**classDiagram**

    Pane **<|--** PianoPane

    Polygon **<|--** PianoKey

    AppLauncher **<|--** Application

    PianoPane o**--** PianoKey

    PianoKey **--** KeyType

    PianoKey **--** Notes

    Note **--** Notes

    Scale **--** Notes

    Scale **--** ScaleType

    Song **\*--** Measure

    Song **\*--** Scale

    Song **\*--** TimeSignature

    Measure **\*--** TimeSignature

    Measure **\*--** Note

    Measure **\*--** Chord

    Note **--** NoteLength

    Chord **--** ChordType

    Chord **--** Notes

    RhythmFiller **--** Chord

    RhythmFiller **--** Scale

    RhythmFiller **--** TimeSignature

    RhythmFiller **--** Note

    AppLauncher **\*--** PianoPane

    AppLauncher **\*--** Song

**class** PianoKey **{**

**-**KeyCode keyboardKey

**-**KeyType type

**-**int octave

**-**Notes note

**-**boolean isPressed

**-**Receiver receiver

**+**startNote**(**Receiver receiver**)**

**+**stopNote**(**Receiver receiver**)**

**-**setChangeColor**()**

**+**getKeyboardKey**()** KeyCode

**+**getKeyType**()** KeyType

**+**getIsPressed**()** boolean

**+**setIsPressed**(**boolean pressed**)**

**}**

**class** PianoPane **{**

**+**Map<Integer, KeyCode> regularKeyMap$

**+**Map<Integer, KeyCode> sharpKeyMap$

**-**int bottomNoteOctave

**-**Notes bottomNote

**-**Receiver receiver

**-**paintPiano**()**

**+**setWidth**(**double width**)**

**+**setHeight**(**double height**)**

**}**

**class** KeyType **{**

**<<**Enumeration**>>**

        STANDARD

        B\_E\_KEY

        C\_F\_KEY

        SHARP\_FLAT

**}**

**class** RhythmFiller **{**

**+**noteLengthInTicks**(**int noteLength**)**$ int

**+**fill**(**Chord chord, Scale scale, TimeSignature time, Note previousNote**)$**

**+**fill**(**Chord chord, Scale scale, TimeSignature time**)$**

**-**fillNextNote**(**ArrayList<Note> notes, int remainingTicks**)** int

**}**

**class** Song **{**

**-**LinkedList<Measure>

**-**Scale scale

**-**TimeSignature timeSignature

**-**int BPM

**+**generateSong**(**int numMeasures**)**

**+**clearSong**()**

**+**playSong**(**Sequencer sequencer**)**

**+**saveSong**(**String fileName**)**

**}**

**class** Note **{**

**-**int OFFSET**$**

**+**Map<Notes> noteMap$

**-**int length

**-**boolean isDotted

**-**Notes noteName

**-**NoteLength noteType

**-**int octave

**-**int noteValue

**-**boolean isRest

**-**int upperBound

**-**int lowerBound

**+**drawNote**(**double centerX, double centerY**)**

**+**playNote**(**intStartTick**)** int

**+**generateNote**(**Chord chord, Scale scale, Note previousNote, int length**)** Note$

**+**generateNote**(**Chord chord, Scale scale, int upperBound, int lowerBound, int length**)** Note$

**+**generateNote**(**Chord chord, Scale scale, Note previousNote, NoteLength noteType, boolean isDotted**)** Note$

**+**generateNote**(**Chord chord, Scale scale, int upperBound, int lowerBound, NoteLength noteType, boolean isDotted**)** Note$

**}**

**class** Chord **{**

**-**Notes rootNote

**-**ChordType type

**-**ArrayList<Notes> notesInChord

**-**generateNotes**()**

**}**

**class** Measure **{**

**-**TimeSignature timeSignature

**-**Scale scale

**-**ArrayList<Note> notes

**-**fillMeasure**()**

**+**getFirstNote**()** Note

**+**getLastNote**()** Note

**+**getChord**()** Chord

**-**generateChord**(**Chord previousChord**)** Chord

**}**

**class** TimeSignature **{**

**-**int topNumber

**-**int bottomNumber

**+**getTopNumber**()** int

**+**getBottomNumber**()** int

**}**

**class** Scale **{**

**-**ScaleType scaleType

**-**Notes rootNote

**-**Map<Notes> notesList

**-**generateNotesList**()**

**+**getNotesList**()** Map<Notes>

**+**getRootNote**()** Notes

**+**getScaleType**()** ScaleType

**}**

**class** ChordType **{**

**<<**Enumeration**>>**

        MAJOR

        MINOR

        MAJOR\_M7

        MAJOR\_7

        MINOR\_M7

        MINOR\_7

        DIMINISHED

**}**

**class** ScaleType **{**

**<<**Enumeration**>>**

        MAJOR

        NATURAL\_MINOR

        MELODIC\_MINOR

        HARMONIC\_MINOR

**}**

**class** Notes **{**

**<<**Enumeration**>>**

        A

        Bb

        B

        C

        Db

        D

        Eb

        E

        F

        Gb

        G

        Ab

**}**

**class** NoteLength **{**

**<<**Enumeration**>>**

       WHOLE

       HALF

       QUARTER

       EIGHTH

       SIXTEENTH

**}**

**class** AppLauncher **{**

**-**displayPiano**()**

**-**displaySongGenerator**()**

**+**start**(**Stage primaryStage**)**

**+**main**(**String[] args**)$**

**}**