As always, sit with a partner and work through these together.

Activity 1: Evaluating a Decision Tree
Classify the two following examples with the decision tree on the slides

<table>
<thead>
<tr>
<th>Input Attributes</th>
<th>Alt</th>
<th>Bar</th>
<th>Fri</th>
<th>Hun</th>
<th>Pat</th>
<th>Price</th>
<th>Rain</th>
<th>Res</th>
<th>Type</th>
<th>Est</th>
</tr>
</thead>
<tbody>
<tr>
<td>Example #1</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Full</td>
<td>$</td>
<td>No</td>
<td>No</td>
<td>Thai</td>
<td>30-60</td>
</tr>
<tr>
<td>Example #2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Full</td>
<td>$</td>
<td>No</td>
<td>No</td>
<td>Burger</td>
<td>30-60</td>
</tr>
</tbody>
</table>

Activity 2: Compute the information gain of the Price attribute (on the entire training data)

Entire training data has: 6 Yeses and 6 Nos
Subset of examples with price = $ has: 3 Yeses and 4 Nos
Subset of examples with price = $$ has: 2 Yeses
Subset of examples with price = $$$ has: 1 Yes and 2 Nos

Entropy of the entire training data: ______
Entropy of $: ______
Entropy of $$: ______
Entropy of $$$: ______
Remainder of price attribute: __________

Information gain of price = “entropy of entire training data” - “remainder of price”

Information gain of price = ______
As always, sit with a partner and work through these together.

**Activity 1: Evaluating a Decision Tree**
Classify the two following examples with the decision tree on the slides

<table>
<thead>
<tr>
<th>Input Attributes</th>
<th>Alt</th>
<th>Bar</th>
<th>Fri</th>
<th>Hun</th>
<th>Pat</th>
<th>Price</th>
<th>Rain</th>
<th>Res</th>
<th>Type</th>
<th>Est</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Full</td>
<td>$</td>
<td>No</td>
<td>No</td>
<td>Thai</td>
<td>30-60</td>
</tr>
<tr>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Full</td>
<td>$</td>
<td>No</td>
<td>No</td>
<td>Burger</td>
<td>30-60</td>
</tr>
</tbody>
</table>

Example #1:________
Example #2:________

**Activity 2: Compute the information gain of the Price attribute (on the entire training data)**

Entire training data has: 6 Yeses and 6 Nos  
Subset of examples with price = $ has: 3 Yeses and 4 Nos  
Subset of examples with price = $$ has: 2 Yeses  
Subset of examples with price = $$$ has: 1 Yes and 2 Nos

Entropy of the entire training data: ______
Entropy of $: ______
Entropy of $$: ______
Entropy of $$$: ______
Remainder of price attribute: ____________

Information gain of price = “entropy of entire training data” - “remainder of price”

Information gain of price = ______