 CSI 660 Topics in Computer Science: Social Computing

Quiz 2 Due: March 8th, 2016 in class

YOUR NAME HERE: ________________________________

**Question 1.** Suppose the following sentence is found in a newspaper article:

*In October, Soros donated $1 million to Media Matters, saying that he hoped his money would be used to combat Fox's "incendiary rhetoric".*

1a) What is the sentiment of Soros towards Media Matters?
   i) Positive
   ii) Negative
   iii) Neutral
   iv) No sentiment

1b) What is the relation which may be used to determine sentiment between Soros and Media Matters?
   i) October
   ii) $1 million
   iii) donated
   iv) None of the above, other (please specify) ______________________________

1c) What type of relation is it?
   i) Agentive
   ii) Patientive
   iii) Propertive
   iv) None of the above

Affect calculus below, for reference:

<table>
<thead>
<tr>
<th>Relation type</th>
<th>Type 1 (propertive) Rel(Target)</th>
<th>Type 2 (agentive) Rel(Target, X)</th>
<th>Type 3 (patientive) Rel(X, Target)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relation/X</td>
<td>X ≥ neutral</td>
<td>X &lt; neutral</td>
<td>X ≥ neutral</td>
</tr>
<tr>
<td>Positive</td>
<td>POSITIVE</td>
<td>POSITIVE ≤ UNSYMP</td>
<td>POSITIVE ≤ SYMPAT</td>
</tr>
<tr>
<td>Negative</td>
<td>NEGATIVE ≤ UNSYMP</td>
<td>≥ SYMPAT</td>
<td>≥ SYMPAT</td>
</tr>
<tr>
<td>Neutral</td>
<td>NEUTRAL</td>
<td>NEUTRAL ≤ NEUTRAL</td>
<td>NEUTRAL ≤ NEUTRAL</td>
</tr>
</tbody>
</table>

**Question 2.** Suppose the following list of data points is available as input for k-means clustering:
[6, 8, 6, 9, 6, 14]

Starting with the following randomly selected centroids, run through iterations of the k-means algorithm until convergence

\( u_1 = 5, u_2 = 12, u_3 = 16 \)

**SOLUTION 1:**

*Iteration 1 (if applicable):*
Cluster 1 elements: \[6, 6, 6, 8\]
Cluster 2 elements: \[9\]
Cluster 3 elements: \[14\]

Updated centroids \( u_1 = 6.5, u_2 = 9, u_3 = 14 \)

*Iteration 2 (if applicable):*
Cluster 1 elements: \[6, 6, 6\]
Cluster 2 elements: \[8, 9\]
Cluster 3 elements: \[14\]

Updated centroids \( u_1 = 6, u_2 = 8.5, u_3 = 14 \)

*Iteration 3 (if applicable):*
Cluster 1 elements: \[6, 6, 6\]
Cluster 2 elements: \[8, 9\]
Cluster 3 elements: \[14\]

Updated centroids \( u_1 = 6, u_2 = 8.5, u_3 = 14 \)

**SOLUTION 2:**

*Iteration 1 (if applicable):*
Cluster 1 elements: \[6, 6, 6, 8\]
Cluster 2 elements: \[9, 14\]
Cluster 3 elements: \[NA\]

Updated centroids \( u_1 = 6.5, u_2 = 11.5, u_3 = \text{drop cluster} \)

*Iteration 2 (if applicable):*
Cluster 1 elements: _____6,6,6,8________________________

Cluster 2 elements: _____9,14__________________________

Cluster 3 elements: _____-___________________________

Updated centroids \( u_1 = 6.5 \), \( u_2 = 11.5 \), \( u_3 = NA \)

**Question 3.** Feature selection: What might be good features for predicting homepages of university website? Give at least 3 features and explain why each of them might be useful for predicting homepages vs. non-homepages.

- links to department websites, admission page, ends with .edu, description of university/college