

The 7 Basic Swaras

Swara Symbol	Full Name	Similar to Western Note
Sa	Shadjam	Do (C)
Ri	Rishabham	Re (D)
Ga	Gandharam	Mi (E)
Ma	Madhyamam	Fa (F)
Pa	Panchamam	Sol (G)
Da	Daivatham	La (A)
Ni	Nishadam	Ti (B)

This set is basically the C major scale, C D E F G A B. In Carnatic terms that exact scale is the raga Shankarabharanam, the closest match to the Western major scale. Sa and Pa never move because they are the structural points that build the foundation of any given raga. The other five, Ri Ga Ma Da Ni, are variable and can sit at more than one pitch.

Hence table 2:

The 12 Notes

Note	Full Name	Note On Piano (C Scale)
Sa	Shadjam	C
Ri ₁	Shudda Rishabham	C#
Ri ₂	Chathushri Rishabham	D
Ri ₃	Shadshruthi Rishbham	D#

Ga₁	Shudda Gandharam	D
Ga₂	Sadharana Gandharam	D#
Ga₃	Antara Gandharam	E
Ma₁	Shudda Madhyamam	F
Ma₂	Prati Madhyamam	F#
Pa	Panchamam	G
Da₁	Shudda Daivatham	G#
Da₂	Chathushri Daivatham	A
Da₃	Shadshruthi Daivatham	A#
Ni₁	Shudda Nishadham	A
Ni₂	Kaishiki Nishadham	A#
Ni₃	Kakali Nishadham	B

Carnatic music splits the octave into the same 12 semitones as Western music. However, although there are 12 pitches, there are 16 names. Four of the twelve pitches carry two names each ($12 + 4 = 16$). The highlighted pitches are the ones that have special rules.

Each variable swara covers a range of positions, and neighboring ranges overlap:

- Ri can be C#, D, or D#
- Ga can be D, D#, or E
- Da can be G#, A, or A#
- Ni can be A, A#, or B
- Ma has only two positions (F, F#) and doesn't overlap a neighbor, so it never gets a second name.

Essentially, Ri's top end collides with Ga's bottom end, and Da's collides with Ni's. Wherever they collide, one piano key gets two possible names.

But why does this happen?

Every full Carnatic scale contains exactly seven notes, one from each family (Sa Ri Ga Ma Pa Da Ni), in strict ascending order. You get one Ri, one Ga, and so on, and Ri must be lower than Ga, which must be lower than Ma.

So a note's name comes from which slot it fills in that specific raga, not just its pitch.

Take D#:

- In a raga built Sa, D#, E, F, G, the D# is the second note, so it fills the Ri slot. It's called Shatshruti Rishabham.
- In a raga built Sa, C#, D#, F, G, the C# already took the second slot, so D# has to be the third note. Now it fills the Ga slot and is called Sadharana Gandharam.

Same key. Different name, because it's doing a different job in the scale.

This has the same logic as Western music does. The black key between D and E is D# when it acts as a raised second degree and E b when it acts as a lowered third. Same key, different name based on function. Carnatic music does the same thing, organized around seven svara families instead of seven letters plus sharps and flats.