

DAILY ASSESSMENT REPORT

Date:	14 July 2020	Name:	Gagan M K
Course:	Mathematics for Machine Learning: Linear Algebra	USN:	4AL17EC032
Topic:	<ul style="list-style-type: none"> Vectors 	Semester & Section:	6th sem & 'A' sec
GitHub Repository:	Alvas-education-foundation/Gagan-Git		

FORENOON SESSION DETAILS

Image of session

Gagan M K

Mathematics for Machine Learning: Linear Algebra > Week 2 > Changing basis
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5 min

Video: Projection
6 min

Practice Quiz: Dot product of vectors
6 questions

Changing the reference frame

Video: Changing basis
11 min

Practice Quiz: Changing basis
5 questions

Video: Basis, vector space, and linear independence
4 min

Video: Applications of changing basis
3 min

Practice Quiz: Linear dependency of a set of vectors
6 questions

Doing some real-world vectors examples

Quiz: Vector operations assessment

Changing basis

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English

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Notes

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Report – Report can be typed or hand written for up to two pages.

Vectors:

- The dot product may be defined algebraically or geometrically. The geometric definition is based on the notions of angle and distance (magnitude of vectors).
- The equivalence of these two definitions relies on having a Cartesian coordinate system for Euclidean space.
- In such a presentation, the notions of length and angles are defined by means of the dot product. The length of a vector is defined as the square root of the dot product of the vector by itself, and the cosine of the (nonoriented) angle of two vectors of length one is defined as their dot product.
- So the equivalence of the two definitions of the dot product is a part of the equivalence of the classical and the modern formulations of Euclidean geometry.
- The distance is covered along one axis or in the direction of force and there is no need of perpendicular axis or $\sin \theta$. In cross product the angle between must be greater than 0 and less than 180 degree it is max at 90degree. That's why we use $\cos \theta$ for dot product and $\sin \theta$ for cross product.
- The extent to which the two vectors go in the same direction, because if θ was 0 then $\cos \theta$ would be 1, and $r \cdot s$ would just be the size of the two vectors multiplied together.
- If the two vectors on the other hand we're at 90 degrees to each other, if they were, r was like this and s was like this and the angle between them, θ , was equal to 90 degrees, $\cos \theta$, $\cos 90$ is 0, and then $r \cdot s$ is going to be, we can immediately see, $r \cdot s$ is going to be some size of r , some size of s , times 0.
- If the two vectors are pointing at 90 degrees to each other, if they what's called orthogonal to each other, then the dot product it's going to give me 0.
- Take a little right-handed triangle, drop a little right-handed triangle down here where this angle's 90 degrees, then I can do the following.
- If we can say that if this angle here is θ , but $\cos \theta$ is equal to, from sohcahtoa, is equal to the adjacent length here over the hypotenuse, that is, and this hypotenuse is the size of S .
- If I compare that to the definition of the dot product, I can say that R dotted with, we'll have fun with colors, dotted with S is equal to $\text{mod } R$ size of R , times the size of S , times $\cos \theta$.
- But the size of S times $\cos \theta$ if I put S up here, just need to put my θ in there, $\cos S$, $\cos \theta$ is just the adjacent side, so that's just the adjacent site here in the triangle. So, the adjacent side here is just kind of the shadow, if I had a light coming down from here, it's the shadow of S on R .
- Finding the modulus (size), angle between vectors (dot or inner product) and projections of one vector onto another.
- We can then examine how the entries describing a vector will depend on what vectors we use to define the axes - the basis.
- That will then let us determine whether a proposed set of basis vectors are what's called 'linearly independent.'

- This will complete our examination of vectors, allowing us to move on to matrices in module 3 and then start to solve linear algebra problems.
- Take a little right-handed triangle, drop a little right-handed triangle down here where this angle's 90 degrees, then I can do the following.
- If we can say that if this angle here is theta, but $\cos \theta$ is equal to, from sohcahtoa, is equal to the adjacent length here over the hypotenuse, that is, and this hypotenuse is the size of S .
- If I compare that to the definition of the dot product, I can say that R dotted with, we'll have fun with colors, dotted with S is equal to $\text{mode } R \text{ size of } R, \text{ times the size of } S, \text{ times } \cos \theta$.
- But the size of S times $\cos \theta$ if I put S up here, just need to put my θ in there, $\cos S$, $\cos \theta$ is just the adjacent side, so that's just the adjacent site here in the triangle. So, the adjacent side here is just kind of the shadow, if I had a light coming down from here, it's the shadow of S on R .
- Operations we can do with vectors:
- Finding the modulus (size), angle between vectors (dot or inner product) and projections of one vector onto another.
- We can then examine how the entries describing a vector will depend on what vectors we use to define the axes - the basis.
- That will then let us determine whether a proposed set of basis vectors are what's called 'linearly independent.'
- This will complete our examination of vectors, allowing us to move on to matrices in module 3 and then start to solve linear algebra problems.

Introduction

Finding the size of a vector, its angle, and projection

Changing the reference frame

Video: Changing basis
11 min

Practice Quiz: Changing basis
5 questions

Video: Basis, vector space, and linear independence
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3 min

Practice Quiz: Linear dependency of a set of vectors
6 questions

Doing some real-world vectors examples

Basis, vector space, and linear independence

Basis is a set of n vectors that:

- (i) are not linear combinations of each other (linearly independent)
- (ii) span the space
- The space is then n -dimensional



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Notes

All notes



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Date:	14 July 2020	Name:	Gagan M K
Course:	Trailblaze	USN:	4AL17EC032
Topic:	<ul style="list-style-type: none"> Explore Career Options Create a Plan and Skill Up Land Your Next Opportunity 	Semester & Section:	6 th sem & 'A' sec

AFTERNOON SESSION DETAILS

Image of session:

The screenshot shows the Trailhead interface for the 'Create a Plan and Skill Up' learning unit. The top navigation bar includes the Trailhead logo, a search bar, and user information for Gagan M K (2 badges, 425 points). The breadcrumb trail indicates the path: Career Development Planning > Create a Plan and Skill Up.

Create a Plan and Skill Up
Learning Objectives
 After completing this unit, you'll be able to:

- Identify resources to skill up for your next Salesforce role.
- Learn how to get connected to the Salesforce community.
- Create an action plan for preparing for your next role.

Creating your action plan
 Now that you've identified one or two target roles that you're interested in pursuing, it's time to make a concrete action plan for what you need to do to prepare for that role.

Time Estimate
 ⌚ About 10 mins

Topics

- Learning Objectives**
- Creating your action plan
- Learning
- Learn in Class
- Learn from Others
- Get Yourself to Dreamforce
- Attend a Local Event
- Find a Mentor
- Grow Your Resume with Skill-Based Credentials
- Get Experience by Helping Others
- Get Involved in the Community
- Create Your Plan
- Next Steps
- Resources

An illustration at the bottom shows a person sitting at a desk with a laptop, with a thought bubble above their head containing a notepad with the word 'PLAN' and a checklist.

Report – Report can be typed or hand written for up to two pages.

- **Now that you've identified one or two target roles that you're interested in pursuing, it's time to make a concrete action plan for what you need to do to prepare for that role.**
- **Developing your career plan.**
- **There are three main areas to consider in developing your career plan.**
- **Learning: what are the skills you need to acquire, and where can you learn them?**
- **Earning: what credentials do you need for this role and how can you demonstrate your skills to employers?**
- **Connecting: what are ways to connect and network with others in the field?**
- **Learning: For most skills and roles, you can find many options for learning—from self-paced online learning to instructor-led classes, events, and even formal degree programs.**
- **What type of learning you choose to do depends on your time, learning style, and budget. Sometimes what works best for you is a combination of different learning programs. There's no one right way. It's up to you to choose the adventure that works best for you.**
- **Learn Online: One of the best ways to skill up for Salesforce career paths is through Trailhead—the fun, free, hands-on way learn. If you're new to Trailhead, here are a few recommendations on where to start.**
- **Check out a few resources to get you started.**
- **Trailhead Collaboration Group on the Trailblazer Community**
- **Salesforce User Groups**
- **Salesforce Developer Meetups**
- **Featured Online Collaboration Groups**
- **For developers, there are some additional resources and ways to connect to the thriving community of more than 3 million Salesforce developers.**
- **The Salesforce developers discussion forums are an important resource to get answers to your questions. It's not uncommon for project managers, developers, and other R&D staff to contribute.**
- **On the Salesforce StackExchange, get expert guidance from an active developer community featuring some of the most prominent developers from across the globe.**
- **Using the #askforce hashtag on Twitter immediately connects you to hundreds of Salesforce administrators and developers. The answer to your 280-character questions is sometimes only a few seconds away!**
- **Blogging, helping on forums, and speaking at events are more great ways to build your reputation and expertise and take your career to the next level. See the Public Speaking Skills module for tips.**
- **For Salesforce developers or aspiring developers, hackathons and challenges are another way to build your resume. Check the Salesforce Developers home page frequently, to find new challenges, hackathons, and other opportunities to show your skills.**