

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
- 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
- Preconditions: User Plays Piano
- 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
- 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
- Preconditions: User Plays Piano, notes played form a valid chord
- Post-conditions: None
- Exceptions handled: If the notes aren't a chord, nothing is displayed

Steps:

User Actions

System Responses

- User plays notes on the Piano - System plays the corresponding sounds for the notes
- User views chords as they play - System displays the chord name

View Chord Progression:

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

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 chord progression suggestion

Change Synth Sound:

- Use Case ID: 5
- Relevant User Story IDs: 9, 22
- Actors: User
- Preconditions: None

- Post-conditions: None
- 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
- Preconditions: None
- Post-conditions: None
- 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
- Preconditions: In order for the Midi input to be selected, a Midi device must be set up
- Post-conditions: None
- 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
- Preconditions: None
- Post-conditions: None
- Exceptions handled: None

Steps:

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
- Preconditions:
- 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
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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
- Preconditions: None.
- Post-conditions: None.
- 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
- Preconditions: None.
- Post-conditions: None.
- 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
- Preconditions: None.
- Post-conditions: None.
- 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
- Preconditions: None.

- Post-conditions: None.
- Exceptions handled: None

Steps:

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: 13
- Relevant User Story IDs: 8
- Actors: User
- Preconditions: None.
- Post-conditions: None.
- 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