

## Assignment: Xylophone App Development Using iOS UIKit

### Objective

Create an iOS application that simulates a xylophone using UIKit. The app should display a series of colored buttons, each associated with a musical note. When a user taps a button, the app should play the corresponding sound.

### Requirements

#### 1. App Interface

- **Buttons:**
  - Create a vertical stack of buttons, each with a distinct color.
  - Each button represents a different note (e.g., C, D, E, F, G, A, B).
- **Layout:**
  - Use Auto Layout to ensure the app displays correctly on all iPhone screen sizes.
  - Buttons should be evenly distributed and fill the screen proportionally.

#### 2. Sounds

- **Audio Files:**
  - Include audio files for each note (e.g., A.wav, B.wav, ..., F.wav).
  - Store these files in the app's bundle.
- **Playing Sounds:**
  - When a user taps a button, play the corresponding note immediately.
  - Ensure that sounds do not overlap and handle rapid taps gracefully.

#### 3. Functionality

- **User Interaction(Bonus):**
  - Provide visual feedback when a button is tapped (e.g., change opacity or scale briefly).
- **Sound Playback:**
  - Use the appropriate iOS frameworks to handle audio playback efficiently.

#### 4. Code Structure

- **Language & Framework:**
  - Use Swift and UIKit for development.
  - Do not use SwiftUI or any third-party libraries.
- **Organization:**
  - Keep your code clean and well-organized.
  - Use descriptive variable and function names.
  - Comment your code to explain key functionalities.

## **Guidelines**

- **Testing:**
  - Test your app on the iOS Simulator and, if possible, on a physical device.
  - Ensure there are no crashes or significant bugs.
- **Code Quality:**
  - Follow Swift coding conventions.
  - Keep your code DRY (Don't Repeat Yourself).

## **Submission Instructions**

- **Project Submission:**
  - Upload your Xcode project folder into a git repo
- **README File:**
  - Include a README.md with:
    - Your name.
    - Instructions on how to build and run the app.
    - Description of any optional features implemented.