

# Daily Assessment Journal

Date: 16/July/2020

Course: coursea

Topic: mathematics for machine learning

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## Report

What are Eigen things?

- An eigenvector is a vector that when you multiply it by a square matrix, you get the same vector or same vector multiplied by a scalar.
- There are a lot of terms such are related to this like eigenspaces & eigenvalues & eigenbases & such, which I don't quite understand, which I don't quite understand, in fact, I don't understand at all.
- Can someone give an explanation connecting these terms so that it is clear what they are & why they are related.
- Eigenvectors are those vectors that exhibit especially simple behaviours under a linear transformation.
- Loosely speaking, they don't bend & rotate they simply grow (or shrink) in length (though a different interpretation of growth/shrinkage may apply if the ground field is not  $\mathbb{R}$ ).
- If it is possible to express any other vector as a linear combination of eigenvectors (preferably if you can in fact find a whole basis made of eigenvectors) then applying the otherwise complicated - linear transformation suddenly becomes easy because with respect to a basis of eigenvectors the linear transformation is given simply by a diagonal matrix.



→ In linear algebra, an eigenvector or characteristic vector of a linear transformation is a nonzero vector that changes at most by a scalar factor when that linear transformation is applied to it.

→ the corresponding eigenvalue is the factor by which the eigenvector is scaled geometrically, an eigenvector corresponding to a real nonzero eigenvalue, points in a direction in which it is stretched by the transformation & the eigenvalue is the factor by which it is stretched.

→ if the eigenvalue is negative, the direction is reversed. loosely speaking, in a multidimensional vector space, the eigenvector is not rotated.

→ However, in a one dimensional vector space, the concept of rotation is meaningless. if the entries of the matrix are all real numbers, then the coefficients of the characteristic polynomial will also be real numbers, but the eigenvalues may still have nonzero imaginary parts.

→ therefore, any real matrix with odd order has at least one real eigenvalue where as a real matrix with even order may not have any real eigenvalues.

→ the eigenvectors associated with these complex eigenvalues are also complex & also appear in complex conjugate pairs.



Date: 16 July 2020

Course: Salesforce

Topic: build your career with  
Salesforce Skills

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## Report

Secure your User's identity  
Learning objectives

After completing this module, you'll be able to:

- describe ways to identify your users in addition to a username & password
- setup two-factor authentication
- Use the Salesforce Authenticator app to verify identity
- get login information about users who login to your org

→ secure identity with two-factor Authentication of Salesforce Authenticator: As an admin, you probably walk a fine line b/w making sure that your Salesforce org is secure & that your users can login quickly & easily.

→ The most effective way to protect your org & its data is to require that users provide more than just their username & password. security experts call this two-factor Authentication, or 2FA for short.

## What is two-factor Authentication

→ sounds like a mathematical eqn, right? whether it thrills you or fills you with dread, just know that 2FA has nothing to do with high school algebra, but it is has everything to do with making sure that your users are who they say they are.

## What are the two factors?

- something users know, like their password
- something users have, such as a mobile device with an authenticator app installed.
- that second factor of authentication provides an extra layer of security for your org.



As an admin, you can require it everytime your users login, or you can require it only in some circumstances such as when users login from an unrecognized device or try to access a high-risk application.

→ After users successfully verify their identity with both authentication factors, they can access salesforce & start working.

→ How two-factor Authentication works

You might not have known what it's called, but you've probably already used two-factor authentication.

→ This unique code is sometimes called a time-based one-time password (or TOTP for short) because it expires after a set amount of time.

suppose you're a salesforce admin for Jedge Technologies, a company not located in a galaxy far, far away.

→ your chief security officer has handed you a mission: make all employees supply more than their username & password everytime they try to access the company's salesforce org.

step 1: set the session security level for two-factor authentication

step 2: create a user

step 3: create a permission set for two-factor authentication

step 4: Assign the permission set to sia's user.