JAY PRAKASH

Date _____ Page _____

Morning Session

Date:- 14-JULY-2020

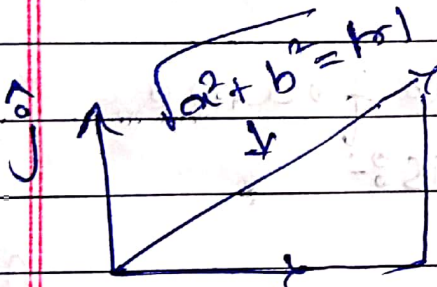
Course:- Mathematics for Machine learning: Linear Algebra

Sindhu. S
4AL18EC049
4th Sem, 'A' Sec

→ Vector are objects that Move around space

- Introduction to Module 2 - Vectors. Finding the size of a vector, its angle, and projection.

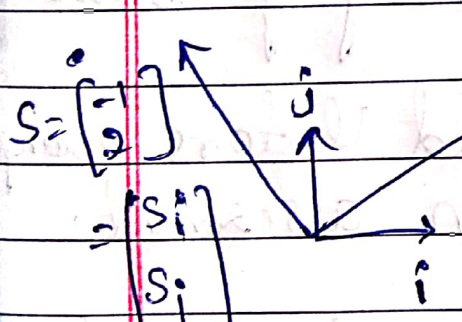
→ Modules & inner product



$$r = ai + bj = \begin{bmatrix} a \\ b \end{bmatrix}$$

$$r = \begin{vmatrix} a \\ b \end{vmatrix}$$

$$|r| = \sqrt{a^2+b^2}$$



$$r = \begin{bmatrix} 3 \\ 2 \end{bmatrix} = \begin{bmatrix} r_i \\ r_j \end{bmatrix}$$

Commutative

$$r \cdot S = r_i S_i + r_j S_j$$
$$= 3 \cdot (-1) + 2 \times 2$$
$$= 1$$
$$= S \cdot r$$

distributive:-

$$r \cdot (s+t) = r \cdot s + r \cdot t$$

$$r = \begin{bmatrix} r_1 \\ r_2 \\ \vdots \\ r_n \end{bmatrix} \quad s = \begin{bmatrix} s_1 \\ s_2 \\ \vdots \\ s_n \end{bmatrix} \quad t = \begin{bmatrix} t_1 \\ t_2 \\ \vdots \\ t_n \end{bmatrix}$$

$r \cdot r = r_1 r_1 + r_2 r_2$

$= r_1^2 + r_2^2$

$= \left(\sqrt{r_1^2 + r_2^2}\right)^2$

$= |r|^2$

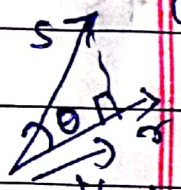
associative :- $r \cdot (as) = a(r \cdot s)$

- The cosine rule from algebra is

$\cos\theta = 1 \quad r \cdot s = |r||s| \quad r \cdot s = |r||s| \cos\theta$

$\cos 180° = -1 \quad s \cdot s = -|r||s|$

- Vector projection.



$\cos\theta = \frac{adj}{hyp} = \frac{adj}{|s|} \quad \frac{r \cdot s}{|r|} = |s| \cos\theta$ scaler projection

$r \cdot s = |r||s| \cos\theta$

$\frac{r \cdot s}{|r||r|} r = \frac{r \cdot s}{r \cdot r} r$ → Vector projection

- Changing the reference frame

→ changing basis:-

$\cos\theta = \frac{b_1 \cdot b_2}{|b_1||b_2|}$

- Basis, Vector-Space, and linear independence
- Applications of changing basis.

→ Doing some real world Vectors examples

- Vector operation assessment.
- Linear dependency of a set of Vectors.

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Afternoon Sessions

Date:- 14-JULY-2020 Sandhu.S
Course:- Salesforce AALBECOA9

- Get your trailhead playground Username and password
  → get your Username & reset your password.
- Install Apps and packages in your trailhead playground
- Skill up for the future with trail-head.

* Career Development planning:-
  - Assess yourself :-
    Self assesment tools
    1. Own Values
    2. skills
    3. Interests
* Explore Career options
  love designing robust long term solutions & have several years of development experience,
* Create a plan and skill up