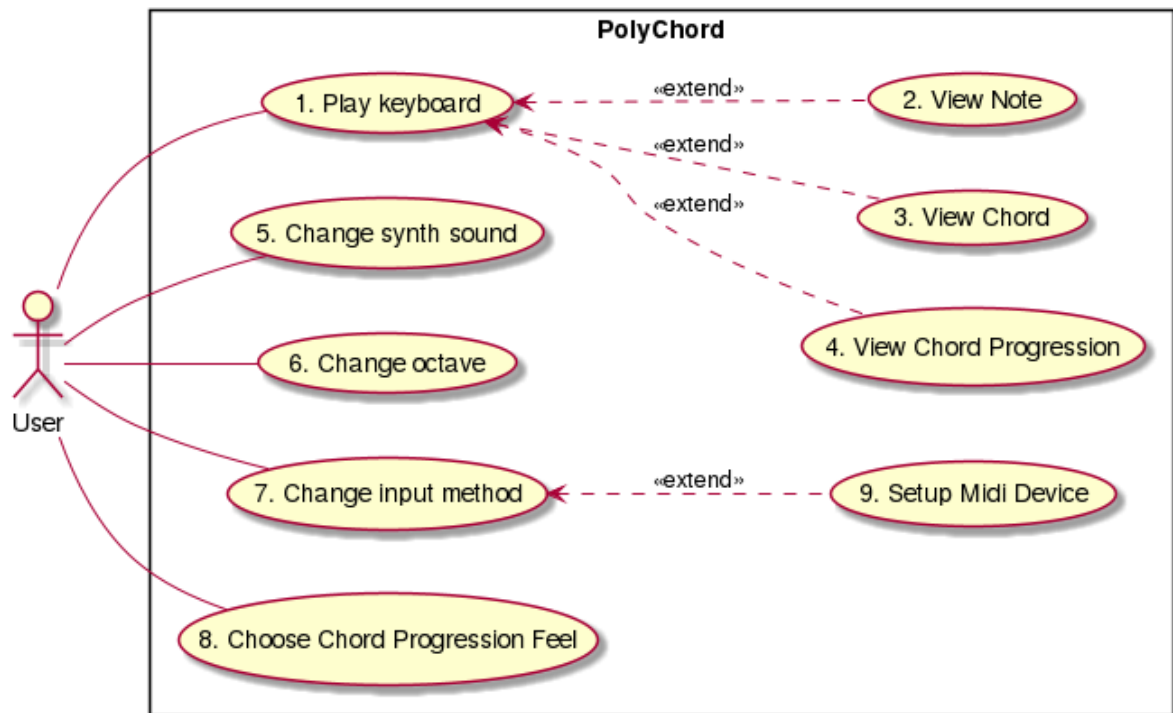


# Use Case Models and Use Case Descriptions

## 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*

- User plays notes on the piano

#### *System Responses*

- 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
3. System displays the chord name
4. User views chords as they play

**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 Actions

- User chooses desired chord progression feel

#### ### System Responses

- 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

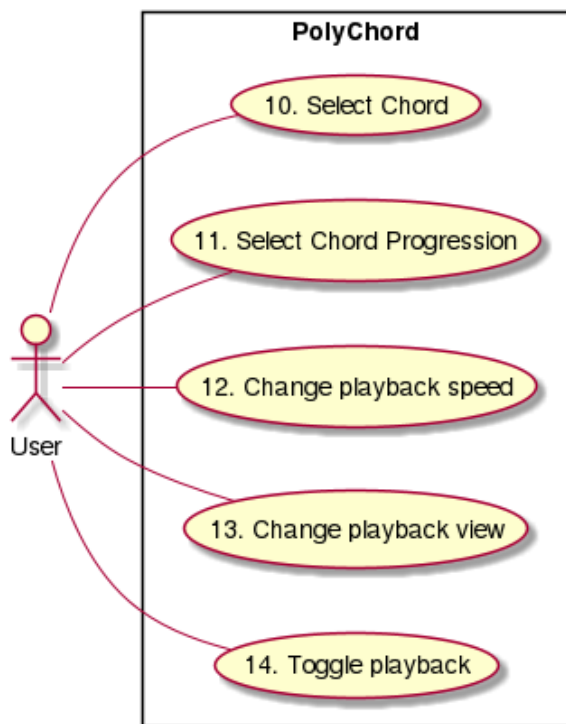
- User sets up Midi device

#### ### System Responses

- System attempts to detect Midi device
  - System sets up detected Midi device
- 

## 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**

### ### User Actions

- Select Fretboard, Ledger, or Piano Roll view

### ### System Responses

- System changes current playback view to the one that the user 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

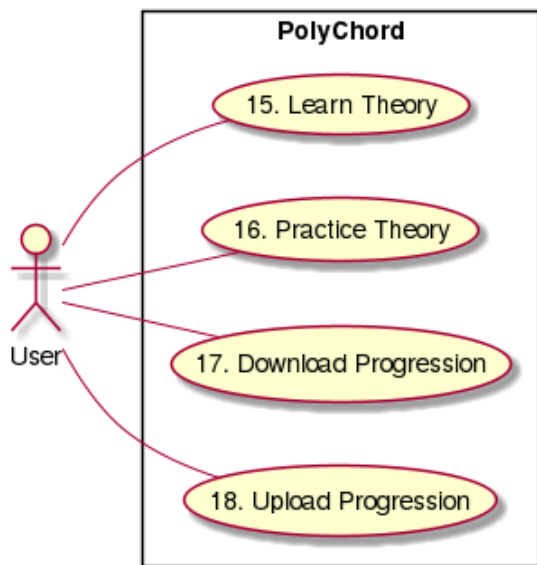
- Toggle the play/pause button

### ### System Responses

- If the system was already playing, stop
  - If the system was not playing, start playback
- 

## **Playback Peripherals**

#### **Use Case model:**



#### **Use Case Descriptions:**

##### ***Learn Theory:***

- Use Case ID: 15
- Relevant User Story IDs: 37
- Actors: User
- Related Use Cases: None
- Preconditions: None.

- Success Post-conditions: System displays theory lessons
- Exceptions handled: None

**Steps:**

**### User Actions      ### System Responses**

1. Select Learn Theory
2. Display theory lessons

***Practice Theory:***

- Use Case ID: 16
- Relevant User Story IDs: 24
- Actors: User
- Related Use Cases: None
- Preconditions: None.
- Success Post-conditions: System displays theory excercises
- Exceptions handled: None

**Steps:**

**### User Actions      ### System Responses**

1. Select Practice Theory
2. Display theory excercises

***Download Progression:***

- Use Case ID: 17
- Relevant User Story IDs: 6,21,39
- Actors: User
- Related Use Cases: None
- Preconditions: Selected progression is not empty
- Success Post-conditions: User downloads file containing a progression.
- Exceptions handled: None

**Steps:**

**### User Actions      ### System Responses**

1. Select download progression
2. Create corresponding file
4. Save file
3. Send file to User

***Upload Progression:***

- Use Case ID: 18
- Relevant User Story IDs: 6,21
- Actors: User
- Related Use Cases: None
- Preconditions: None.
- Success Post-conditions: System displays uploaded chord progression
- Exceptions handled: None

**Steps:**

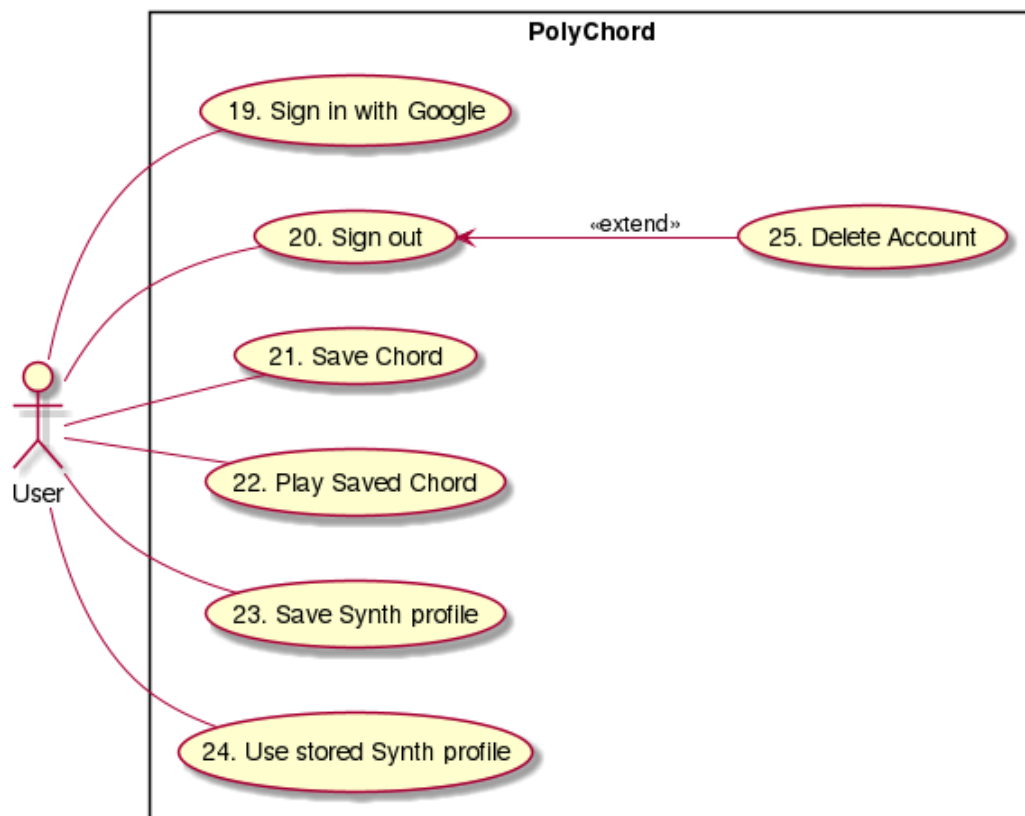
**### User Actions      ### System Responses**

| ### User Actions                   | ### System Responses    |
|------------------------------------|-------------------------|
| 1. User selects upload progression |                         |
| 2. User uploads file               | 3a. Recieve file        |
|                                    | 3b. Verify file         |
| 4. Play progression                | 3c. Display progression |

---

## User Account management

Use Case model:



Use Case Descriptions:

*Sign in with Google:*

- Use Case ID: 19
- Relevant User Story IDs: 21, 37, 39
- 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 |
|------------------|----------------------|
|------------------|----------------------|



**### 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: 41
- 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: 6
- 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: 8, 13
- 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**

**### 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: 9
- 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: 9
- 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: 41
- 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