Mobile Application Development

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AUDIO

Media Frameworks

- The iOS SDK has multiple multimedia frameworks to access iOS's audio capabilities
  - System Sound Services - plays user-interface sound effects, or to invoke vibration
    - supports caf, aif, or wav formats and must be less than 30 secs.
  - Media Player framework - plays songs, audio books, or audio podcasts from a user's iPod library.
  - AV Foundation framework - plays and records audio

Media Frameworks

- Audio Toolbox framework - plays audio with synchronization capabilities, access packets of incoming audio, parse audio streams, convert audio formats, and record audio with access to individual packets.
- Audio Unit Framework - connect to and use audio processing plug-ins
- OpenAL framework - provides positional audio playback and lets you mix sounds
  - Best choice for games
  - OpenAL gives you more control of audio but is more complicated.

Audio Sessions

- The **`AVAudioSession`** class lets you configure your audio session (optional)
  - Configure audio settings such as sample rate, I/O buffer duration, and number of channels
  - Handle audio route changes
    - Events such as a phone call
    - Audio use by another app
  - Audio session category
    - how your audio session interacts with others

AVFoundation

- The **`AVAudioPlayer`** class in the AV Foundation framework provides playback of audio data
  - Play sounds of any duration from files or memory
  - Configure and control playback
  - Manage audio level metering
- The **`AVAudioPlayerDelegate`** protocol has optional methods that are called when the audio file finishes playing, if there are interruptions or if there's an error

AVFoundation

- The **`AVAudioRecorder`** class in the AV Foundation framework provides recording of audio data
  - Record until the user stops the recording
  - Record for a specified duration
  - Pause and resume a recording
  - Obtain input audio-level data for level metering
- The **`AVAudioRecorderDelegate`** protocol has optional methods that are called when the recording completes, if there are interruptions or if there's an error

Sandbox

- Your app sees the iOS file system like a normal UNIX file system
- Every app gets its own /Documents directory which is referred to as its sandbox
- Your app can only read and write from that directory
  - Security
  - Privacy
  - Cleanup

Sandbox

- In Library/Developer/CoreSimulator/Devices/*Device UDID*/data/Containers/Data/Application
  - each app has subdirectories
    - Documents-app sandbox to store its data
    - Library-user preferences settings
    - Tmp-temp files
- The same file structure exists on devices

File Access

- The NSURL class uses URLs as the preferred way to refer to files
- Most methods requires a NSURL object instead of a pathname as the file reference
- **`NSSearchPathForDirectoriesInDomains`** is a function in the Foundation framework that creates a list of directories for a given directory and domain

File System

- **`NSSearchPathForDirectoriesInDomain()`** is a C function that will locate a directory.
- Retrieve the path to the Documents directory

```
let dirPath = NSSearchPathForDirectoriesInDomains
(NSSearchPathDirectory.DocumentDirectory,
NSSearchPathDomainMask.AllDomainsMask, true)
```

  - Returns an array with the documents directory in index 0

- Create a string with the full path name

```
let docDir = dirPath[0] as! String
let
file=dir.stringByAppendingPathComponent(filename)
```