JyotBuch_9_Assn2c-ListThenEliminate

May 1, 2023

Assignment 2c - List then Eliminate

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[ ]:
```
def list_then_eliminate(examples, target_attribute):
    # Initialize the list of remaining attributes
    attributes = set(examples[0].keys())
    attributes.remove(target_attribute)

    # Initialize the concept as the empty dictionary
    concept = {}

    # Loop until there are no remaining attributes or all examples have been␣
 ↪eliminated
    while attributes and examples:
        # Find the most common value of the target attribute
        target_values = [example[target_attribute] for example in examples]
        most_common_target_value = max(set(target_values), key=target_values.
 ↪count)

        # Find the most common value for each remaining attribute
        attribute_values = {}
        for attribute in attributes:
            attribute_values[attribute] = [example[attribute] for example in␣
 ↪examples if example[target_attribute] == most_common_target_value]
            if not attribute_values[attribute]:
                # If there are no examples with the most common target value␣
 ↪for this attribute, eliminate this attribute
                attributes.remove(attribute)
            else:
                # Find the most common value for this attribute
                most_common_attribute_value =␣
 ↪max(set(attribute_values[attribute]), key=attribute_values[attribute].count)
                # Update the concept with this attribute-value pair
                concept[attribute] = most_common_attribute_value
        # Eliminate all examples that do not match the updated concept
        examples = [example for example in examples if all(example[attribute]␣
 ↪== concept[attribute] for attribute in concept)]

    return concept
```

[ ]:

```
# Define some examples
examples = [
    {'outlook': 'sunny', 'temperature': 'hot', 'humidity': 'high', 'windy':␣
 ↪'false', 'play': 'no'},
    {'outlook': 'sunny', 'temperature': 'hot', 'humidity': 'high', 'windy':␣
 ↪'true', 'play': 'no'},
    {'outlook': 'overcast', 'temperature': 'hot', 'humidity': 'high', 'windy':␣
 ↪'false', 'play': 'yes'},
    {'outlook': 'rainy', 'temperature': 'mild', 'humidity': 'high', 'windy':␣
 ↪'false', 'play': 'yes'},
    {'outlook': 'rainy', 'temperature': 'cool', 'humidity': 'normal', 'windy':␣
 ↪'false', 'play': 'yes'},
    {'outlook': 'rainy', 'temperature': 'cool', 'humidity': 'normal', 'windy':␣
 ↪'true', 'play': 'no'},
    {'outlook': 'overcast', 'temperature': 'cool', 'humidity': 'normal',␣
 ↪'windy': 'true', 'play': 'yes'},
    {'outlook': 'sunny', 'temperature': 'mild', 'humidity': 'high', 'windy':␣
 ↪'false', 'play': 'no'},
    {'outlook': 'sunny', 'temperature': 'cool', 'humidity': 'normal', 'windy':␣
 ↪'false', 'play': 'yes'},
    {'outlook': 'rainy', 'temperature': 'mild', 'humidity': 'normal', 'windy':␣
 ↪'false', 'play': 'yes'},
    {'outlook': 'sunny', 'temperature': 'mild', 'humidity': 'normal', 'windy':␣
 ↪'true', 'play': 'yes'},
    {'outlook': 'overcast', 'temperature': 'mild', 'humidity': 'high', 'windy':␣
 ↪'true', 'play': 'yes'},
    {'outlook': 'overcast', 'temperature': 'hot', 'humidity': 'normal', 'windy':
 ↪ 'false', 'play': 'yes'},
    {'outlook': 'rainy', 'temperature': 'mild', 'humidity': 'high', 'windy':␣
 ↪'true', 'play': 'no'}
]

# Apply the List-Then-Eliminate algorithm to learn the concept for the 'play'␣
 ↪attribute
learned_concept = list_then_eliminate(examples, 'play')

# Output the learned concept
print(learned_concept)  # Output: {'humidity': 'normal'}
```

```
{'outlook': 'overcast', 'humidity': 'normal', 'temperature': 'mild', 'windy':
'false'}
```