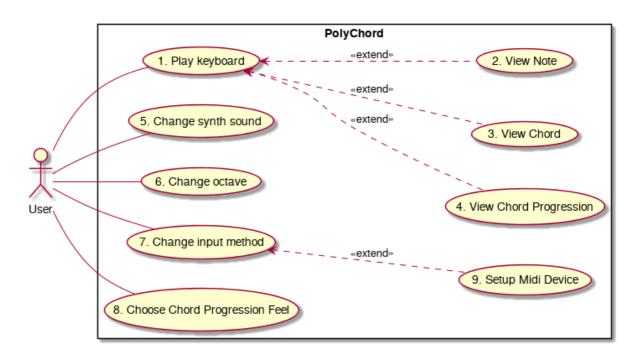# Use Case Models and Use Case Descriptions

Use Case Models

Piano Keyboard Input

Use Case model:

Use Case Descriptions:

Play Keyboard:

- Use Case ID: 1
- Relevant User Story IDs: 1,2
- Actors: User
- Related Use Cases:
    - Extended by 2. View Note
    - Extended by 3. View Chord
    - Extended by 4. View Chord Progression
- Preconditions: None
- Post-conditions: None
- Exceptions handled: None

Steps:

User Actions	*System Responses*
- User plays notes on the piano	- System plays the corresponding sounds for the notes

View Note:

- Use Case ID: 2
- Relevant User Story IDs: 31
- Actors: User
- Related Use Cases: None

- Preconditions: User Plays Piano
- Success Post-conditions: System displays each note as it is played
- Exceptions handled: None

Steps:

### User Actions	### System Responses
- User plays notes on the Piano	
	- System plays the corresponding sounds for the notes
- User views notes as they play	- System displays each note as it is played

View Chord:

- Use Case ID: 3
- Relevant User Story IDs: 1, 4
- Actors: User
- Related Use Cases: None
- Preconditions: User Plays Piano, notes played form a valid chord
- Success Post-conditions: Chord being played is displayed
- Exceptions handled: If the notes aren't a chord, nothing is displayed

Steps:

### User Actions	### System Responses
1. User plays notes on the Piano	
	2. System plays the corresponding sounds for the notes
4. User views chords as they play	3. System displays the chord name

View Chord Progression:

- Use Case ID: 4
- Relevant User Story IDs: 28, 30
- Actors: User
- Related Use Cases: None
- Preconditions: User Plays Piano, notes played form valid chord
- Success Post-conditions: System displays chord progression as it is played
- Exceptions handled: If the notes aren't a chord, nothing is displayed

Steps:

### User Actions	### System Responses
1. User plays notes on the Piano	2. System plays the corresponding sounds for the notes
3. User views notes as they play	4. System displays chord progression suggestion

Change Synth Sound:

- Use Case ID: 5
- Relevant User Story IDs: 9, 22
- Actors: User
- Related Use Cases: None
- Preconditions: None
- Success Post-conditions: System uses selected synth sound
- Exceptions handled: None

Steps:

### User Actions	### System Responses
- User changes Synth sound selection	- System changes the sound profile that is played by piano

Change octave:

- Use Case ID: 6
- Relevant User Story IDs: 17
- Actors: User
- Related Use Cases: None
- Preconditions: None
- Success Post-conditions: System outputs synthesized audio in selected octave
- Exceptions handled: None

Steps:

### User Actions	### System Responses
- User changes octave	- System changes the octave that is played by piano

Change input method:

- Use Case ID: 7
- Relevant User Story IDs: 7, 31
- Actors: User
- Related Use Cases:
- Extended by 9. Setup Midi Device
- Preconditions: In order for the Midi input to be selected, a Midi device must be set up
- Success Post-conditions: System uses selected input method
- Exceptions handled: If no Midi device is set up, the system must prompt the user to set one up, or leave the input on 'keyboard'

Steps:

### User Actions	### System Responses
- User changes from Keyboard to MIDI or MIDI to keyboard input	- System accepts piano input only from the selected input

Choose Chord Progression Feel:

- Use Case ID: 8
- Relevant User Story IDs: 16
- Actors: User
- Related Use Cases: None
- Preconditions: None
- Success Post-conditions: System uses desired feel when selecting chords
- Exceptions handled: None

Steps:

### User Actions	### System Responses
- User chooses desired chord progression feel	- System prioritizes the user's desired feel when suggesting chord progressions

Setup Midi device:

- Use Case ID: 9
- Relevant User Story IDs: 7, 31
- Actors: User
- Related Use Cases: None
- Preconditions:
- Success Post-conditions: Input can be changed to Midi
- Exceptions handled: If no Midi device can be detected for setup, the system must present an error to the user
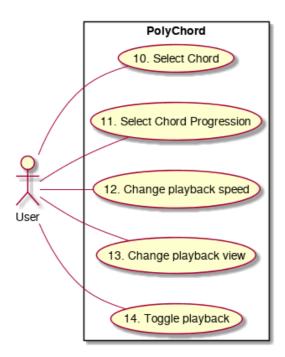
Steps:

### User Actions	### System Responses

### User Actions	### System Responses
- User sets up Midi device	- System attempts to detect Midi device - System sets up detected Midi device

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Playback Interface

Use Case model:

Use Case Descriptions:

Select Chord:

- Use Case ID: 10
- Relevant User Story IDs: 8
- Actors: User
- Related Use Cases: None
- Preconditions: None.
- Success Post-conditions: System plays back selected Chord
- Exceptions handled: None

Steps:

### User Actions	### System Responses
- Select chord	- Switch playback to the selected chord

Select Chord Progression:

- Use Case ID: 11
- Relevant User Story IDs: 8
- Actors: User
- Related Use Cases: None
- Preconditions: None.
- Success Post-conditions: System plays back selected Chord Progression
- Exceptions handled: None

Steps:

### User Actions	### System Responses
- Select chord progression	- Switch playback to the selected chord progression

Change playback speed:

- Use Case ID: 12
- Relevant User Story IDs: 8
- Actors: User
- Related Use Cases: None
- Preconditions: None.
- Success Post-conditions: System uses updated playback speed.
- Exceptions handled: None

Steps:

### User Actions	### System Responses
- Increase or decrease playback speed	- If playing: Modulate playback speed based on input - If paused, update speed to be used when playback starts

Change Playback View:

- Use Case ID: 13
- Relevant User Story IDs: 8
- Actors: User
- Related Use Cases: None
- Preconditions: None.
- Success Post-conditions: System uses selected output view
- Exceptions handled: None

Steps:

### User Actions	### System Responses
- Select Fretboard, Ledger, or Piano Roll view	- System changes current playback view to the one that the use selected

Toggle Playback:

- Use Case ID: 14
- Relevant User Story IDs: 8
- Actors: User
- Related Use Cases: None
- Preconditions: None.
- Success Post-conditions: System will playback selected Chords/Chord Progression
- Exceptions handled: The user has not selected a chord or chord progression, the system will play a default C major chord.

Steps:

### User Actions	### System Responses
- Toggle the play/pause button	- If the system was already playing, stop - If the system was not playing, start playback

User Account management

Use Case model:

Playback Interface User Case Model

Use Case Descriptions:

Sign in with Google:

- Use Case ID: 19
- Relevant User Story IDs:
- Actors: User
- Related Use Cases: None
- Preconditions: User has Google account
- Success Post-conditions: User is signed into PolyChord with their Google account
- Exceptions handled: None

Steps:

### User Actions	### System Responses
1. Click Sign in with Google	
3. Sign into Google account	2. Redirect user to Google Sign-on
	4. Pass ID Token to backend to make cookie
6. User is signed in	5. Pass cookie to Client

Sign out:

- Use Case ID: 20
- Relevant User Story IDs:
- Actors: User
- Related Use Cases:
  - Extended by Delete Account
- Preconditions: User is signed in
- Success Post-conditions: User is signed out
- Exceptions handled: None

Steps:

### User Actions	### System Responses
1. User selects Sign Out	
	2. Sign out user through Google
4. User is signed out	3. Unset cookie

Save Chord:

- Use Case ID: 21
- Relevant User Story IDs:
- Actors: User
- Related Use Cases: None
- Preconditions: User is signed in, User has played chord
- Success Post-conditions: User's chord is saved to their account
- Exceptions handled: If User has not played a chord, they are given an error message

Steps:

### User Actions	### System Responses
1. User saves chord	2. System saves chord to db under user

Play Saved Chord:

- Use Case ID: 22
- Relevant User Story IDs:
- Actors: User
- Related Use Cases: None
- Preconditions: User is signed in

- Success Post-conditions: User's saved chord is played
- Exceptions handled: None

Steps:

### User Actions	### System Responses
1. User selects saved chord to play	2. Chord is retrieved 3. Chord is played

Save Synth Profile:

- Use Case ID: 23
- Relevant User Story IDs:
- Actors: User
- Related Use Cases: None
- Preconditions: User is signed in
- Success Post-conditions: User's Synth profile is saved to their account
- Exceptions handled: None

Steps:

### User Actions	### System Responses
1. User saves synth profile	2. System saves synth profile to db under user

Use Stored Synth Profile:

- Use Case ID: 24
- Relevant User Story IDs:
- Actors: User
- Related Use Cases: None
- Preconditions: User is signed in
- Success Post-conditions: Synth uses save Profile
- Exceptions handled: None

Steps:

### User Actions	### System Responses
1. User restores saved synth profile	2. System retrieves and loads synth profile

Delete Account:

- Use Case ID: 25
- Relevant User Story IDs:
- Actors: User
- Related Use Cases: Sign Out
- Preconditions: User is signed in
- Success Post-conditions: User's data is removed, User is signed out
- Exceptions handled: None

Steps:

### User Actions	### System Responses
1. User opts to delete their account	2. User's data is deleted from DB 3. User is signed out