

# CMPINF 2110

Spring 2021

Homework 07 Instructions

DUE DATE: April 23, 2021 at 11PM EST

# You will create a graph model for episodes of the Joy of Painting show with Bob Ross

- The structure will be different from earlier assignments with the Bob Ross data.
- You will explicitly denote Labels for various families or groups of features.
- This way we can easily identify paintings which contain a family of features.

# Feature families – the family name should be a node Label in your graph

- **Mountains**
- **Trees**
- **Water**
- **Buildings**
- **Land**
- **Sky**

# Each feature family consists of several types of instances of that feature

- **Mountains:** snowy, single, range
- **Trees:** conifer, deciduous, big, small, forest
- **Water:** ocean, lake, river, pond, stream, waterfall
- **Buildings:** cabin, barn, shack, bridge, house
- **Land:** grass, swamp, rocks, flowers, snowy field
- **Sky:** clouds, sun, day, night, sunrise, sunset

# Your graph should contain nodes for each type of feature within each family (Label)

- **Mountains:** snowy, single, range
- **Trees:** conifer, deciduous, big, small, forest
- **Water:** ocean, lake, river, pond, stream, waterfall
- **Buildings:** cabin, barn, shack, bridge, house
- **Land:** grass, swamp, rocks, flowers, snowy field
- **Sky:** clouds, sun, day, night, sunrise, sunset

The features describe the contents of a painting, which is in an episode.

- Each episode contains a painting.
- Each episode, an artist paints a painting.
- Each episode has an air date.
- Each episode is in a Season.
- Each season is part of the show, The Joy of Painting.

You must decide how to represent the **entities**, **attributes**, and **relationships** listed below in your graph

- Each episode contains a painting.
- Each episode, an artist paints a painting.
- Each episode has an air date.
- Each episode is in a Season.
- Each season is part of the show, The Joy of Painting.

You do **NOT** need to read in data for all episodes, as you did in an earlier assignment

- Instead several episodes in several Seasons are described for you.
- You must create the appropriate nodes, relationships, and properties to model the data.



# Season 1 Episode 7 - air date: February 15, 1983

- Painting title: Autumn Mountains
- Artist: Bob Ross
- Painting consists of the following features:
  - Deciduous tree, forest of trees
  - Mountain range, snowy mountain
  - Lake

# Season 5 Episode 3 – air date: January 16, 1985

- Painting title: Mountain Blossoms
- Artist: Dana Jester
- Painting consists of the following features:
  - Conifer tree, forest of trees
  - Mountain range, snowy mountain
  - Flowers

# Season 5 Episode 7 – air date: February 13, 1985

- Painting title: Bubbling Brook
- Artist: Bob Ross
- Painting consists of the following features:
  - Deciduous tree, forest of trees
  - Grass, rocks
  - River

# Season 7 Episode 1 – air date: October 2, 1985

- Painting title: Winter Cabin
- Artist: Bob Ross
- Painting consists of the following features:
  - Deciduous tree
  - Cabin
  - Clouds

# Season 7 Episode 3 – air date: October 16, 1985

- Painting title: Evergreens at Sunset
- Artist: Bob Ross
- Painting consists of the following features:
  - Conifer tree, deciduous tree, forest of trees
  - River
  - Sun, clouds

# Season 24 Episode 2 – air date: January 14, 1992

- Painting title: Wayside Pond
- Artist: Bob Ross
- Painting consists of the following features:
  - Deciduous tree, forest of trees
  - Lake

# Season 14 Episode 10 – air date: March 2, 1988

- Painting title: Surprising Falls
- Artist: Steve Ross
- Painting consists of the following features:
  - Deciduous tree
  - Snowy mountain
  - Clouds
  - Lake, waterfall

# After populating all nodes and relationships you must perform a set of queries

- You must save export your graph query or a CSV file associated with the query, as requested by the problem statement.
- Graph queries should be included in a Powerpoint, PDF, or Word Document.
- CSV files should be uploaded with the assignment to Canvas.



# Query 1

- Show the schema visualization or meta-graph for your graph database.

## Query 2

- Show all nodes and relationships in the database.

# Query 3

- What are the unique episode air date MONTHS in the database?
- Upload the CSV file containing the query result.

# Query 4

- What are the unique episode air date MONTHS in each YEAR in the database?
- Upload the CSV file containing the query result.

# Query 5

- Show all nodes and relationships associated with episodes containing features from the Water feature family.
- Your query should consist of any painting that had any type of Water feature.

# Query 6

- Show all nodes and relationships associated with episodes containing a snowy mountain and Lake.