Playing Sounds inside XNA

Game Design Experience

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Sound in games

- Think about truly memorable games
  - ► They almost always have excellent background music and sound effects
  - ► Legend of Zelda, PacMan, Katamari Damacy, Little Big Planet, Radiant Silvergun
  - ► Music and artwork style combine to create an overall tone, or mood, for a game
  - ► Done well, this substantially enhances the overall gameplay experience

Finding/Making Sounds

- Where can you find music to use in your game?
  - ► Reminder: there is this legal framework called Copyright Law
  - ► Creative Commons: use licenses that may allow free, non-commercial use
    - http://creativecommons.org/
- Sites with Creative Commons licensed music
  - ► New Grounds, Jamendo
    - http://www.newgrounds.com/audio/
    - http://www.jamendo.com/en/creativecommons/
    - Look for “Attribution, Non-commercial”
      - – “No Derivative Works” is OK, so long as you don’t modify
    - If you use in your game, make sure you provide attribution
      - – Put name of artist in your game (About page, splash screen, etc.)
      - – Is polite to send them an email telling them about the use—will make them jazzed

Finding/Making Sounds (cont'd)

- Find someone to create music for you
  - Music student at UCSC, for example
- It has never been cheaper to create high quality music
  - Instruments, microphones, mixing technology are all at historically low prices
  - Has led to a proliferation of music
  - Biggest problem: finding an audience
  - Games provide a good audience
  - Sales of many videogames larger than most music album sales
  - For many musicians, might have larger audience for video game soundtrack than for traditional album

Finding/Making Sounds (cont’d)

- Use your voice!
  - ► Your voice is wonderfully adaptable and expressive
- Consider:
  - ► Record a raw voice clip
  - ► Bring into an editing software suite
  - ► Tweak/filter/alter until it suits your game
  - ► Can do much worse…
- Tools
  - ► Audacity
    - http://audacity.sourceforge.net/
    - Free, open source sound recorder/editor
  - ► FL Studio (grown-up commercial version of Fruity Loops)
    - http://flstudio.image-line.com/documents/what.html

Playing Sounds in XNA

- Two ways
- Hard (but powerful) way
  - XACT audio tool
    - Cross-platform audio creation tool
  - Many neat features
  - Edit volume, pitch, looping of sound clips
  - Can easily group together sound clips
- Easy (and 95% sufficient) way
  - Use Simplified Sound API
  - Can start, stop, and pause sound playing
  - Much, much easier to use

Simple Sound API

- Two ways to play music
  - As a song
    - Good for background music, or other long sounds
  - As a sound effect
    - Good for short duration sounds

XNA Simple Sound API

- Supported music types: wav, wma, mp3
- Add sound into project Contents folder
  - ► Audio files treated like other files in content pipeline
  - ► Copy sound file into project Contents folder
  - ► Right-click on Contents folder inside Visual Studio C# Express
    - Add → Existing Item … select audio file you just copied in
  - ► Will now be visible inside Visual Studio
  - ► Need to double-check the Content Processor
    - Sound Effect – XNA Framework – sound effects
    - Song – XNA Framework - songs

XNA Song API

- Create a variable of type Song
  - Used to load songs via the content pipeline
  - `Song mySong;`

- Load sound file
  - `mySong = Content.Load<Song>(@"`*`{name of song file without extension}`*`")`

- To play a sound, call Play() method on MediaPlayer object
  - `MediaPlayer.Play(mySong);`

- To pause/resume, call Pause()/Resume() on MediaPlayer object
  - `MediaPlayer.Pause();  // no argument`
  - `MediaPlayer.Resume(); // no argument`

XNA Sound Effect API

- Create a variable of type SoundEffect
  - Used to load sounds via the content pipeline
  - `SoundEffect soundEffect;`

- Load sound file
  - `soundEffect = Content.Load<SoundEffect>(@”`*`{name of sound file without extension}`*`”)`

- To play a sound, call Play() method on SoundEffect object
  - Returns true if the sound effect can be played.
  - Returns false if there are too many sound effects playing.

XNA Sound Effect API

- SoundEffectInstance
  - Represents a single playing of a sound effect.
  - Can use this to stop, pause, and restart sound.
  - To get one, call CreateInstance() method of SoundEffect

  -
    ```
    SoundEffectInstance soundEffectInstance =
    soundEffect.CreateInstance();
    ```
  - Has methods:
    - Play()
    - Pause()
    - Stop()
  - Has properties: IsLopped, Pan, Pitch, and Volume

Demo of Song and Sound Effect API

// Demo of use of Songs and Sound Effects inside XNA

- Caution: Treating a song as a sound effect can lead to *very* long compile times
  - Solution: keep sound effects *short*