital transformation is the application of digital technology to provide the stage for business and industry to innovate.
Sensors are now everywhere, collecting and transmitting massive amounts of data. The generated data can be stored and analyzed at a later date, or it can be analyzed and used immediately. Sensors can be in the home, on traffic lights, in farm fields, and on our bodies. The analyzed data is used by governments, cities, businesses, and individuals to effect changes such as monitoring the environment, forecasting population growth, controlling waste management, or securing a home.
Networks form the foundation of the digitized world. There are many types of networks that are characterized by their geographic size, by the number of devices or networks that they connect, and by whether they support mobile devices or not. Networks can also be characterized by their function and purpose.
PAN: Bluetooth
LAN
WAN: Internet, the cloud, fog computing
Wireless: Wi-Fi, Cellular
A sensor typically connects to a controller using a wireless connection. Controllers collect data from sensors and send the data for storage or analysis. Controllers may have the ability to make immediate decisions, or they may work together with a device called an actuator. Actuators take electrical input and transform the input into physical action.
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IOT 7/07/2020

Chapter-1

Everything is connected.

Networking is the foundation

⇒ Networks form the foundation of the digitized world.

⇒ Networks comes in all sizes

⇒ They can range from simple networks consisting of two computers to connecting millions of devices.

⇒ Internet is the largest network in existence and effectively provides the "electronic skin"

Network types

LAN

PAN

WAN