1 Overview

The Carnatic Notes Generator program from Yadot Music Technologies automatically generates comprehensive notes for music practice.

It is not meant to replace existing books and reference materials for learning, but meant to augment learning through “focused” compartmentalization of the different components of music learning, and integrating them as needed when necessary.

Currently, it is targeted for violin. However, most of the generated notes are instrument agnostic and can be used for general music practice (vocal or on any other instrument)

Primarily, generated notes can be categorized into:

1) **Simple Notes**
    a. “Flat” Swaras
    b. “Slide” Swaras
    c. “Basic Gamakha” Swaras
2) **Advanced Notes**
    a. “Advanced Gamakha" Swaras
    b. “Raga Specific” Sequences
3) **Tailored Notes**
    a. “Tala Specific” Practice Notes
    b. “Bowing Specific” Practice Notes
    c. “Advanced Practice Notes" – combination of bowing, speed, tala, gamakhas

Details are provided in later sections below

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2 Explanations

2.1 “Flat” Swaras

Notes that are generally beginner level and are aimed at enhancing swara positions on strings (or pitch clarity while singing).

Examples are standard Arohanam/ Avarohanam sequences, SR/RG/GM kind of sequences

2.2 “Slide” Swaras

In these note sequences, the emphasis is on finger slide (generally index finger for violin). These are precursors to gamakhas.

Example: SR/RG/GM using index finger slide

2.3 “Basic Gamakha” Swaras

Practice notes for playing basic gamakhas, such as Kampitham, Spuritham etc

2.4 “Advanced Gamakha” Swaras

Practice notes for advanced gamakha sequences, including:

- Complex slide sequences
- Sustain
- Skipped notes
- Taps

2.5 “Raga Specific” Sequences

Common raga sequences that enhance practice and prepare intermediate players for the next level

2.6 “Tala Specific” Notes

Detailed practice notes that maintain the notion of tala through easy-to-use symbols

2.7 “Bowing Practice” Notes

Introduces the concept of bow direction, and varying number of Swaras for each bow to prepare intermediate learners for next level of learning.

2.8 “Advanced Practice” Notes

Combines multiple dimensions, such as gamakhas, bowing, speeds, and swara sequences to prepare intermediate learners to move to advanced learners.

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3 Legends

To maintain consistency across generated documents, and have a standard reference, the following legends are used.

Note: As much as possible, legends are retained from commonly used conventions in Carnatic music. In some cases, where these legends are different, these are explicitly explained.

3.1 Swara Sequence Types

3.1.1 Flat

Sequence	Sequence Description
“1”	Standard Arohanam/ Avarohanam
“11”	SS/RR/GG/..
“111”	SSS/RRR/GGG/..
“12”	SR/RG/GM/..
“123”	SRG/RGM/GMP/..
“1234”	SRGM/RGMP/GMPD/..
…	

Table 1: Flat Swaras Description

3.1.2 Slide

Sequence	Sequence Description
“Slide 12”	Slide SR/RG/GM/..
“Slide 123”	Slide SRG/RGM/GMP/..
…	

Table 2: Slide Swaras Description

3.1.3 Gamakhas

Note: Some Gamakha Swaras may have overlap with “Slide” Swaras. That is intentional, as Gamakha sequences need a foundation of “Slide” Swaras.

Sequence	Sequence Description
Kampitham	Kampitham gamakha, which is an oscillation around the note
Spuritham	Spuritham gamakha, such as when playing double notes
Glide 1 above/ below	
Glide 2 above/ below	
Glide 2 above & 1 below	
…	

Table 3: Gamakha Swaras Description

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3.2 Octave and Notes Convention

3.2.1 Octave Description

There are 7 notes in an octave {Sa Ri Ga Ma Pa Dha Ni}. To simplify, we use the equivalent {S R G M P D N} respectively to represent the notes. Although there are 7 notes in the octave, there are potentially 12 positions (i.e. frequencies) that can be used to represent these notes, as indicated in Table 4: Octave Notes and Positions below

S. No	Note Name	Alternate Note Name
1	S	-
2	R1	-
3	R2	G1
4	R3	G2
5	G3	-
6	M1	-
7	M2	-
8	P	-
9	D1	-
10	D2	N1
11	D3	N2
12	N3	-

Table 4: Octave Notes and Positions

3.2.2 Octave Definition

Notes Generated can pertain to different octaves. We use the commonly used 3 octaves, as described in Table 5: Three Octaves Definition.

Note: The choice of Low, Middle, High, and corresponding convention of subscript l,m,h differs from the commonly and widely used convention of "stroke line below" for lower octave, and "stroke line above" for higher octave. This is deliberate, to allow machine readability of these generated notes for future development work.

Octave	Convention (refer subscript)	Note Names
Low	L	S_L, $R1_L$, $R2_L$, $R3_L$, $G2_L$, $G3_L$, $M1_L$, $M2_L$, P_L, $D1_L$, $D2_L$, $D3_L$, $N1_L$, $N2_L$, $N3_L$
Middle	M	S_M, $R1_M$, $R2_M$, $R3_M$, $G2_M$, $G3_M$, $M1_M$, $M2_M$, P_M, $D1_M$, $D2_M$, $D3_M$, $N1_M$, $N2_M$, $N3_M$
High	H	S_H, $R1_H$, $R2_H$, $R3_H$, $G2_H$, $G3_H$, $M1_H$, $M2_H$, P_H, $D1_H$, $D2_H$, $D3_H$, $N1_H$, $N2_H$, $N3_H$

Table 5: Three Octaves Definition

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3.3 Strings Naming Convention

We use a string naming/ numbering convention as seen from the “eyes” of the player, for a standard 4-string violin.

We use the terms Left (String 1), CenterLeft (String 2), CenterRight (String 3), Right (String 4) to indicate the 4 strings.

3.4 Tala

We use the standard tala convention as described in Table 6: Standard Tala Beats Notation and Table 7: Tala Beats and their Description.

Chapu talas are also represented using the standard notations

Symbol	Representation
I	Laghu
O	Dhrutham
U	Anudhrutham

Table 6: Standard Tala Beats Notation

Notations	
I1	Palm down slap
I2	small finger - 1st
I3	ring finger
I4	middle finger
I5	index finger
I6	thumb
I7	small finger - 2nd
U	Palm down slap
O1	Palm down slap
O2	Palm up slap

Table 7: Tala Beats and their Description

3.5 Bowing

We use the following conventions (as seen from player’s perspective):

- “L2R” to indicate bow moving from left to right.
- “R2L” indicates bow moving from right to left.

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