**Data Transformation using Normalization techniques**

1. Min-Max Normalization:

is the new transformed value for Vi

**Problem:** The list of marks of a subject is given as {8,10,15,20} which has to be normalized to [0,1] by min-max strategy.

**Solution:**

**Step1:** arrange values in sorted order

**V= {8,10,15,20}**

**Step 2:** identify the input values from given problem

**1**

**Step 3:** compute with the min-max normalization

**= = 0**

**= = = 0.16**

**= = = 0.58**

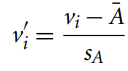
**= = = 1**

**Step 4:** Therefore, newly normalized set of

**A={8,10,15,20} => {0,0.16,0.58,1}**

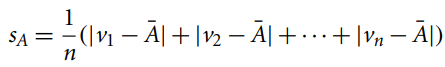
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1. **Z-score Normalization: or (zero-mean normalization)**

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**Where, mean**

**Mean absolute deviation,**

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**(Or)**

**Standard deviation,**

**Problem: the list of marks of a subject is given as 8,10,15,20 which has to be normalize by z-score strategy.**

**Step1:** arrange values in sorted order

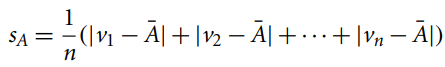
**V= {8,10,15,20}**

**Step 2:** identify the input values from given problem and compute mean and mean absolute deviation.

1. Mean =

** = = = 13.25**

1. Mean absolute deviation:

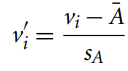
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**= 4.25**

**(OR)**

**= 4.66**

**Step 3:** compute with the z-score normalization

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**= = -1.24**

**= = -0.76**

**= = 0.41**

**= = 1.59**

**Step 4:** Therefore, newly normalized set of

**A={8,10,15,20} => {-1.24,-0.76,0.41,1.59}**

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**3. Normalizing by decimal scaling:**

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**Problem: the list of marks of a subject is given as 8,10,15,20 which has to be normalized to [0.0, 1.0] by decimal scaling.**

**Step1:** scan all values from givendataset and identify highest count of digit value

V={8,10,15,20}

**Step2:** Assign to **j** the highest digit count

**j=2**

**Step3:** evaluate in decimal scaling formula

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**= 0.08**

**= 0.1**

**= 0.15**

**= 0.2**

**Step 4:** Therefore, newly normalized set of

**A={8,10,15,20} => {0.08,0.1,0.15,0.20}**

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