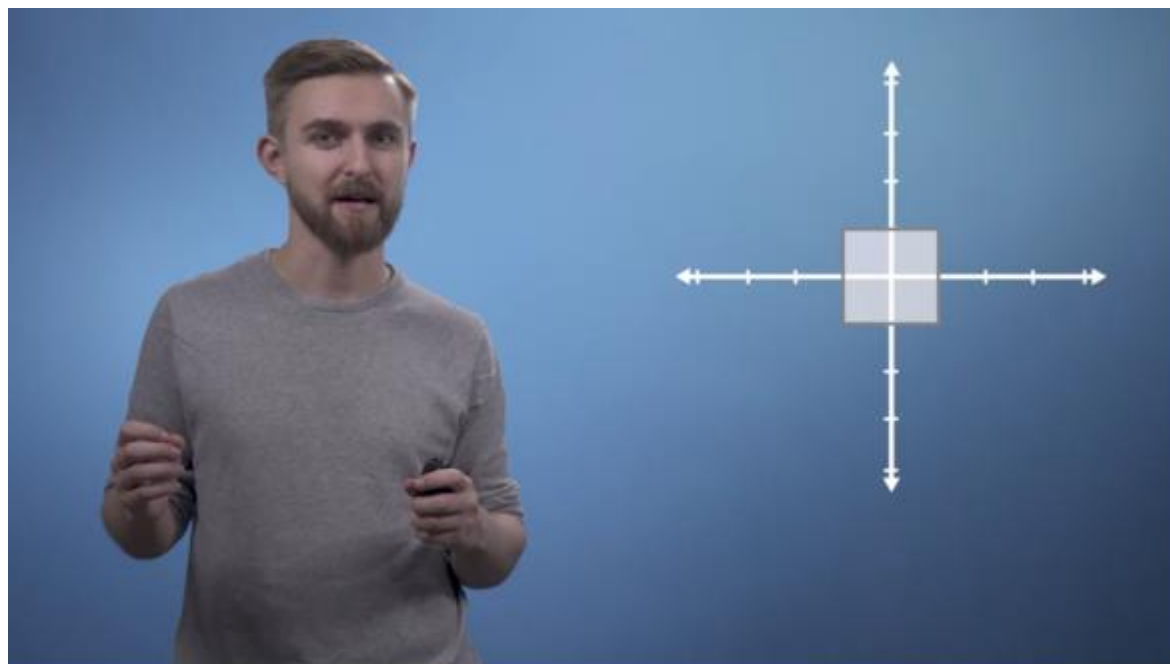


DAILY ASSESSMENT FORMAT

Date:	17 th July 2020	Name:	Poorvi j gowda
Course:	coursera	USN:	4AL17EC077
Topic:	Mathematics for machine learning: Linear Algebra	Semester & Section:	6 th sem 'B' sec
Github Repository:	Poorvi-2000		

FORENOON SESSION DETAILS

Image of session



$$A = \begin{pmatrix} 1 & 0 \\ 0 & 2 \end{pmatrix} \quad \det \begin{pmatrix} 1-\lambda & 0 \\ 0 & 2-\lambda \end{pmatrix}$$

$$(A - \lambda I)x = 0 \quad = (1-\lambda)(2-\lambda) = 0$$

$$@\lambda=1: \begin{pmatrix} 1-1 & 0 \\ 0 & 2-1 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} 0 \\ x_2 \end{pmatrix} = 0$$

$$@\lambda=2: \begin{pmatrix} 1-2 & 0 \\ 0 & 2-2 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} -1 & 0 \\ 0 & 0 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} -x_1 \\ 0 \end{pmatrix} = 0$$

Coursera for Students | Courses | Characteristic polynomials, eigenvalues and eigenvectors

Practice Quiz • 20 min

✓ Congratulations! You passed!
TO PASS: 80% or higher

[Keep Learning](#) **GRADE 100%**

Characteristic polynomials, eigenvalues and eigenvectors

TOTAL POINTS 10

1. Given a matrix $\begin{bmatrix} a & b \\ c & d \end{bmatrix}$, recall that one can calculate its eigenvalues by solving the characteristic polynomial $\lambda^2 - (a+d)\lambda + (ad-bc) = 0$. In this quiz, you will practice calculating and solving the characteristic polynomial to find the eigenvalues of simple matrices.

For the matrix $A = \begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}$, what is the characteristic polynomial, and the solutions to the characteristic polynomial?

$\lambda^2 + 3\lambda + 2 = 0$

Coursera | PageRank | Courses

Mathematics for Machine Learning: Linear Algebra | Week 3 | PageRank

Programming Assignment: PageRank
✓ Passed - 10/10 points

Deadline Pass this assignment by Aug 16, 11:50 PM PDT

Instructions My submission Discussions

Open the notebook item in this module. Follow the instructions there and submit from inside the notebook. You can use this page once complete to check your score.

Good luck!

How to submit
When you're ready to submit, you can upload files for each part of the assignment on the "My submission" tab.

What are eigen-things?
Diving into the detail of eigenproblems
When changing to the eigendata is really useful
Making the PageRank algorithm
Video: Introduction to PageRank
Notebook: PageRank
Programming Assignment: PageRank
Eigenvalues and Eigenvectors: Assessment

Coursera for Students | Courses | PageRank | Courses | Eigenvalues and eigenvectors

Due Aug 16, 11:59 PM PDT

✓ Congratulations! You passed!
TO PASS: 80% or higher

[Keep Learning](#) **GRADE 80%**

Eigenvalues and eigenvectors

LATEST SUBMISSION GRADE 80%

1. This assessment will test your ability to apply your knowledge of eigenvalues and eigenvectors to some special cases.

Use the following code blocks to assist you in this quiz. They calculate eigenvectors and eigenvalues respectively:

```

1 # Eigenvalues
2 R = np.array([[1.5, -1],
3             [0, 0.5]])
4 v1, v2 = np.linalg.eig(R)
5 v1

```

[Run](#) [Reset](#)

[1.-0.5] 1.-0.5]

Eigenvalues & Eigenvectors :-

Horizontal of three vectors will not be pointing in the same direction after a vertical scaling

There are 1 eigenvectors does the transformation have

We can possibly draw 1 vectors which are not eigenvectors

calculating eigen vectors :-

$$Ax = \lambda x$$

$$(A - \lambda I)x = 0$$

$$\det(A - \lambda I) = 0$$

$$A = \begin{pmatrix} a & b \\ c & d \end{pmatrix}$$

$$\det \left(\begin{pmatrix} a & b \\ c & d \end{pmatrix} - \begin{pmatrix} \lambda & 0 \\ 0 & \lambda \end{pmatrix} \right) = 0$$

$$\det \left(\begin{pmatrix} a & b \\ c & d \end{pmatrix} - \begin{pmatrix} \lambda & 0 \\ 0 & \lambda \end{pmatrix} \right) = 0$$

$$\lambda^2 - (a+d)\lambda + ad - bc = 0$$

$$A = \begin{pmatrix} 1 & 0 \\ 0 & 2 \end{pmatrix} \quad \det \begin{pmatrix} 1-\lambda & 0 \\ 0 & 2-\lambda \end{pmatrix}$$

$$(A - \lambda I)x = 0 \quad \Rightarrow (1-\lambda)(2-\lambda) = 0$$

$$@ \lambda = 1 : \begin{pmatrix} 1-1 & 0 \\ 0 & 2-1 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} 0 \\ x_2 \end{pmatrix} = 0$$

$$@ \lambda = 2 : \begin{pmatrix} 1-2 & 0 \\ 0 & 2-2 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} -1 & 0 \\ 0 & 0 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} = \begin{pmatrix} -x_1 \\ 0 \end{pmatrix} = 0$$

$$@ \lambda = 1 : x = \begin{pmatrix} t \\ 0 \end{pmatrix}$$

$$A = \begin{pmatrix} 0 & -1 \\ 1 & 0 \end{pmatrix}$$

$$\det \begin{pmatrix} 0-\lambda & -1 \\ 1 & 0-\lambda \end{pmatrix} = \lambda^2 + 1 = 0$$

Imperial College
London

07/17/2020

Poorvi hj

has successfully completed

Mathematics for Machine Learning: Linear
Algebra

an online non-credit course authorized by Imperial College London and offered through
Coursera



David Dye and Sammai J. Cooper

COURSE
CERTIFICATE



Verify at coursera.org/verify/GGLMSVRCX6J9
Coursera has confirmed the identity of this individual and
their participation in the course.

