

AudioMappr!

A Visualization Tool to Display Music Taste-based Social Networks

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Overview

1. Introduction
2. Motivation
3. Architecture
 - 3.1 The concept
 - 3.2 The core DB engine
 - 3.3 The mapping engine
4. AudioMappr! in action

Introduction

- Combines GoogleMaps and Audioscrobbler
- GoogleMaps should be widely known...
- Audioscrobbler...
 - tracks listening habits
 - Computes relationships between people
 - Creates recommendations

... on basis of music, users listen to

Introduction

- Last.FM users download tool
- Tool uploads tag information, playlists and playcounts to Audioscrobbler
- Audioscrobbler is Last.FM's DB
- Last.FM is a music recommendation community
- Social networks through music preference

Motivation

- Ethnomusicology aims at understanding the differences in music taste between ethnicities and nationalities
- Research is tedious:
 - Market studies
 - User interviews
 - Surveys
 - ...
- Researcher collects data

Motivation

- Access to music changed
- Everyone who has access to computer has access to digital music
- Internet users are distinct community, yet demographic example of real world communities
- Ethnomusicology only recently started to regard Internet users as target group

Motivation

- To the best of our knowledge there is no online tool that visualizes social networks
- No tool that visualizes music distribution over world
- AudioMappr! is first framework to address this task by displaying the most played genres and artists of a country on a GoogleMap
- Countries will be colored according to genre and artist
- Can help to conduct research in Ethnomusicology: Data comes to researcher!

Architecture – The concept

- Audioscrobbler provides a number of XML data for every user

see here: [Audioscrobbler WS](#)

- GoogleMaps provides API to generate custom maps on own websites:

see here: [GoogleMaps API - Hello World!](#)

- So, two basic components necessary!

Architecture

– The core DB engine

- Core DB engine runs as asynchronous process
- Queries Audioscrobbler's XML files and looks for users, weekly top artists, genres, playcounts,...
- Outputs XML file with statistics per country
- Updates Map DB

Architecture

– The core DB engine

Problem:

- Audioscrobbler does not provide DB dump
- Audioscrobbler does not provide user listing

Solution:

- Start with one known user, retrieve music info of this user, parse friends-XML-file, repeat steps for every user in friends-list

Architecture

– The core DB engine

- This is a search problem with unknown branching factor and search depth!
 - Serious problem in Artificial Intelligence and Machine Learning!
- Early stopping criterions!
- Sufficiency stopping criterions!

Architecture

– The mapping engine

- Does the visualization job
- Problem:
GoogleMaps does not allow to color countries
- Solution:
Create polygon overlay over every country and color that instead

Architecture

– The mapping engine

- Requires exact border information on countries!
- Ideally in KML (GoogleEarth XML file)
- Or in longitude/latitude representation

- Problem: longitude/latitude data on countries not freely available!

Architecture

– The mapping engine

- So, we had to make it ourselves...
- GPS system manufacturer released outdated country data (1995) as MapGIS formatted-shapefile
- Converted into longitude/latitude shapefile
- Computed projection files on basis of MapGIS data and long/lat data
- Projection file and long/lat shapefile converted into KML file
- KML file is plain XML!

Architecture

– The mapping engine

- GoogleMap restricts KML integration to one overlay load per map
- In custom maps: as many KMLs as you want, but:
 - 1024kB uncompressed KML
(approx 1,5mB KMZ)
 - Max of 65 polygons per file
- So we wrote some tools that extract Placemarks
- More than one “territory” per country

AudioMappr! in action

Just check this out:

AudioMappr!

Related links

- Here is a list of links
- <http://www.last.fm>
 - Last.FM homepage
- <http://www.audioscrobbler.net>
 - Audioscrobbler homepage
- <http://maps.google.com>
 - GoogleMaps
- [AudioMappr!](#)
 - AudioMappr! homepage