IAT 355

Project Report

Phase II

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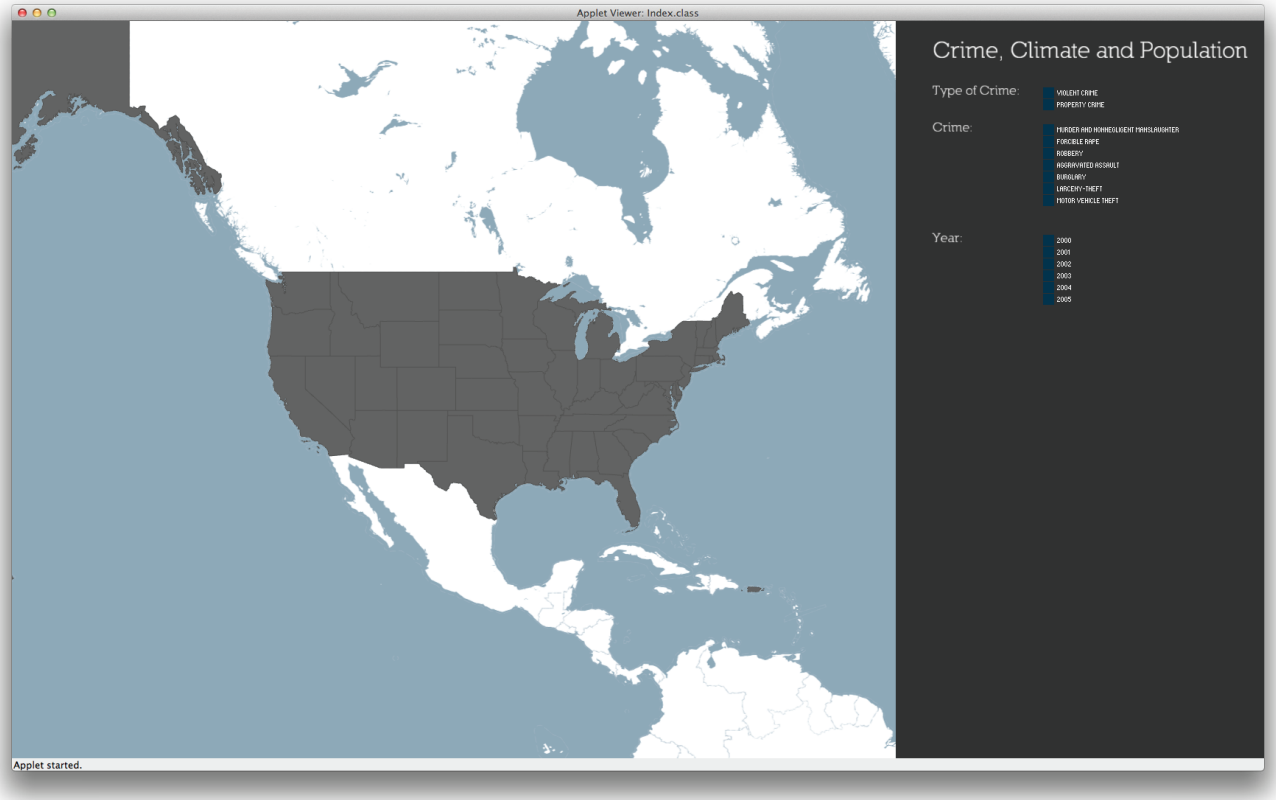
Project Goal

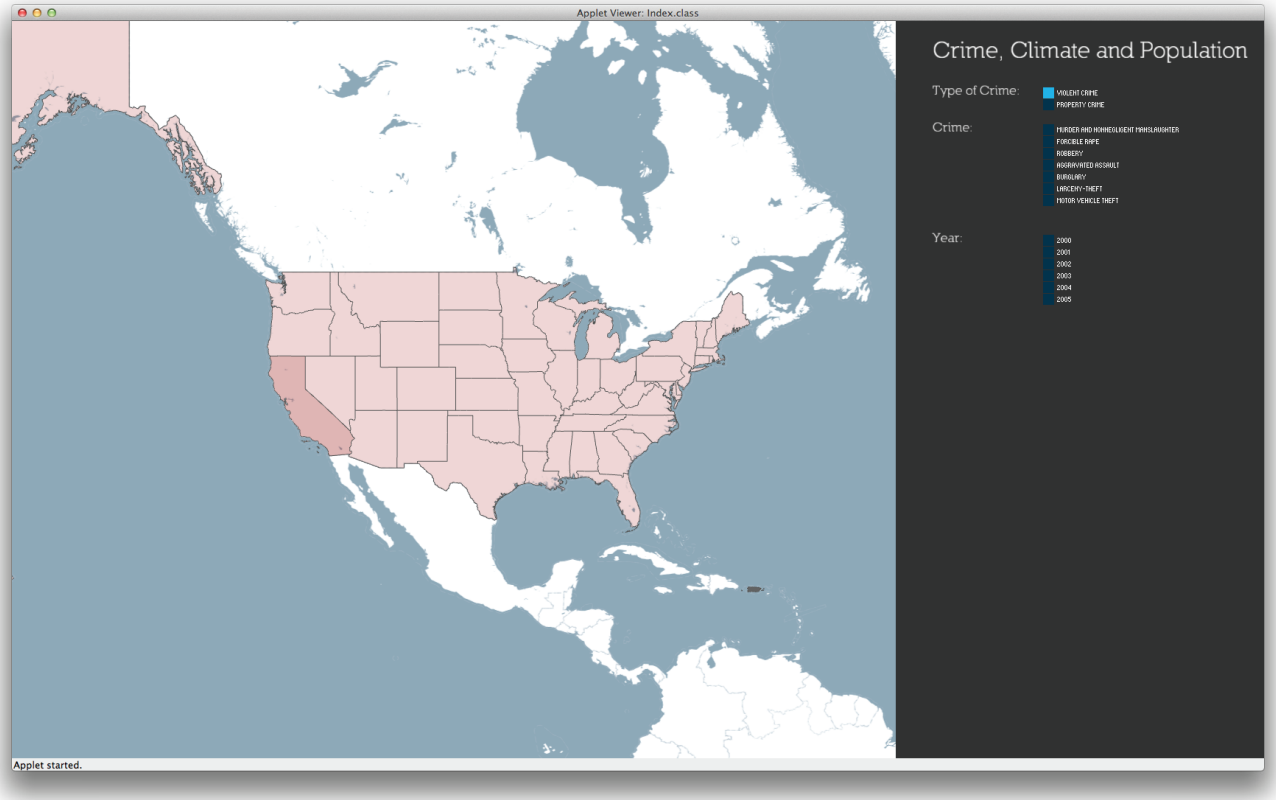
Our program aims to show the presence of a link between the climate and crime rates in each state of the USA across a span of years 2000 to 2005.

Current Visualization

Our program currently draws a map of the of the USA and colors each state according to the total crime committed in them as dictated by the data file. The user is able to interact with the program by being able to choose the year and type of crime as well as being able to pan and zoom the map. The color of each state is affected by the year and type of crime selected.



Default state: No state is shaded.



Shaded state: The states are shaded according to the amount of violent crimes. This is triggered by the Violent Crime checkbox

Data Files

Our program reads data from csv and JSON files. The three main csv files contain the climate data of each state, the population census data of each state from the year 2000 to 2005 and the crime data of each state respectively. The crime data consists of type of crime, subtype, the year it was committed in and the total count of that crime type. The JSON files are used by the external library Unfolding to identify and mark the various states.

Data File Samples

Population

STNAME	2000	2001	2002	2003	2004	2005
United States	282193477	2.85E+08	2.88E+08	2.91E+08	2.94E+08	2.96E+08
Alabama	4452339	4467461	4480139	4501862	4525375	4557808
Alaska	627500	632249	640699	648510	657755	663661
Arizona	5165993	5295929	5438159	5577784	5739879	5939292
Arkansas	2678511	2691581	2706606	2726166	2750000	2779154

Climate

State	Crime Type	Crime	Year	Count
Alabama	Violent Crime	Murder and nonnegligent Manslaughter	1960	406
Alabama	Violent Crime	Murder and nonnegligent Manslaughter	1961	427
Alabama	Violent Crime	Murder and nonnegligent Manslaughter	1962	316
Alabama	Violent Crime	Murder and nonnegligent Manslaughter	1963	340
Alabama	Violent Crime	Murder and nonnegligent Manslaughter	1964	316
Alabama	Violent Crime	Murder and nonnegligent Manslaughter	1965	395

Climate

State	F	C	Rank
Alabama	62.8	17.1	7
Alaska	26.6	-3	50
Arizona	60.3	15.7	10
Arkansas	60.4	15.8	9
California	59.4	15.2	12
Colorado	45.1	7.3	39

Code Description

Our program consists of 4 classes: Index class for viewing and controlling while Climate, Crime and Population are the classes used to store information. Crime, Climate and Population classes all come with the typical getters and setters.

Crime.java

This class has 5 attributes, state, crimeType, crime, year and count. When the crime data file is read in the Index class each line of data is created as an object by calling Crime's class constructor.

Population.java

This class has the same concept, is a blueprint for Index class to create objects for every line of the population dataset. This class has 5 attributes, all integers, from p0 to p5 (population year 2000 to population year 2005).

Climate.java

This class has only 2 attributes, state and tempC because we're only interested in knowing the temperature in celcius.

Index.java

This is a main class of our program. It responsibles for importing libraries, creating interactive checkboxes, sliders etc. as well as drawing the map and the canvas. In other words, it handles all of the interaction and GUI.

It also reponsibles for creating more than 16000 objects for the program, mostly for the crime dataset. Last but not least, this class also handles the shading of each state and other visual representation that we plan to have for phase 4.

User Manual

When the program first loads, no year or type of crime is selected, so none of the states are shaded. After the user selects a type of crime, the map is updated and the states are shaded according to the total crime of the selected type across the six year span. When the user selects a year, the crime data from only the selected year is used and the color shading of the states changes to reflect that. Other than these interactions, the user is able to zoom in and out on the map using the mouse wheel to get a better view of a state or area as the user chooses. The user can also drag the mouse of the map by clicking on the map and moving the mouse to pan the map in any direction.

Goals for Phase 4

We plan on improving the color coding of the states even further by finding more suitable crime ranges for each color. We also plan on visualizing the climate data alongside the crime data in the form of a circular marker that appears on top of each state. Finally, we plan on making each state clickable so that the user is able to get actual crime, population and climate values from each state as well being able to compare values from different states.