Justin's C++ Markov Weather System

Why?

Cause it's cool! Previous to creating this, I had no idea what a 'Markovs chart Weather Probability simulator" even was and it took me about an hour to wrap my head around it. After I got my bearings, I discovered what it could do. A fluid and realistic weather simulation that can be implemented into games.

Resources

Intro to Markovs Chart
C++ standard library headers
Differences between c# and c++

Key points

- Provides output to external weather system
- Linearly Interpolated Seasons
- Realistic weather patterns

DONT FORGET

- Assume user inputs "banana" for everything

Psuedo-code

#Include

Random Number
Vectors
Strings
Iostream
Map

Initialize

CurrentWeather
CurrentSeason
CurrentDay = 0;
SeasonLength
RandomNumber
Tomorrow's Weather
Continue

4 3x3 Seasonal matrices (Sunny, Rainy, Cloudy)

Spring

- Cloudy, rainy, and sunny

Summer

- Rainy and sunny

Fall
- Cloudy and sunny

Winter
- Cloudiest

Supporting Functions
- MarkovFunction(CurrentSeason,CurrentWeather,RandomNumber)
    - Updates Season
        - If CurrentDay is more than Seasonlength, change season to the next season
        - Debug.log “Welcome to” + CurrentSeason”;
    - Determine Matrix (using season)
    - Determine Row (using current)
    - Determine index (using Random)
    - Update TommorowWeather
        - Debug.log “Tommorows weather is “ +TommorowWeather

Main Function
- Determine the current season (Input)
    - Convert to int
- Determine the current days weather (Input)
    - Convert to int
- Determine length of seasons (input)
- Determine random integer(<random>)
- MarkovFunction
- Wait for input to continue to next day
- If y
    - While (Continue)
        - CurrentWeather = TomorrowWeather
        - Determine random integer
        - MarkovFunction(CurrentSeason,CurrentWeather,RandomNumber)
        - Continue? input
            - If n
                - Continue != Continue
            - If y
                - CurrentWeather = TomorrowWeather
                - CurrentDay++
- else
    - Thanks for using Justin's Weather Simulator
    - Return 0;